CASE 7320: HARVEY E. YATES COMPANY FOR A WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO

Case No.

7320

Application

Transcripts.

Small Exhibits

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7044
Order No. R-6502

APPLICATION OF HARVEY E. YATES COMPANY
FOR APPROVAL OF THE TRAVIS PENN UNIT
AGREEMENT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 15, 1980, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 6th day of November, 1980, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Harvey E. Yates Company, seeks approval of the Travis Penn Unit Agreement covering 400 acres, more or less, of State and Federal lands described as follows:

EDDY COUNTY, NEW MEXICO
TOWNSHIP 18 SOUTH, RANGE 28 EAST, NMPM
Section 12: S/2 SE/4
Section 13: NE/4, S/2 NW/4, and N/2 SW/4

(3) That all plans of development and operation and creations, expansions, or contractions of participating areas or expansions or contractions of the unit area, should be submitted to the Director of the Division for approval.

(4) That approval of the proposed unit agreement should promote the prevention of waste and the protection of correlative rights within the unit area.

IT IS THEREFORE ORDERED:

(1) That the Travis Penn Unit Agreement is hereby approved.

(2) That the plan contained in said unit agreement for the development and operation of the unit area is hereby approved in principle as a proper conservation measure: provided, however, that notwithstanding any of the provisions contained in said unit agreement, this approval shall not be considered as waiving or relinquishing, in any manner, any right, duty, or obligation which is now, or may hereafter be, vested in the Division to supervise and control operations for the exploration and development of any lands committed to the unit and production of oil or gas therefrom.

(3) That the unit operator shall file with the Division an executed original or executed counterpart of the unit agreement within 30 days after the effective date thereof; that in the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Division within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

(4) That all plans of development and operation, all unit participating areas and expansions and contractions thereof, and all expansions or contractions of the unit area, shall be submitted to the Director of the Oil Conservation Division for approval.

(5) That this order shall become effective upon the approval of said unit agreement by the Commissioner of Public Lands for the State of New Mexico and the Director of the United States Geological Survey; that this order shall terminate ipso facto upon the termination of said unit agreement; and that the last unit operator shall notify the Division immediately in writing of such termination.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L
fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [X] no

II. Operator: Harvey E. Yates Company

Address: Post Office Box 1933 Roswell, New Mexico 88201

Contact party: Thomas J. Hall, III Phone: (505) 623-6601

III. Well Data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? [ ] yes [X] no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

• VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed: closed
3. Proposed average and maximum injection pressure: 1000-1200
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

•VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any. sand fracs & acid treatments.

• X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

• XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Thomas J. Hall, III Title Attorney

Signature: Thomas J. Hall Date: July 30, 1981

• If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth. 2⅜ plastic lined N grade tubing @ 9750' approx.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used. NA well probably use baker type packer.

Division District offices have supplies of well data sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematic need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

BEFORE THE OIL CONSERVATION DIVISION

ENERGY AND MINERALS DEPARTMENT

OF THE STATE OF NEW MEXICO

RECEIVED
JUL 31 1981
OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION :
OF HARVEY E. YATES COMPANY : Case No. 7320
FOR WATERFLOOD INJECTION, :
EDDY COUNTY, NEW MEXICO :

APPLICATION

COMES NOW HARVEY E. YATES COMPANY by its attorney and respecfully states:

1. On November 6, 1980, by Division Order No. R-6502, the Division approved the Travis Penn Unit Agreement covering 400 acres, more or less, of State and Federal lands described as follows:

Township 18 South, Range 28 East, N.M.P.M.

Section 12: S/2 SE/4
Section 13: NE/4, S/2 NW/4, and N/2 SW/4
Eddy County, New Mexico

2. In the same Order, R-6502, the Division approved the plan contained in the Travis Penn Unit Agreement for the development and operation of the unit area which stated:

> "SECTION 11 PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this Agreement is reasonably proved to be productive of Unitized Substances and that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a Plan of

> Operation by the Working Interest Owners, the Supervisor, the Land Commissioner and the Division, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquified petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions warrant."

3. A Plan of Operation for enhanced recovery through a program of waterflood injection has been developed by Ralph H. Viney and Associates, Inc., Engineering Consultants, Midland, Texas.

4. That the Plan of Operation should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

5. That a Division Form C-108 completed with all attachments is appended hereto and is made a part of this Application.

6. That Applicant has furnished, by certified or registered mail, a copy of this Application to the owner of the surface of the land on which the injection well is to be located and to each leasehold operator within one-half mile of the well location.

WHEREFORE, Applicant respectfully requests:

A. That this Application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon such hearing, the Division enter its order granting Applicant permission to conduct a waterflood injection project as set forth in the Plan of Operation.

C. For such further relief as the Division deems just and proper.

DATED this 31 day of July, 1981.

HARVEY E. YATES COMPANY

By: Thomas J. Hall

Thomas J. Hall, III
Attorney for Applicant
Post Office Box 1933
Roswell, New Mexico 88201

VI

WELLS WITHIN AREA OF REVIEW

III. WELL DATA

B. (1) The name of the injection formation is the Pennsylvanian Canyon. The pool name is the Travis Upper Penn Pool.

(2) The injection interval will be discussed by Ralph Viney. The perforated interval in the well was 9830 to 9920 feet.

(3) The original purpose of the well was not for injection, but was drilled as a development well in the Canyon and Morrow pay zones.

(4) The injection well was originally completed as a gas well in the Morrow formation from the perforated interval 10,973 to 10,994 feet. Other information will be discussed by HEYCO engineers.

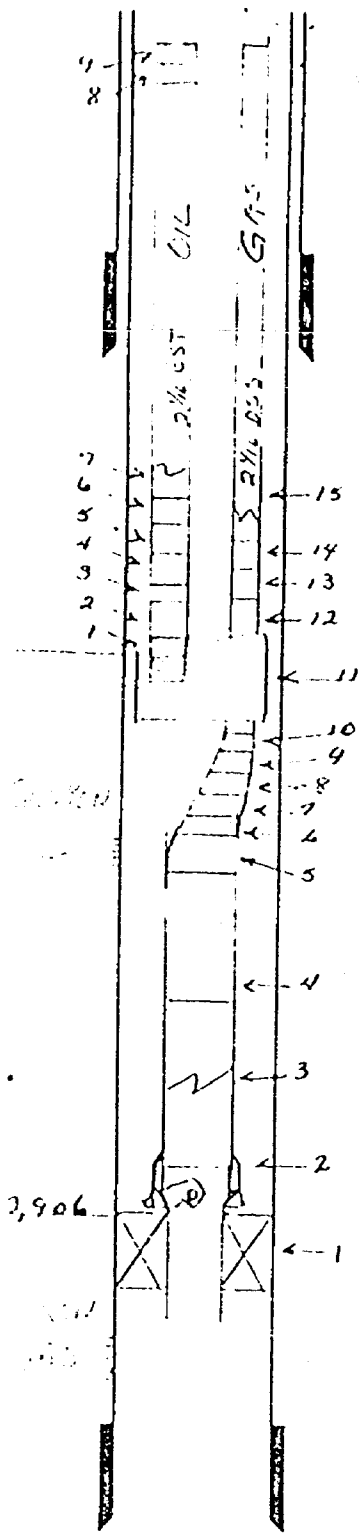
(5) There are no other oil or gas zones producing above the Canyon Pay zone in the Travis Penn Unit at present. The Cisco completion listed under the Travis Deep Unit #2 is actually from the same Canyon Pay zone. The next lower producing zone in the Travis Penn area is the Morrow formation. The Morrow sands are gas productive in this area. The depth to the top of the productive Morrow sands in the injection well is 10,973.

V

LAND PLAT

SERVING THE WORLD

DATE 1/29/79 WELL NO. 3 LEASE Travis Deep Unit FIELD



Long String

Zero 15.00

15	2½ OSS Tubing	313		9699.69
14	1.900 EU 10rd Pin X 2½ OSS By Swedge			.67
13	1.900 EU 10rd X 1.900 EU 10rd Coupling			.47
12	1.900 EU 10rd Mandrel		9717.83	2.00
11	"45-B (1.900 X 20') "K" OB. Pkr.			6.00
10	2½ CST X 1.900 EU 10rd Coupling			.66
9	2½ CST Tubing	1		31.90
8	2½ CST Pin X 1.900 EU 10rd Nipple			.66
7	1.900 EU 10rd Coupling			.32
6	2⅜ EU 8rd Pin X 1.900 EU 10rd Swedge			.38
5	2⅜ EU 8rd Tubing	1		32.57
4	2⅜ X 3.062 Blast Joints	8	979032	162.49
3	2⅜ EU 8rd Tubing	30	995281	953.45
2	2⅜ X 4½ "FL" On-Off	353		1.65
1	"44-2C Model D Pkr.		10906.91	

single inj into

Short String

Zero 15.00

9	2½ CST Pup Joint		3.70
8	2½ CST Pup Joint		3.70
7	2½ CST Tubing	299	9691.38
6	1.900 EU 10rd Pin X 2½ CST Swedge		.82
5	1.900 EU 10rd Collar		.33
4	1.900 NU 10rd Pin X 1.900 EU 10rd Pin		.28
3	1.900 NU 10rd Collar		.30
2	1.900 NU 10rd Nipple		5.75
1	2.06 "S" Snap Latch ⇒ ID		1.95
			9722.60

BAKER: Model Goodgame

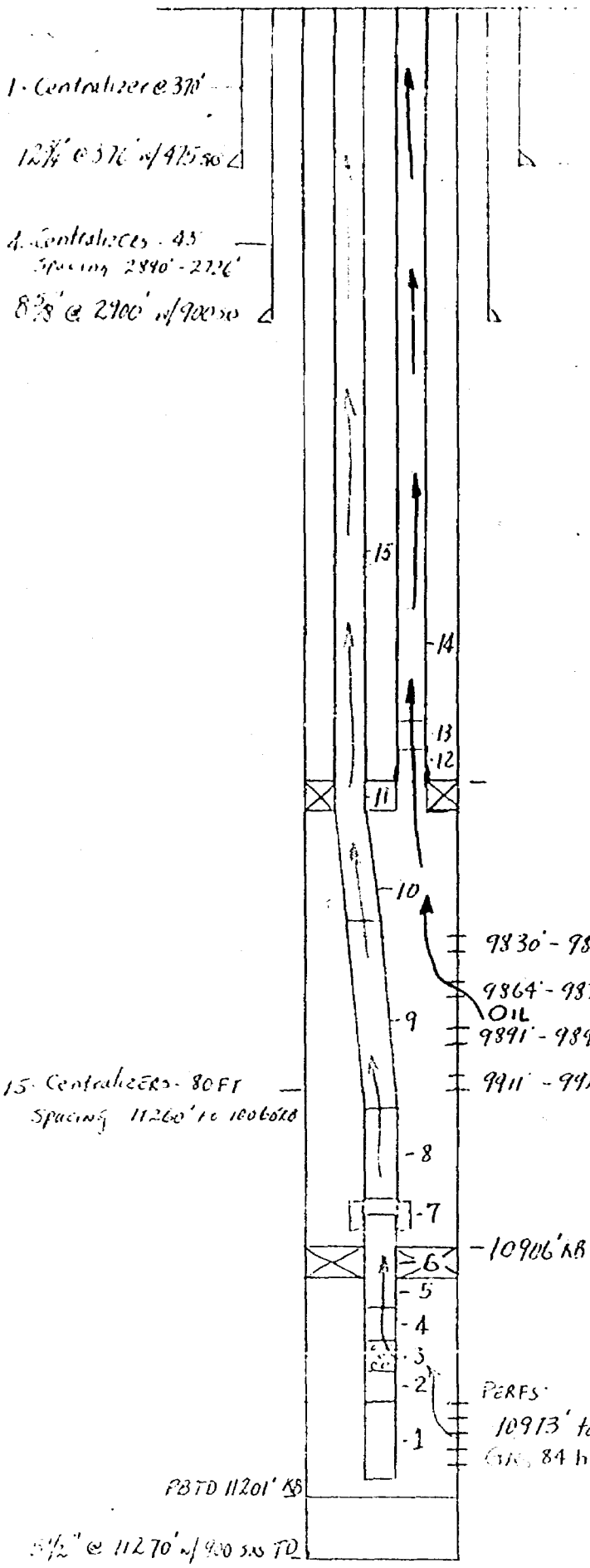
HEYCO: Peck Harder

BRIDGE PLUG PACKER CENTRALIZER SCRATCHER BASKET PERFORATION

orm 20-27

(Use reverse side for additional remarks & sketches.)

HARVEY E. YATES COMPANY
Travis Deep No. 3-B-18-28
Eddy County, New Mexico
MULTIPLE COMPLETION INSTALLATION



Cement Circ. to surface

1½ over est. 1200'

15. 2-⅛" OD, 3.40 lb/ft, DSS thd. N-80 tbg.

14. 2-⅛" OD, 3.40 lb/ft, GST thd, N-80 tbg.

13. 2⅛" IN X 1.50" Seating nipple

12. BAKER MODEL "S" SNAP LATCH SEAL ASSY (1" ID)

11. BAKER 45B MODEL K-2 DG Packer

10. 2⅛" IS tubing

injection zone
chromate solution to fill annulus with pressure valve

9 2⅜" x 2-⅞" OD BLAST JOINTS

8. 2⅜" OD N 80 tubing

7. ON-OFF Tool w/1.81 "F" profile @ 10904' KB

6. BAKER 44-26 MODEL "DB" RRP PACKER @ 10906' KB

5. TUBING SEAL ASSEMBLY

4. 2⅜" X 1.50" BFC "F" nipple @ 10921' KB

3. Perforated sub 10928' - 10934' KB

2. VANNTAGE tubing release sub w/1.50" profile

1. VANN Tool perforating gun 10,971' - 10995' KB

DRAWN BY: PECK HARDEE, P.E.

III

WELL DATA

VI

WELLS WITHIN THE AREA OF REVIEW

WELL NAME	TYPE	CONSTRUCTION	DATE	DEPTH	RECORD OF COMPLETION
Travis 13 State #2 660' FNL & 1980' FWL Sec. 13, T-18S, R-28E	Oil	See Application to Drill Attached	5/02/81	10,000	Has not been completed
Travis 13 State #1 1980' FNL & 1980' FWL Sec. 13, T-18S, R-28E	Gas	See Completion Report Attached	7/14/80	11,100	9/19/80, Canyon
Travis Deep Unit #2 1980' FNL & 1780' FEL Sec. 13, T-18S, R-28E	Oil	See Completion Report Attached	5/06/77	11,270	8/24/77
North Travis 12 Deep #1 660' FNL & 1650' FEL Sec. 12, T-18S, R-28E	Gas	See Completion Report Attached	5/01/80	11,215	7/24/80, Morrow
Travis 24 State Com #1 1980' FNL & 660' FEL Sec. 24, T-18S, R-28E	Gas	See Completion Report Attached	8/31/80	10,890	1/16/81, Morrow

NEW MEXICO OIL CONSERVATION COMMISSION

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

Type Test: X

B-11594-3

Travis 13 State

1

So. Empire Morrow

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

F 1980 North 1980

West 13 18S 28E

Eddy

Spudded	Date T.D. Reached	Date Compl. (Ready to Prod.)	Elevations (DF, RKB, RT, GR, etc.)	Elev. Casinghead
7/14/80	8/24/80	9/19/80	3604.5' GL	3604.5'

Total Depth	P.B.T.D.	Rotary Tools	Cable Tools
11,100'	11,100'	0-11,100'	

Producing Interval(s), This Completion - Top, Bottom, Name

11,002' to 11,010' Morrow

Was Directional Survey Made

NO

Type Electric and Other Logs Run

Dresser Atlas CD/CN, DLL & MLL. P-VTCo GR-CBL

Was Well Cored

YES

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sx	0
8 5/8"	28# & 24#	3100'	11"	1930 sx	0
5 1/2"	17# - 15.5#	11100'	7 7/8"	925 sxs	0

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE			

TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 7/8"	10,968'	10,968'

Perforation Record (Interval, size and number)

11,002' - 11,010' 1/2" dia. - 32 holes

ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
11,002'-11,010'	1000 gals - 7 1/2% MSR-100
	3000 gals - 7 1/2% MSR

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
9/11/80	Flowing	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas-Oil Ratio
9/19/80	4.0	3/4"		trace	37.5	0	---

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - (Corr.)
50	0		trace	900	0	---

Disposition of Gas (Sold, used for fuel, vented, etc.)

Vented

Test Witnessed By

Carol Wilcox

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

Name Rick Hardee Title Engineer Date Sept. 24, 1980

DISTRIBUTION

SANTA FE

FILE

U.S.G.S.

LAND OFFICE

OPERATOR

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

DRILL XX DEEPEN PLUG BACK

X

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico

C 660 North

1980 West 13 18S 28E

Eddy

10,000' Canyon Rotary

3616.8' GR $50,000 blanket Noranco 2/20/81

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
17 1/2"	13 3/8"	48#	375'	Circulate	
11"	8 5/8"	24#-28#	3000'	Circulate	
7 7/8"	4 1/2"	10.5#-11.6#	10000'	Sufficient to cover 600' above pay zone	

E-1287

X

Travis 13 State

2

Travis Upper Penn

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

Name Vice President Date 1/22/81

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

Form 9-331

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE (See other instructions on reverse side)

Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-23417

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

7. UNIT AGREEMENT NAME: Travis Deep Unit

2. NAME OF OPERATOR: Harvey E. Yates Company, Inc.

8. FARM OR LEASE NAME:

3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201

9. WELL NO.: 2

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1980' FNL & 1780' FEL
At top prod. interval reported below: Same
At total depth: Same

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Eddy | 13. STATE: N. M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5-6-77	6-23-77	8-24-77	3618' GL	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,270'KB	11,223'KB	Single	→	0' - 11,270'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*: Cisco 9824' - 9903'KB

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL & DLL

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	34#	360'	17 1/2"	425 Sx Class C 2% CaCl	
8 5/8"	24# & 28#	3500'		300 Sx Class C 2% CaCl	
5 1/2"	17#	11268'	7 7/8"	950 Sx Class H	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	9775' KB	9772' KB

31. PERFORATION RECORD (Interval, size and number)
**Please see attachment

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
**Please see attachment	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
8-24-77	Flowing	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
9-8-77	24 Hrs	18/64		433.35	630.85	-0-	1456

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
965	Packer		433.35	630.85	-0-	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

TEST WITNESSED BY: Tetteller, Inc.

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Vice President DATE July 26, 1977

*(See Instructions and Spaces for Additional Data on Reverse Side)

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: LC-028772-B
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT AGREEMENT NAME:
8. FARM OR LEASE NAME: North Travis 12 Deep
9. WELL NO.: 1
10. FIELD AND POOL, OR WILDCAT: Undesignated
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 12, T-18S, R-28E

1a. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] DRY [ ] OTHER
b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] OTHER
2. NAME OF OPERATOR: Harvey E. Yates Company
3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface
At top prod. interval reported below: 660' FSL & 1650' FEL
At total depth

14. PERMIT NO. | DATE ISSUED
12. COUNTY OR PARISH: Eddy | 13. STATE: N.M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5/01/80	7/08/80	7/24/80	3633.7 GR	3633.7'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,215'	11,171'		→	0-11,215'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 10,916' - 10,956' Morrow

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dresser Atlas - DLL-ML CDC-CN-GR-BHC-AL-Cal Cement Bond

27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	355	17 1/2"	370 sx C1"C" - 2% CaCl	NONE
8 5/8"	24# & 32#	2900	11"	1200 sxs	NONE
5 1/2"	17#	11215	7 7/8"	1000 sxs	NONE

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
		NONE		

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	10,850'	10,850'

31. PERFORATION RECORD (Interval, size and number)
10916' to 10924' 8' - 16' - 1/2" dia hole
10949' to 10956' 7' - 14' - 1/2" dia hole

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
10916'-10924'	800 gal - 7 1/2% MSR-100
10949'-10956'	250 gal - 10% Acetic & 700 gal-7 1/2% MSR-100
10916'-10956'	4000 gal - 10% MSR-100

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
7/18/80	Flowing	Shut In

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
7/26/80	6	3/4"		0	409	0	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
100	0		0	1637	0	---

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented
TEST WITNESSED BY: James Davis
35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED Jack Ward TITLE Engineer DATE July 28, 1980

*(See Instructions and Spaces for Additional Data on Reverse Side)

NEW MEXICO OIL CONSERVATION COMMISSION

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

B-11594-3

Travis 13 State Com

Travis Upper Penn.

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

F 1980 North 1980

West 13 18S 28E

Eddy

xxxx Rec

Spudded	Date T.D. Reached	Date Compl. (Ready to Prod.)	Elevations (DF, RKB, RT, GR, etc.)	Elev. Casinghead
Started 7/14/80	12/26/80		3604.5' GL	3604.5'

Total Depth	P.B.T.D.	Rotary Tools	Cable Tools
11,100'	10,725'	---	0-11,100'

Producing Interval(s), This Completion - Top, Bottom, Name

9824' to 9870' Upper Penn.

Was Directional Survey Made: NO

Type Electric and Other Logs Run: Dresser Atlas CD/CN, DLL & MLL, PVTCo GR-CBL

Was Well Cored: YES

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sxs	-0-
8 5/8"	28#-24#	3100'	11"	1930 sxs	-0-
5 1/2"	17#-15.5#	11,100'	7 7/8"	925 sxs	-0-

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE			

TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 3/8"	9761'	9761'

Perforation Record (Interval, size and number)

9824' to 9870' 80 1/2" dia holes

ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
9824'-9870'	250 gal - 10% acetic 2500 gal - 20% MSR-100

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
12/26/80	FLOWING	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas-Oil Ratio
12/26/80	8	32/64"		146	219	0	2278
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API (Corr.)	
250	0		438	998	0	47°	

Disposition of Gas (Sold, used for fuel, vented, etc.)

VENTED

Test Witnessed By

M. Young

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signed Jack Hardie Title Engineer Date 1/5/81

VII

DATA ON PROPOSED OPERATION

See Report By:

Ralph H. Viney & Associates, Inc.
Engineering Consultants
Midland, Texas

on

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

VIII

GEOLOGICAL DATA

VIII. Exhibit A is an illustration of our proposed Travis Penn Unit. The illustration shows the initial six wells and five tracts that will be involved in the proposed secondary recovery project.

The reservoir that will be flooded in the proposed waterflood project is composed of Pennsylvanian (Canyon) age rock. This rock was deposited at a shelf edge in shallow water, where a carbonate buildup occurred, resulting in a limestone bank. The stratigraphic cross-section shows that the limestone bank is 100 to 140 feet thick and trends northeast-southwest through the Travis Penn Unit. Enclosed is a structure map contoured on the top of the Canyon pay zone (the proposed waterflood reservoir). The map shows the proposed injection well and other wells within a 1/2 mile radius of the proposed injection well.

Primary effective porosity in this type of depositional environment usually is the result of leaching and dissolution effects caused by periodic subaerial exposure and exposure to fresh water. Effective porosity is enhanced selectively during diagenesis along these horizontally stratified porous zones due to migrating solutions causing additional leaching and dissolution.

The depth to the top of the injection zone (limestone bank) ranges between 9693 and 9827 in the Travis Penn Unit. Average porosity calculated from log analysis, ranges between 4 and 6%. Log analysis indicates net pay in the reservoir averages between 25 and 50 feet and occurs in three zones within the gross hydrocarbon bearing section.

IX

PROPOSED STIMULATION PROGRAM

See Report By:

Ralph H. Viney & Associates, Inc.
Engineering Consultants
Midland, Texas

on

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

X

LOGGING AND TEST DATA ON WELL

See VIII
Stratigraphic Cross Section

XI

FRESH WATER WELLS

Edward Kinney, a consultant Geologist in Artesia, has completed publications on freshwater aquifers in southeast New Mexico. He stated in a telephone conversation that in T-18-S, R-28-E, the freshwater aquifers are very spotty and there are no good freshwaster aquifers in this area. He said the Ogallala formation, which is a good aquifer, begins on the Caprock and extends to the east. He went on to say that the San Andres is not a freshwater aquifer in this area (it contains saltwater) and if we set intermediate casing at the top of the San Andres, at approximately 4600 feet, we will have all aquifers sealed off from contamination.

Jim Wright is employed by the State Engineer's Office in Roswell and is familiar with freshwater aquifers in the subject ara. He also stated that freshwaster aquifers are spotty in T-18-S, R-28-E. Jim indicated in a telephone conversation that the closest freshwater to this area he knew of was found in the Grayburg, which will be behind cemented casing above the San Andres in the subject area, near Twelve Mill Hill and Illinois Camp.

Dockets Nos. 26-81 and 27-81 are tentatively set for August 26 and September 9, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 12, 1981

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for September, 1981, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for September, 1981, for four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 7319: Application of Consolidated Oil & Gas, Inc. for six 160-acre Mesaverde proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of six non-standard gas proration units in the Blanco Mesaverde Pool, said units to comprise the NW/4 and SW/4 of Section 18, and the SW/4 and SE/4 of Section 7, both in Township 31 North, Range 12 West, and the NE/4 and SE/4 of Section 3, Township 31 North, Range 13 West, each unit to be dedicated to an existent well already drilled thereon.

CASE 7320: Application of Harvey E. Yates Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Cisco-Canyon formation thru one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, Travis-Upper Pennsylvanian Pool.

CASE 7129: (Readvertised)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7169: (Readvertised)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the S/2 of Section 22, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7321: Application of Enserch Exploration, Inc. for special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Peterson-Mississippian Pool including provisions for 80-acre spacing units and special well location requirements.

CASE 7322: Application of Coleman Oil & Gas, Inc. for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Gallegos-Gallup, Greenhorn, and Dakota production in the wellbore of its Navajo-Smith Well No. 1 located in Unit G of Section 24, Township 26 North, Range 12 West. Applicant further seeks approval of a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24.

CASE 7323: Application of Clements Energy Inc. for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P O BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623 6601
ROSWELL, NEW MEXICO 88201

RECEIVED
JUL 27 1981
OIL CONSERVATION DIVISION
SANTA FE

July 23, 1981

Case 7520

New Mexico Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

RE: Travis Penn Unit
T-18S, R-28E, N.M.P.M.
Eddy County, New Mexico

Gentlemen:

This letter will confirm a verbal request to Mr. Dick Stamets that Harvey E. Yates Company be placed on the August 12, 1981 docket concerning:

> Application of Harvey E. Yates Company for authority to institute a water-flood project in the Travis Upper Penn Pool by the injection of water into the Cisco-Canyon formation through one well in NW/4 NE/4, Section 13, Township 18 South, Range 28 East, N.M.P.M., Eddy County, New Mexico.

Our formal application, pending receipt of and completion of Form C-108, will follow immediately.

Sincerely,

Thomas J. Hall III
Attorney

TJH:dk

BEFORE THE OIL CONSERVATION DIVISION

ENERGY AND MINERALS DEPARTMENT

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF HARVEY E. YATES COMPANY FOR WATERFLOOD INJECTION, EDDY COUNTY, NEW MEXICO	:	Case No. _____

APPLICATION

COMES NOW HARVEY E. YATES COMPANY by its attorney and respecfully states:

1. On November 6, 1980, by Division Order No. R-6502, the Division approved the Travis Penn Unit Agreement covering 400 acres, more or less, of State and Federal lands described as follows:

Township 18 South, Range 28 East, N.M.P.M.

Section 12: S/2 SE/4
Section 13: NE/4, S/2 NW/4, and
N/2 SW/4
Eddy County, New Mexico

2. In the same Order, R-6502, the Division approved the plan contained in the Travis Penn Unit Agreement for the development and operation of the unit area which stated:

> "SECTION 11 PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this Agreement is reasonably proved to be productive of Unitized Substances and that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a Plan of

> Operation by the Working Interest Owners, the Supervisor, the Land Commissioner and the Division, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquified petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions warrant."

3. A Plan of Operation for enhanced recovery through a program of waterflood injection has been developed by Ralph H. Viney and Associates, Inc., Engineering Consultants, Midland, Texas.

4. That the Plan of Operation should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

5. That a Division Form C-108 completed with all attachments is appended hereto and is made a part of this Application.

6. That Applicant has furnished, by certified or registered mail, a copy of this Application to the owner of the surface of the land on which the injection well is to be located and to each leasehold operator within one-half mile of the well location.

WHEREFORE, Applicant respectfully requests:

A. That this Application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon such hearing, the Division enter its order granting Applicant permission to conduct a waterflood injection project as set forth in the Plan of Operation.

C. For such further relief as the Division deems just and proper.

DATED this 31 day of July, 1981.

HARVEY E. YATES COMPANY

By: Thomas J. Hall, III

Thomas J. Hall, III
Attorney for Applicant
Post Office Box 1933
Roswell, New Mexico 88201

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [X] no

II. Operator: Harvey E. Yates Company

Address: Post Office Box 1933 Roswell, New Mexico 88201

Contact party: Thomas J. Hall, III Phone: (505) 623-6601

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? [ ] yes [X] no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Thomas J. Hall, III Title Attorney

Signature: Thomas J. Hall Date: July 30, 1981

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate D...

1

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells:

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

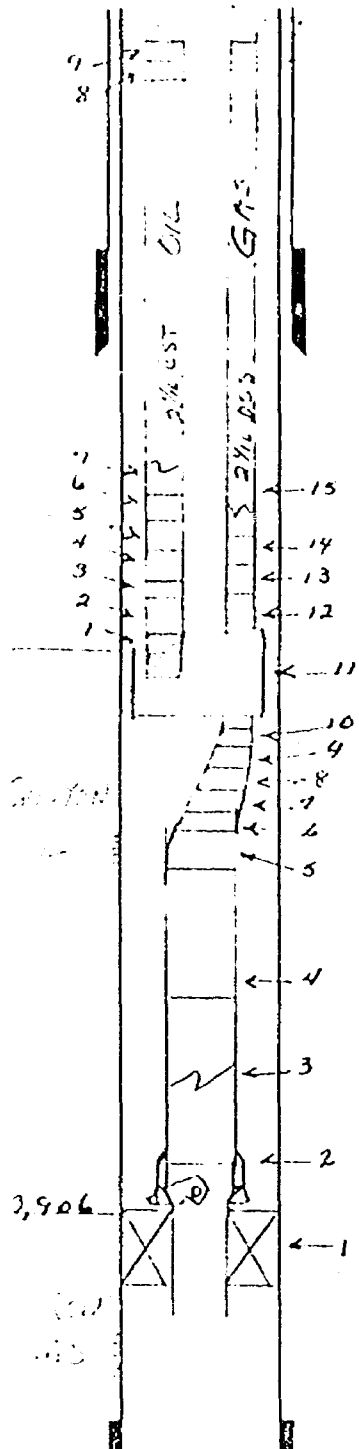
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III

WELL DATA

SERVING THE WORLD

DATE 11-29-79 WELL NO. 3 LEASE Travis Deep Unit FIELD _____



Long String

Zero 15.00

15	2½ OSS Tubing	313		9699.69
14	1.900 EU 10rd Pin x 2½ OSS By Swedge			.67
13	1.900 NU 10rd x 1.900 EU 10rd Coupling			.47
12	1.900 NU 10rd Mandrel		9717.83	2.00
11	"45-B (1.900 x 20') "K" OE. Shr.			6.00
10	2½ CST x 1.900 NU 10rd Coupling			.66
9	2½ CST Tubing	1		31.96
8	2½ CST Pin x 1.900 NU 10rd Nipple			.66
7	1.900 EU 10rd Coupling			.32
6	2⅜ EU 8rd Pin x 1.900 EU 10rd Swedge			.38
5	2⅜ EU 8rd Tubing	1		32.57
4	2⅜ x 3.062 Blast Joints	8	979032	162.49
3	2⅜ EU 8rd Tubing	30	995281	952.45
2	2⅜ x 4½ "FL" On-Off	353		1.65
1	"44-26 Model D Shr.		10906.91	

Short String

Zero 15.00

9	2½ CST Plug Joint			3.70
8	2½ CST Plug Joint			3.70
7	2½ CST Tubing	299		9691.38
6	1.900 EU 10rd pin x 2½ CST Swedge			.82
5	1.900 EU 10rd Collar			.33
4	1.900 NU 10rd pin x 1.900 EU 10rd pin			.28
3	1.900 NU 10rd collar			.30
2	1.900 NU 10rd Nipple			5.75
1	2.06 "3" Snap Latch ID			1.86

9722.60

BAKER: Model Goodgame

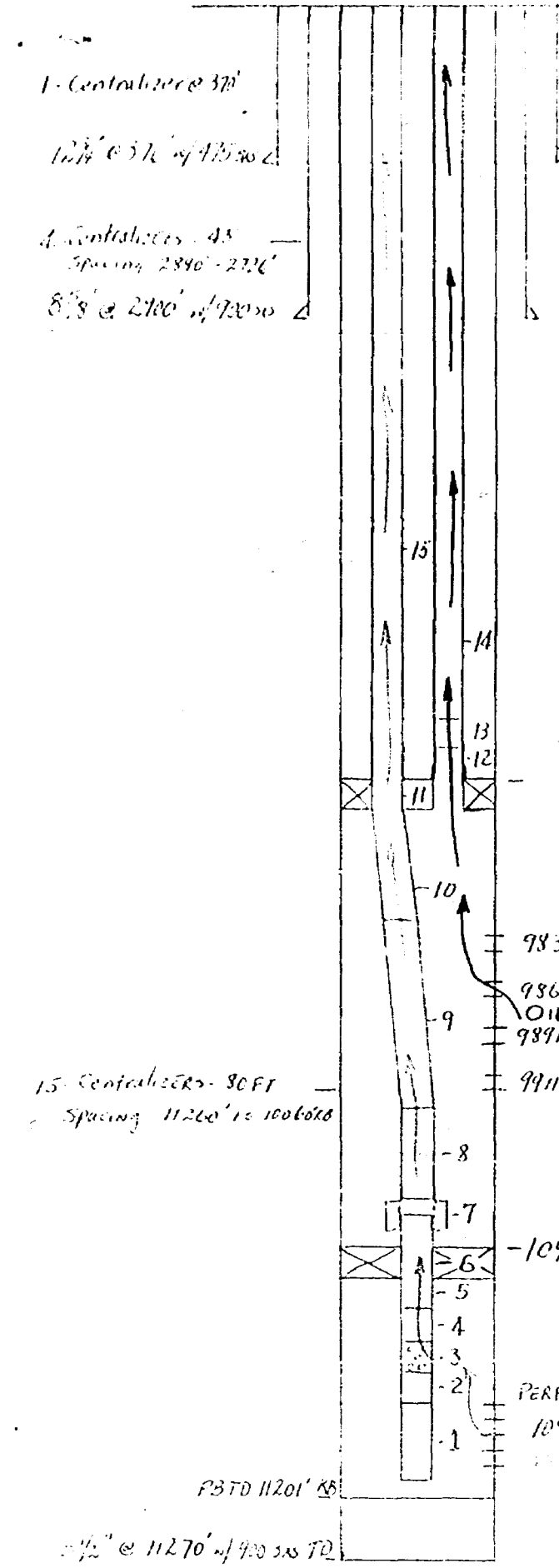
HEYCO: Peck Harder

BRIDGE PLUG PACKER CENTRALIZER SCRATCHER BASKET PERFORATION

orm 20-27 (Use reverse side for additional remarks & sketches.)

1

HARVEY E. YATES COMPANY
Travis Deep No. 3-B-18-28
Eddy County, New Mexico
MULTIPLE COMPLETION INSTALLATION



15. 2-⅞" OD, 3.40 lb/Ft, DSS thd. N-80 tbg.
14. 2-⅞" OD, 3.40 lb/Ft, GST thd, N-80 tbg.
13. 2⅜" ID X 1.50" Seating nipple
12. BAKER MODEL "S" SNAP LATCH SEAL ASSY
11. BAKER 45B MODEL K-2 DG Packer
10 2⅜" IJ tubing
9 2-⅜" x 2-⅞" OD BLAST JOINTS
8. 2⅜" OD N 80 tubing
7. ON-OFF Tool w/ 1.81 "F" profile @ 10904' KB
6. BAKER 44-26 MODEL "DB" RRP PACKER @ 10906' KB
5. TUBING SEAL ASSEMBLY
4. 2⅜" X 1.50" BFC "F" nipple @ 10921' KB
3. Perforated sub 10923' - 10934' KB
2. VANNTAGE tubing release sub w/ 1.50" profile
1. VANN Tool perforating gun 10,971' - 10995' KB

DRAWN BY: PECK HARDEE, P.E.

III. WELL DATA

B. (1) The name of the injection formation is the Pennsylvanian Canyon. The pool name is the Travis Upper Penn Pool.

(2) The injection interval will be discussed by Ralph Viney. The perforated interval in the well was 9830 to 9920 feet.

(3) The original purpose of the well was not for injection, but was drilled as a development well in the Canyon and Morrow pay zones.

(4) The injection well was originally completed as a gas well in the Morrow formation from the perforated interval 10,973 to 10,994 feet. Other information will be discussed by HEYCO engineers.

(5) There are no other oil or gas zones producing above the Canyon Pay zone in the Travis Penn Unit at present. The Cisco completion listed under the Travis Deep Unit #2 is actually from the same Canyon Pay zone. The next lower producing zone in the Travis Penn area is the Morrow formation. The Morrow sands are gas productive in this area. The depth to the top of the productive Morrow sands in the injection well is 10,973.

V

LAND PLAT

VI

WELLS WITHIN AREA OF REVIEW

VI

WELLS WITHIN THE AREA OF REVIEW

WELL NAME	TYPE	CONSTRUCTION	DATE	DEPTH	RECORD OF COMPLETION
Travis 13 State #2 660' FNL & 1980' FEL Sec. 13, T-18S, R-28E	Oil	See Application to Drill Attached	5/02/81	10,000	Has not been completed
Travis 13 State #1 1980' FNL & 1980' FWL Sec. 13, T-18S, R-28E	Gas	See Completion Report Attached	7/14/80	11,100	9/19/80, Canyon
Travis Deep Unit #2 1980' FNL & 1780' FEL Sec. 13, T-18S, R-28E	Oil	See Completion Report Attached	5/06/77	11,270	8/24/77
North Travis 12 Deep #1 660' FNL & 1650' FEL Sec. 12, T-18S, R-28E	Gas	See Completion Report Attached	5/01/80	11,215	7/24/80, Morrow
Travis 24 State Com #1 1980' FNL & 660' FEL Sec. 24, T-18S, R-28E	Gas	See Completion Report Attached	8/31/80	10,890	1/16/81, Morrow

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

Type: XX

B-11594-3

Travis 13 State

1

So. Empire Morrow

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

F 1980 North 1980

West 13 18S 28E

Eddy

Spudded	Date T.D. Reached	Date Compl. (Ready to Prod.)	Elevations (DF, RKB, RT, GR, etc.)	Elev. Casinghead
7/14/80	8/24/80	9/19/80	3604.5' GL	3604.5'

Total Depth	P.B.T.D.	Rotary Tools	Cable Tools
11,100'	11,100'	0-11,100'	

Producing Interval(s), This Completion - Top, Bottom, Name

11,002' to 11,010' Morrow

Was Directional Survey Made: NO

Type Electric and Other Logs Run

Dresser Atlas CD/CN, DLL & MLL. P-VTCo GR-CBL

Was Well Cored: YES

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sx	0
8 5/8"	28# & 24#	3100'	11"	1930 sx	0
5 1/2"	17# - 15.5#	11100'	7 7/8"	925 sxs	0

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE			

TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 7/8"	10,968'	10,968'

Perforation Record (Interval, size and number)

11,002' - 11,010' 1/2" dia. - 32 holes

ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND OF MATERIAL USED
11,002'-11,010'	1000 gals - 7 1/2% MSR-100 3000 gals - 7 1/2% MSR

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size & type pump)	Well Status (Prod. or Shut-in)
9/11/80	Flowing	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas-Oil Ratio
9/19/80	4.0	3/4"		trace	37.5	0	---

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API (Corr.)
50	0		trace	900	0	---

Disposition of Gas (Sold, used for fuel, vented, etc.)

Vented

Test Witnessed By

Carol Wilcox

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

NAME Rick Standen TITLE Engineer DATE Sept. 24, 1980

X

Travis 13 State

Harvey P. Yates Company

2

P. O. Box 1933, Roswell, New Mexico

Travis Upper Penn

C 660 North

1980 West 13 18S 28E

Eddy

10,000' Canyon Rotary

3616.5' GR $50,000 blanket 2/20/81

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	CEMENT	EST. TOP
17 1/2"	13 3/8"	48#	375'	Circulate	
11"	8 5/8"	24#-28#	5000'	Circulate	
7 7/8"	4 1/2"	10.5#-11.6#	13000'	Sufficient to cover 600' above pay zone	

Vice President 1/22/81

Form 9-331

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: Harvey E. Yates Company, Inc.

3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1980' FNL & 1780' FEL
At top prod. interval reported below: Same
At total depth: Same

5. LEASE DESIGNATION AND SERIAL NO.: NM-23417

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME: Travis Deep Unit

8. FARM OR LEASE NAME:

9. WELL NO.: 2

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E

14. PERMIT NO.: | DATE ISSUED:

12. COUNTY OR PARISH: Eddy | 13. STATE: N. M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5-6-77	6-23-77	8-24-77	3618' GL	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,270'KB	11,223'KB	Single	→	0' - 11,270'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*
Cisco 9824' - 9903'KB

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL & DLL

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	34#	360'	17 1/2"	425 Sx Class C 2% CaCl	
8 5/8"	24# & 28#	3500'		300 Sx Class C 2% CaCl	
5 1/2"	17#	11268'	7 7/8"	950 Sx Class H	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	9775' KB	9772' KB

31. PERFORATION RECORD (Interval, size and number)
**Please see attachment

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
**Please see attachment	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
8-24-77	Flowing	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
9-8-77	24 Hrs	18/64		433.35	630.85	-0-	1456

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
965	Packer		433.35	630.85	-0-	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

TEST WITNESSED BY: Tefteller, Inc.

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Vice President DATE July 26, 1977

*(See Instructions and Spaces for Additional Data on Reverse Side)

Form 9-331
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: LC-028772-B
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT AGREEMENT NAME:
8. FARM OR LEASE NAME: North Travis 12 Deep
9. WELL NO.: 1
10. FIELD AND POOL, OR WILDCAT: Undesignated
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 12, T-18S, R-28E

1a. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] DRY [ ] Other
b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other
2. NAME OF OPERATOR: Harvey E. Yates Company
3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
At top prod. interval reported below: 660' FSL & 1650' FEL
At total depth

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Eddy | 13. STATE: N.M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5/01/80	7/08/80	7/24/80	3633.7 GR	3633.7'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,215'	11,171'		→	0-11,215'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 10,916' - 10,956' Morrow

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dresser Atlas - DLL-ML CDC-CN-GR-BHC-AL-Cal Cement Bond

27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB/FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	355	17 1/2"	370 sx Cl"C" - 2% CaCl	NONE
8 5/8"	24# & 32#	2900	11"	1200 sxs	NONE
5 1/2"	17#	11215	7 7/8"	1000 sxs	NONE

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
		NONE		

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	10,850'	10,850'

31. PERFORATION RECORD (Interval, size and number)
10916' to 10924' 8' - 16' - 1/2" dia hole
10949' to 10956' 7' - 14' - 1/2" dia hole

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
10916'-10924'	800 gal - 7 1/2% MSR-100
10949'-10956'	250 gal - 10% Acetic & 700 gal - 7 1/2% MSR-100
10916'-10956'	4000 gal - 10% MSR-100

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
7/18/80	Flowing	Shut In

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
7/26/80	6	3/4"		0	409	0	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
100	0		0	1637	0	---

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented
TEST WITNESSED BY: James Davis
35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED: Jack Ferdun TITLE: Engineer DATE: July 28, 1980

*(See Instructions and Spaces for Additional Data on Reverse Side)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

B-11594-3

Travis 13 State Com

1

Travis Upper Penn.

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

F 1980 North 1980

West 13 18S 28E

Eddy

xxxx Rec.

Started		Completed	Elevation (DF, RKB, RT, GR, etc.)	Elev. Casinghead
7/14/80		12/26/80	3604.5' GL	3604.5'

Total Depth	P.B.T.D.	Single, Dual or Triple Compl.	Rotary Tools	Cable Tools
11,100'	10,725'	---	0-11,100'	

Producing Interval(s), This Completion, Top, Bottom, Name	Was Directional Survey Made
9824' to 9870' Upper Penn.	NO

Type Electric and Other Logs Run	Was Well Cored
Dresser Atlas CD/CN, DLL & MLL, PVTCo GR-CBL	YES

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sxs	-0-
8 5/8"	28#-24#	3100'	11"	1930 sxs	-0-
5 1/2"	17#-15.5#	11,100'	7 7/8"	925 sxs	-0-

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE	--	--	--

TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 3/8"	9761'	9761'

Perforation Record (Interval, size and number)	ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
	DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
9824' to 9870' 80 1/2" dia holes	9824'-9870'	250 gal - 10% acetic 2500 gal - 20% MSR-100

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
12/26/80	FLOWING	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Gas-Oil Ratio
12/26/80	8	32/64"		146	219	0	2278
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Oil Gravity - API (Corr.)	
250	0		438	998	0	47°	

Disposition of Gas (Sold, used for fuel, vented, etc.)

VENTED

Test Witnessed By

M. Young

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

Name Jack Sardie Title Engineer Date 1/5/81

VII

DATA ON PROPOSED OPERATION

See Report By:

Ralph H. Viney & Associates, Inc.
Engineering Consultants
Midland, Texas

on

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

VIII

GEOLOGICAL DATA

VIII. Exhibit A is an illustration of our proposed Travis Penn Unit. The illustration shows the initial six wells and five tracts that will be involved in the proposed secondary recovery project.

The reservoir that will be flooded in the proposed waterflood project is composed of Pennsylvanian (Canyon) age rock. This rock was deposited at a shelf edge in shallow water, where a carbonate buildup occurred, resulting in a limestone bank. The stratigraphic cross-section shows that the limestone bank is 100 to 140 feet thick and trends northeast-southwest through the Travis Penn Unit. Enclosed is a structure map contoured on the top of the Canyon pay zone (the proposed waterflood reservoir). The map shows the proposed injection well and other wells within a 1/2 mile radius of the proposed injection well.

Primary effective porosity in this type of depositional environment usually is the result of leaching and dissolution effects caused by periodic subaerial exposure and exposure to fresh water. Effective porosity is enhanced selectively during diagenesis along these horizontally stratified porous zones due to migrating solutions causing additional leaching and dissolution.

The depth to the top of the injection zone (limestone bank) ranges between 9693 and 9827 in the Travis Penn Unit. Average porosity calculated from log analysis, ranges between 4 and 6%. Log analysis indicates net pay in the reservoir averages between 25 and 50 feet and occurs in three zones within the gross hydrocarbon bearing section.

IX

PROPOSED STIMULATION PROGRAM

See Report By:

Ralph H. Viney & Associates, Inc.
Engineering Consultants
Midland, Texas

on

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

X

LOGGING AND TEST DATA ON WELL

See VIII
Stratigraphic Cross Section

XI

FRESH WATER WELLS

Edward Kinney, a consultant Geologist in Artesia, has completed publications on freshwater aquifers in southeast New Mexico. He stated in a telephone conversation that in T-18-S, R-28-E, the freshwater aquifers are very spotty and there are no good freshwaster aquifers in this area. He said the Ogallala formation, which is a good aquifer, begins on the Caprock and extends to the east. He went on to say that the San Andres is not a freshwater aquifer in this area (it contains saltwater) and if we set intermediate casing at the top of the San Andres, at approximately 4600 feet, we will have all aquifers sealed off from contamination.

Jim Wright is employed by the State Engineer's Office in Roswell and is familiar with freshwater aquifers in the subject ara. He also stated that freshwaster aquifers are spotty in T-18-S, R-28-E. Jim indicated in a telephone conversation that the closest freshwater to this area he knew of was found in the Grayburg, which will be behind cemented casing above the San Andres in the subject area, near Twelve Mill Hill and Illinois Camp.

BEFORE THE OIL CONSERVATION DIVISION

ENERGY AND MINERALS DEPARTMENT

OF THE STATE OF NEW MEXICO

RECEIVED
JUL 31 1981
OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION :
OF HARVEY E. YATES COMPANY : Case No. 7320
FOR WATERFLOOD INJECTION, :
EDDY COUNTY, NEW MEXICO :

APPLICATION

COMES NOW HARVEY E. YATES COMPANY by its attorney and respecfully states:

1. On November 6, 1980, by Division Order No. R-6502, the Division approved the Travis Penn Unit Agreement covering 400 acres, more or less, of State and Federal lands described as follows:

Township 18 South, Range 28 East, N.M.P.M.

Section 12: S/2 SE/4
Section 13: NE/4, S/2 NW/4, and
N/2 SW/4
Eddy County, New Mexico

2. In the same Order, R-6502, the Division approved the plan contained in the Travis Penn Unit Agreement for the development and operation of the unit area which stated:

> "SECTION 11 PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this Agreement is reasonably proved to be productive of Unitized Substances and that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a Plan of

> Operation by the Working Interest Owners, the Supervisor, the Land Commissioner and the Division, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquified petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions warrant."

3. A Plan of Operation for enhanced recovery through a program of waterflood injection has been developed by Ralph H. Viney and Associates, Inc., Engineering Consultants, Midland, Texas.

4. That the Plan of Operation should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

5. That a Division Form C-108 completed with all attachments is appended hereto and is made a part of this Application.

6. That Applicant has furnished, by certified or registered mail, a copy of this Application to the owner of the surface of the land on which the injection well is to be located and to each leasehold operator within one-half mile of the well location.

WHEREFORE, Applicant respectfully requests:

A. That this Application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon such hearing, the Division enter its order granting Applicant permission to conduct a waterflood injection project as set forth in the Plan of Operation.

C. For such further relief as the Division deems just and proper.

DATED this 31 day of July, 1981.

HARVEY E. YATES COMPANY

By: Thomas J. Hall

Thomas J. Hall, III
Attorney for Applicant
Post Office Box 1933
Roswell, New Mexico 88201

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
[illegible]
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: [XX] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [XX] no

II. Operator: Harvey E. Yates Company

Address: Post Office Box 1933 Roswell, New Mexico 88201

Contact party: Thomas J. Hall, III Phone: (505) 623-6601

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? [ ] yes [XX] no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Thomas J. Hall, III Title Attorney

Signature: Thomas J. Hall, III Date: July 30, 1981

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells:

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

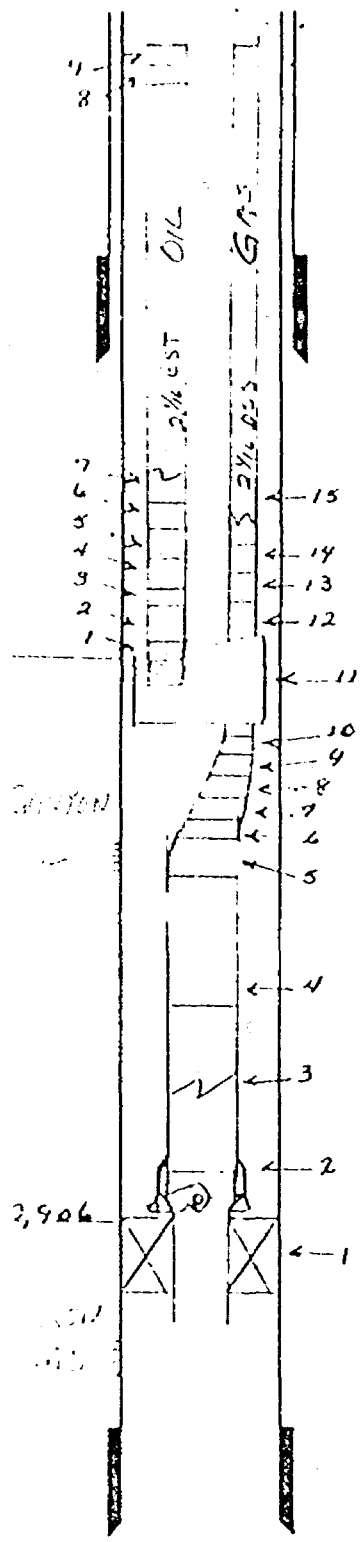
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III

WELL DATA

SERVING THE WORLD

DATE 4-4-79 WELL NO. 3 LEASE Travis Oil Unit FIELD



Long String

	Zero			15.00
15	2½ OSS Tubing	313		9699.69
14	1.900 EU 10rd Pin x 2½ OSS Rx Swedge			.67
13	1.900 NU 10rd x 1.900 EU 10rd Coupling			.47
12	1.900 NU 10rd mandrel		9717.83	2.00
11	"45-B (1.900 x 20') "K" OE. Pkr.			6.00
10	2½ EST x 1.900 NU 10rd Coupling			.66
9	2½ EST Tubing	1		31.90
8	2½ EST Pin x 1.900 NU 10rd. Nipple			.66
7	1.900 EU 10rd Coupling			.32
6	2⅜ EU 8rd Pin x 1.900 EU 10rd Swedge			.38
5	2⅜ EU 8rd Tubing	1		32.57
4	2⅜ x 3.062 Blast Joints	8	979032	162.49
3	2⅜ EU 8rd Tubing	30	995281	952.45
2	2⅜ x 4½ "FL" On-Off	353		1.65
1	"44-26 Model D Pkr.		1090691	

Short String

	Zero			15.00
9	2½ EST Plug Joint			3.70
8	2½ EST Plug Joint			3.70
7	2½ EST Tubing	299		9691.38
6	1.900 EU 10rd pin x 2½ EST swage			.82
5	1.900 EU 10rd Collar			.33
4	1.900 NU 10rd pin x 1.900 EU 10rd pin			.28
3	1.900 NU 10rd collar			.30
2	1.900 NU 10rd Nipple			5.75
1	2.06 "3" Snap Latch ID			1.35
			9722.60	

BAKER: Model Goodyear

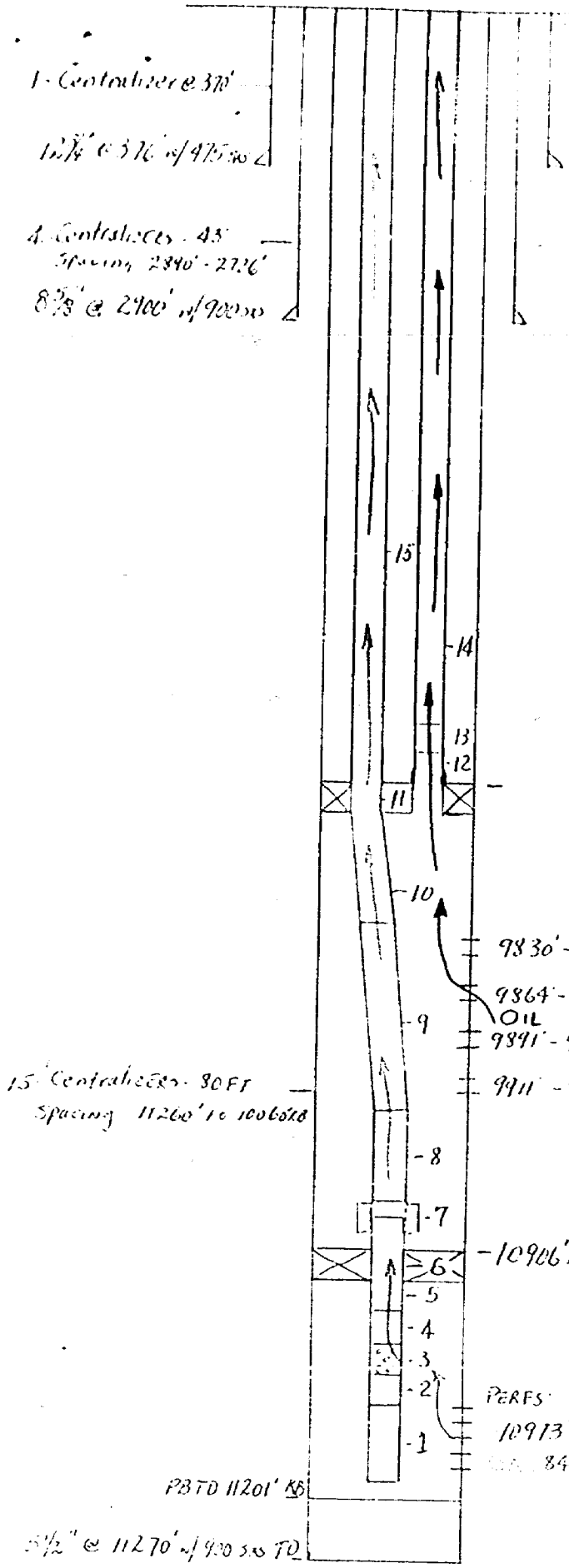
HEYCO: Peck Hardee

BRIDGE PLUG PACKER CENTRALIZER SCRATCHER BASKET PERFORATION

orm 20-27 (Use reverse side for additional remarks & sketches.)

1

HARVEY E. YATES COMPANY
Travis Deep Ro. 3-B-18-28
Eddy County, New Mexico
MULTIPLE COMPLETION INSTALLATION



15. 2-⅞" OD, 3.40 #/FT, DSS thd. N-80 tbg.

14. 2-⅞" OD, 3.40 #/FT, GST thd, N-80 tbg.

13. 2⅜" ID X 1.50" Seating nipple

12. BAKER MODEL "S" SNAP LATCH SEAL ASSY

11. BAKER 45B MODEL K-2 DG Packer

10. 2⅜" IJ tubing

9830' - 9840' KB - 6 holes
9864' - 9875' KB - 6 holes
OIL
9891' - 9894' KB - 6 holes
9911' - 9920' KB 6 holes

9. 2⅜" x 2-⅞" OD BEAST Joints

8. 2⅜" OD N 80 tubing

7. ON-OFF Tool w/1.81 "F" profile @ 10904' KB

6. BAKER 44-26 Model "DB" RRP PACKER @ 10906' KB

5. Tubing Seal ASSEMBLY

4. 2⅜" X 1.50" BFC "F" nipple @ 10921' KB

3. Perforated sub 10923' - 10934' KB

2. VANNTAGE tubing release Sub w/1.50" profile

1. VANN Tool perforating GUN
10,911' - 10945' KB

DRAWN BY: PECK HARDEE, P.E.

III. WELL DATA

B. (1) The name of the injection formation is the Pennsylvanian Canyon. The pool name is the Travis Upper Penn Pool.

(2) The injection interval will be discussed by Ralph Viney. The perforated interval in the well was 9830 to 9920 feet.

(3) The original purpose of the well was not for injection, but was drilled as a development well in the Canyon and Morrow pay zones.

(4) The injection well was originally completed as a gas well in the Morrow formation from the perforated interval 10,973 to 10,994 feet. Other information will be discussed by HEYCO engineers.

(5) There are no other oil or gas zones producing above the Canyon Pay zone in the Travis Penn Unit at present. The Cisco completion listed under the Travis Deep Unit #2 is actually from the same Canyon Pay zone. The next lower producing zone in the Travis Penn area is the Morrow formation. The Morrow sands are gas productive in this area. The depth to the top of the productive Morrow sands in the injection well is 10,973.

V

LAND PLAT

VI

WELLS WITHIN AREA OF REVIEW

VI

WELLS WITHIN THE AREA OF REVIEW

WELL NAME	TYPE	CONSTRUCTION	DATE	DEPTH	RECORD OF COMPLETION
Travis 13 State #2 660' FNL & 1980' FWL Sec. 13, T-18S, R-28E	Oil	See Application to Drill Attached	5/02/81	10,000	Has not been completed
Travis 13 State #1 1980' FNL & 1980' FWL Sec. 13, T-18S, R-28E	Gas	See Completion Report Attached	7/14/80	11,100	9/19/80, Canyon
Travis Deep Unit #2 1980' FNL & 1780' FEL Sec. 13, T-18S, R-28E	Oil	See Completion Report Attached	5/06/77	11,270	8/24/77
North Travis 12 Deep #1 660' FNL & 1650' FEL Sec. 12, T-18S, R-28E	Gas	See Completion Report Attached	5/01/80	11,215	7/24/80, Morrow
Travis 24 State Com #1 1980' FNL & 660' FEL Sec. 24, T-18S, R-28E	Gas	See Completion Report Attached	8/31/80	10,890	1/16/81, Morrow

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OPERATOR		

Form C-105
Revised 10-1-78

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Indicate Type of Lease: State [XX] Fee [ ]

6. State Oil & Gas Lease No.: B-11594-3

1a. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] DRY [ ] OTHER

b. TYPE OF COMPLETION: NEW WELL [XX] WORK OVER [ ] DEEPEN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] OTHER

7. Unit Agreement Name:

2. Name of Operator: Harvey E. Yates Company

8. Farm or Lease Name: Travis 13 State

3. Address of Operator: P. O. Box 1933, Roswell, New Mexico 88201

9. Well No.: 1

4. Location of Well: UNIT LETTER F LOCATED 1980 FEET FROM THE North LINE AND 1980 FEET FROM THE

10. Field and Pool, or Wildcat: So. Empire Morrow

LINE OF SEC. 13 TWP. 18S RGE. 28E NMPM

12. County: Eddy

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Casinghead
7/14/80	8/24/80	9/19/80	3604.5' GL.	3604.5'

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
11,100'	11,100'		---------->	0-11,100'	

24. Producing Interval(s), of this completion - Top, Bottom, Name

11,002' to 11,010' Morrow

25. Was Directional Survey Made: NO

26. Type Electric and Other Logs Run

Dresser Atlas CD/CN, DLL & MLL. P-VTCo GR-CBL

27. Was Well Cored: YES

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sx	0
8 5/8"	28# & 24#	3100'	11"	1930 sx	0
5 1/2"	17# - 15.5#	11100'	7 7/8"	925 sxs	0

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE			

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 7/8"	10,968'	10,968'

31. Perforation Record (Interval, size and number)

11,002' - 11,010' 1/2" dia. - 32 holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
11,002'-11,010'	1000 gals - 7 1/2% MSR-100
	3000 gals - 7 1/2% MSR

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
9/11/80	Flowing	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period ---------->	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
9/19/80	4.0	3/4"		trace	37.5	0	---

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate ---------->	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API (Corr.)
50	0		trace	900	0	---

34. Disposition of Gas (Sold, used for fuel, vented, etc.)

Vented

Test Witnessed by: Carol Wilcox

35. List of Attachments

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED Jack Harden TITLE Engineer DATE Sept. 24, 1980

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NEW MEXICO OIL CONSERVATION COMMISSION

X

E-1287

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

Type of Work: DRILL XX DEEPEN PLUG BACK

Type of Well: X

Operator: Harvey E. Yates Company

Address: P. O. Box 1933, Roswell, New Mexico

Lease Name: Travis 13 State

Well No.: 2

Location of Well: Unit Letter C, 660 North, 1980 West, Line, 13, 18S, 28E

Pool: Travis Upper Penn

County: Eddy

Elevation (Show whether DF, RT, GR, etc.): 3616.8' GR	Kind & Status of Plug. Bond: $50,000 blanket	Proposed Depth: 10,000'	Formation: Morrow
Rotary or C.T.: Canyon	Rotary	Approx. date work will start: 2/20/81	

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
17 1/2"	13 3/8"	48#	375'	Circulate	
11"	8 5/8"	24#-28#	3000'	Circulate	
7 7/8"	4 1/2"	10.5#-11.6#	10000'	Sufficient to cover 600' above pay zone	

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

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

Signature: Neal E. Yates

Title: Vice President

Date: 1/22/81

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Form 9-331
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*
(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-23417

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME: Travis Deep Unit

8. FARM OR LEASE NAME:

9. WELL NO.: 2

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: Harvey E. Yates Company, Inc.

3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1980' FNL & 1780' FEL
At top prod. interval reported below: Same
At total depth: Same

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Eddy

13. STATE: N. M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5-6-77	6-23-77	8-24-77	3618' GL	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,270'KB	11,223'KB	Single	→	0' - 11,270'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
Cisco 9824' - 9903'KB

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL & DLL

27. WAS WELL CORED: No

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	34#	360'	17 1/2"	425 Sx Class C 2% CaCl	
8 5/8"	24# & 28#	3500'		300 Sx Class C 2% CaCl	
5 1/2"	17#	11268'	7 7/8"	950 Sx Class H	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	9775' KB	9772' KB

31. PERFORATION RECORD (*Interval, size and number*)
**Please see attachment

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
**Please see attachment	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
8-24-77	Flowing	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
9-8-77	24 Hrs	18/64		433.35	630.85	-0-	1456

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
965	Packer		433.35	630.85	-0-	

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY: Tefteller, Inc.

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Vice President DATE July 26, 1977

*(See Instructions and Spaces for Additional Data on Reverse Side)

(Rev. 5-63) SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: LC-028772-B

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: North Travis 12 Deep

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: Undesignated

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 12, T-18S, R-28E

1a. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: Harvey E. Yates Company

3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface
At top prod. interval reported below 660' FSL & 1650' FEL
At total depth

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
		Eddy	N.M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5/01/80	7/08/80	7/24/80	3633.7 GR	3633.7'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,215'	11,171'		→	0-11,215'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 10,916' - 10,956' Morrow

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dresser Atlas - DLL-ML CDC-CN-GR-BHC-AL-Cal Cement Bond

27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	355	17 1/2"	370 sx C1"C" - 2% CaCl	NONE
8 5/8"	24# & 32#	2900	11"	1200 sxs	NONE
5 1/2"	17#	11215	7 7/8"	1000 sxs	NONE

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
		NONE		

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	10,850'	10,850'

31. PERFORATION RECORD (Interval, size and number)

10916' to 10924' 8' - 16' - 1/2" dia hole
10949' to 10956' 7' - 14' - 1/2" dia hole

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
10916'-10924'	800 gal - 7 1/2% MSR-100
10949'-10956'	250 gal - 10% Acetic & 700 gal-7 1/2% MSR-100
10916'-10956'	4000 gal - 10% MSR-100

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
7/18/80	Flowing	Shut In

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
7/26/80	6	3/4"		0	409	0	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
100	0		0	1637	0	---

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented

TEST WITNESSED BY: James Davis

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Jack Hardee TITLE Engineer DATE July 28, 1980

*(See Instructions and Spaces for Additional Data on Reverse Side)

8/4/80

NEW MEXICO OIL CONSERVATION COMMISSION

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

DISTRIBUTION
SANTA FE
FILE
U.S.G.S.
LAND OFFICE
OPERATOR

5a. Indicate Type of Lease: State [X] Fee [ ]
5b. State Oil & Gas Lease No.: B-11594-3

1a. TYPE OF WELL: Oil [XX] Gas [ ] Dry [ ] Other
1b. TYPE OF COMPLETION: New Well [ ] Work Over [XX] Deepen [ ] Plug Back [XX] Diff. Res. [XX] Other

7. Unit Agreement Name:
8. Farm or Lease Name: Travis 13 State Com

2. Name of Operator: Harvey E. Yates Company
9. Well No.: 1

3. Address of Operator: P. O. Box 1933, Roswell, New Mexico 88201
10. Field and Pool, or Wildcat: Travis Upper Penn.

4. Location of Well: Unit Letter F, 1980 Feet From The North Line and 1980 Feet From The West Line of Section 13, Township 18S, Range 28E, NMPM
12. County: Eddy

15. Date xxxx Rec'd started 7/14/80 (-23' GL) | 16. Date T.D. Reached: 12/26/80 | 17. Date Compl. (Ready to Prod.): 3604.5' GL | 18. Elev. (DF, RKB, RT, GR, etc.): 3604.5' | 19. Elev. Casinghead: 3604.5'

20. Total Depth: 11,100' | 21. Plug Back T.D.: 10,725' | 22. If Multiple Compl., How Many Zones: --- | 23. Intervals Drilled By: ----> | Rotary Tools: 0-11,100' | Cable Tools:

24. Producing Interval(s), This Completion - Top, Bottom, Name: 9824' to 9870' Upper Penn.

25. Was Directional Survey Made: NO

26. Type Electric and Other Logs Run: Dresser Atlas CD/CN, DLL & MLL, PVTCo GR-CBL

27. Was Well Cored: YES

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB. FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sxs	-0-
8 5/8"	28#-24#	3100'	11"	1930 sxs	-0-
5 1/2"	17#-15.5#	11,100'	7 7/8"	925 sxs	-0-

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE			

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 3/8"	9761'	9761'

31. Perforation Record (Interval, size and number)

9824' to 9870' 80 1/2" dia holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
9824'-9870'	250 gal - 10% acetic 2500 gal - 20% MSR-100

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
12/26/80	FLOWING	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Gas - Oil Ratio
12/26/80	8	32/64"		146	219	0	2278

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Oil Gravity - API (Corr.)
250	0		438	998	0	47°

34. Disposition of Gas (Sold, used for fuel, vented, etc.): VENTED

Test Witnessed By: M. Young

35. List of Attachments

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED Jack T Sardee TITLE Engineer DATE 1/5/81

1

VII

DATA ON PROPOSED OPERATION

See Report By:

Ralph H. Viney & Associates, Inc.
Engineering Consultants
Midland, Texas

on

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

VIII

GEOLOGICAL DATA

VIII. Exhibit A is an illustration of our proposed Travis Penn Unit. The illustration shows the initial six wells and five tracts that will be involved in the proposed secondary recovery project.

The reservoir that will be flooded in the proposed waterflood project is composed of Pennsylvanian (Canyon) age rock. This rock was deposited at a shelf edge in shallow water, where a carbonate buildup occurred, resulting in a limestone bank. The stratigraphic cross-section shows that the limestone bank is 100 to 140 feet thick and trends northeast-southwest through the Travis Penn Unit. Enclosed is a structure map contoured on the top of the Canyon pay zone (the proposed waterflood reservoir). The map shows the proposed injection well and other wells within a 1/2 mile radius of the proposed injection well.

Primary effective porosity in this type of depositional environment usually is the result of leaching and dissolution effects caused by periodic subaerial exposure and exposure to fresh water. Effective porosity is enhanced selectively during diagenesis along these horizontally stratified porous zones due to migrating solutions causing additional leaching and dissolution.

The depth to the top of the injection zone (limestone bank) ranges between 9693 and 9827 in the Travis Penn Unit. Average porosity calculated from log analysis, ranges between 4 and 6%. Log analysis indicates net pay in the reservoir averages between 25 and 50 feet and occurs in three zones within the gross hydrocarbon bearing section.

IX

PROPOSED STIMULATION PROGRAM

See Report By:

Ralph H. Viney & Associates, Inc.
Engineering Consultants
Midland, Texas

on

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

X

LOGGING AND TEST DATA ON WELL

See VIII
Stratigraphic Cross Section

XI

FRESH WATER WELLS

Edward Kinney, a consultant Geologist in Artesia, has completed publications on freshwater aquifers in southeast New Mexico. He stated in a telephone conversation that in T-18-S, R-28-E, the freshwater aquifers are very spotty and there are no good freshwaster aquifers in this area. He said the Ogallala formation, which is a good aquifer, begins on the Caprock and extends to the east. He went on to say that the San Andres is not a freshwater aquifer in this area (it contains saltwater) and if we set intermediate casing at the top of the San Andres, at approximately 4600 feet, we will have all aquifers sealed off from contamination.

Jim Wright is employed by the State Engineer's Office in Roswell and is familiar with freshwater aquifers in the subject ara. He also stated that freshwaster aquifers are spotty in T-18-S, R-28-E. Jim indicated in a telephone conversation that the closest freshwater to this area he knew of was found in the Grayburg, which will be behind cemented casing above the San Andres in the subject area, near Twelve Mill Hill and Illinois Camp.

DRAFT
dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7320

Order No. R- 6765

APPLICATION OF HARVEY E. YATES COMPANY

FOR A WATERFLOOD PROJECT, EDDY

COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Harvey E. Yates Company, seeks authority to institute a waterflood project on its Travis Deep Unit Area, ~~lease~~, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well ~~injection wells~~ located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) That, considering their depth, the wells in the project area ~~are~~ are approaching or are in an advanced state of depletion ~~in accordance with their depth~~, and should properly be classified as "stripper" wells.

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

(5) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(6) That the injection well~~s~~ or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(7) That the subject application should be approved and the project should be governed by the provisions of Rules 701 through ~~702, and~~ 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Harvey E. Yates Company, is hereby authorized to institute a waterflood project on its Travis Deep Unit Area, ~~Lease~~, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through ~~the following described wells in~~ one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(2) That injection into ~~each of~~ said well~~s~~ shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of ~~each~~ the injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in ~~any of said~~ the injection well~~s~~,

the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) That the injection wells herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) That the subject waterflood project is hereby designated the Travis Deep Waterflood Project and shall be governed by the provisions of Rules 701 through ~~702,~~ and 708 of the Division Rules and Regulations.

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

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

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

Aug 2 hearing

Application of Harvey E Yates Co for Waterflood project in the Travis - Upper Pennsylvanian Pool by inj of water into the Cisco - Canyon Formation Thru 1 well in Sec 13 - T18S - R28E NMPM Eddy Co NM

NW/4 NE/4

from Joe Hall 7-23-81

BLL

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

September 8, 1982

Harvey E. Yates Company
Suite 300
Security National Bank Building
Roswell, New Mexico 88201

Attention: Mr. Ray F. Nokes

Re: Case No. 7320
Orders Nos. R-6765 and WFX-499
Injection Pressure Increase

Dear Mr. Nokes:

Based on information submitted by your letter of August 30, 1982, the maximum authorized wellhead pressure for the following described well is hereby increased to 1965 psi:

Travis Penn Unit No. 5, Unit K, Section 13,
Township 18 South, Range 28 East

Yours very truly,

JOE D. RAMEY
Director

JDR/RJ/fd

cc: L. A. Clements
R. L. Stamets
✓Case File 7320

HEYCO PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P. O. BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

August 24, 1982

RECEIVED
AUG 26 1982
OIL CONSERVATION DIVISION
SANTA FE

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501
Attn: Mr. Joe D. Ramey
Division Director and State Petroleum Engineer

Re: Order No. WFX-499 and Order No. R-6765
Travis Penn Unit #5
NE/4 SW/4 Sec. 13, T-18S, R-28E
Eddy County, New Mexico
Travis Upper Pennsylvanian Pool

Dear Mr. Ramey:

In compliance with the Rules and Regulations of the State of New Mexico Oil Conservation Division, Harvey E. Yates Company hereby respectfully requests Administrative Approval for increasing the maximum injection pressure set forth in the aforementioned Orders. Attached are copies of each Order and the pressure regulations specified in each.

With your permission it is requested that a maximum injection pressure for injecting Ogallala water into the Cisco Canyon formation be increased to 1963 psig, the maximum pressure allowed by the State of New Mexico for perforations at 9816' in the injection well. We incurred approximately 300 psi injection pressure at the initial onset of the pilot program and are presently experiencing a pressure of 1000 psi at the rate of 1000 barrels water per day. The unexpected increase in pressure is thought to be due to a slightly lower permeability in the Travis Penn Unit #5 injection well.

The maximum pressure requested is considerably below the calculated frac gradient of .84569 psi/ft. The calculated vertical compressive stress in the Travis Penn Unit #5 is 7592 psi. A comparison of the pressures indicates an additional pressure of 708.9 psi was required to initiate the propagation of the fracture during completion. This may be due to cementation but I am not sure. The fracture gradient was calculated from treatment in the

4000 I.S.I.P.

Will Forward data 8-27-82

Cisco Canyon formation during the completion of the well. The calculated hydrostatic pressure of Ogallala water and a maximum surface pressure of 1963 psi is 2087 psi below frac pressure for this well.

I therefore respectfully request approval be granted based on the previous evaluation. If there is need of further information, please contact my office.

Sincerely,

Ray F. Nokes
Reservoir Engineer
Harvey E. Yates Company
Roswell, NM 88201

RFN:dy

Enclosures

cc: Oil Conservation Division
P. O. Drawer DD
Artesia, NM 88201

RECEIVED
AUG 26 1982
OIL CONSERVATION DIVS.
SANTA FE

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7320
Order No. R-6765

APPLICATION OF HARVEY E. YATES COMPANY FOR A WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO.

RECEIVED
AUG 26 1982
OIL CONSERVATION DIVISION
SANTA FE

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Harvey E. Yates Company, seeks authority to institute a waterflood project on its Travis Deep Unit Area, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) That, considering their depth, the wells in the project area are approaching or are in an advanced state of depletion and should properly be classified as "stripper" wells.

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

(5) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations

BEFORE EXAMINER Ric Hicks Stamets
OIL CONSERVATION DIVISION
EXHIBIT NO. 1391
Harvey E. Yates Co.
CASE NO. 7320

or onto the surface from injection, production, or plugged and abandoned wells.

(6) That the injection well or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(7) That the subject application should be approved and the project should be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Harvey E. Yates Company, is hereby authorized to institute a waterflood project on its Travis Deep Unit Area, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(2) That injection into said well shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of the injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in the injection well, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) That the injection well herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) That the subject waterflood project is hereby designated the Travis Deep Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

RECEIVED
AUG 26 1982
OIL CONSERVATION DIV.
SANTA FE

CORRECTED COPY

RECEIVED
AUG 26 1982
OIL

APPLICATION OF HARVEY E. YATES COMPANY TO EXPAND ITS WATERFLOOD PROJECT IN THE TRAVIS-UPPER PENNSYLVANIAN POOL IN EDDY COUNTY, NEW MEXICO.

ORDER No. WFX-499

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Order No. R-6765, Harvey E. Yates Company has made application to the Division on April 12, 1982 for permission to expand its Travis Deep Unit Area Waterflood Project in the Travis-Upper Pennsylvanian Pool in Eddy County, New Mexico.

NOW, on this 10th day of May, 1982, the Division Director finds:

1. That application has been filed in due form.

2. That satisfactory information has been provided that all offset operators have been duly notified of the application.

3. That no objection has been received within the waiting period as prescribed by Rule 701 B.

4. That the proposed injection well is eligible for conversion to water injection under the terms of Rule 701.

5. That the proposed expansion of the above referenced waterflood project will not cause waste nor impair correlative rights.

6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Harvey E. Yates Company, be and the same is hereby authorized to inject water into the Cisco-Canyon formation through plastic-lined tubing set in a packer at approximately 9760 feet in the following described well for purposes of secondary recovery to wit:

Travis State Com Well No. 1, NE/4 SW/4 of Sec. 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico

IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the casing-tubing annulus (in each well) shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

That the injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure to a maximum of 1200 pounds per square inch; provided however that the Division Director may administratively authorize a pressure limitation in excess of the above upon the operator's establishing that such higher pressure will not result in fracturing of the confining strata.

That the operator shall notify the supervisor of the Division's Artesia District Office before injection is commenced through said well.

That the operator shall immediately notify the Supervisor of the Division's Artesia District Office of the failure of the tubing, casing, or packer in said well or the leakage of water from or around said well and shall take such steps as may be timely or necessary to correct such failure or leakage.

That the subject well shall be governed by all provisions of Division Order No. R-6765 and Rules 702, 703, 704, 705, and 706 not inconsistent herewith.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY,
Division Director

S E A L

RECEIVED
AUG 26 1982
OIL CONSERVATION DIVISION
SANTA FE

Fil

Recd 6-8-82

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P. O. BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505-623-6601
ROSWELL, NEW MEXICO 88201

August 24, 1982

RECEIVED
AUG 26 1982
OIL CONS.
SANTA FE

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501
Attn: Mr. Joe D. Ramey
Division Director and State Petroleum Engineer

RECEIVED
AUG 26 1982
OIL CONSERVATION DIVISION
SANTA FE

Re: Order No. WFX-499 and Order No. R-6765
Travis Penn Unit #5
NE/4 SW/4 Sec. 13, T-18S, R-28E
Eddy County, New Mexico
Travis Upper Pennsylvanian Pool

Dear Mr. Ramey:

In compliance with the Rules and Regulations of the State of New Mexico Oil Conservation Division, Harvey E. Yates Company hereby respectfully requests Administrative Approval for increasing the maximum injection pressure set forth in the aforementioned Orders. Attached are copies of each Order and the pressure regulations specified in each.

With your permission it is requested that a maximum injection pressure for injecting Ogallala water into the Cisco Canyon formation be increased to 1963 psig, the maximum pressure allowed by the State of New Mexico for perforations at 9816' in the injection well. We incurred approximately 300 psi injection pressure at the initial onset of the pilot program and are presently experiencing a pressure of 1000 psi at the rate of 1000 barrels water per day. The unexpected increase in pressure is thought to be due to a slightly lower permeability in the Travis Penn Unit #5 injection well.

The maximum pressure requested is considerably below the calculated frac gradient of .84569 psi/ft. The calculated vertical compressive stress in the Travis Penn Unit #5 is 7592 psi. A comparison of the pressures indicates an additional pressure of 708.9 psi was required to initiate the propagation of the fracture during completion. This may be due to cementation but I am not sure. The fracture gradient was calculated from treatment in the

Cisco Canyon formation during the completion of the well. The calculated hydrostatic pressure of Ogallala water and a maximum surface pressure of 1963 psi is 2087 psi below frac pressure for this well.

I therefore respectfully request approval be granted based on the previous evaluation. If there is need of further information, please contact my office.

Sincerely,

Ray F. Nokes
Reservoir Engineer
Harvey E. Yates Company
Roswell, NM 88201

RFN:dy

Enclosures

cc: Oil Conservation Division
P. O. Drawer DD
Artesia, NM 88201

RECEIVED
AUG 26 1982
OIL CONSERVATION DIV.
SANTA FE

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7320
Order No. R-6765

APPLICATION OF HARVEY E. YATES COMPANY FOR A WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO.

RECEIVED
AUG 26 1982
OIL CONSERVATION DIVISION
SANTA FE

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Harvey E. Yates Company, seeks authority to institute a waterflood project on its Travis Deep Unit Area, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) That, considering their depth, the wells in the project area are approaching or are in an advanced state of depletion and should properly be classified as "stripper" wells.

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

(5) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations

BEFORE EXAMINER Richard L. Stamets
OIL CONSERVATION DIVISION
EXHIBIT NO. 1391
CASE NO. Harvey E. Yates Co
SUBMITTED 10-21-81

or onto the surface from injection, production, or plugged and abandoned wells.

(6) That the injection well or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(7) That the subject application should be approved and the project should be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Harvey E. Yates Company, is hereby authorized to institute a waterflood project on its Travis Deep Unit Area, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(2) That injection into said well shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of the injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in the injection well, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) That the injection well herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) That the subject waterflood project is hereby designated the Travis Deep Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

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

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

CORRECTED COPY

APPLICATION OF HARVEY E. YATES COMPANY TO EXPAND ITS WATERFLOOD PROJECT IN THE TRAVIS-UPPER PENNSYLVANIAN POOL IN EDDY COUNTY, NEW MEXICO.

ORDER No. WFX-499

RECEIVED
AUG 26 1982
OIL C

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Order No. R-6765, Harvey E. Yates Company has made application to the Division on April 12, 1982 for permission to expand its Travis Deep Unit Area Waterflood Project in the Travis-Upper Pennsylvanian Pool in Eddy County, New Mexico.

NOW, on this 10th day of May, 1982, the Division Director finds:

1. That application has been filed in due form.

2. That satisfactory information has been provided that all offset operators have been duly notified of the application.

3. That no objection has been received within the waiting period as prescribed by Rule 701 B.

4. That the proposed injection well is eligible for conversion to water injection under the terms of Rule 701.

5. That the proposed expansion of the above referenced waterflood project will not cause waste nor impair correlative rights.

6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Harvey E. Yates Company, be and the same is hereby authorized to inject water into the Cisco-Canyon formation through plastic-lined tubing set in a packer at approximately 9760 feet in the following described well for purposes of secondary recovery to wit:

Travis State Com Well No. 1, NE/4 SW/4 of Sec. 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico

IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the casing-tubing annulus (in each well) shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

That the injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure to a maximum of 1200 pounds per square inch; provided however that the Division Director may administratively authorize a pressure limitation in excess of the above upon the operator's establishing that such higher pressure will not result in fracturing of the confining strata.

That the operator shall notify the supervisor of the Division's Artesia District Office before injection is commenced through said well.

That the operator shall immediately notify the Supervisor of the Division's Artesia District Office of the failure of the tubing, casing, or packer in said well or the leakage of water from or around said well and shall take such steps as may be timely or necessary to correct such failure or leakage.

That the subject well shall be governed by all provisions of Division Order No. R-6765 and Rules 702, 703, 704, 705, and 706 not inconsistent herewith.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY,
Division Director

S E A L

Rec'd 6-5-87

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P. O. BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

RECEIVED
AUG 30 1982
OIL CONSERVATION DIVISION
SANTA FE

August 27, 1982

New Mexico Oil Conservation Division
State Land Office
P. O. Box 2088
Santa Fe, NM 87501
Attn: Mr. Roy Johnson

Re: Request for Increase of Injection Pressure
Travis Penn Unit Waterflood
Reference to Case 7320; Order #WFX-499 and Order #6765

Dear Roy:

In reference to your call of August 27, 1982 regarding the aforementioned request, please find enclosed a copy of the daily drilling report with the ISIP highlighted in yellow for the Cisco Canyon formation.

As I mentioned in our conversation Friday, I cannot explain the source or conclusion of Mr. Viney's calculations, but can only speculate that he was not in possession of completion pressures during his evaluation. The frac gradient that I calculated was derived from the ISIP of 4000 psi after the initial acid treatment in the Canyon formation on July 9th, 1979 and reported July 10th, 1979 on our daily drilling report.

If there is need for further information, please contact my office at 623-6601.

Sincerely yours,

Ray F. Nokes
Reservoir Engineer

RFN:dy

Enclosure

DAILY DRILLING REPORTS

Morance[illegible] Page [illegible]

HARVEY E. YATES COMPANY
TRAVIS STATE COM #1

1780' [illegible] Sec. 13, T-[illegible] Eddy County, [illegible]

RECEIVED
AUG 30 1982
OIL CONSERVATION DIV.
SANTA FE

7/04/79 (Cont'd)	SITP-2900 psi (16 hrs). Bled press down & loaded tbg w/43 BBL of 3% KCL water. ND tree & NU BOP. Released pkr. and lowered and released RBP; trip OOH & lay down pkr & RBP. Re-ran tbg & exchange pkr; set @ 10,570' w/12,000 psi compression; ND BOP & NU tree. SI ON.
7/05/79	SITP-300 psi (12 hrs). Bled down in 2"; well kicked off after 4 swab runs; placed well on 3/8" choke-well died. Resume swbg from seating nipple; well flowing gas w/strong spray of load water. SI @ 5:00 p.m.
7/06/79	SITP-2700 psi (15 hrs). Flowed well thru 5/16" choke; press stabilized in 3 hrs.FTP-100 psi; est 200 MCF/day rate; flowing gas w/strong spray of water.
7/07/79	SITP-2700 psi (15 hrs). Flow tested through 24/64" choke. FTP stabilized @ 100 psi @ 200 MCF/D rate. Flwg gas w/good spray of water. SION.
7/08/79	SITP-2800 psi (15 hrs). Bled press off well and loaded tbg 52 BBL 3% KCl water; removed X-Tree, NU BOP; LD 24 jts 2 3/8" tbg. Ran CIBP on wireline and set @ 10,655' w/12' of cement on top (temp abandoned Morrow perfs from 10,674' to 10,830'). Ran CIBP and set @ 10,550' w/12' of cement on top (temp abandoned Atoka perfs from 10,622' to 10,630'). Closed well in and SION
7/09/79	SD for Sunday.
7/10/79	Prep to perf Canyon Zone
7/10/79	(Continued). Ran tbg in hole OE to 9770'. Spotted 3 BBL 10% acetic acid. TOH. Perf 5 1/2" csg from 9816' to 24', 9830' to 36'; 9838' to 47'; 9850' to 62' w/two JSPF (total 70 1/2" dia holes - 70 shots). Ran Baker LOK-SET pkr w/ON-OFF tool; set pkr @ 9733' w/15,000# compression. ND BOP; NU X-Tree. Pumped acetic acid in formation @ .2 BBL/min @ 4500 psi. Max press-5400 psi; ISIP-4000 psi; 5" SIP-2500 psi. SION.
7/11/79	SITP-slight vacuum. Ran swab; FL-2100' from surface. Swbd est 25 BBL L&A water, w/trace of oil and slight show of gas.
7/11/79	(Continued). SD 1 hr. Swbd from SN; no rec; SD [illegible] hrs; FL-9550'; had gas to surface w/good gas flare. Rec [illegible] of fluid (est 70% oil). Shut well in @ 4:30 pm
7/12/79	SITP--50 psi (15 hrs). FL 7000'; rec 2000+ [illegible] 50% oil). LD swab and RU Western Company. [illegible] gal 15% DS-30 acid; dropped 80 ball sealers [illegible] min press-3900 psi, ave [illegible]

HEYCO **HARVEY E. YATES COMPANY**

PETROLEUM PRODUCERS

P. O. BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623 6601
ROSWELL, NEW MEXICO 88201

RECEIVED
AUG 30 1982
OIL CONS... DIVISION
SANTA FE

August 27, 1982

New Mexico Oil Conservation Division
State Land Office
P. O. Box 2088
Santa Fe, NM 87501
Attn: Mr. Roy Johnson

Re: Request for Increase of Injection Pressure
Travis Penn Unit Waterflood
Reference to Case 7320; Order #WFX-499 and Order #6765

Dear Roy:

In reference to your call of August 27, 1982 regarding the aforementioned request, please find enclosed a copy of the daily drilling report with the ISIP highlighted in yellow for the Cisco Canyon formation.

As I mentioned in our conversation Friday, I cannot explain the source or conclusion of Mr. Viney's calculations, but can only speculate that he was not in possession of completion pressures during his evaluation. The frac gradient that I calculated was derived from the ISIP of 4000 psi after the initial acid treatment in the Canyon formation on July 9th, 1979 and reported July 10th, 1979 on our daily drilling report.

If there is need for further information, please contact my office at 623-6601.

Sincerely yours,

Ray F. Nokes
Reservoir Engineer

RFN:dy

Enclosure

DAILY DRILLING REPORTS

Morrow #2

HARVEY E. YATES COMPANY
TRAVIS STATE COM #1

RECEIVED
AUG 30 1982
OIL CON. DIV.
Santa Fe

1780' FSL &
Sec. 13, T-18-S, R-
Eddy County, N.M.

7/04/79 (Cont'd)	SITP-2900 psi (16 hrs). Bled press down & loaded tbg w/43 BBL of 3% KCL water. ND tree & NU BOP. Released pkr. and lowered and released RBP; trip OOH & lay down pkr & RBP. Re-ran tbg & exchange pkr; set @ 10,570' w/12,000 psi compression; ND BOP & NU tree. SI ON.
7/05/79	SITP-300 psi (12 hrs). Bled down in 2"; well kicked off after 4 swab runs; placed well on 3/8" choke-well died. Resume swbg from seating nipple; well flowing gas w/strong spray of load water. SI @ 5:00 p.m.
7/06/79	SITP-2700 psi (15 hrs). Flowed well thru 5/16" choke; press stabilized in 3 hrs.FTP-100 psi; est 200 MCF/day rate; flowing gas w/strong spray of water.
7/07/79	SITP-2700 psi (15 hrs). Flow tested through 24/64" choke. FTP stabilized @ 100 psi @ 200 MCF/D rate. Flwg gas w/good spray of water. SION.
7/08/79	SITP-2800 psi (15 hrs). Bled press off well and loaded tbg 52 BBL 3% KCl water; removed X-Tree, NU BOP; LD 24 jts 2 3/8" tbg. Ran CIBP on wireline and set @ 10,655' w/12' of cement on top (temp abandoned Morrow perfs from 10,674' to 10,830'). Ran CIBP and set @ 10,550' w/12' of cement on top (temp abandoned Atoka perfs from 10,622' to 10,630'). Closed well in and SION
7/09/79	SD for Sunday.
7/10/79	Prep to perf Canyon Zone.
7/10/79	(Continued). Ran tbg in hole OE to 9770'. Spotted 3 BBL 10% acetic acid. TOH. Perf 5 1/2" csg from 9816' to 24', 9830' to 36'; 9838' to 47'; 9850' to 62' w/two JSPF (total 70 1/2" dia holes - 70 shots). Ran Baker LOK-SET pkr w/ON-OFF tool; set pkr @ 9733' w/15,000# compression. ND BOP; NU X-Tree. Pumped acetic acid in formation @ .2 BBL/min @ 4500 psi. Max press-5400 psi; ISIP-4000 psi; 5" SIP-2500 psi. SION.
7/11/79	SITP-slight vacuum. Ran swab; FL-2100' from surface. Swbd est 25 BBL L&A water, w/trace of oil and slight show of gas.
7/11/79	(Continued). SD 1 hr. Swbd from SN; no rec. SD 1 1/2 hrs; FL-9550'; had gas to surface w/good gas flare. Rec 10[illegible]' of fluid (est 70% oil). Shut well in @ 4:30 pm.
7/12/79	SITP--50 psi (15 hrs). FL 7000'; rec 200[illegible] 50% oil). LD swab and RU Western Company. [illegible],000 gal 15% DS-30 acid; dropped 80 ball sealers [illegible] Max press-5900 psi, min press-3900 psi, [illegible]

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Harvey E. Yates Company for a waterflood project, project, Eddy County, New Mexico. CASE 7320

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: Joe Hall, Esq.
Harvey E. Yates Company
P. O. Box 1933
Roswell, New Mexico 88201

MR. NUTTER: Call next Case 7320.

MR. PADILLA: Application of Harvey E. Yates Company for a waterflood project, Eddy County, New Mexico.

MR. HALL: Mr. Examiner, my name is Joe Hall. I'm an attorney for Harvey E. Yates Company, appearing for the applicant, and I will have two witnesses today.

(Witnesses sworn.)

MR. HALL: Mr. Examiner, before entering any direct testimony, I'd like to make a brief statement about the applicant's position regarding this Travis Penn Unit.

The Travis Penn Unit was initially proposed to include 480 acres in Township 18 South, Range 28 East, in Section 12, the south half of the southeast quarter, and in Section 13, the northeast quarter of the south half and the northwest quarter of the north half of the southwest quarter of Eddy County, New Mexico, and by Order 6520, of which I have a copy here for you, the Division approved the unit agreement and the plan for the development that was contained therein, but in this application we file to implement the plan that was approved in that order.

There is one wrinkle in this presentation today, which I feel obliged to point out. It is that the original area under this Travis Penn Unit covered five wells and 400 acres, approximately.

The applicant is now nearing completion on the sixth well covering an additional 80 acres, and concurrently with this -- this application we are proceeding to try to expand the unit to include this sixth well, and we're doing this under Article Four of the unit agreement.

MR. NUTTER: Which contains provisions for expansion.

MR. HALL: That's correct, Mr. Examiner. And Mr. Viney's testimony today will include data on that sixth well.

CARLYN JARM

being called as a witness and being duly sworn upon her oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HALL:

Q. Will you state your name, please?

A. Carlyn Jarm.

Q. And where do you live, Ms. Jarm?

A. Roswell, New Mexico.

Q. And by whom are you employed?

A. Harvey E. Yates Company.

Q. And what are your duties with Harvey E. Yates Company?

A. I'm responsible for the preparation of all the agreements and documents in regards to the wells for the Land Department.

Q. All right. What is your title at Harvey E. Yates?

A. I'm the Land Contract Supervisor.

Q. All right. Are you familiar with the application filed in this case, 7320?

A. Yes.

Q. All right, and in your position as Land Contract Supervisor, are you familiar with the Travis Penn Unit?

A. Yes, sir.

Q. What has been your connection with this particular unit?

A. I have supervised the preparation of the agreement, the ratification, and also supervised the sending of these agreements to all the working interest owners.

Q. Okay, so you supervised the preparation

of all the documents --

A. Correct.

Q. -- under this unit.

Are you familiar, then, with the Travis Penn Unit Agreement, which was approved in the Division Order R-6502?

A. Yes, I am.

Q. I'll hand you what's been marked for identification as Applicant's Exhibit Number One, and ask you to look at that and see if you can identify it for us, please, ma'am.

A. Exhibit Number One is the unit agreement for the Travis Penn Unit.

Q. All right, and that is a copy of the --

A. Yes, it is.

Q. -- unit agreement that was approved in the --

A. Yes.

Q. -- Order 6502.

A. Yes, sir.

Q. All right. Where was that -- where did you obtain that copy?

A. From Harvey E. Yates Company files.

Q. All right.

MR. HALL: Mr. Examiner, I'd like to offer Exhibit Number One.

MR. NUTTER: Exhibit Number One will be admitted in evidence.

Q All right. Ms. Jarm, would you turn to Section 11 on page seven and read into the record the paragraph relating to the plan of development?

A Section 11. Plan of Operation. It is recognized and agreed by the parties hereto that all of the land subject to this agreement is reasonably proved to be productive of unitized substances and that the object and purpose of this agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of unitized substances, prevent waste, and conserve natural resources.

The parties hereto agree that the unit operator may, subject to the consent and approval of a plan of operation by the working interest owners, supervisor, the Land Commissioner, and the Division, inject into the unitized formation through any well or wells completed therein brine, water, air, gas, oil, liquified petroleum gases, and any one or more other substances or combination of substances, whether produced from the unitized land or not, and that the location of input wells and the rates of injection therein shall be

governed by standards of good geologic and petroleum engineering practices and conservation methods.

Subject to like approval the plan of operation may be revised as conditions may warrant.

Q. All right, thank you, ma'am.

In reference again to this unit agreement, do you have the latest figures on the ratification by the working interest?

A. Yes, sir.

Q. And what are those figures, please?

A. We have 81.9 percent of the working interest in.

Q. All right, thank you. I'll hand you what has been marked for Exhibit -- for identification as Applicant's Exhibit Number Two, and ask you if you can identify what that is, please?

A. Exhibit Two is a certified receipt of an application sent to the Bureau of Land Management.

Q. All right, how are you able to identify that as a receipt sent to the Bureau of Land Management?

A. Since the address of the Bureau of Land Management does not appear, I personally called the Bureau of Land Management office yesterday to verity that Karen T. Klein does indeed work for the Bureau of Land Management.

Q. All right, and does Karen T. Klein's name appear on that receipt, is that --

A. Yes, it does.

Q. -- correct? All right.

I'll hand you what has been marked for Exhibit -- for identification as Applicant's Exhibits Three-A through Three-E, and ask if you can identify what those particular documents are?

A. Exhibits Three-A through Three-E are cement bond logs.

Q. Are they all cement bond logs or are they -- if you would go through each one of them, Three-A, Three-B, Three-C, and Three-D are all bond logs, but what is Three-E, please, ma'am?

A. Okay. Three-E is a letter from the production engineer of Harvey E. Yates Company with the estimated top of cement.

Q. All right.

I'll hand you what has been marked for identification as Applicant's Exhibits Four-A through Four-F and ask if you would identify what those comprise, please?

A. These are well completion reports on the well in the proposed Travis Penn Unit.

Q. All right. Is Three -- excuse me, Four-D

in any way different?

A. Four-D is a permit to drill.

Q. All right.

A. For the Travis Penn Unit.

Q. Okay. IN reference to Exhibits -- Applicant's Exhibits Number Two, Three, and Four, would you tell me where you obtained these exhibits, please?

A. These were obtained from the Harvey E. Yates Company files.

Q. And were they done, were they obtained there under your supervision and direction, or personally by you?

A. Yes, sir, they were.

MR. HALL: Mr. Examiner, I would like to submit Applicant's Exhibits Two, Three, and Four.

MR. NUTTER: Exhibits Two, Three, and Four will be admitted in evidence.

MR. HALL: Thank you, sir.

MR. NUTTER: Except I want to ask about Exhibit Three-E. This man doesn't give any explanation of how he estimates the top of the cement in the referenced well. He simply states the estimated top of cement is so-and-so.

This is unsubstantiated hearsay, so that's bad two ways.

MR. HALL: Yes, sir. Would we be able to get you some supplemental --

MR. NUTTER: Yes, sir.

MR. HALL: -- information on that?

MR. NUTTER: That would be all right.

MR. HALL: All right.

Q. Let me hand you what has been marked for identification as Applicant's Exhibit Number Five and ask you to identify that, please, ma'am.

A. Exhibit Number Five is a letter from Mr. James Wright, the State Engineer's Office, in Roswell.

Q. All right, and what does that particular letter state, please, ma'am?

A. Would you like for me to read it?

Q. I would like you to read it, please.

A. It's addressed to Harvey E. Yates Company, 500 North Main, Roswell, New Mexico, attention Mr. Rod Thompson.

Gentlemen. This is to advise that our records do not indicate any fresh water in the formations below the Artesia Group in the vicinity of Sections 12 and 13 Township 18 South, Range 28 East.

There is some fresh water being produced from the Grayburg in the general area.

It is my opinion that any water encountered in the San Andres will be highly mineralized.

Yours truly, James Wright, Assistant District Supervisor.

Q. And would you tell the Examiner where and how you obtained that particular exhibit, please?

A. I contacted Mr. Wright earlier in this week to put into letter form what he had already stated to our geologist, Rod Thompson, and I sent my secretary over yesterday to obtain the letter.

MR. HALL: Mr. Examiner, I'd like to enter Applicant's Exhibit Number Five.

MR. NUTTER: Exhibit Five will be admitted in evidence.

MR. HALL: Thank you, sir. That's all the questions I have of this particular witness.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Ms. Jarm, now Mr. Hall in his initial opening statement indicated that another 80 acres was being added to the unit.

Now with reference to the plat which is Exhibit A to the unit agreement, and also to the order he

handed me which was the original order approving the unit agreement, it would appear that the north half of the northwest quarter of Section 13 would be the 80 acres you're talking about, is that right?

A. Yes, sir.

Q. And what is the status of the commitment of those lands to the unit at this time?

A. The -- I don't understand, sir.

Q. Well, he says that these lands are going to be committed to the unit. Now you mentioned that you had 81.9 percent of the working interest committed to the unit. Does that include this 80 acres tract?

A. Yes, sir. Most of those working interests are -- have interest in the other wells, as well, so we do have their commitments also.

Q. Okay. How far along is the commitment of Tract Five to the unit?

A. That I'm not sure, sir. It's in the completion stages right now.

Q. And you expect that the unit will be expanded to include that 80 acres?

A. Yes.

Q. And it does have a well on it, this Travis "13" State Com Well No. 2?

A. Yes, sir, it is presently drilling and near completion.

Q. Oh, it's drilling at the present?

A. Yes, and it's near completion stage.

Q. Okay.

MR. NUTTER: Are there any further questions of the witness? She may be excused.

RALPH H. VINEY

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HALL:

Q. Would you state your name and address, please, sir?

A. My name is Ralph Viney. I live in Midland, Texas.

Q. And what is your occupation, Mr. Viney?

A. We have an engineering consulting company.

Q. All right, sir, have you testified before the Division before?

A. Yes, sir.

Q. And at that time, or previously, have your qualifications been accepted by the Division?

A. Yes, sir.

MR. HALL: Mr. Examiner, would you accept Mr. Viney as a qualified expert to testify in this particular matter?

MR. NUTTER: Yes, Mr. Viney is qualified.

Q. Mr. Viney, are you familiar with the application filed in Case 7320?

A. Yes, sir.

Q. And have you conducted certain studies in connection with the waterflood project proposed in that application?

A. Yes, sir.

Q. All right. Let me hand you what has been marked for identification as Applicant's Exhibit Number Six and ask you if you can identify that, please, sir?

A. Yes, sir. Exhibit Six is a compendium of the complete study of the Travis Upper Penn Pool in Eddy County, New Mexico, which incorporates reserves maps, geology, estimates of formation porosity characteristics, permeabilities, material balance, enhanced recovery methods, outlines of complete installation of equipment, and production statistics and some compendium of the well completion records.

Q. And, Mr. Viney, was this, the material contained in this report compiled or produced under your direct supervision?

A. Yes, sir.

Q. And control?

MR. HALL: Mr. Examiner, I'd like to enter Applicant's Exhibit Number Six.

MR. NUTTER: Exhibit Six will be admitted in evidence.

Q. Mr. Viney, would you please turn to Plate No. 1 of your report, beging Applicant's Exhibit Number Six?

A. Yes, sir.

Q. And what does that page of the exhibit show?

A. This page, aside from showing the structural tops on the Canyon Marker, also includes a proposed unit boundary outline.

Q. All right, and is this the area covered by your study?

A. Yes, sir.

Q. In Exhibit Number Six. Before we leave this page, would you please indicate the well through which the proposed waterflood injection is due to be?

A. The initial pilot injection well, being

the Travis Deep No. 3 Well, located in the north half of the northeast quarter of Section 13, Township 18 South, Range 28 East.

Q. All right. Mr. Viney, do you have some figures on the current production from the wells in this particular area that comprises the Travis Penn Unit?

A. Yes, sir.

Q. All right. From these figures can you determine whether the production is stable, decreasing, or increasing?

A. There is a natural decrease with depletion of reservoir pressures of the well, but primarily only one well has shown any severe decline, that well being the Travis Deep No. 2, located in the south half of the northeast quarter of Section 13.

Q. In your opinion would the -- would you consider that the wells in this unit are nearing a state of depletion?

A. They're being depleted and possibly reaching middle to advanced stages of depletion.

Q. Let's turn our attention now to the reason for the waterflood project. To complete your report you had to determine certain characteristics of this reservoir, did you not?

A. Yes, sir.

Q. And how did you make the determination of the reservoir characteristics?

A. Well, this is a rather lengthy study, but to begin with we have conducted a series of reservoir pressure buildups on a period, a scheduled basis, and relating the performance and withdrawals of all condensate type oil and gas from the reservoir, have been able to utilize this material to make material balances as well as volumetric estimates of the hydrocarbons in place.

Q. What have your studies and empirical estimates enabled you to determine about the characteristics of the reservoir?

A. Mr. Hall, that question encompasses many questions.

First of all, the characteristics of this producing period is a volatile to possibly almost condensate type fluid. We are looking at either a bubble point fluid of close to 3800 pounds or a dewpoint of around 3800 pounds.

The performance of the wells would indicate volatile to condensate type liquid hydrocarbon production and associated with that I think the operator has noticed a severe paraffin condition in all his producing

tubing strings. The determination of the rock characteristics has been a little more difficult in that attempts to recover cores have all failed. We've lost cores on every attempt to run cores, losing them in the barrel; losing them up the barrel.

Basically, we had to then relate performance of the wells, using engineering empirical methods, as well as using the electric logs and the determination of the parameters that you can ordinarily calculate from the standard service type company log.

Q. So in other words, Mr. Viney, you do not have a definite clear picture of the reservoir. You are basing your findings on --

A. No, Mr. Hall, I would say we have a clear picture of the reservoir based on the performance pressurewise as well as production. We do not have a firm, positive laboratory measurement of the rock characteristics as measured from a sample recovered from beneath the surface of the ground.

Q. Do you have enough of a -- the reservoir characteristics determined to make an estimation of the total reserves that are present in this reservoir?

A. Yes, sir. Basically the characteristics of the reservoir are not necessarily required in many methods

to obtain the reserves. We check reserves by both pressure and material balance methods and determined that the reserves could be as high as 24-million barrels in this particular reservoir.

Q. All right. What is the estimated total recovery from this reservoir under the current method of recovery?

A. At the time we did this study we had five wells that were completed and producing.

The wells completed early in the life of the field, of course, had the higher recovery;on the average the production primary-wise would be about 150,000 barrels of high gravity hydrocarbons.

Q. And is that the estimation of the total life of the reservoir, what we would be able to expect from this point forward if the current methods are not -- are not changed?

A. Normally under depletion type recovery mechanisms you could not possibly expect more than, probably, 8 to 12 percent of the hydrocarbons in place as being recoverable.

Q. Have you made any estimation of the total recovery that ould be expected if a scondary recovery project is instituted?

A. Approximately 25 to 32 percent of the hydrocarbons in place could be recovered.

Q. Mr. Viney, I understand that you recommended the initial use of water as the injection fluid for this -- for a secondary recovery project. Would you tell us why?

A. Basically the availability and the economics. At this point I think most here will recognize that this is a rather deep waterflood. We're injecting into a zone at approximately 9800 feet. We are looking at varying permeabilities and porosities in the range of 4 to 10 percent. We have seen definite variations of permeability between wells. Consequently, water is being suggested as the media to pilot the area, hopefully without damage to the formation.

But this would not abbrogate the use of CO_2 or intert gases or missible type operations in the future.

Q. Okay, but -- but as of today the least cost method would be -- would be water.

A. Plus the availability. At this time if we go to the exotic CO_2 now being touted, that we couldn't -- first, we cannot get it to location at economic cost, and second, it is not readily available.

Q. All right. You previously testified that you were going to use Travis Deep Unit No. 3 as the injection

well. Could you tell us what you base this decision on?

A. Basically the reason for recommending the No. 3 was the availability of offset wells both to the north and to the south of this located well, plus the fact that we are trying to orient permeability to see if we have any Isotrophic orientation of permeability along the strike of the structure.

Q. All right. Your study includes a recommendation of the surface equipment that's proposed to be used for the injection project, does it not?

A. Yes, sir.

Q. Would you indicate to the Examiner where in your report this particular matter is covered?

A. Mr. Examiner, you will find a complete documentation layout plans, costs, under tabbed section enhanced recovery section of Exhibit Six.

Q. Now, concerning the subsurface portion of the operation, how do you propose to control the downhole fluids and keep them within the zone?

A. Normally a conventional completion techniques with utilizing packers and bridge plugs, or plug, will be utilized, and at present we have been conducting injectivity profiles as well as tracer surveys to affirm that all fluids are entering the producing formation.

Q As a corollary to this, did you in your study find any evidence of any potable water aquifers within the one mile of the injection well?

A No, sir, we did not.

Q I'll hand you what has been entered as Applicant's Exhibit Three-A, which are bonding logs for the wells in the area, and also Exhibits Four-A through F, which are completion reports of the wells, and have you look through those and give an opinion as to the -- the protection which would be afforded any possible fresh water aquifers in the area.

A Basically, Mr. Hall, the copies of the sections of the logs presented under Section Three-A are nothing more than bond logs with in some instances the top of the cement behind the 5-1/2 casing being shown.

This would indicate that we do have cement to the top. Whether we have integrity of that cement behind the casing, of course, we do not know until pressures and fluids are injected into the wellbore.

Other than that, the exhibit that Mr. Nutter brought out on that, on Three-E, I would assume that possibly Mr. Hardy calculated that by volumetric, but it does not state.

Exhibits Four are copies of the

completion reports filed with New Mexico Oil Conservation Commission, and set out the casing, casing programs that were utilized in the completion of these wells.

In all cases, well, in most cases, 13-3/8ths casing was set through the surface waters down to approximately 3350 feet, and the casing cemented with cement circulated.

The 8-5/8ths in most cases was set between 2900 and 3500 feet, and with the exception of two wells, sufficient cement was utilized that should have circulated the cement behind the casing to surface.

Q. Mr. Viney, is it your opinion that the -- any aquifers in the area would be adequately protected under this particular project?

A. They should be adequately protected with the programs shown on the completion reports.

Q. What rate of injection of water to you propose to use under this particular project?

A. Under the basis of what we could calculate as to the flow rate, or the capacity of the fluid to produce oil accept fluids, formation to accept fluids, the injectivity rate being from 700 barrels to about 1200 barrels a day, it is proposed that we -- in our initial proposal we are going to use approximately 700 barrels a day and limit our surface

injection pressure to approximately 1000 pounds.

Q. All right. What would be the maximum pressure you would propose to use? Would it be this 1000 pounds?

A. We would like to stay under 1200 pounds because with a pressure, surface pressure greater than that, we are reaching the frac gradient of this formation.

Q. What is the proposed source of water to be used in this injection project?

A. I am told and I have read an agreement whereby water will be supplied to the unit area from Double Eagle Water Company.

Q. Have you developed a comprehensive plan for this secondary water recovery project based on the performance of the initial water injection?

A. We have proposed some alternatives, but until we have the results of the pilot program it is difficult to say that one will be or another will be the program to be used.

Basically what we have -- what we are trying to determine is whether a pattern flood would be necessary or if we will use a peripheral type flood. At this point we cannot definitely say which pattern will be used.

Q. But would the applicant be able to ap-

proach the Division with an amended plan when and if needed to keep the project running smoothly?

A. Yes, sir, we would want to keep them advised of the progress.

Q. All right. Do you feel that the institution and successful operation of this waterflood project would enhance the recovery from the reservoir and conserve the resources therein?

A. Basically if it works as the calculations would suggest, we would increase the recoverable hydrocarbons, yes, sir.

MR. HALL: That's all the questions I have of Mr. Viney.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Viney, in his letter Mr. Wright stated that there wasn't any fresh water --

A. Below the base of the Artesia --

Q. -- below the Artesia Group.

A. And I do not know what the base of the Artesia Group is, Mr. Nutter. I do not know.

Q. Okay. Well now, you mentioned that on thes completion reports for these wells that it showed the

surface casing had been set at approximately 360 plus feet.

A. Yes, sir.

Q. In these wells. Now, Exhibit Four-A is for the Travis 13-1. It was set at 350 with 350 sacks.

Four-B shows the Travis Deep 2 at 360 with 425 sacks.

Exhibit Four-C shows the Travis Deep No. 1 had surface pipe to 355 with 370 sacks.

Exhibit Four-E shows the Travis Deep Com No. 3 has 376 sacks of surface pipe set with 470 -- 376 feet of surface pipe set with 475 sacks.

Exhibit Four-F shows the Travis State Com No. 1 has 380 feet of surface pipe set with 475 sacks.

And the only one that's not a completion report is for the Travis State -- Travis 13 State 2. Now is that the well that is presently drilling?

A. That well is presently cased and they have tested the Canyon section and they have some cross flow between the intervals perforated in the Canyon section and they have resqueezed them and are now perforating.

Q. Okay, well, all we've got here rather than a completion report was the original drilling permit and they had proposed to set 13-3/8ths, and I believe, it is very difficult to read on this exhibit, 375 feet and circulated

cement. Do you know what amount of surface pipe was actually set in that well?

A. No, sir, I do not.

Q. Can you get that information for us?

MR. HALL: Yes, we can, yes.

Q. And also, I'd be interested to know whether these surface casing programs on these wells would be adequate to reach below this Artesia Group that Mr. Wright refers to in his letter.

A. Well, that's a fact that we do not know.

Q. Now, in specific response to certain items on the Form C-108, the application for the authorization to inject, I believe that your application, Mr. Hall, had section, relating to various sections, in that form.

MR. HALL: Yes, sir.

MR. NUTTER: Now, let's take them a step at a time, Mr. Hall. I don't know if Mr. Viney could testify to some of these or if they are actually included in the data that he submitted in his Exhibit Number Six, or not.

MR. HALL: Some of it, Mr. Examiner, probably is, but I did not take this from Mr. Viney's report.

MR. NUTTER: This is an independent study made in your office.

MR. HALL: These are our independent

exhibits drawn up in our office, yes, sir.

MR. NUTTER: Okay. Now item number three, well data, complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached, if necessary.

Okay, do we have all of the items that are covered under Roman numeral III, Sections A and B, do you know?

MR. HALL: All right, sir, under Section A, the lease name.

MR. NUTTER: We've got that.

MR. HALL: And location. At casing and string size, setting and depth, I attached a copy of the -- this exhibit of the dual -- multiple completion installation, which was prepared by our engineer, Mr. Pat Hardy.

MR. NUTTER: Well now, that's -- that's a multiple completion which I would presume would be for production purposes, but this is going to be the injection well, isn't it?

MR. HALL: That's correct.

A. Mr. Nutter, that dual completion string will be withdrawn. A bridge plug will be set below the base of the Canyon, and a single injection string will be run in the hole with a packer.

Q Okay, now can you tell me the depths of the perforations for the injection zone, Mr. Viney?

A Yes, sir, they'll be the same zones that are shown on the completion, from 9830 to 9920.

Q That's the upper set of perforations, then.

A Yes, sir. The lower sets are Morrow.

Q Okay, now how will the annulus be treated, Mr. Viney?

A We will use a chromate (sic) solution above the packer.

Q And the annulus would be filled?

A Yes, sir.

Q And a pressure gauge installed at the --

A Yes, sir.

Q -- surface or some other means of detecting leaks.

A Yes, sir, we need safety for detecting rupture in case of rupture, yes, sir.

Q Leakage in the packer, tubing, or casing?

A Yes, sir.

Q Okay, now Item 3 under Roman numeral III A is a description of the tubing to be used, including size, lining material, and setting depth. Would you have that information?

A. At this time we will go with 3-2/8ths string, which will be plastic-lined tubing, and in this case it will have to be N tubing because of the strength requirements.

Q. It will have to be what?

A. N grade tubing.

Q. N grade?

A. N grade, N-80.

Q. And what would its setting depth be, Mr. Viney?

A. Approximately 9750, 97-to-9750.

Q. Okay. Do we have the information required by item III-A-4, name model and setting depth of the packer?

A. Not as yet. We'll probably use a Baker type packer.

Q. Okay, now under well data, item III, Roman numeral III, Section B, it calls for a number of things, and that is covered on the application.

MR. HALL: That is correct, sir.

MR. NUTTER: Is it all here, Joe?

MR. HALL: Yes, sir, I feel -- I thought that it was. I feel that it is.

MR. NUTTER: Okay. Then we get back to the front page. Roman numeral V, Section 5 there, Joe.

MR. HALL: The land plat. That was -- was prepared by our geologist in Midland and I felt for -- for purposes of not putting on as many witnesses, that's why we used Mr. Viney's report today, rather than have --

MR. NUTTER: All right, does he have a map in his book?

A Yes, sir.

MR. HALL: Yes, sir, he does.

A Pages one, two, and three of Exhibit Six, Mr. Nutter.

Q MR. NUTTER: Now, Joe, you've got a map there that has a circle drawn around it.

MR. HALL: Yes, sir, I do.

MR. NUTTER: That was part of the application or is that --

MR. HALL: That's part of the application.

MR. NUTTER: -- an exhibit at the hearing?

MR. HALL: That's part of the application, yes, sir.

MR. NUTTER: Okay.

MR. HALL: That was under Roman numeral V there.

MR. NUTTER: How about Roman numeral VI?

MR. HALL: Roman numeral VI is a tabulation of the wells within the area of review. It's a listing.

MR. NUTTER: Is that that?

MR. HALL: That's that, yes, sir. That includes the completion reports attached, in the back of it.

MR. NUTTER: Roman numeral VII.

MR. HALL: That, I referred you to Mr. Viney's report.

MR. NUTTER: Mr. Viney, you covered Item A. Is the system open or closed, Mr. Viney?

A. It will be a closed system, Mr. Nutter.

Q. Proposed average and maximum injection pressure, you stated you wouldn't probably go over 1000 pounds. That would be average and maximum, probably?

A. 1000 to 1200, that's the range we'll have to figure.

Q. That's the range?

A. Yes, sir.

Q. Source of the water is Double Eagle?

A. Yes, sir.

Q. Maximum refers to disposal purposes only.

Okay, Item 8, Joe, appropriate geological data on the injection zone, including appropriate lithological --

appropriate lithologic detail, geological name, thickness, and depth; geologic name and depth to bottom of all underground sources of drinking water; aguifers containing water with TDS concentrations 10,000 or less overlying the proposed injection zone, as well as any such source known to be immediately underlying the injection zone.

That's been covered to some extent, except we don't know the depth of the Artesian Group, and also in his letter Mr. Wright said the water would be highly mineralized but didn't give a statement as to whether highly mineralized means 9950 or over 10,000 or just what.

MR. HALL: I'll get that information for you when I get the depth of the --

MR. NUTTER: Describe the proposed stimulation program, if any, Mr. Viney?

A. Basically the stimulation has been acid in most cases and until we have some injectivity profiles with the water, we may have to stimulate the small fractures with some fracture treatments in the injection well.

Q. And of course you don't have any ideas as to what pressures would be used to do a thing like that at this time?

A. No, sir.

Q. You did mention that you thought if you

exceeded 1200 pounds on your injection pressure at surface you'd exceed the fracture pressure in the reservoir.

A. It would be approaching the fracture gradient, yes, sir.

Q. Do you have any idea what the fracture pressure is in the reservoir?

A. Approximately about 7000 pounds.

Q. I see.

MR. NUTTER: Item 10, Mr. Hall?

MR. HALL: That would be the -- that is on the stratigraphic cross section which was filed with the -- with the application.

MR. NUTTER: Okay. Now, a chemical analysis of fresh water from two or more wells, if available, and producing.

I presume there aren't any, is this correct.

MR. HALL: That is -- that's our position, yes, sir.

MR. NUTTER: And then the proof of notice business on the back here. You sent it to the --

MR. HALL: Yes, sir, that was --

MR. NUTTER: -- concerned parties?

MR. HALL: That was Applicant's Exhibit

Number Two.

MR. NUTTER: Right.

MR. HALL: With the mailing of this application to the BLM.

MR. NUTTER: Yeah, okay.

Are there any further questions of Mr. Viney? He may be excused.

Do you have anything further, Mr. Hall?

MR. HALL: No, sir, I do not.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7320?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7320, heard by me on 8/12 1981.

_____, Examiner
Oil Conservation Division

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UNIT AGREEMENT

TRAVIS PENN UNIT

COUNTY OF EDDY

STATE OF NEW MEXICO

BEFORE EXAMINER Daniel S Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 1
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

81.97 % of 201
Has ratified
Uses injects
700 Amopd
@ 1000 psi surf
@ 1200 receiving
fracture press
Will use Permits
from Double Eagle
Will Co.

UNIT AGREEMENT
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO

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UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION OF THE
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO
NO.

THIS AGREEMENT, entered into as of the 1st day of May, 19 81, by and between the parties subscribing, ratifying or consenting hereto, and herein referred to as "Parties hereto";

W I T N E S S E T H

WHEREAS, the parties hereto are the owners of working, royalty or other oil or gas interests in the Unit Area subject to this Agreement; and

WHEREAS, the Mineral Leasing Act of February 25, 1920, (41 Stat. 437, as amended 30 U.S.C. Sections 181 et seq.) authorizes Federal lessees and their representatives to unite with each other, or jointly or separately with others in collectively adopting and operating a unit plan of development or operation of any oil or gas pool, field, or like area, or any part thereof for the purpose of more properly conserving the natural resources thereof whenever determined and certified by the Secretary of the Interior to be necessary or advisable in the public interest; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 3, Chap. 88, Laws 1943 as amended by Section 1 of Chap. 162, Laws of 1951, Section 19-10-45 to 47 N.M.S.A. (1978)) to consent to or approve this Agreement on behalf of the State of New Mexico, insofar as it covers and includes lands and mineral interests of the State of New Mexico; and

WHEREAS, the Oil Conservation Division of the State of New Mexico Department of Energy is authorized by law (Chap. 72, Laws of 1935, as amended by Chap. 193, Laws of 1937, Chap. 166, Laws of 1941, and Chap. 168, Laws of 1949) to approve this Agreement, and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the Travis Penn Unit covering the land hereinafter described to give reasonably effective control of operation therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources, to prevent waste and secure the other benefits obtainable through development and operation of the area subject to this Agreement under the terms, conditions and limitations herein set forth.

NOW, THEREFORE, in consideration of the premises and the promises herein contained, the parties hereto commit to this Agreement their respective interests in the Unitized Formation of the below defined Unit Area, and agree severally among themselves as follows:

SECTION 1. ENABLING ACT AND REGULATIONS. The Mineral Leasing Act of February 25, 1920, as amended, supra, and all valid pertinent regulations, including operating and unit plan regulations, heretofore issued thereunder and valid, pertinent and reasonable regulations hereafter issued thereunder are accepted and made a part of this Agreement as to Federal lands, provided such regulations are not inconsistent with the terms of this Agreement; and as to non-Federal lands, the oil and gas operating regulation

in effect as of the effective date hereof governing drilling and producing operations, not inconsistent with the terms hereof or the laws of the State in which the non-Federal land is located, are hereby accepted and made a part of this Agreement.

SECTION 2. UNIT AREA AND DEFINITIONS. For the purpose of this Agreement, the following terms and expressions as used herein shall mean;

(a) "Unit Area" is defined as those lands described in Exhibit "B" and depicted on Exhibit "A" hereof, and such land is hereby designated and recognized as constituting the Unit Area, containing 400.00 acres, more or less, in Eddy County, New Mexico.

(b) "Land Commissioner" is defined as the Commissioner of Public Lands of the State of New Mexico.

(c) "Division" is defined as the Oil Conservation Division of the State of New Mexico, Department of Energy;

(d) "Director" is defined as the Director of the United States Geological Survey.

(e) "Secretary" is defined as the Secretary of the Interior of the United States of America, or his duly authorized delegate.

(f) "Department" is defined as the Department of the Interior of the United States of America.

(g) "Supervisor" is defined as the Oil and Gas Supervisor of the United States Geological Survey for the area in which the Unit Area is situated.

(h) "Unitized Formation" shall mean that subsurface portion of the Unit Area commonly known as the Cisco-Canyon formation, which is that continuous stratigraphic interval that was encountered between the logged depths of 9,815 feet and 9,935 feet in Harvey E. Yates Company's Travis Deep Unit #2 Well, as shown on the CNL Density Radioactive log of said well dated June 23, 1977 which well is located 1980 feet from the North line and 1780 feet from the East line of Section 13, Township 18 South, Range 28 East, Eddy County, New Mexico.

(i) "Unitized Substances" are all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constitutent liquid or liquefiable hydrocarbons within and produced from the Unitized Formation, of the Unitized Land.

(j) "Tract" is each parcel of land described as such and given a Tract number in Exhibit "B".

(k) "Tract Participation" is defined as the percentage of participation shown on Exhibit "C" for allocating Unitized Substances to a Tract under this Agreement.

(l) "Unit Participation" is the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract.

(m) "Working Interest" is the right to search for, produce and acquire Unitized Substances whether held as an incident of ownership of mineral fee simple title, under an oil and gas lease, or otherwise held, which interest is chargeable with and obligated to pay or bear, either in cash or out of production, or otherwise, all or a portion of the cost of drilling, developing and producing the Unitized Substance from the Unitized Formation and operations thereof hereunder. Provided that any royalty interest created out of a working interest subsequent to the execution of this Agreement by the owner of the working interest shall continue to be subject to such working interest burdens and obligations.

(n) "Working Interest Owner" is any party hereto owning a Working Interest, including a carried working interest owner, holding an interest in Unitized Substances by virtue of a lease, operating agreement, fee title or otherwise. The owner of Oil and Gas Rights that are free of lease or other instrument creating a working interest in another shall be regarded as a Working Interest Owner to the extent of seven-eighths (7/8) of his interest in Unitized Substances, and as a Royalty Owner with respect to his remaining one-eighth (1/8) interest therein.

(o) "Royalty Interest" or "Royalty" is an interest other than a Working Interest in or right to receive a portion of the Unitized Substances or the proceeds thereof and includes the royalty interest reserved by the lessor by an oil and gas lease and any overriding royalty interest, oil payment interest, net profit contracts, or any other payment or burden which does not carry with it the right to search for and produce Unitized Substances.

(p) "Royalty Owner" is the owner of a Royalty Interest.

(q) "Unit Operating Agreement" is the agreement entered into by and between the Unit Operator and the Working Interest Owners as provided in Section 9, infra, and shall be styled "Unit Operating Agreement, Travis Penn Unit, Eddy County, New Mexico".

(r) "Oil and Gas Rights" is the right to explore, develop and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof.

(s) "Outside Substances" is any substance obtained from any source other than the Unitized Formation and injected into the Unitized Formation.

(t) "Unit Manager" is any person or corporation appointed by Working Interest Owners to perform the duties of Unit Operator until the selection and qualification of a successor Unit Operator as provided for in Section 7 hereof.

(u) "Unit Operator" is the party designated by Working Interest Owners under the Unit Operating Agreement to conduct Unit Operations.

(v) "Unit Operations" is any operation conducted pursuant to this Agreement and the Unit Operating Agreement.

(w) "Unit Equipment" is all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for the joint account for use in Unit Operations.

(x) "Unit Expense" is all cost, expense, or indebtedness incurred pursuant to this Agreement and the Unit Operating Agreement for or on account of Unit Operations.

SECTION 3. EXHIBITS. Exhibit "A" attached hereto is a map showing the Unit Area and the boundaries and identity of tracts and leases in said Unit Area to the extent known to the Unit Operator. Exhibit "B" attached hereto is a schedule showing, to the extent known to the Unit Operator, the acreage comprising each Tract, percentages and kind of ownership of oil and gas interests in all land in the Unit Area. Exhibit "C" attached hereto shows the Tract Participation of each Tract in the Unit Area. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. Exhibit "D" attached hereto is the provisions of paragraphs 1 through 7 of Section 202 of Executive Order 11246. Exhibits, "A", "B" and "C" shall be revised by the Unit Operator whenever changes in the Unit Area render such revision necessary or when requested by the Supervisor, and copies of such revision shall be filed with the Land Commissioner, and not less than five copies shall be filed with the Supervisor.

SECTION 4. EXPANSION. The above described Unit Area may when practicable or necessary be expanded to include therein any additional Tract or Tracts regarded as reasonably necessary or advisable for the purposes of this Agreement. Such expansion shall be effected in the following manner:

(a) Voluntary Expansion.

(1) The Working Interest Owner or Owners of a Tract or Tracts desiring to bring such Tract or Tracts into this unit, shall file an application therefor with Unit Operator requesting such admission.

(2) Unit Operator shall circulate a notice of the proposed expansion to each Working Interest Owner in the Unit Area and in the Tract proposed to be included in the Unit, setting out the basis for admission, the Tract Participation to be assigned to each Tract in the enlarged Unit Area and other pertinent data. If at least three Working Interest Owners having in the aggregate eighty percent (80%) Unit Participation then in effect have agreed to inclusion of such Tract or Tracts in the Unit Area, then Unit Operator shall:

(A) After obtaining preliminary concurrence by the Supervisor, prepare a notice of proposed expansion describing the contemplated changes in the boundaries of the Unit Area, the reason therefor, the basis for admission of the additional Tract or Tracts, the Tract Participation to be assigned thereto and the proposed effective date thereof; and

(B) Deliver copies of said notice to the Land Commissioner, the Supervisor, each Working Interest Owner and to the lessee and lessor whose interests are affected, advising such parties that thirty (30) days will be allowed for submission to the Unit Operator of any objection to such proposed expansion; and

(C) File, upon the expiration of said thirty (30) day period as set out in (2) immediately above with the Land Commissioner and Supervisor the following: (a) Evidence of mailing or delivering copies of said notice of expansion; (b) An application for approval of such expansion;

(c) An instrument containing the appropriate joinders in compliance with the participation requirements of Section 14, and Section 32, infra; and
(d) A copy of all objections received along with the operators response thereto.

(3) The expansion shall, after due consideration of all pertinent information and approval by the Land Commissioner and the Supervisor, become effective as of the date prescribed in the notice thereof, preferably the first day of a month subsequent to the date of notice. The revised Tract Participation of the respective Tracts included within the Unit Area prior to such enlargement shall remain the same ratio one to another.

(b) Compulsory Expansion.

(1) If in Unit Operators opinion, the Unit Area should at any time be expanded to include an additional Tract or Tracts, and the Working Interest Owners of such Tract or Tracts are unwilling to join the expanded Unit, Unit Operator shall circulate a notice of proposed compulsory expansion to each working interest owner in the Unit Area and in the Tract or Tracts proposed to be included in the Unit setting out the proposed basis for admission and Tract participation to be assigned to each Tract in the expanded Unit Area and other pertinent data. If at least three Working Interest Owners having in the aggregate eighty percent (80%) unit participation then in effect concur in the necessity for such expansion, then Unit Operator shall:

(A) File with the Division an application for compulsory unitization requesting inclusion of such Tract or Tracts in the proposed expanded unit and prosecute such application to entry of a final order by the Division.

(B) Deliver copies of such order to the Land Commissioner, the Supervisor, each Working Interest Owner and to the Lessees and Lessors whose interests are affected by such order.

(2) If such order grants the requested relief, the expansion of the Unit will be effective as of the effective date of such order or as set out therein.

SECTION 5. UNITIZED LAND. All land committed to this Agreement as to the Unitized Formation shall constitute land referred to herein as "Unitized Land" or "Land subject to this Agreement". Nothing herein shall be construed to unitize, pool, or in any way affect the oil, gas and other minerals contained in or that may be produced from any formation other than the Unitized Formation as defined in Section 2(h) of this Agreement.

SECTION 6. UNIT OPERATOR. Harvey E. Yates Company is hereby designated the Unit Operator, and by signing this instrument as Unit Operator agrees and consents to accept the duties and obligations of Unit Operator for the operation, development and production of Unitized Substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in that capacity and not as an owner of interests in Unitized Substances, when such interests are owned by it and the term "Working Interest Owner" when used herein shall include or refer to the Unit Operator as the owner of a Working Interest when such an interest is owned by it.

Unit Operator shall have a lien upon interests of Working Interest Owners in the Unit Area to the extent provided in the Unit Operating Agreement.

SECTION 7. RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after written notice of intention to resign has been given by Unit Operator to all Working Interest Owners, the Land Commissioner and the Supervisor unless a new Unit Operator shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period. The resignation or removal of Unit Operator shall not release Unit Operator from any liability for any default by it hereunder occurring prior to the effective date of its resignation or removal.

The Unit Operator shall be subject to removal if it fails or refuses to carry out its duties hereunder, or becomes insolvent, bankrupt or is placed in receivership by the affirmitive vote of two (2) or more Working Interest Owners owning a majority of the Unit Participation then in effect including the Unit Participation attributable to the Unit Operator.

In all such instances of effective resignation or removal, until a successor to Unit Operator is selected and approved as hereinafter provided, the Working Interest Owners shall be jointly responsible for the performance of the duties of the Unit Operator and shall, not later than thirty (30) days before such resignation or removal becomes effective, appoint a Unit Manager to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this Agreement shall not terminate its right, title or interest as the owner of a Working Interest or other interest in Unitized Substances, but upon the resignation or removal of Unit Operator becoming effecttive, such Unit Operator shall deliver possession of all wells, equipment, books and records, materials, appurtenances and any other assets used in connection with the Unit Operations and owned by the Working Interest Owners to the new duly qualified successor Unit Operator or to the Unit Manager if no such new Unit Operator is elected, to be used for the purpose of conducting Unit Operations hereunder. Nothing herein shall be construed as authorizing the removal of any material, equipment of appurtenances needed for the preservation of any wells. Nothing herein contained shall be construed to relieve or discharge an Unit Operator or Unit Manager who resigns or is removed hereunder from any liability or duties accruing or performable by it prior to the effective date of such resignation or removal.

SECTION 8. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender its resignation as Unit Operator or shall be removed as hereinabove provided, the Working Interest Owners shall select a successor Unit Operator as herein provided. Such selection shall not become effective until (a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Land Commissioner and the Supervisor. If no successor Unit Operator or Unit Manager is selected and qualified as herein provided, the Land Commissioner and/or the Director, at their election, may declare this Agreement terminated.

In selecting a successor Unit Operator the affirmative vote of three or more Working Interest Owners having a total of sixty-five percent (65%) or more of the total Unit Participation shall prevail; provided that if any one Working Interest Owner has a Unit participation of more than thirty-five percent (35%), its negative vote or failure to vote shall not be regarded as sufficient unless supported by the vote of one or more other Working Interest Owners having a total Unit Participation of at least five percent (5%). If the Unit Operator who is removed votes only to succeed itself or fails to vote, the successor Unit Operator may be selected by the affirmative vote of the owners of at least seventy-five percent (75%) of the Unit Participation remaining after excluding the Unit Participation of Unit Operator so removed.

SECTION 9. ACCOUNTING PROVISIONS & UNIT OPERATING AGREEMENT. Costs and expenses incurred by Unit Operator in conducting Unit Operations hereunder shall be paid, apportioned among and borne by the Working Interest Owners in accordance with the Unit Operating Agreement. Such Unit Operating Agreement shall also provide the manner in which the Working Interest Owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases or other contracts and such other rights and obligations as between Unit Operator and the Working Interest Owners as may be agreed upon by the Unit Operator and the Working Interest Owners; however, no such Unit Operating Agreement shall be deemed either to modify any of the terms and conditions of this Agreement or to relieve the Unit Operator of any right or obligation established under this Agreement, and in case of any inconsistency or conflict between this Agreement and the Unit Operating Agreement, this Agreement shall prevail. Copies of any Unit Operating Agreement executed pursuant to this Section shall be filed with the Land Commissioner and with the Supervisor as required prior to approval of this Agreement.

SECTION 10. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein the exclusive right, privilege and duty of exercising any and all rights of the parties hereto which are necessary or convenient for prospecting for, producing, storing, allocating and distributing the Unitized Substances are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Upon request, acceptable evidence of title to said rights shall be deposited with said Unit Operator, and together gether with this Agreement, shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease or operating agreement, it being understood that under this Agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

SECTION 11. PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this agreement is reasonably proved to be productive of Unitized Substances and that that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a Plan of Operation by the Working Interest Owners, the Supervisor, the Land Commissioner and the Division, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic

and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions may warrant.

The initial Plan of Operation shall be filed with the Supervisor, the Land Commissioner and the Division concurrently with the filing of this Unit Agreement for final approval. Said initial plan of operations and all revisions thereof shall be as complete and adequate as the Supervisor, the Land commissioner and the Division may determine to be necessary for timely operation consistent herewith. Said initial plan shall provide for the injection of the residue gas produced from the Unitized Formation commencing within twelve months from the effective date hereof and continuing until such time as the initial plan is terminated or modified by a subsequent plan with the approval of all necessary parties, including the Supervisor, the Land Commissioner and the Division. Upon approval of this Agreement and the initial plan by the Supervisor and Commissioner, said plan, and all subsequently approved plans shall constitute the operating obligations of the Unit Operator under this Agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall submit for like approval a plan for an additional specified period of operation. After such operations are commenced, reasonable diligence shall be exercised by the Unit Operator in complying with the obligations of the approved Plan of Operation.

Notwithstanding anything to the contrary herein contained, should the Unit Operator fail to commence operation of an improved recovery project incorporating the injection of produced gas within one (1) year after the effective date of this Agreement, or any extension thereof approved by the Supervisor, this Agreement shall terminate automatically as of the date of default.

SECTION 12. USE OF SURFACE AND USE OF WATER. The parties have to the extent of their rights and interests, hereby granted to Unit Operator the right to use as much of the surface of the Unitized Land as may reasonably be necessary for Unit Operations; provided that nothing herein shall be construed as leasing or otherwise conveying to the Unit Operator a site for water, gas injection or other plants or camp site.

Unit Operator shall have free use of water or brine or both from the Unitized Land for Unit Operations, except water from any well, lake, pond or irrigation ditch of a surface Owner, unless approval for such use is granted by the surface Owner.

Unit Operator shall pay the Owner for damages to growing crops, timber, fences, improvements and structures on the Unitized Land that result from Unit Operations.

SECTION 13. TRACT PARTICIPATION. In Exhibit "C" attached hereto there are listed and numbered the various Tracts within the Unit Area, and set forth opposite each Tract are figures which represent the Tract Participation if all Tracts in the Unit Area qualify as provided herein. The Tract Participations of each Tract as shown in Exhibit "C" were determined in accordance with the following parameters:

A. The net feet of porosity pay above four percent (4%) porosity cut off shall be determined from interpretation of generally accepted calibrated electric log surveys of the qualifying wells through the unitized formation. The net porosity feet so determined at each well in the formation to be unitized shall be plotted on a map at the respective well locations and an isopachous map constructed.

B. The productive net-porosity acre feet for each qualifying tract shall be determined by planimeter methods from the constructed isopachous net porosity feet of unitized formation.

C. The tract participation of each qualifying tract shall be the ratio of the individual tract net porosity acre feet volume divided by the summation of the net porosity acre feet volumes of all qualifying tracts.

In the event less than all Tracts are qualified on the Effective Date hereof, the Tract Participations shall be calculated on the basis of all such qualified Tracts rather that all Tracts in the Unit Area.

SECTION 14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof the Tracts within the Unit Area which shall be entitled to participation in the production of Unitized Substances shall be those Tracts more particularly described in Exhibit "B" that corner or have a common boundary (Tracts separated only by a public highway or a railroad right of way shall be considered to have a common boundary), and that otherwise qualify as follows:

(a) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement and as to which Royalty Owners owning seventy-five percent (75%) or more of the Royalty Interest have become parties to this Agreement.

(b) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement, and as to which Royalty Owners owning less than seventy-five percent (75%) of the Royalty Interest have become parties to this Agreement, and as to which (1) the Working Interest Owner who operates the Tract and at least seventy-five percent (75%) of all other Working Interest Owners in such Tract have joined in a request for the inclusion of such Tract, and as to which (2) owners of seventy-five percent (75%) of the combined Unit Participation in all Tracts that meet the requirements of Section 14 (a) above have voted in favor of the inclusion of such tract.

(c) Each Tract as to which Working Interest Owners owning less than one hundred percent (100%) of the Working Interest have become parties to this Agreement, regardless of the percentage of Royalty Interest therein that is committed hereto; and as to which (1) the Working Interest Owner who operates the Tract and a total of seventy-five percent (75%) or more of the other Working Interest Owners in such Tract who have become parties to this Agreement have joined in a request for inclusion of such Tract, and have executed and delivered, or obligated themselves to execute and deliver, an indemnity agreement indemnifying and agreeing to hold harmless the other owners of committed Working Interests, their successors and assigns, against all claims and demands that may be made by the owners of Working Interest in such Tract who are not parties to this Agreement, and which arise out of the inclusion of the Tract; and as to which (2) the owners of seventy-five percent (75%) of the Unit Participation in all Tracts that meet the requirements of Section 14 (a) and 14 (b) have voted in favor of the inclusion of such tract and to accept the indemnity agreement. Upon the inclusion of such a Tract, the Tract Participations which would have been attributed to the non-subscribing owners of Working Interest in such Tract, had they become parties to this Agreement and the Unit Operating Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements, and joined in the indemnity agreement, in proportion to their respective Working Interests in the Tract.

If on the Effective Date of this Agreement there is any Tract or Tracts which have not been effectively committed to or made subject to this Agreement by qualifying as above provided, then such Tract or Tracts shall not be entitled to participate hereunder. Unit Operator shall, when submitting this Agreement for final approval by the Land Commissioner and the Supervisor, file therewith a schedule of those Tracts which have been committed and made subject to this Agreement and are entitled to participate in Unitized Substances. Said schedule shall set forth opposite each such committed Tract the lease number or assignment number, the owner of record of the lease, and the percentage participation of such Tract which shall be computed according to the participation formula set out in Section 13 (Tract Participation) above. This schedule of participation shall be Revised Exhibit "C" and upon approval thereof by the Land Commissioner and the Supervisor shall become a part of this Agreement and shall govern the allocation of production of Unitized Substances until a new schedule is approved by the Land Commissioner and Supervisor.

SECTION 15. ALLOCATION OF UNITIZED SUBSTANCES. All Unitized Substances produced and saved (less, save and except any part of such Unitized Substances used in conformity with good operating practices on unitized land for drilling, operating, camp and other production or development purposes and for injection or unavoidable loss in accordance with a Plan of Operation approved by the Supervisor) shall be apportioned among and allocated to the qualified Tracts in accordance with the respective Tract Participations effective hereunder during the respective periods such Unitized Substances were produced, as set forth in the schedule of participation in Exhibit "C". The amount of Unitized Substances so allocated to each Tract, and only that amount, (regardless of whether it be more or less than the amount of the actual production of Unitized Substances from the well or wells, if any, on such Tract) shall, for all intents, uses and purposes, be deemed to have been produced from such Tract.

The Unitized Substances allocated to each Tract shall be distributed among, or accounted for, to the parties entitled to share in the production from such Tract in the same manner, in the same proportions, and upon the same conditions, as they would have participated and shared in the production from such Tracts, or in the proceeds thereof, had this Agreement not been entered into; and with the same legal force and effect.

No Tract committed to this Agreement and qualified for participation as above provided shall be subsequently excluded from participation hereunder on account of depletion of Unitized Substances.

If the Working Interest and/or the Royalty Interest in any Tract are divided with respect to separate parcels or portions of such Tract and owned now or hereafter in severalty by different persons, the Tract Participation shall, in the absence of a recordable instrument executed by all owners and furnished to Unit Operator fixing the divisions of ownership, be divided among such parcels or portions in proportion to the number of surface acres in each.

The Unitized Substances allocated to each Tract shall be delivered in kind to the respective Working Interest Owners and parties entitled thereto by virtue of the ownership of Oil and Gas Rights therein. Each Working Interest Owner and the parties entitled thereto shall have the continuing right to receive such production in kind at a common point within the Unit Area and to sell or dispose of the same as it sees fit. Each such party shall have the right to construct, maintain and operate all necessary facilities for that purpose on Unitized Land, provided the same are so constructed, maintained and operated as not to interfere with operations carried on pursuant hereto. Subject to Section 17 hereof, any extra expenditure

incurred by Unit Operator by reason of the delivery in kind of any portion of the Unitized Substances shall be borne by the party responsible therefor under the controlling lease or contract. In the event any Interest Owner shall fail to take or otherwise adequately dispose of its proportionate share of the production from the Unitized Unitized Formation currently as and when produced, then so long as such condition continues, Unit Operator, for the account and at the expense of the Working Interest Owner of the Tract or Tracts concerned, and in order to avoid curtailing the operation of the Unit Area, may, but shall not be required to, sell or otherwise dispose of such production to itself or to others on a day-to-day basis, provided that all contracts of sale by Unit Operator or any other party's share of Unitized Substances shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the circumstances, but in no event shall any such contract be for a period in excess of one year, and at not less than the prevailing market price in the area for like production, and the account of such Working Interest Owner shall be charged therewith as having received such production. The net proceeds, if any, of the Unitized Substances so disposed of by Unit Operator shall be paid to the Working Interest Owner of the Tract or Tracts concerned. Notwithstanding the foregoing, Unit Operator shall not make a sale into interstate commerce of any Working Interest Owner's share of gas production without first giving such Working Interest Owner sixty (60) days notice of such intended sale.

Any Working Interest Owner receiving in kind or separately disposing of all or any part of the Unitized Substances allocated to any Tract, or receiving the proceeds therefrom if the same is sold or purchased by Unit Operator, shall be responsible for the payment of all Royalty, overriding royalty and production payments due thereon, and each such party shall hold each other Working Interest Owner harmless against all claims, demands and causes of action by owners of such Royalty, overriding royalty and production payments.

If, after the Effective Date of this Agreement, there is any Tract or Tracts that are subsequently committed hereto, as provided in Section 4 (Expansion) hereof, or any Tract or Tracts within the Unit Area not committed hereto as of the Effective Date hereof but which are subsequently committed hereto under the provisions of Section 14 (Tracts Qualified for Participation) and Section 32 (Nonjoinder and Subsequent Joinder), or if any Tract is excluded from this Agreement as provided for in Section 31 (Loss of Title), the schedule of participation as shown in Exhibit "C", shall be revised by the Unit Operator; and the revised Exhibit "C", upon approval by the Land Commissioner and the Supervisor, shall govern the allocation of production on and after the effective date thereof until a revised schedule is approved as hereinabove provided.

If the Unit Area is enlarged, the revised Tract Participations of the Tracts which were within the Unit Area prior to the enlargement shall remain in the same ratio one to another.

SECTION 16. OUTSIDE SUBSTANCES. If gas obtained from formations not subject to this Agreement is introduced into the Unitized Formation for use in repressuring, stimulating of production or increasing ultimate recovery which shall be in conformity with a Plan of Operation first approved by the Land Commissioner and the Supervisor, a like amount of gas with appropriate deduction for loss or depletion from any cause may be withdrawn from unit wells completed in the Unitized Formation royalty free as to dry gas, but not royalty free as to the products extracted therefrom; provided that such withdrawal shall be at such time as may be provided in the approved Plan of Operation or as otherwise may be consented to or prescribed by the Land Commissioner and the Supervisor as conforming

to good petroleum engineering practices and provided further that such right of withdrawal shall terminate on the termination date of this Agreement.

SECTION 17. ROYALTY SETTLEMENT. The State of New Mexico and United States of America and all Royalty Owners who, under an existing contract, are entitled to take in kind a share of the substances produced from any Tract unitized hereunder, shall continue to be entitled to such right to take in kind their share of the Unitized Substances allocated to such Tract, and Unit Operator shall make deliveries of such Royalty share taken in kind in conformity with the applicable contracts, laws and regulations. Settlement for Royalty not taken in kind shall be made by Working Interest Owners responsible therefor under existing contracts, laws and regulations on or before the last day of each month for Unitized Substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any Royalty due under their leases, except that such Royalty shall be computed on Unitized Substances as allocated to each Tract in accordance with the terms of this Agreement. With respect to Federal leases committed hereto on which the royalty rate depends upon the daily average production per well, such average production shall be determined in accordance with the operating regulations pertaining to Federal leases as though the committed Tracts were included in a single consolidated lease.

If the amount of production or the proceeds thereof accruing to any Royalty Owner (except the United States of America) in a Tract depends upon the average production per well or the average pipeline runs per well from such Tract during any period of time, then such production shall be determined from and after the effective date hereto by dividing the quantity of Unitized Substances allocated hereunder to such Tract during such period of time by the number of wells located thereon capable of producing Unitized Substances as of the Effective Date hereof, provided that any Tract not having any well so capable of producing Unitized Substances on the Effective Date hereof shall be considered as having one such well for the purpose of this provision.

All Royalty due the State of New Mexico and the United States of America and the other Royalty Owners hereunder shall be computed and paid on the basis of all Unitized Substances allocated to the respective Tract or Tracts committed hereto, in lieu of actual production from such Tract or Tracts.

Each Royalty Owner (other than the State of New Mexico and the United States of America) that executes this Agreement represents and warrants that it is the owner of a Royalty Interest in a Tract or Tracts within the Unit Area as its interest appears in Exhibit "B" attached hereto. If any Royalty Interest in a Tract or Tracts should be lost by title failure or otherwise in whole or in part, during the term of this Agreement, then the Royalty Interest of the party representing himself to be the owner thereof shall be reduced proportionately and the interests of all parties shall be adjusted accordingly.

SECTION 18. RENTAL SETTLEMENT. Rentals or minimum Royaltis due on leases committed hereto shall be paid by Working Interest Owners responsible therefor under existing contracts, laws and regulations provided that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental or minimum Royalty in lieu thereof, due under their leases. Rental for lands of the State of New Mexico subject to this Agreement shall be paid at the rate specified in the respective leases from the State of New Mexico.

Rental or minimum Royalty for lands of the United States of America subject to this Agreement shall be paid at the rate specified in the respective leases from the United States of America, unless such rental or minimum Royalty is waived, suspended or reduced by law or by approval of the Secretary or his duly authorized representative.

SECTION 19. CONSERVATION. Operations hereunder and production of Unitized Substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to Federal and State laws and regulations.

SECTION 20. DRAINAGE. The Unit Operator shall take appropriate and adequate measures to prevent drainage of Unitized Substances from unitized land by wells on land not subject to this Agreement, including, but not limited to, proceedings under the New Mexico Compulsory Pooling Act.

The Unit Operator, upon approval by the Working Interest Owners, the Supervisor and the Land Commissioner, is hereby empowered to enter into a border line agreement or agreements with working interest owners of adjoining lands not subject to this Agreement with respect to operation in the border area for the maximum economic recovery, conservation purposes and proper protection of the parties and interest affected.

SECTION 21. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas on lands committed to this Agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect, and the parties hereto hereby consent that the Secretary and the Land Commissioner, respectively, shall and by their approval hereof, or by the approval hereof by their duly authorized representatives, do hereby establish, alter, change or revoke the drilling, producing, rental, minimum Royalty and Royalty requirements of Federal and State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this Agreement.

Without limiting the generality of the foregoing, all leases, subleases and contracts are particularly modified in accordance with the following:

(a) The development and operation of lands subject to this Agreement under the terms hereof shall be deemed full performance of all obligations for development and operation with respect to each part or separately owned Tract subject to this Agreement, regardless of whether there is any development of any particular part or Tract of the Unit Area, notwithstanding anything to the contrary in any lease, operating agreement or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

(b) Drilling, producing or improved recovery operations preformed hereunder shall be deemed to be performed upon and for the benefit of each Tract, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Land Commissioner and the Secretary, or their duly authorized representatives, shall be deemed to constitute such suspension pursuant to such direction or consent as to each Tract of unitized lands.

(d) Each lease, sublease, or contract relating to the exploration, drilling, development or operation for oil and gas which by its terms might expire prior to the termination of this Agreement, is hereby extended beyond any such term so provided therein, so that it shall be continued in full force and effect for and during the term of this Agreement.

(e) Any lease embracing lands of the State of New Mexico which is made subject to this Agreement shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(f) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto shall be segregated as to that portion committed and that not committed, and the terms of such lease shall apply separately to such segregated portions commencing as of the effective date hereof. Provided, however, that notwithstanding any of the provisions of this Agreement to the contrary, such lease shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease if oil or gas is, or has heretofore been discovered in paying quantities on some part of the lands embraced in such lease committed to this Agreement or, so long as a portion of the Unitized Substances produced from the Unit Area is, under the terms of this Agreement, allocated to the portion of the lands covered by such lease committed to this Agreement, or, at any time during the term hereof, as to any lease that is then valid and subsisting and upon which the lessee or the Unit Operator is then engaged in bona fide drilling, reworking, or improved recovery operations on any part of the lands embraced in such lease, then the same as to all lands embraced therein shall remain in full force and effect so long as such operations are diligently prosecuted, and if they result in the production of oil or gas, said lease shall continue in full force and effect as to all of the lands embraced therein, so long thereafter as oil or gas in paying quantities is being produced from any portion of said lands.

(g) The segregation of any Federal lease committed to this Agreement is governed by the following provision in the fourth paragraph of Section 17(j) of the Mineral Leasing Act, as amended by the Act of September 2, 1960, (74 Stat. 781-784): "Any (Federal) lease heretofore or hereafter committed to any such (unit) plan embracing lands that are in part within and in part outside of the area covered by any such plan shall be segregated into separate leases as to the lands committed and the lands not committed as of the Effective Date of unitization; provided, however, that any such lease as to the non-unitized portion shall continue in force and effect for the term thereof but for not less than two years from the date of such segregation and so long thereafter as oil or gas is produced in Paying Quantities."

SECTION 22. COVENANTS RUN WITH LAND. The covenants herein shall be construed to be covenants running with the land with respect to the interest of the parties hereto and their successors in interest until this Agreement terminates, and any grant, transfer or conveyance of interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee or other successor in interest. No assignment or transfer of any Working Interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument or transfer; and no assignment or transfer of any Royalty Interest subject hereto shall be binding upon the Working Interest Owner responsible therefor until the first day

of the calendar month after said Working Interest Owner is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument or transfer.

SECTION 23. EFFECTIVE DATE AND TERM. This Agreement shall become binding upon each party who executes or ratifies it as of the date of execution or ratification by such party and shall become effective on the first day of the calendar month next following the approval of this Agreement by the Supervisor, the Land Commissioner and the Division.

If this Agreement does not become effective on or before _____, 19___, it shall ipso facto expire on said date (hereinafter called "expiration date") and thereafter be of no further force or effect, unless prior thereto this Agreement has been executed or ratified by Working Interest Owners owning a combined Participation of at least eighty percent (80%), and at least seventy-five percent (75%) of such Working Interest Owners committed to this Agreement have decided to extend said expiration date for a period not to exceed six months (hereinafter called "extended expiration date"). If said expiration date is so extended and this Agreement does not become effective on or before said extended expiration date, it shall ipso facto expire on said extended expiration date and thereafter be of no further force or effect.

Unit Operator shall file for record within thirty (30) days after the Effective Date of this Agreement, in the office where a counterpart of this Agreement is recorded, a certificate to the effect that this Agreement has become effective according to its terms and stating further the effective date.

The term of this Agreement shall be for and during the time that Unitized Substances are produced from the unitized land and so long thereafter as drilling, reworking or other operations (including improved recovery operations) are prosecuted thereon without cessation of more than ninety (90) consecutive days unless sooner terminated as herein provided.

This Agreement may be terminated with the approval of the Land Commissioner and the Supervisor by Working Interest Owners owning eighty percent (80%) of the Unit Participation then in effect whenever such Working Interest Owners determine that Unit Operations are no longer profitable, or in the interest of conservation. Upon approval, such termination shall be effective as of the first day of the month after said Working Interest Owners' determination. Notice of any such termination shall be filed by Unit Operator in the office of the County Clerk of _____ County, New Mexico, within thirty (30) days of the effective date of termination.

Upon termination of this Agreement, the parties hereto shall be governed by the terms and provisions of the leases and contracts affecting the separate Tracts just as if this Agreement had never been entered into.

If not otherwise provided by the leases unitized under this Agreement, Royalty Owners hereby grant Working Interest Owners a period of six months after termination of this Agreement in which to salvage, sell, distribute or otherwise dispose of the personal property and facilities used in connection with Unit Operations.

SECTION 24. RATE OF PROSPECTING, DEVELOPMENT AND PRODUCTION. All production and the disposal thereof shall be in conformity with allocations and quotas made or fixed by any duly authorized person or regulatory body under any Federal or State statute. The Director is hereby vested with authority to alter or modify from time to time, in his discretion, the rate of prospecting and development and within

the limits made or fixed by the Commission to alter or modify the quantity and rate of production under this Agreement, such authority being hereby limited to alteration or modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alteration or modification; provided, further, that no such alteration or modification shall be effective as to any land of the State of New Mexico as to the rate of prospecting and development in the absence of the specific written approval thereof by the Land Commissioner and as to any lands of the State of New Mexico or privately owned lands subject to this Agreement or to the quantity and rate of production from such lands in the absence of specific written approval thereof by the Commission.

Powers in this Section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than fifteen (15) days from notice, and thereafter subject to administrative appeal before becoming final.

SECTION 25. NONDISCRIMINATION. Unit Operator in connection with the performance of work under this Agreement relating to leases of the United States agrees to comply with the clauses set forth in Exhibit "D" attached hereto and made a part hereof.

SECTION 26. APPEARANCES. Unit Operator shall have the right to appear for or on behalf of any interests affected hereby before the Land Commissioner, the Department, and the Division, and to appeal from any order issued under the rules and regulations of the Land Commissioner, the Department or the Division, or to apply for relief from any of said rules and regulations or in any proceedings relative to operations before the Land Commissioner, the Department or the Division or any other legally constituted authority; provided, however, that any other interested party shall also have the right at his or its own expense to be heard in any such proceeding.

SECTION 27. NOTICES. All notices, demands, objections or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if made in writing and personally delivered to the party or parties or sent by postpaid certified or registered mail, addressed to such party or parties at their respective addresses set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party or parties may have furnished in writing to the party sending the notice, demand or statement.

SECTION 28. NO WAIVER OF CERTAIN RIGHTS. Nothing in this Agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State wherein said Unitized Lands are located, or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive; provided, however, each party hereto convenants that it will not resort to any action to partition the unitized land or the Unit Equipment.

SECTION 29. EQUIPMENT AND FACILITIES NOT FIXTURES ATTACHED TO REALTY. Each Working Interest Owner has heretofore placed and used on its Tract or Tracts committed to this Agreement various well and lease equipment and other property, equipment and facilities. It is also recognized that additional equipment and facilities may hereafter be placed and used upon the Unitized Land as now or hereafter constituted. Therefore, for all purposes of this Agreement any such equipment shall be considered to be personal property and not fixtures attached to realty. Accordingly, said well and lease equipment and personal property is hereby severed from the mineral estates affected by this Agreement, and it is agreed that any such

equipment and personal property shall be and remain personal property of the Working Interest Owners for all purposes.

SECTION 30. UNAVOIDABLE DELAY. All obligations under this Agreement requiring the Unit Operator to commence or continue improved recovery operations or to operate on or produce Unitized Substances from any of the lands covered by this Agreement shall be suspended while, but only so long as, the Unit Operator, despite the exercise of due care and diligence, is prevented from complying with such obligations, in whole or in part, by strikes, acts of God, Federal, State of municipal law or agency, unavoidable accident, uncontrollabl delays in transportation, inability to obtain necessary materials in open market, or other matters beyond the reasonable control of the Unit Operator whether similar to matters herein enumerated or not.

SECTION 31. LOSS OF TITLE. In the event title to any Tract of unitized land shall fail so as to render the Tract inoperable under this Agreement and the true owner cannot be induced to join this Agreement, or forced to join in compulsory unitization proceedings, such Tract shall be automatically regarded as not committed hereto as of the first day of the calendar month in which the failure of title is determined and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to title as to any Royalty, Working Interest or other interest subject thereto, payment or delivery on account thereof may be withheld without liability or interest until the dispute is finally settled; provided, that as to State or Federal land or leases, no payments of funds due the State of New Mexico or the United States of America shall be withheld, but such funds shall be deposited as directed by the Land Commissioner and/or the Supervisor (as the case may be), to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

Unit Operator as such is relieved from any responsibility for any defect of failure of any title hereunder.

SECTION 32. NONJOINDER AND SUBSEQUENT JOINDER. Joinder by any Royalty Owner, at any time, must be accompanied by appropriate joinder of the corresponding Working Interest Owner in order for the Interest of such Royalty Owner to be regarded as effectively committed. Joinder of this Agreement by a Working Interest Owner, at any time, must be accompanied by appropriate joinder to the Unit Operating Agreement in order for such interest to be regarded as effectively committed to this Agreement.

Any oil or gas interest in the Unitized Formations not committed hereto prior to submission of this Agreement to the Land Commissioner and the Supervisor for final approval may thereafter be committed hereto upon compliance with the applicable provisions of this Section and of Section 14 (Tracts Qualified for Participation) hereof, at any time up to the effective date hereof on the same basis of participation as provided in said Section 14, by the owner or owners thereof subscribing, ratifying, or consenting in writing to this Agreement and, if the interest is a Working Interest, by the owner of such interest subscribing also to the Unit Operating Agreement.

It is understood and agreed, however, that from and after the Effective Date hereof the right of subsequent Joinder as provided in this Section shall be subject to such requirements or approvals and on such basis as may be agreed upon by Working Interest Owners owning not less than sixty-five percent (65%) of the Unit Participation then in effect, and approved by the Land Commissioner and Supervisor. Such subsequent joinder by a proposed Working Interest Owner must be evidenced by his execution or ratification of this Agreement

and the Unit Operating Agreement and, where State or Federal land is involved, such Joinder must be approved by the Land Commissioner or Supervisor. Such Joinder by a proposed Royalty Owner must be evidenced by his execution, ratification or consent of this Agreement and must be consented to in writing by the Working Interest Owner responsible for the payment of any benefits that may accrue hereunder in behalf of such proposed Royalty Owner. Except as may be otherwise herein provided, subsequent joinder to this Agreement shall be effective as of the first day of the month following the filing with the Land Commissioner and the Supervisor of duly executed counterparts of any and all documents necessary to establish effective commitment of any Tract or interest to this Agreement, unless objection to such joinder by the Land Commissioner or the Supervisor is duly made sixty (60) days after such filing.

SECTION 33. COUNTERPARTS. This Agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties and may be ratified or consented to by separate instrument in writing, specifically referring hereto, and shall be binding upon all those parties who have executed such a counterpart, ratification or consent hereto with the same force and effect as if all parties had signed the same document, and regardless of whether or not it is executed by all other parties owning or claiming an interest in the land within the above described Unit Area.

SECTION 34. JOINDER IN DUAL CAPACITY. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests owned or controlled by such party; provided, that if the party is the owner of a Working Interest, he must also execute the Unit Operating Agreement.

SECTION 35. TAXES. Each party hereto shall, for its own account, render and pay its share of any taxes levied against or measured by the amount or value of the Unitized Substances produced from the unitized land; provided, however, that if it is required or if it be determined that the Unit Operator or the several Working Interest Owners must pay or advance said taxes for the account of the parties hereto, it is hereby expressly agreed that the parties so paying or advancing said taxes shall be reimbursed therefor by the parties hereto, including Royalty Owners, who may be responsible for the taxes on their respective allocated share of said Unitized Substances. No taxes shall be charged to the United States or to the State of New Mexico, nor to any lessor who has a contract with a lessee which requires his lessee to pay such taxes.

SECTION 36. NO PARTNERSHIP. The duties, obligations and liabilities of the parties hereto are intended to be several and not joint or collective. This Agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

SECTION 37. PRODUCTION AS OF THE EFFECTIVE DATE. Unit Operator shall make a proper and timely gauge of all leases and other tanks within the unitized land in order to ascertain the amount of merchantable oil above the pipe line connection in such tanks as of the effective date hereof. All such oil which has then been produced in accordance with established allowables shall be and remain the property of the Interest Owner entitled thereto, the same as if the unit had not been formed; and the responsible Working Interest Owner shall promptly remove said oil from the unitized land. Any such oil not so removed shall be sold by Unit Operator for the account of such Working Interest Owners, subject to the payment of all Royalty to Royalty Owners under the terms hereof. The oil that is in excess of the prior allowable of the wells from which it was produced shall be regarded as Unitized Substances produced after Effective Date hereof.

If, as of the Effective Date hereof, any Tract is overproduced with respect to the allowable of the wells on that Tract and the amount of over-production has been sold or otherwise disposed of, such over-production shall be regarded as a part of the Unitized Substances produced after the Effective Date hereof and shall be charged to such Tract as having been delivered to the parties entitled to Unitized Substances allocated to such Tract.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and have set opposite their representive names the date of execution.

ATTEST:

HARVEY E. YATES COMPANY

_____
Asst. Secretary

BY: _____
Vice President

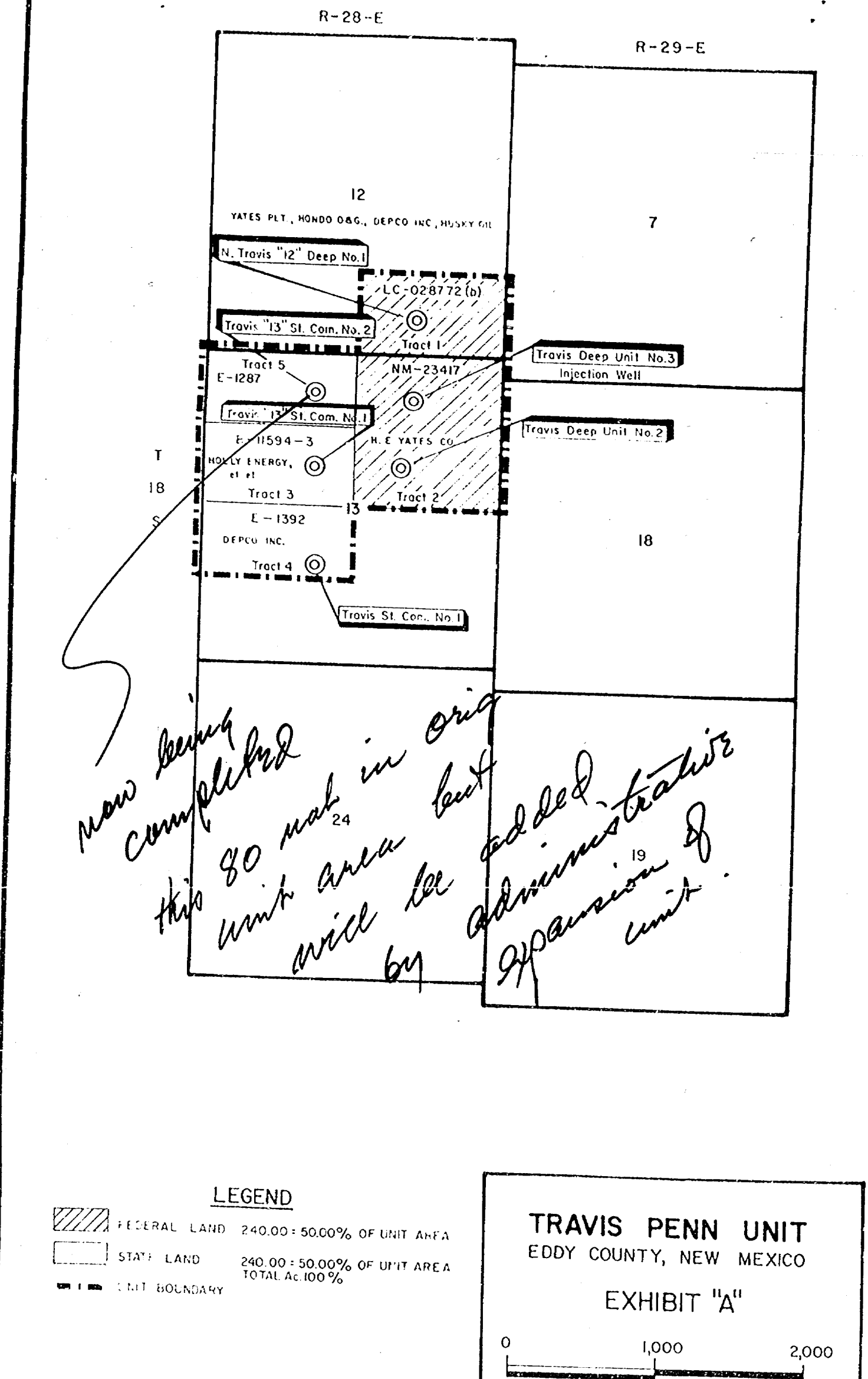
STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

The foregoing instrument was acknowledged before me this _____ day of _____, 1980 by _____, Vice President of HARVEY E. YATES COMPANY, a New Mexico Corporation, on behalf of said corporation.

My Commission Expires:

_____

_____
Notary Public



LEGEND

FEDERAL LAND 240.00 = 50.00% OF UNIT AREA

STATE LAND 240.00 = 50.00% OF UNIT AREA
TOTAL Ac. 100%

UNIT BOUNDARY

TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO

EXHIBIT "A"

0 1,000 2,000

EXHIBIT "B"

SCHEDULE SHOWING THE PERCENTAGE AND KIND OF OWNERSHIP OF OIL AND GAS INTERESTS

TRAVIS PENN UNIT AREA

EDDY COUNTY, NEW MEXICO

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
TOWNSHIP 18 SOUTH, RANGE 28 EAST, N.M.P.M.							
1	Sec. 12: S/2 SE/4 (Below 500')	80.0	LC-028772(b) HBP	U.S.A. 12.5%	Hondo Oil & Gas Company 50.0000% Yates Petroleum Corp. 18.0556% Husky Oil Company 15.9722% DEPCO, Inc. 15.9722%	Yates Bros 2.256940% Colkelan Corporation .021404% Hanson Oil Corporation .018230% Hondo Oil & Gas Co. .630700% Mobil Producing Tx & NM .437600% Tenneco Oil Company .080220% Fred G. Yates, Inc. .002594% James H. Yates, Inc. .021402%	Hondo Oil & Gas Company 50.0000% Yates Petroleum Corp. 18.0556% Husky Oil Company 15.9722% DEPCO, Inc. 15.9722%
2	Sec. 13: N/2 NE/4 (Below 3100')	80.0	NM-23417 HBP	U.S.A. 12.5%	Anadarko Production Company & Southland Royalty Company 100.0000%	Robert F. Travis, Jr. .500004% Dolores Ponton .083333% Eudora Hawley Heilman .250000% Frank Edward Hawley .125000% James Clayton Hawley .125000% Featherstone Farms, Ltd. .500000% Yates Bros. .250000%	Harvey E. Yates Company 100.0000%

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
2	Sec. 13: N/2 NE/4 (Continued)					Gladys Travis, Trustee .083333% Nell T. Michel .083333% Harvey E. Yates 1.500000% Louise D. Yates 1.500000% Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	
2	Sec. 13: S/2 NE/4 (Below 3500')	80.0	NM-23417 HBP	U.S.A. 12.5%	Anadarko Production Company & Southland Royalty Company 100.0000%	Robert F. Travis, Jr. .500004% Dolores Ponton .083333% Eucora Hawley Heilman .250000% Frank Edward Hawley .125000% James Clayton Hawley .125000% Featherstone Farms, Ltd. .500000%	Harvey E. Yates Company 100.0000%

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
2	Sec. 13: S/2 NE/4 (Continued)					Yates Bros. .250000% Gladys Travis, Trustee .083333% Nell T. Michel .083333% Harvey E. Yates 1.500000% Louise D. Yates 1.500000% Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	

2 Federal Tracts - 240.0 acres or 50.0% of unit area

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
3	Sec. 13: S/2 NW/4 (Below 2650')	80.0	B-11594-3 HBP	State of New Mexico - 12.5%	Holly Energy, Inc. 100.0000%	Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	Holly Energy, Inc. 87.5000% Read & Stevens, Inc. 12.5000%
4	Sec. 13: N/2 SW/4 (Below 3500')	80.0	E-1392 HBP	State of New Mexico - 12.5%	Anadarko Production 100.0000%	Robert Boling .500000% Mary Boling .500000% Gladys Browne .500000% Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Mark Wilson 1.000000% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	DEPCO, Inc. 100.0000%

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
5	Sec. 13: N/2 NW/4	80.0	E-1287 HBP	State of New Mexico - 12.5%	Holly Energy, Inc. 100.0000%	Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	Holly Energy, Inc. 87.5000% Read & Stevens, Inc. 12.5000%

3 State Tracts - 240.0 acres or 50.0% of unit area

*Subject to the terms of the Operating Agreements dated June 1, 1976 and April 25, 1980, by and between Harvey E. Yates Company, as Operator, and other parties as Non-Operators.

Exhibit "C"
Harvey E. Yates Company - Travis Penn Unit
Working Interest Calculations
Revised July 28, 1981

WORKING INTEREST OWNERS		PRESENT WORKING INTEREST						NEW WORKING INTERESTS
Number	Name	TRAVIS DEEP No. 2 8019	TRAVIS DEEP No. 3 8038	TRAVIS STATE No. 1 8081	TRAVIS 13 STATE No. 1 9043	NORTH TRAVIS 12 No. 1 9042	TRAVIS 13 STATE No. 2 9082	TRAVIS PENN UNIT 9075*
05540	Rogers Aston	.00173120	.00173120	.00173120	.00173120	.00145469	.00173120	.00168512
05550	Charles Albert Aston	.00173120	.00173120	.00173120	.00173120	.00145469	.00173120	.00168512
05560	Lincoln Aston	.00173120	.00173120	.00173120	.00173120	.00145469	.00173120	.00168512
05570	Rogers Aston Trust-FNB	.00519350	.00519350	.00519350	.00519350	.00436398	.00519350	.00505525
08310	Bassett-Birney Corporation	.04154820	.04154820	.04154820	.04154820	.03491203	.04154820	.04044217
09865	Black-Shield Development Co.	.03471840	.03471840	.03471840	.03471840	.02917310	.03471840	.03379418
15170	Colkelan Corporation	.00990171	.00990171	.00990171	.00990171	.00832019	.00990171	.00963812
15725	Coronado Exploration Corp.	.07273469	.07273469	.07273471	.07273469	.06111735	.07273469	.07079847
18100	Depco, Inc.	.12797620	.12797620	.12797620	.12797620	.10753556	.12797620	.12456943
26620	Explorers Petroleum Corp.	.02034880	.02034880	.02034880	.02034880	.01709864	.02034880	.01980711
27340	Fair Oil Company	.00867960	.00867960	.00867960	.00867960	.00729328	.00867960	.00844855
34482	Hanson Oil Company	.00867960	.00867960	.00867960	.00867960	.00729328	.00867960	.00844855
37040	Holly Energy, Inc.	.07270920	.07270920	.07270920	.07270920	.06109593	.07270920	.07077366
37206	Hondo Oil & Gas Corp.	.05003900	.05003900	.05003890	.05003900	.04204658	.05003900	.04870691
51425	LDY Corporation	.01763220	.01763220	.01763220	.01763220	.01481595	.01763220	.01716283
57695	Mobil Producing Co. TX & NM	.03471840	.03471840	.03471840	.03471840	.02917310	.03471840	.03379418
73600	Read & Stevens Inc.	.01038700	.01038700	.01038700	.01038700	.00872797	.01038700	.01011050
80700	Spiral, Inc.	.01763220	.01763220	.01763220	.01763220	.01481595	.01763220	.01716283
83730	Tenneco Oil Co.	.01301940	.01301940	.01301940	.01301940	.01093991	.01301940	.01267282
96823	Yates Exploration Co. Inc.	.01017440	.01017440	.01017440	.01017440	.00854932	.01017440	.00990355
96865	Fred G. Yates Inc.	.02034870	.02034870	.02034870	.02034870	.01709856	.02034870	.01980701
96875	Yates Petroleum Corp.	.04324850	.04324850	.04324850	.04324850	.03634075	.04324850	.04209721
96884	James H. Yates Inc.	.01980330	.01980330	.01980330	.01980330	.01664027	.01980330	.01927613
99980	Harvey E. Yates Company	.35531340	.35531340	.35531348	.35531340	.29856203	.35531340	.34585481
38360	Husky Oil Company					.15972220		.02662037
		1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000

EXHIBIT "D"

ATTACHED TO AND MADE A PART OF
UNIT AGREEMENT DATED
BETWEEN HARVEY E. YATES COMPANY AS OPERATOR,
AND OTHER SIGNATORY PARTIES THERETO AS
NON-OPERATORS.

NONDISCRIMINATION CLAUSE

HARVEY E. YATES COMPANY, hereinafter referred to as "Operator," agrees, unless exempt therefrom, to comply with all provisions of Executive Order 11246, which are incorporated herein by reference, and if Operator has more than 50 employees, Operator must file Standard Form 100 (EEO-1) and develop a written "Affirmative Action Compliance Program" for each of its establishments according to the Rules and Regulations published by the United States Department of Labor in 41 C.F.R., Chapter 60. Operator further hereby certifies that it does not now and will not maintain any facilities provided for its employees in a segregated manner or permit its employees to perform their services at any location under its control where segregated facilities are maintained, as such segregated facilities are defined in Title 41, Chapter 60-1.8, Code of Federal Regulations, revised as of 1/1/69, unless exempt therefrom.

Unless exempt by rules, regulations or orders of the United States Secretary of Labor, issued pursuant to Section 204 of the Executive Order 11246 dated September 24, 1965, during the performance of this contract, the Operator agrees as follows:

"(1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Operator will take affirmative action to ensure the Applicants are employed and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting office setting forth the provisions of this nondiscrimination clause.

"(2) The Operator will, in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

"(3) The Operator will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

"(4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

"(5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

"(6) In the event of the Operator's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

"(7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States."

PS Form 3811, Jan 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered..... ¢
- ☐ Show to whom, date and address of delivery.... ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$ ____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:

SANTA FE NM 87501 AUG 3 PM 1981

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.

SIGNATURE ☐ Addressee ☐ Authorized agent

/s/ Caren T. Cline

4. DATE OF DELIVERY

POSTMARK

1981

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

☆GPO : 979-223-845

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 2
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

HEYCO PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P.O. BOX [illegible] SUITE 300 SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

July 29, 1981

Bureau of Land Management
U.S. Department of the Interior
Post Office Box 1449
Santa Fe, New Mexico 87501

RE: Notice of Application of
Harvey E. Yates Company
for Waterflood Injection
Eddy County, New Mexico

Gentlemen:

Harvey E. Yates Company, as Operator under the Travis Penn Unit Agreement, has filed an Application with the Oil Conservation Division of the State of New Mexico for a hearing August 12, 1981, seeking authorization under Rule 701 of the Rules and Regulations of the Oil Conservation Commission to commence a waterflood injection operation on the following property:

Township 18 South, Range 28 East, N.M.P.M.

Section 12: S/2SE/4
Section 13: N/2, N/2SW/4

Enclosed is a copy of the above application.

Sincerely,

Thomas J. Hall, III
Attorney

TJH:dk

Enclosure

Cement Bond Log

Peabody Vann

Engineers

FILING NO

COMPANY HEYCO, INC.

WELL NORTH TRAVIS "12" DEEP #1

FIELD TURKEY TRACK

COUNTY EDDY STATE NEW MEXICO

LOCATION 660' FSL & 1650' FEL

SEC 12 TWP 18-S RGE 28-E

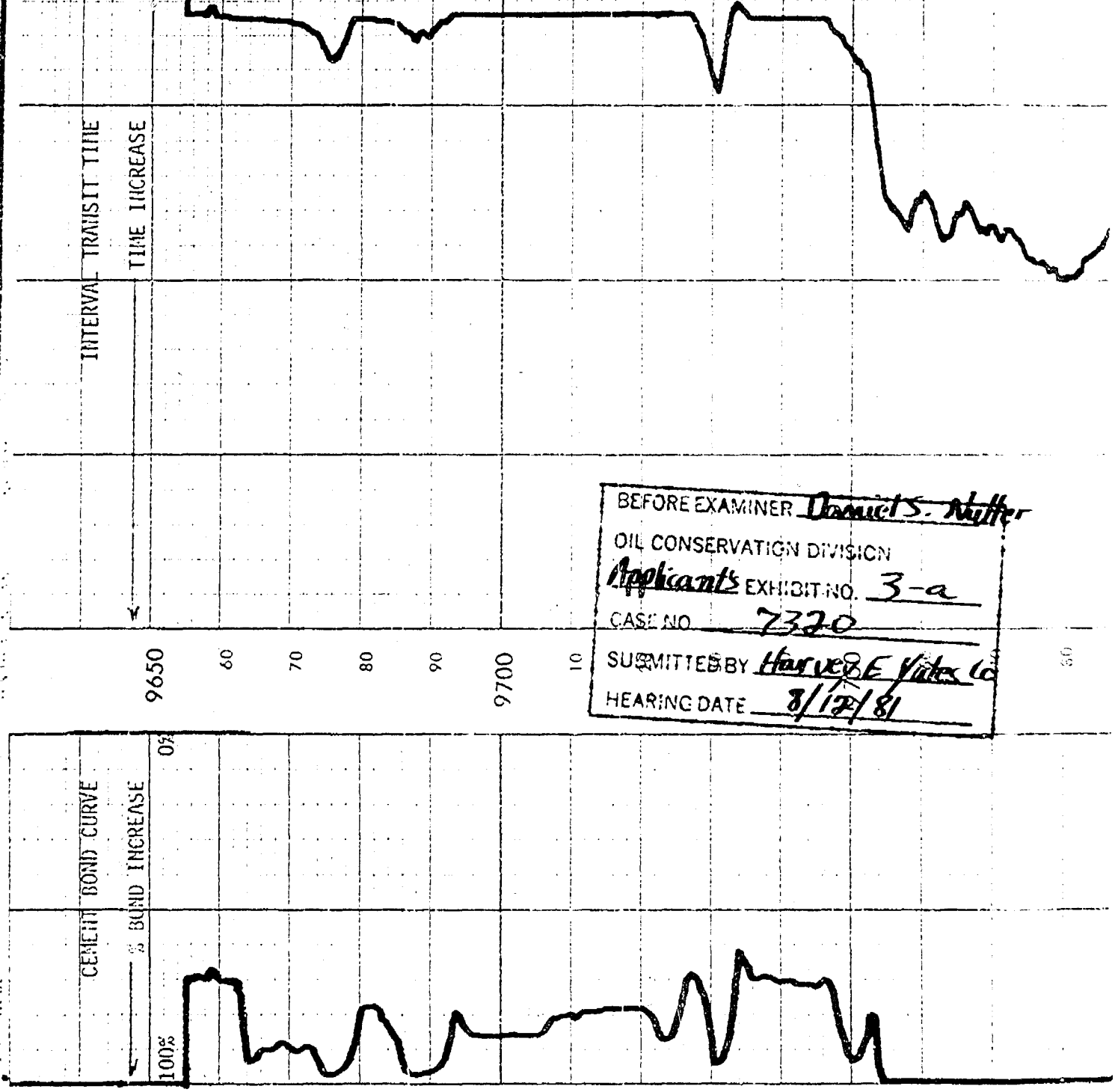
GRCCL

PERMANENT DATUM	G L	ELEV. 3633.7'	3640.7'
LOG MEASURED FROM	K B 15 FT ABOVE PERM. DATUM		-
DRILLING MEASURED FROM	K B		3633.7'

DATE	7/15/80	
RUN NO	ONE	
TYPE LOG	CEMENT BOND	(DUAL CURVE)
DEPTH—DRILLER	-	
DEPTH--LOGGER	11,177'	
BOTTOM LOGGED INTERVAL	11,171'	
TOP LOGGED INTERVAL	9,655'	
TYPE FLUID IN HOLE	WATER	
SALINITY, PPM CL	-	
DENSITY	-	
LEVEL	800'	
MAX. REC. TEMP. DEG F	-	
OPERATING RIG TIME	5 HOURS	
RECORDED BY	M. BUTTS	
WITNESSED BY	MR. HARDEE	

RUN NO	BORE—HOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT	FROM	TO
				5½"	17#	SURF.	PBTD

RECEIVED



BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicants EXHIBIT NO. 3-a
CASE NO. 7320
SUBMITTED BY Harvey E Yates Co
HEARING DATE 8/12/81

Peabody Vann

CEMENT BOND LOG

HEYCO, INC.

TRAVIS "24" STATE COM. #1

WILDCAT

EDDY STATE NEW MEXICO

1980' FNL & 660' FEL

24 18-S 28-E

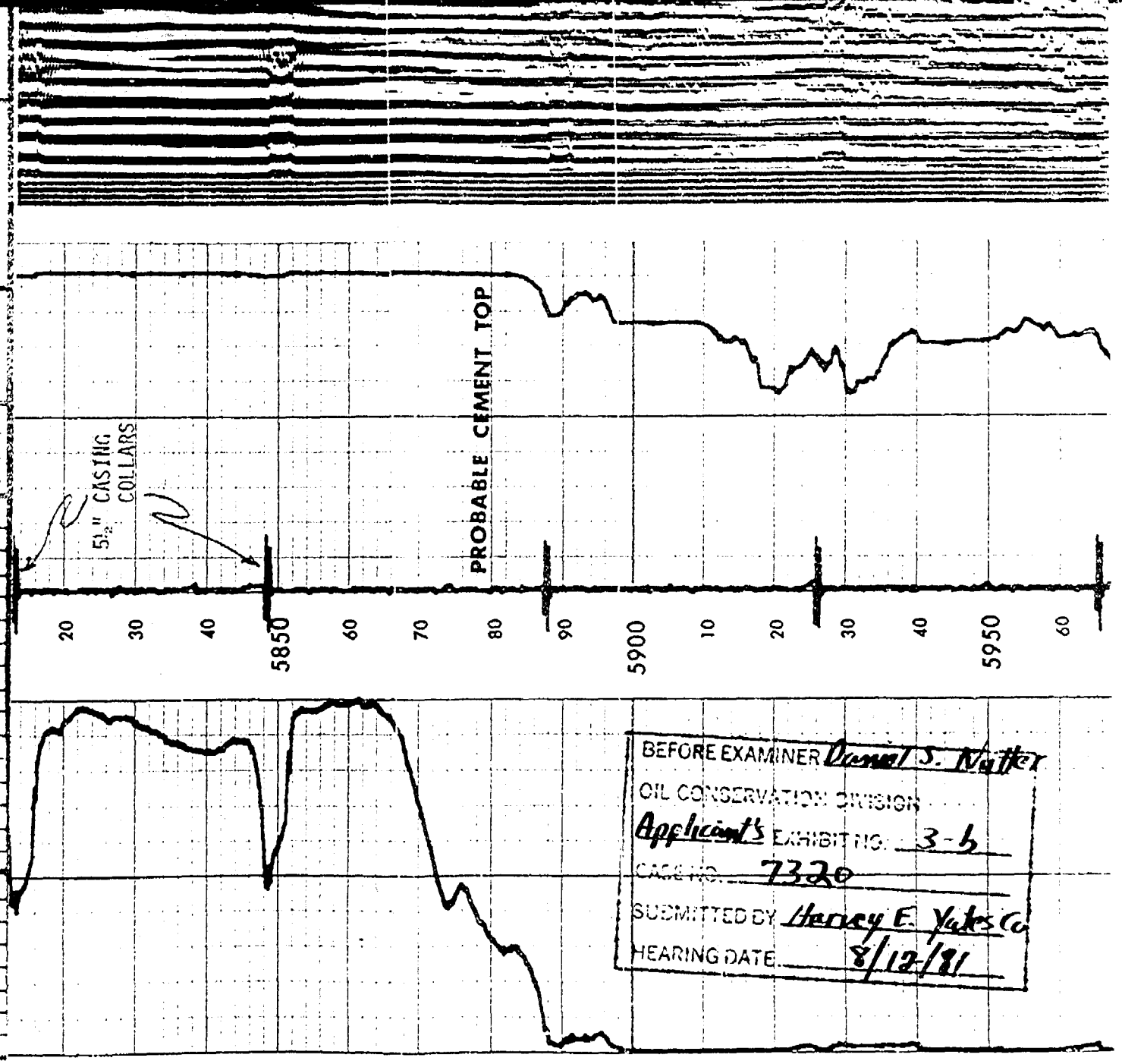
GRCCL

PERMANENT DATUM	G L	ELEV.	3525'
LOG MEASURED FROM	K B 15 FT. ABOVE PERM. DATUM		3540'
DRILLING MEASURED FROM	K B		-
			3525'

DATE	10/14/80		
RUN NO.	ONE		
TYPE LOG	SEISMOGRAM	CEMENT BOND	(DUAL CURVE)
DEPTH—DRILLER	-		
DEPTH—LOGGER	11,143'		
BOTTOM LOGGED INTERVAL	11,137'		
TOP LOGGED INTERVAL	5,750'		
TYPE FLUID IN HOLE	WATER		
SALINITY PPM Cl	-		
DENSITY	-		
LEVEL	870'		
MAX. REC. TEMP. DEG. F	-		
OPERATING RIG TIME	3½ HRS.		
RECORDED BY	M. BUTTS		
WITNESSED BY	MR. HARDEE		

RUN NO.	BORE—HOLE RECORD BIT	FROM	TO

CASING RECORD SIZE	WGT	FROM	TO
5½"	17# & 20#	SURF.	PBTD



BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 3-b
CASE NO. 7320
SUBMITTED BY Hanley E. Yates Co
HEARING DATE 8/12/81

Peabody Vann

Seismogram
CEMENT BOND LOG

COMPANY: HEYCO, INC.

WELL: TRAVIS "13" STATE # 1

FIELD: TRAVIS DEEP

COUNTY: EDDY STATE: NEW MEXICO

LOCATION: 1980' FNL & 1980' FWL

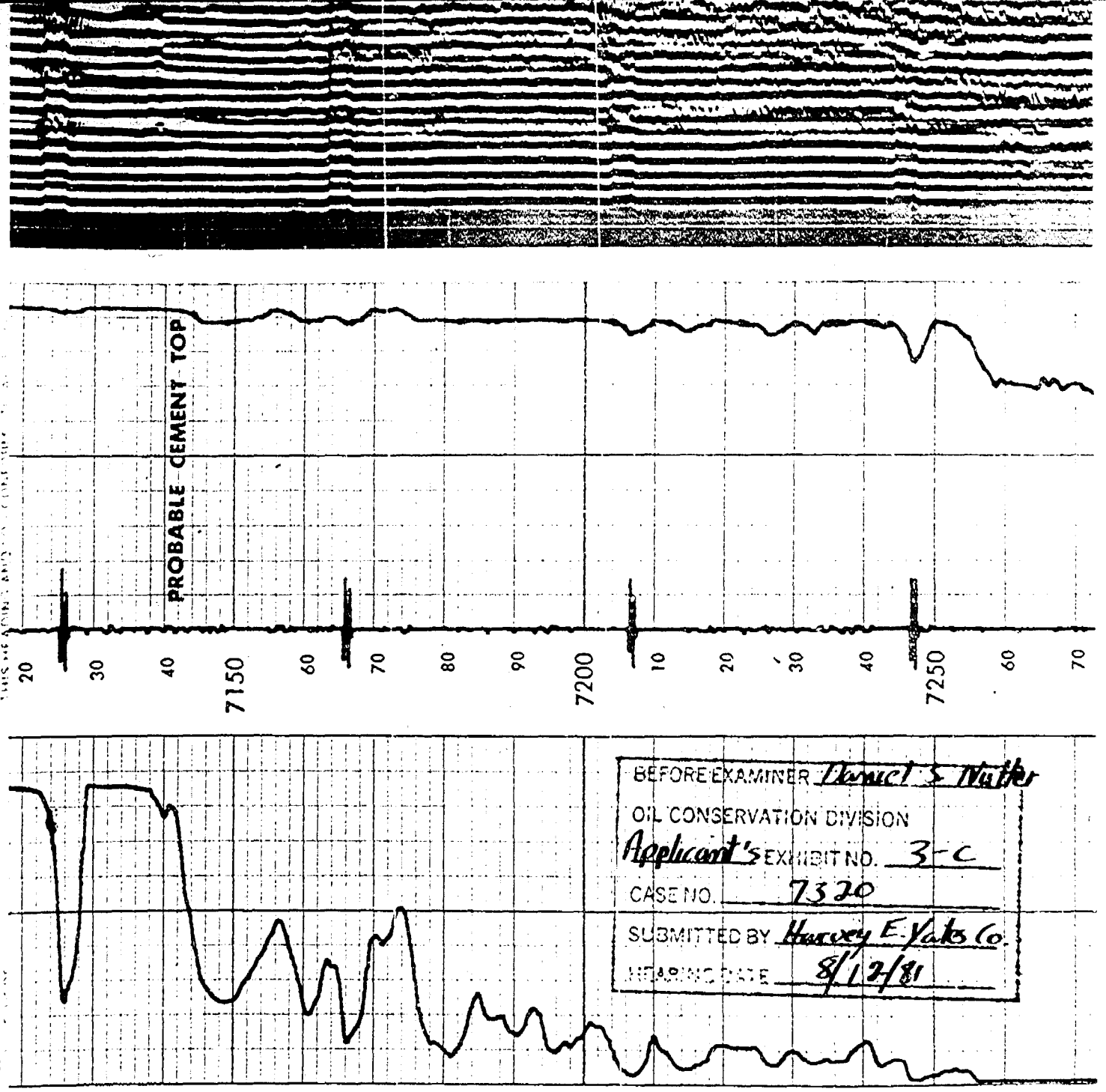
SEC 13 TWP 18-S RGE 28-E

OTHER SERVICES: GRCCL

PERMANENT DATUM	G.L.	ELEV. 3604.5'	ELEV. K.B. 3620'
LOG MEASURED FROM	K.B. 15.5 FT. ABOVE PERM. DATUM		D.F. -
DRILLING MEASURED FROM	K.B.		G.L. 3604.5'

DATE	3/9/00		
RUN NO.	ONE		
TYPE LOG	SEISMOGRAM CEMENT BOND		
DEPTH—DRILLER	-		
DEPTH—LOGGER	11,135'		
BOTTOM LOGGED INTERVAL	11,120'		
TOP LOGGED INTERVAL	7,005'		
TYPE FLUID IN HOLE	WATER		
SALINITY PPM CL	-		
DENSITY	-		
LEVEL	1100'		
MAX REC TEMP DEG F	-		
OPERATING RIG TIME	48 HOURS		
RECORDED BY	M. BUTTS		
WITNESSED BY	MR. WILCOX		

RUN NO	BORE—HOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT	FROM	TO
				5½"	15.5#		
					& 17#	SURF.	PBTD



BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 3-C
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

RECEIVED SEP 1 2 1980

Gamma-Ray Log
Seismogram
CEMENT BOND LOG

Vann

COMPANY HEYCO, INC.

WELL TRAVIS 13 STATE # 2

FIELD TRAVIS

COUNTY EDDY STATE NEW MEXICO

LOCATION 660' FNL & 1980' FWL

SEC 13 TWP 16-S RGE 28-E

OTHER SERVICES NONE

PERMANENT DATUM G.L. ELEV 3602'

ELEV. K.B. 3614'

LOG MEASURED FROM K.B. 12 FT ABOVE PERM. DATUM

D.F. —

G.L. 3602'

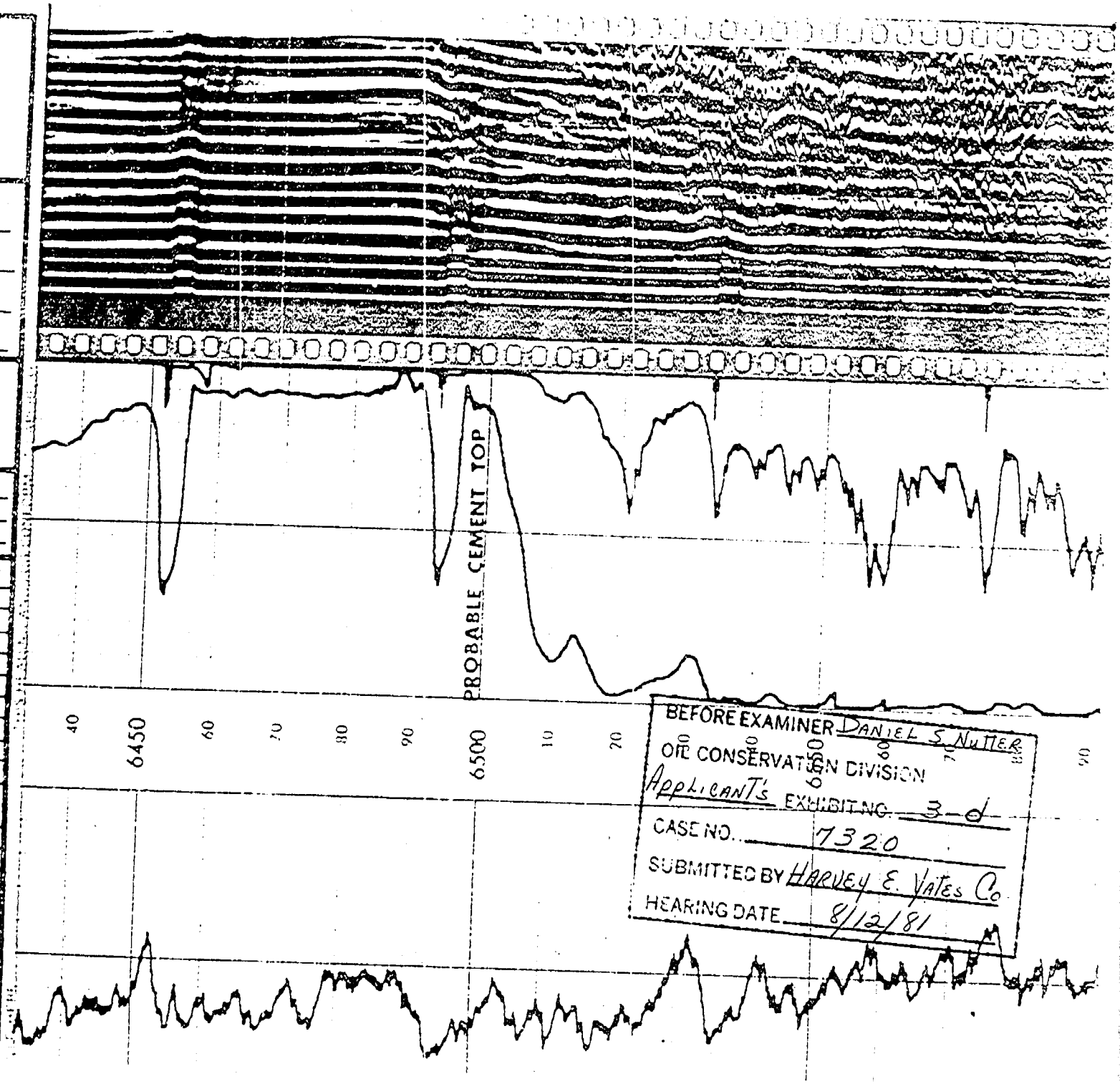
DATE	6/20/81
RUN	ONE
TYPE LOG	GR-CCL-CBL/DUAL SURVEY W/SEISMOGRAM
DEPTH-DRILLER	6501'
DEPTH-LOGGER	6496'
BTM. LOGGED INTERVAL	6494'
TOP LOGGED INTERVAL	6000'
TYPE FLUID IN HOLE	WATER
SALINITY, PPM CL	-
DENSITY	-
LEVEL	FULL
MAX. REC. TEMP. DEG. F	120°
EQUIP. NO. & LOCATION	3 ARTESIA
RECORDED BY	B. CARTER
WITNESSED BY	MR. WILLIAMS

BORE-HOLE RECORD

BIT NO.	FROM	TO

CASING RECORD

SIZE	WGT.	FROM	TO
4½"	11.6#	SURF.	PBTD



BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 3-d
CASE NO. 7320
SUBMITTED BY HARVEY E. YATES CO.
HEARING DATE 8/12/81

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P O BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

August 12, 1981

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

RE: Travis Deep #2
Estimated Top of Cement

Gentlemen:

The estimated top of cement for the above referenced well is 8824'.

If you have any questions, please contact us.

Very truly yours,

HARVEY E. YATES COMPANY

Peck Hardee
Production Engineer

PH:lc

BEFORE EXAMINER: Daniel S Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 5-e
CASE NO. 7320
SUBMITTED BY: Harvey E. Yates Co
HEARING DATE 8/12/81

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

B-11594-3

Travis 13 State Com

1

Travis Upper Penn.

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

F 1980 North 1980

West 13 18S 28E

Eddy

xxxx Rec.

Started		Completed	Elevations (DF, RKB, RT, GR, etc.)	Elev. Casinghead
7/14/80		12/26/80	3604.5' GL	3604.5'

Total Depth	P.B.T.D.	Single, Dual or Triple Compl.	Interval Rotary Tools	Cable Tools
11,100'	10,725'	---	0-11,100'	

Producing Interval(s), This Completion, Top, Bottom, Name	Was Directional Survey Made
9824' to 9870' Upper Penn.	NO

Type Electric and Other Logs Run	Was Well Cored
Dresser Atlas CD/CN, DLL & MLL, PVTCo GR-CBL	YES

CASING RECORD (Report all strings set in well)

Casing Size	Weight Lb./Ft.	Depth Set	Hole Size	Cementing Record	Amount Pulled
13 3/8"	54.5#	350'	17 1/2"	350 sxs	-0-
8 5/8"	28#-24#	3100'	11"	1930 sxs	-0-
5 1/2"	17#-15.5#	11,100'	7 7/8"	925 sxs	-0-

LINER RECORD

Size	Top	Bottom	Sacks Cement	Screen
	NONE			

TUBING RECORD

Size	Depth Set	Packer Set
2 3/8"	9761'	9761'

PERFORATION RECORD (Interval, size and number of holes)

9824' to 9870' 80 1/2" dia holes

ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

Depth Interval	Amount and Kind of Material Used
9824'-9370'	250 gal - 10% acetic 2500 gal - 20% MSR-100

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size & type pump)	Well Status (Prod. or Shut-in)
12/26/80	FLOWING	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Gas-Oil Ratio
12/26/80	8	32/64"	→	146	219	0	2278

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbls.	Gas - MCF	Water - Bbls.	Oil Gravity - API - (Corr.)
250	0	→	438		0	47°

VENTED

BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 4-A
CASE NO. 7320 M. Young
SUBMITTED BY HARVEY E YATES CO.
HEARING DATE 8/12/81

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

SIGNED Jack Sarde TITLE Engineer DATE 1/5/81

1

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon	9805'	T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	10004'	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka	10307'	T. Pictured Cliffs		T. Penn. "D"	
T. Yates		T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen		T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg		T. Montoya		T. Mancos		T. McCracken	
T. San Andres		T. Simpson		T. Gallup		T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Springs	6143'	T. Wingate		T.	
T. Wolfcamp	8220'	T. 2nd Bone Spgs	7034'	T. Chinle		T.	
T. Penn	9254'	T. 3rd Bone Spgs	7918'	T. Permian		T.	
T. Cisco (Bough C)		T. L. Morrow	10893'	T. Penn "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from ..... to ..... No. 4, from ..... to .....

No. 2, from ..... to ..... No. 5, from ..... to .....

No. 3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ..... to ..... feet. .....

No. 2, from ..... to ..... feet. .....

No. 3, from ..... to ..... feet. .....

No. 4, from ..... to ..... feet. .....

FORMATION RECORD - Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
1,170'	1,366'	196'	Anhydrite				
1,366'	1,705'	339'	Anhydrite & Lime				
1,705'	2,210'	505'	Anhydrite				
2,210'	3,100'	890'	Anhydrite & Lime				
3,100'	5,007'	1,907'	Lime				
5,007'	8,253'	3,246'	Lime & Shale				
8,253'	8,720'	467'	Lime, Shale & Sand				
8,720'	9,806'	1,086'	Lime & Shale				
9,806'	9,866'	60'	Lime, Shale & Sand				
9,866'	9,950'	84'	Lime, Sand & Shale				
9,950'	10,050'	100'	Lime, Shale & Sand				
10,050'	11,039'	989'	Lime & Shale				
11,039'	11,100'	61'	Shale				

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-23417

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL XX GAS WELL | DRY | Other

b. TYPE OF COMPLETION: NEW WELL X | WORK OVER | DEEP-EN | PLUG BACK | DIFF. RESVR. | Other

7. UNIT AGREEMENT NAME: Travis Deep Unit

2. NAME OF OPERATOR: Harvey E. Yates Company, Inc.

8. FARM OR LEASE NAME:

3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201

9. WELL NO.: 2

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*

10. FIELD AND POOL, OR WILDCAT: Wildcat

At surface: 1980' FNL & 1780' FEL

At top prod. interval reported below: Same

At total depth: Same

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Eddy | 13. STATE: N. M.

15. DATE SPUDDED: 5-6-77 | 16. DATE T.D. REACHED: 6-23-77 | 17. DATE COMPL. (Ready to prod.): 8-24-77 | 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*: 3618' GL | 19. ELEV. CASINGHEAD:

20. TOTAL DEPTH, MD & TVD: 11,270'KB | 21. PLUG, BACK T.D., MD & TVD: 11,223'KB | 22. IF MULTIPLE COMPL., HOW MANY*: Single | 23. INTERVALS DRILLED BY: ——→ | ROTARY TOOLS: 0' - 11,270' | CABLE TOOLS:

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: Cisco 9824' - 9903'KB

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL & DLL

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	34#	360'	17 1/2"	425 Sx Class C 2% CaCl	
8 5/8"	24# & 28#	3500'		300 Sx Class C 2% CaCl	
5 1/2"	17#	11268'	7 7/8"	950 Sx Class H	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	9775' KB	9772' KB

31. PERFORATION RECORD (Interval, size and number)

**Please see attachment

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
**Please see attachment	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
8-24-77	Flowing	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
9-8-77	24 Hrs	18/64	——→	433.35	630.85	-0-	1456

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
965	Packer	——→	433.35	630.85	-0-	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

35. LIST OF ATTACHMENTS

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicants Exhibit No. 4-B
CASE NO. 7320
Submitted by Harvey E. Yates Co.
HEARING DATE 8/12/81

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED [signature] TITLE Vice President DATE July 26, 1977

*(See Instructions and Spaces for Additional Data on Reverse Side)

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

38. GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Yates	958	1263				
Seven Rivers	1263	1693				
Bowers	1693	1926				
Queen	1926	2080				
Penrose	2080	2295				
Grayburg	2295	2695				
San Andres	2695	3755				
Glorieta	3755	6226				
1st Bonespring Sd	6226	7125				
2nd Bonespring Sd	7125	8010				
rd Bonespring Sd	8010	8225				
Wolfcamp	8225	9210				
Pennsylvanian	9210	9265				
Cisco LS	9265	9815				
Unidentified Penn LS	9815	10010				
Strawn	10010	10321				
Atoka	10321	10592				
Morrow	10592	10898				
Lower Morrow	10898	11222				
Chester	11222	TD				

U.S. GOVERNMENT PRINTING OFFICE: 1963 O-685538

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: LC-028772-B

8. FARM OR LEASE NAME: North Travis 12 Deep

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: Undesignated

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 12, T-18S, R-28E

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

At surface: 660' FSL & 1650' FEL

12. COUNTY OR PARISH: Eddy

13. STATE: N.M.

15. DATE SPUDDED: 5/01/80

16. DATE T.D. REACHED: 7/08/80

17. DATE COMPL. (Ready to prod.): 7/24/80

18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*: 3633.7 GR

19. ELEV. CASINGHEAD: 3633.7'

20. TOTAL DEPTH, MD & TVD: 11,215'

21. PLUG, BACK T.D., MD & TVD: 11,171'

22. IF MULTIPLE COMPL., HOW MANY*

23. INTERVALS DRILLED BY: →

ROTARY TOOLS: 0-11,215'

CABLE TOOLS:

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 10,916' - 10,956' Morrow

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dresser Atlas - DLL-MI, CDC-CN-GR-BHC-AL-Cal Cement Bond

27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	355	17 1/2"	370 sx C1"C" - 2% CaCl	NONE
8 5/8"	24# & 32#	2900	11"	1200 sxs	NONE
5 1/2"	17#	11215	7 7/8"	1000 sxs	NONE

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
-	-	8032	-	

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	10,850'	10,850'

31. PERFORATION RECORD (Interval, size and number)

10916' to 10924' 8' - 16' - 1/2" dia hole
10949' to 10956' 7' - 14' - 1/2" dia hole

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
10916'-10924'	800 gal - 7 1/2% MSR-100
10949'-10956'	250 gal - 10% Acetic & 700 gal - 7 1/2% MSR-100
10916'-10956'	4000 gal - 10% MSR-100

PRODUCTION

DATE FIRST PRODUCTION: 7/18/80

PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump): Flowing

WELL STATUS (Producing or shut-in): Shut In

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
7/26/80	6	3/4"		0			

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
100	0		0			

33. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented

34. LIST OF ATTACHMENTS

35. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED: Jack Sanda TITLE: Engineer DATE: July 28, 1980

*(See Instructions and Spaces for Additional Data on Reverse Side)

BEFORE EXAMINER DANIEL S NUTTER
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 4-C
CASE NO. 7320 WITNESSED BY James Davis
SUBMITTED BY Harvey E Yates Co.
HEARING DATE 8/12/80

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

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Item 29: *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Yates	965'	
Seven Rivers	1270'	
Queen	1935'	
Grayburg	2305'	
San Andres	2705'	
1st Bone Springs	SD 6140'	
2nd Bone Springs	SD 7008'	
3rd Bone Springs	SD 7932'	
Wolfcamp	8115'	
Pennsylvanian	9180'	
Canyon	9795'	
Strawn	9995'	
Atoka	10295'	
Morrow	10665'	
Lower Morrow	10883'	
Chester	11192'	

U.S. GOVERNMENT PRINTING OFFICE: 1983—O-683635
837-497

DISTRIBUTION

SANTA FE

FILE

U.S.G.S.

LAND OFFICE

OPERATOR

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

DEEPEN

PLUG BACK

XX

SINGLE ZONE

X

MULTIPLE ZONE

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico

C		660	North		
1980	West	17	18S	28E	

Eddy

3616.8' GR	$50,000 blanket	Morrow	2/20/81
		10,000'	Canyon
			Rotary

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
17 1/2"	13 3/8"	48#	475'	Circulate	
11"	8 5/8"	24#-28#	8000'	Circulate	
7 7/8"	4 1/2"	10.5#-11.6#	10000'	Sufficient to cover 600' above pay zone	

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 4-D
CASE NO. 7320
SUBMITTED BY Harvey E Yates Co
HEARING DATE 8/12/81

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

NAME Vice President

DATE 1/22/81

TITLE

DATE

APPROVED BY

TITLE

DATE

Form 9-330
(Rev. 5-63)

OPERATOR'S COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM - 23417

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL [XX] GAS WELL [ ] DRY [ ] OTHER

7. UNIT AGREEMENT NAME: Travis Deep Com

b. TYPE OF COMPLETION: NEW WELL [ ] WORK OVER [ ] DEEP EN [ ] PLUG BACK [XX] DIFF. RESVR. [XX] OTHER

8. FARM OR LEASE NAME

2. NAME OF OPERATOR: Harvey E. Yates Company

9. WELL NO.: 3

3. ADDRESS OF OPERATOR: Post Office Box 1933, Roswell, New Mexico 88201

10. FIELD AND POOL, OR WILDCAT: Travis Upper Penn

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1980' FEL & 660' FNL
At top prod. interval reported below: 1980' FEL & 660' FNL
At total depth: 1980' FEL & 660' FNL

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Eddy | 13. STATE: N.M.

15. DATE SPUDDED: 11/21/77 | 16. DATE T.D. REACHED: 12/27/77 | 17. DATE COMPL. (Ready to prod.): 5/16/78 | 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*: 3639' GL | 19. ELEV. CASINGHEAD:

20. TOTAL DEPTH, MD & TVD: 11,270' | 21. PLUG, BACK T.D., MD & TVD: 10,904' | 22. IF MULTIPLE COMPL., HOW MANY*: single | 23. INTERVALS DRILLED BY: ----→ | ROTARY TOOLS: 0 - 11,270 | CABLE TOOLS:

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 9830' - 9920' Canyon

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL DLL GR

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	50#	376'	17 1/2"	475 sx cl C w/2% CaCl	
8 5/8"	24# & 28#	2,900' KB	11"	300 sx Halliburton LW & 200 sx cl C	
5 1/2"	17#	11,290'	7 7/8"	900 sx cl H w/6% Halad	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	10,904'	10,904'

31. PERFORATION RECORD (Interval, size and number)
9830-9840 - 6 holes
9864-9875 - 6 holes
9891-9894 - 6 holes
9911-9920 - 6 holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
9830-9920	500 gal 10% acetic acid
	& 3500 gal 15% DS-30

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
5/13/78	Flowing	SI

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
5/17/78	4	24/64"				load water	1298

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
580	PKR		684			

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented — TEST WITNESSED BY: Bill Baker

35. LIST OF ATTACHMENTS: None

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED Rick Stanley TITLE Engineer DATE 5/25/78

*(See Instructions and Spaces for Additional Data on Reverse Side)

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 4-E
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

INSTRUCTIONS

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Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

38. GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Yates	986'	1302'				
Seven Rivers	1302'	1717'				
Bowers	1717'	1953'				
Queen	1953'	2116'				
Penrose	2116'	2328'				
Grayburg	2328'	2708'				
San Andres	2708'	6226'				
1st Bone Sp. Sd.	6226'	7080'				
2nd Bone Sp. Sd.	7080'	7964'				
3rd Bone Sp. Sd.	7964'	8160'				
Wolfcamp	8160'	9266'				
Cisco	9266'	9817'				
Canyon	9817'	10,025'				
Strawn	10,025'	10,324'				
Atoka	10,324'	10,687'				
Morrow	10,687'	10,905'				
L. Morrow Sds.	10,905'	11,225'				
Chester	11,225'	11,270'TD				

U.S. GOVERNMENT PRINTING OFFICE: 1983 -O-638636
937-497

NEW MEXICO OIL CONSERVATION COMMISSION

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

Indicate Type of Lease: State XX Fee [ ]

E-1392

Type of Well: X

Type of Completion: New Well [X] Work Over [ ] Deepen [ ] Plug Back [ ] Same Resvr. [ ] Diff. Resvr. [ ]

Name of Operator: Harvey E. Yates Company

Address of Operator: P. O. Box 1933, Roswell, New Mexico 88201

Lease Name: Travis State Com

Well No.: 1

Pool Name or Wildcat: Und. S. Empire Morrow

Unit Letter K : 1780 Feet From South Line and 2080 Feet From West Line of Sec. 13 Twp. 18S Rge. 28E

County: Eddy

Date Spudded	Date T.D. Reached	Date Compl. (Ready to Prod.)	Elev. (DF, RKB, RT, GR, etc.)	Elev. Casinghead
3-19-79	4-22-79	7-14-79	3585.5' GL	

Total Depth	P.B.T.D.	If Multiple Compl., How Many Zones?	Intervals Drilled By: Rotary Tools	Cable Tools
11,061' KB	10,538' KB		→ 0'-11,061'	

Producing Interval(s), of this completion - Top, Bottom, Name: 9816' - 9862' Canyon

Was Directional Survey Made: No

Type Electric and Other Logs Run: CNL-DLL; GR-Depth Control

Was Well Cored: No

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB. FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	380' KB	17 1/2"	475 Sx + 8 Yds Redi-mix	None
9 5/8"	32.3#, 36#	2900' KB	12 1/4"	2050 Sx	None
5 1/2"	17#	11,061' KB	8 3/4"	1190 Sx - 2 stages TOC - 2750'	None

LINER RECORD					TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 3/8"	9733'	9733'

Perforations, interval, size and number: 9850 - 9862' w/2/JSPF - 70 1/2" dia holes
9816 - 9824'; 9830 - 9836'; 9838 - 9847'

ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
9816 - 9862	126 gals 10% acetic acid 6000 gals 15% DS-30 acid

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
7-11-79	Flowing	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Gas - Oil Ratio
7-13-79	6 hrs	24/64"		103	103.3	2	1100
Flow. Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil - Bbls.	Gas - MCF	Water - Bbls.	Oil Gravity - API (Corr.)	
330	---		412	413.2	8	45	

Disposition of Gas (Sold, used for fuel, vented, etc.): Vented

Test Witnessed By:

List of Attachments: Deviation survey

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

Signature: Ted Hardee Title: Engineer Date: 7-25-79

BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 4
CASE NO. 7320
SUBMITTED BY: HARVEY E. YATES CO.
HEARING DATE 8/12/81

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than ... after the completion of any newly-drilled or deepened well. It shall be accompanied by ... as well as a summary of all special tests conducted, including drill stem tests. All ... shall be reported ... In ... drilled wells, true vertical depths shall also be reported. For ... multiple completions, ... Separate forms shall be filed for each zone. This form is to be filed in quadruplicate except for state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon	9796'	T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	10,014'	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka	10,296'	T. Pictured Cliffs		T. Penn. "D"	
T. Yates	905'	T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers	1210'	T. Devonian		T. Menefee		T. Madison	
T. Queen	1892'	T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg	2260'	T. Montoya		T. Mancos		T. McCracken	
T. San Andres	2660'	T. Simpson		T. Gallup		T. Ignacio Qzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Springs		T. Wingate		T.	
T. Wolfcamp	8260'	T. Bowers	1663'	T. Chinle		T.	
T. Penn.	9260'	T. Penrose	2060'	T. Permian		T.	
T. Cisco (Bough C)		T. Morrow	10,645'	T. Penn. "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from 9816 to 9862 No. 4, from ... to ...

No. 2, from ... to ... No. 5, from ... to ...

No. 3, from ... to ... No. 6, from ... to ...

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ... to ... feet. ...

No. 2, from ... to ... feet. ...

No. 3, from ... to ... feet. ...

No. 4, from ... to ... feet. ...

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0'	380'	380'	Surface rock				
380'	575'	195'	Anhy and lime				
575'	1295'	720'	Anhy and salt				
1295'	1692'	397'	Lime and anhy				
1692'	2225'	533'	Lime and shale				
2225'	7075'	4850'	Lime				
7075'	8315'	1240'	Lime and shale				
8315'	9900'	1585'	Lime and sand				
9900'	10305'	405'	Lime, shale and sand				
10305'	11061'	756'	Lime and shale				

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

ROSWELL

S. E. REYNOLDS
STATE ENGINEER

August 10, 1981

ADDRESS CORRESPONDENCE TO:
P. O. BOX 1717
ROSWELL, NEW MEXICO
88201

Harvey E. Yates Company
500 North Main
Roswell, New Mexico 88201

Attention: Mr. Rod Thompson

Gentlemen:

This is to advise that our records do not indicate any fresh water in the formations below the Artesia Group in the vicinity of Sections 12 and 13, Township 18 South, Range 28 East. There is some fresh water being produced from the Grayburg in the general area. It is my opinion that any water encountered in the San Andres will be highly mineralized.

Yours truly,

James I. Wright
Asst. District Supervisor

JIW*td

BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 5
CASE NO 7320
SUBMITTED BY HARVEY E. YATES CO.
HEARING DATE 8/12/81

TRAVIS DEEP UNIT
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

PREPARED FOR:

HARVEY E. YATES COMPANY
OPERATOR OF TRAVIS DEEP UNIT
SUITE 300
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201

ATTENTION: MR. GEORGE YATES

RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

511 North Main Place
MIDLAND, TEXAS 79701
Telephone 915-682-5346

November 11, 1980

Harvey E. Yates Company
Suite 300
Security National Bank Building
Roswell, New Mexico 88201

Attention: Mr. George Yates

Gentlemen:

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

Pursuant to your request, an in-depth study of the Canyon producing interval in the captioned pool was conducted. The results of our study are summarized below:

Proved Developed Producing Reserves at September 1, 1980

Lease and Well Number	Oil - Barrels (8/8)	Gas - MCF - 8/8)
Travis Deep Unit Well No. 2	123,989	1,443,701
Travis Deep Unit Well No. 3	88,128	1,320,913
State Com Well No. 1	97,532	1,048,441
Totals	309,649	3,813,055
Proved Developed Non-Producing Reserves		
North Travis 12 Deep Well No. 1	112,759	1,728,003
Travis 13 State Well No. 1	112,759	1,728,003
Totals	225,518	3,456,006
Proved Developed Producing and Non-Producing Reserves	535,167	7,269,061
Projected Recoverable Enhanced Reserves Travis Deep Unit - A Single Pattern Flood		
Travis Deep Unit No. 2, North Travis 12 Deep No. 1 and Travis 13 State No. 1; Injection of Fluids into Travis Deep Unit Well No. 3	1,153,239	5,071,971
Projected Recoverable Enhanced Reserves Travis Deep Unit - A Peripheral Flood		
Travis Deep Unit	2,450,589	9,629,971

The original in-place oil reserves of the Canyon Reservoir in the Travis Upper Penn Pool are projected at 14,231,000 barrels. This value is a statistical mean of estimates obtained using results from the Tarner Dispersed Gas Drive Method, Material Balance and volumetric estimates.

The Canyon Reservoir in the Travis Upper Penn Pool is a shallow water shelf edge bioherm. Seasonal or epochal tide actions acting as a re-occurring water level advances and retreats

coupled with possible periods of heavy fresh water contact (rains) and leaching actions could account for the potential high porosity and the apparent horizontal stratification of hydrocarbon bearing intervals within the overall Canyon-Penn section. The porosity within the stratified layers may or may not be interconnected beyond the well bores. Production performance tends to suggest possible separation of zones; however, pressure data as measured at wells throughout the field suggests excellent pressure transmissibility in a South-Southwest direction with some loss of pressure transmissibility and possibly a lower permeability in a North-Northeast direction from the Travis Deep Unit Well No. 3. The overall producing interval is approximately one hundred (100) to one hundred and twenty (120) feet thick. Empirical data developed from electric log surveys of the drilled wells and analysis of the production-pressure performance of the individual wells suggests the Canyon pay intervals exhibit different formation characteristics. In our opinion, the Canyon appears to exhibit three possible producing intervals throughout gross hydrocarbon bearing section.

The reservoir fluid characteristics were difficult to define. Only after numerous iterations of several laboratory fluid analyses of the recovered separator fluids was a recombination computer simulation obtained that compared favorably with actual well and field performance characteristics. Our best judgement as to the reason for the difficulty of readily obtaining a valid reservoir simulation was possibly the result of either the presence of free gas in the reservoir or difficulty in recognizing a severe permeability variation in the formation of the selected sample well.

The reservoir fluid is considered to be undersaturated and to have a bubble point pressure in a range from 1800 psig to 2200 psig. The statistical best fit indicates 2066 psig to be the saturation pressure with the oil containing 800 cubic feet of gas per barrel at bubble point pressure and reservoir temperature.

The fluid properties are presented in both graphic and tabular form together with laboratory analysis of sampled fluids.

Relative permeability data, developed empirically, and used in frontal-advance calculations of both gas and liquid displacement recovery methods supports the numerical and computer analysis of the production-pressure relationships observed in the producing field wells. The reservoir produces with an internal dispersed (solution gas) drive mechanism, and it is doubtful that the primary oil recovery should be expected to exceed 10.8% of the initial oil-in-place. When the free gas saturation in the reservoir exceeds the critical gas saturation, oil ahead of the gas will not move; or possibly only small amounts of oil will accompany the continuing free gas production.

This condition appears to be occuring rapidly in the Travis Deep Unit Well No. 3, and continued operation of this well will be accompanied with increasing gas rates and declining oil production. The reservoir voidage with high gas withdrawals and decreasing reservoir pressure in a well's drainage area can effectively reduce the volumes of reservoir hydrocarbons to be recovered by enhanced recovery methods.

The Travis Deep Unit Well No. 3 has displayed production characteristics different from either the Travis Deep Unit Well No. 2 or the State Com Well No. 1. An inspection of the completion intervals as reported and compared with the section on the electric logs suggests a definite possibility the Travis Deep Well No. 3 may be producing through only one set of the perforated intervals in the casing. The other two wells (TDU No. 2 and State Com No. 1) are possibly recovering reservoir fluids from thicker intervals which could result in a lower pressure drop in the reservoir and between the reservoir and well bores. Consideration might be given to conducting differential temperature surveys in one or all of the producing wells to verify if all perforations are contributing to production. An analysis of the overall performance of the reservoir pressure-production relationships and reservoir fluid characteristics suggests primary recovery performance should not be expected to exceed thirteen percent (13%) and will probably not exceed the ten percent (10%) estimate mentioned above.

To maximize hydrocarbon recovery from the Travis Deep Unit, enhanced fluid injection recovery techniques are suggested. In presenting enhanced hydrocarbon recoveries by fluid

injection, the Buckley-Leverett and Hutchinson, Dyes and Erickson methods were utilized. Three potential stratified fluid displaceable intervals were considered in the projection. As previously mentioned, it is our opinion that three hydrocarbon bearing intervals, possibly not interconnected, exist and exhibit varying porosities and permeabilities. The porosity and permeability information is included elsewhere in the report. No attempt was made to project potential recoveries using miscible fluid flood techniques nor was carbon dioxide (Co_2) considered. With additional development of the reservoir, which should provide additional depositional and structural information, the enhanced recovery estimates can be refined and fluid injection points can be advantageously located. Details of enhanced recovery estimates, values and costs are detailed in a section of the report.

The production forecast and reserve estimates presented are based on projections prepared utilizing all production-pressure information, reservoir fluid data as computed by a simulated recombination of fluids, pressure-volume-temperature relationships and empirical relative permeability data developed utilizing the formation characteristics developed empirically from the electric logs of the field wells.

Oil pricing is in accordance with existing Department of Energy guidelines and Windfall Excise tax schedules. Gas pricing is projected according to existing contracts. Operating costs including severance and ad valorem taxes are based on current expense history and taxing rates. Development costs and equipment additions are projected on current drilling historical costs and are itemized by category. The present worth values of the projected after operating and development costs income are discounted at twelve percent (12%) per annum and are included for guideline purposes only. All income projections are before depletion and depreciation expense allowances and Federal income taxes. All supporting information is presented under the respective sub-heading.

Gentlemen, you are cognizant that in the case of all projections, operating and economic conditions may change such that the information presented herewith must be accepted with the understanding that actual performance subsequent to the effective date of this report may necessitate a revision to increase or decrease the values presented. All statistical information and supporting data are on file and available for review and inspection.

RALPH H. VINEY & ASSOCIATES, INC.
Engineering Consultants

Ralph H. Viney

Saeed Afghahi

Job No. 022380

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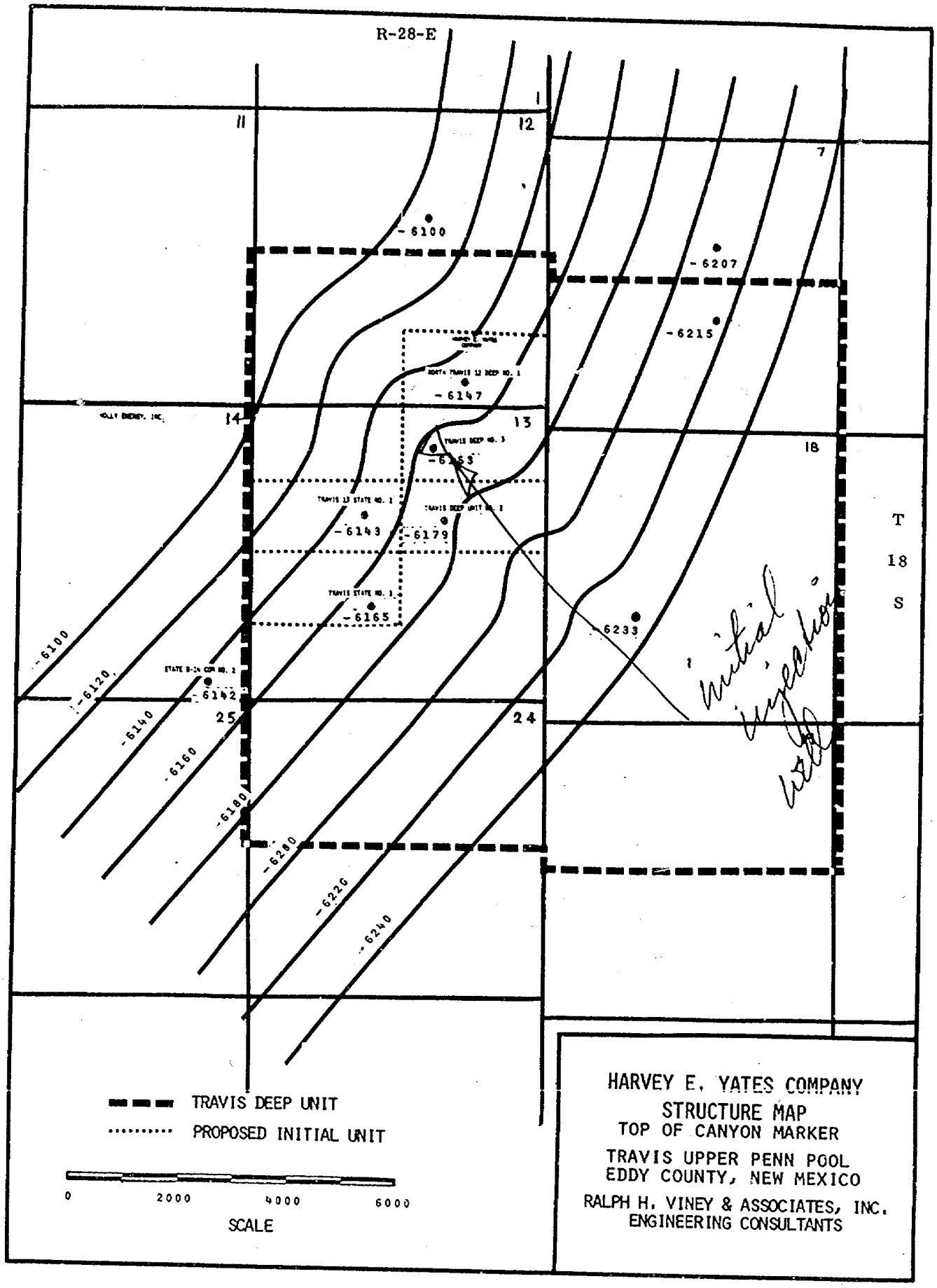

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initial injection well
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PROPOSED INITIAL UNIT
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SCALE
HARVEY E. YATES COMPANY
STRUCTURE MAP
TOP OF CANYON MARKER
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 1

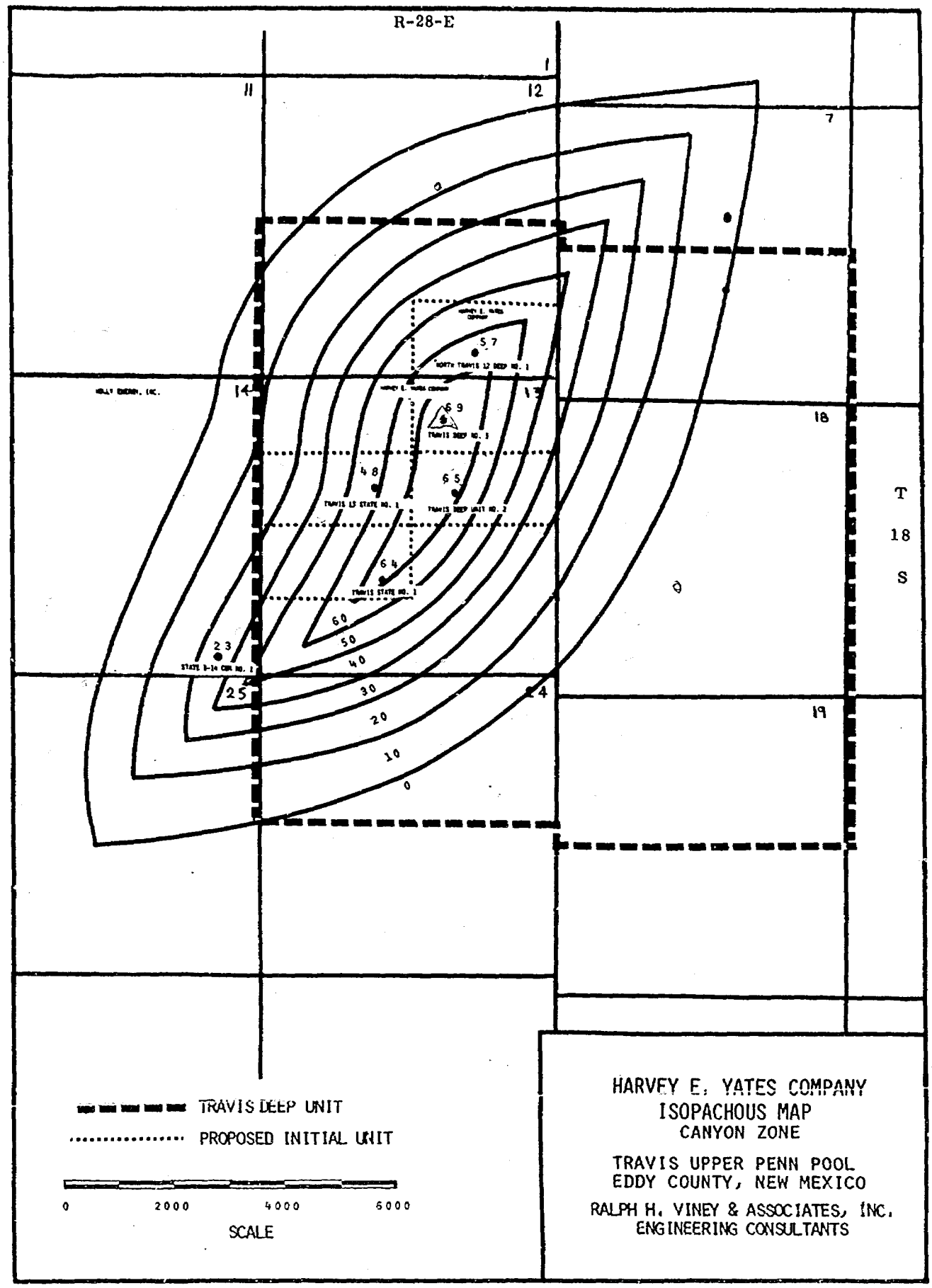

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ISOPACHOUS MAP
CANYON ZONE
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 2

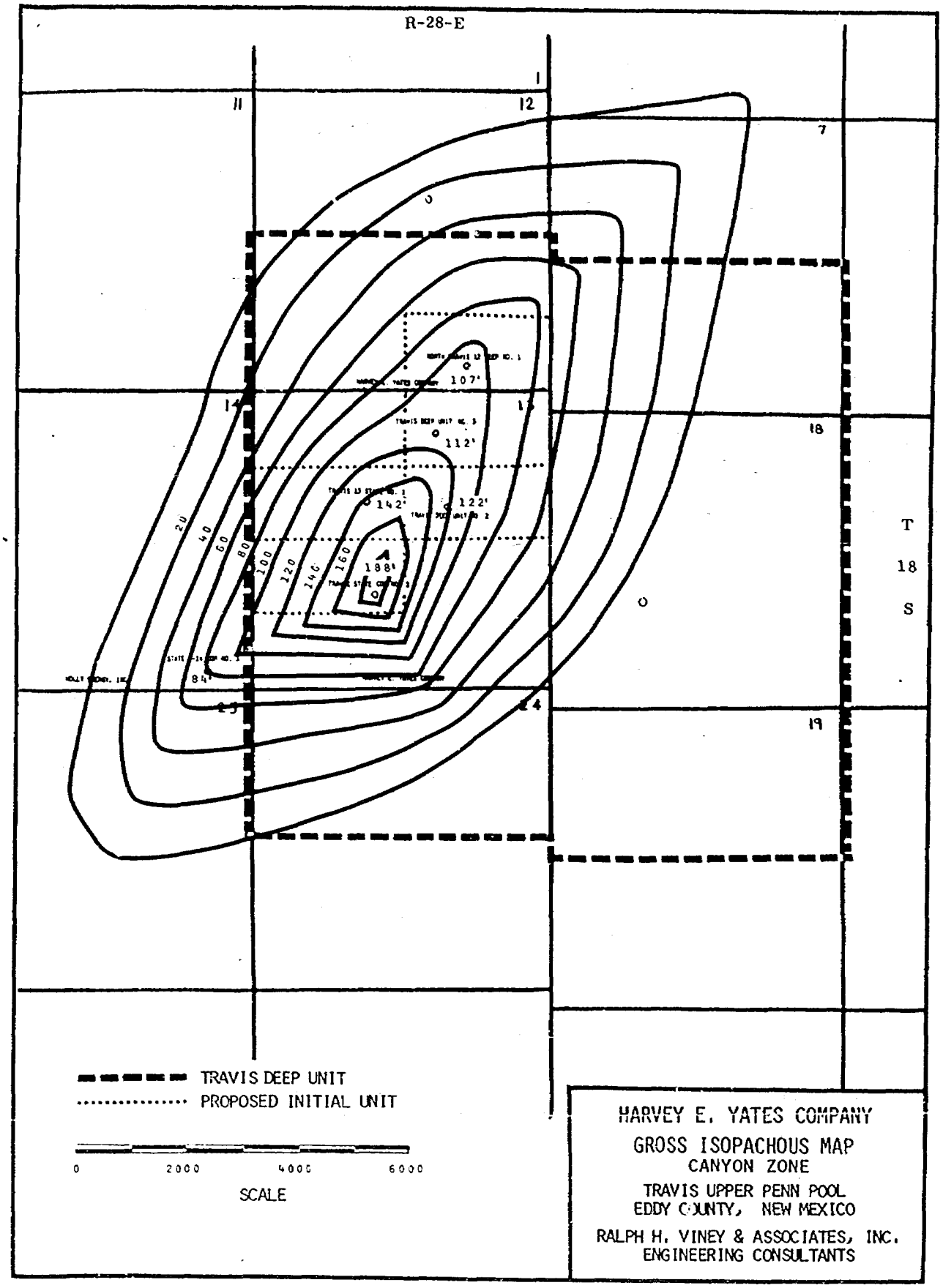

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CANYON ZONE
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 3

SUMMARY TABLE 1
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED PRODUCING AND
PROVED DEVELOPED NON-PRODUCING
TRAVIS UPPER PENN POOL

	GROSS PRODUCTION		NET PRODUCTION		NET REVENUE, M$			EXPENSE, M$		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	33.290	107.080	26.819	86.268	575.594	206.517	782.111	14.400	28.672	43.072
1981	119.911	649.824	96.606	523.520	2419.717	1286.675	3706.392	57.600	135.889	193.489
1982	122.280	1159.107	98.512	933.816	2602.907	2473.911	5076.818	71.999	186.142	258.141
1983	85.594	1242.138	68.958	1000.709	1823.719	2842.775	4666.495	72.001	171.098	243.099
1984	55.832	1045.860	44.980	842.579	1189.597	2554.930	3744.527	72.000	137.294	209.294
1985	36.552	809.390	29.447	652.073	778.803	2102.143	2880.946	71.999	105.630	177.629
1986	24.125	596.136	19.435	480.268	514.149	1640.258	2154.407	72.000	78.992	150.992
1987	16.081	427.155	12.955	344.130	348.849	1241.211	1590.060	71.999	58.300	130.299
1988	11.267	314.956	9.077	253.739	260.155	963.782	1223.937	72.002	44.876	116.878
1989	8.363	242.920	6.737	195.704	207.270	780.826	988.097	71.999	36.228	108.227
S TOT	513.295	6594.566	413.526	5312.806	10720.762	16093.032	26813.794	648.000	983.120	1631.120
AFTER	21.872	674.495	17.622	543.397	583.610	2487.158	3070.776	535.046	112.589	647.635
REM.	535.167	7269.061	431.148	5856.203	11304.372	18580.190	29884.570	1183.047	1095.708	2278.755
CUM.	326.689	444.571								
ULT.	861.856	7713.632								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	M$
1980	739.039	0.000	0.000	739.039	739.039	722.073	3.	21.46	2.394	10.	18872.246
1981	3512.903	0.000	0.000	3512.903	4251.942	3850.947	4.	25.05	2.458	20.	13860.120
1982	4818.677	0.000	0.000	4818.677	9070.619	7582.516	5.	26.42	2.649	30.	10696.611
1983	4423.396	0.000	0.000	4423.396	13494.015	10560.768	5.	26.45	2.841	40.	8558.293
1984	3535.233	0.000	0.000	3535.233	17029.248	12630.267	5.	26.45	3.032	50.	7037.354
1985	2703.317	0.000	0.000	2703.317	19732.566	14006.164	5.	26.45	3.224	60.	5913.244
1986	2003.415	0.000	0.000	2003.415	21735.982	14892.711	5.	26.45	3.415	70.	5056.929
1987	1459.761	0.000	0.000	1459.761	23195.744	15454.346	5.	26.93	3.607	80.	4388.317
1988	1107.059	0.000	0.000	1107.059	24302.804	15824.673	5.	28.66	3.798	90.	3855.609
1989	879.870	0.000	0.000	879.870	25182.674	16080.575	5.	30.77	3.990	100.	3423.692
S TOT	25182.674	0.000	0.000	25182.674	25182.674	16080.575					
AFTER	2423.140	0.000	0.000	2423.140	27605.814	16561.797	PROJECT LIFE		17.6 YRS.		
TOTAL	27605.814	0.000	0.000	27605.814	27605.814	16561.797					

SUMMARY TABLE 2
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED PRODUCING
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	33.290	107.080	26.819	86.268	575.594	206.517	782.111	14.400	28.672	43.072
1981	83.799	435.424	67.512	350.792	1608.347	862.155	2470.502	43.200	90.569	133.769
1982	62.132	594.571	50.056	479.006	1251.496	1269.006	2520.502	43.199	92.402	135.601
1983	42.536	612.860	34.268	493.741	856.289	1402.600	2258.889	43.200	82.811	126.011
1984	27.746	514.140	22.354	414.209	558.552	1255.995	1814.547	43.201	66.521	109.722
1985	18.164	397.176	14.633	319.979	365.658	1031.544	1397.202	43.200	51.221	94.421
1986	12.045	293.566	9.703	236.506	242.739	807.738	1050.477	43.200	38.510	81.710
1987	8.109	212.399	6.533	171.116	169.731	617.183	786.914	43.201	28.848	72.049
1988	5.751	158.902	4.633	128.017	132.115	486.250	618.365	43.201	22.669	65.870
1989	4.329	124.750	3.487	100.502	107.301	400.986	508.287	43.199	18.634	61.833
8 TOT	297.701	3450.868	239.998	2780.136	5867.821	8339.975	14207.797	403.200	520.858	924.058
AFTER	11.748	362.187	9.466	291.791	313.513	1337.602	1651.117	315.229	60.530	375.759
REM.	309.649	3813.055	249.464	3071.927	6181.335	9677.577	15858.914	718.429	581.388	1299.817
CUM.	326.689	444.571								
ULT.	636.338	4257.626								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	739.039	0.000	0.000	739.039	739.039	722.073	3.	21.46	2.394	10.	10175.981
1981	2336.733	0.000	0.000	2336.733	3075.772	2803.355	3.	23.82	2.458	20.	7662.478
1982	2384.901	0.000	0.000	2384.901	5460.673	4650.216	3.	25.00	2.649	30.	6068.675
1983	2132.878	0.000	0.000	2132.878	7593.551	6086.272	3.	24.99	2.841	40.	4982.217
1984	1704.825	0.000	0.000	1704.825	9298.376	7084.264	3.	24.99	3.032	50.	4200.887
1985	1302.781	0.000	0.000	1302.781	10601.157	7747.336	3.	24.99	3.224	60.	3616.050
1986	968.767	0.000	0.000	968.767	11569.924	8176.032	3.	25.02	3.415	70.	3164.374
1987	714.865	0.000	0.000	714.865	12284.789	8451.073	3.	25.98	3.607	80.	2806.589
1988	552.495	0.000	0.000	552.495	12837.284	8635.890	3.	28.52	3.798	90.	2517.278
1989	446.454	0.000	0.000	446.454	13283.738	8765.737	3.	30.77	3.990	100.	2279.163
8 TOT	13283.738	0.000	0.000	13283.738	13283.738	8765.737					
AFTER	1275.358	0.000	0.000	1275.358	14559.096	9017.995	PROJECT LIFE		17.6 YRS.		
TOTAL	14559.096	0.000	0.000	14559.096	14559.096	9017.995					

TABLE 1
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS DEEP UNIT WELL NO. 2
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	13.350	32.989	10.755	26.577	201.049	63.623	264.672	4.800	9.703	14.503
1981	33.181	144.590	26.732	116.487	588.038	286.294	874.332	14.400	32.053	46.453
1982	24.939	220.720	20.092	177.819	475.773	471.087	946.860	14.400	34.712	49.112
1983	17.531	245.729	14.123	197.968	334.445	562.380	896.825	14.399	32.878	47.277
1984	11.435	207.313	9.213	167.018	218.151	506.444	724.595	14.400	26.564	40.964
1985	7.486	160.558	6.031	129.351	142.814	417.000	559.814	14.400	20.523	34.923
1986	4.918	117.774	3.962	94.883	93.821	324.054	417.875	14.400	15.319	29.719
1987	3.246	83.558	2.615	67.317	61.926	242.800	304.726	14.400	11.171	25.571
1988	2.245	61.115	1.808	49.237	50.710	187.018	237.728	14.401	8.715	23.116
1989	1.642	46.821	1.323	37.720	40.694	150.497	191.191	14.400	7.009	21.409
8 TOT	119.973	1321.167	96.654	1064.377	2207.422	3211.196	5418.618	134.400	198.647	333.047
AFTER	4.016	122.534	3.236	98.718	107.124	448.731	555.855	99.954	20.378	120.332
REM.	123.989	1443.701	99.890	1163.095	2314.546	3659.927	5974.473	234.355	219.024	453.379
CUM.	179.068	206.068								
ULT.	303.057	1649.769								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	250.169	0.000	0.000	250.169	250.169	244.426	1.	18.69	2.394	10.	3850.834
1981	827.879	0.000	0.000	827.879	1078.048	981.802	1.	22.00	2.458	20.	2881.074
1982	897.748	0.000	0.000	897.748	1975.796	1677.015	1.	23.68	2.649	30.	2264.105
1983	849.548	0.000	0.000	849.548	2825.344	2249.011	1.	23.68	2.841	40.	1844.247
1984	683.631	0.000	0.000	683.631	3508.975	2649.204	1.	23.68	3.032	50.	1543.585
1985	524.891	0.000	0.000	524.891	4033.866	2916.356	1.	23.68	3.224	60.	1319.757
1986	388.156	0.000	0.000	388.156	4422.022	3088.122	1.	23.68	3.415	70.	1147.913
1987	279.155	0.000	0.000	279.155	4701.177	3195.525	1.	23.68	3.607	80.	1012.605
1988	214.612	0.000	0.000	214.612	4915.789	3267.316	1.	28.05	3.798	90.	903.834
1989	169.782	0.000	0.000	169.782	5085.571	3316.695	1.	30.76	3.990	100.	814.814
8 TOT	5085.571	0.000	0.000	5085.571	5085.571	3316.695					
AFTER	435.523	0.000	0.000	435.523	5521.094	3404.882	PROJECT LIFE		16.3 YRS.		
TOTAL	5521.094	0.000	0.000	5521.094	5521.094	3404.882					

PROVED DEVELOPED PRODUCING

TABLE 2
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS DEEP UNIT WELL NO. 3
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	9.917	59.302	7.989	47.776	149.348	114.371	263.719	4.800	9.668	14.468
1981	24.649	210.337	19.859	169.454	436.835	416.473	853.308	14.400	31.282	45.682
1982	17.676	231.838	14.240	186.777	337.211	494.819	832.030	14.400	30.502	44.902
1983	11.789	207.426	9.498	167.109	224.905	474.717	699.622	14.401	25.648	40.049
1984	7.690	164.311	6.195	132.375	146.704	401.397	548.101	14.400	20.093	34.493
1985	5.034	122.122	4.055	98.386	96.035	317.175	413.210	14.400	15.148	29.548
1986	3.308	87.195	2.665	70.247	63.109	239.914	303.023	14.400	11.109	25.509
1987	2.183	60.773	1.759	48.961	47.591	176.593	224.184	14.400	8.219	22.619
1988	1.539	44.476	1.240	35.831	35.732	136.098	171.830	14.400	6.299	20.699
1989	1.171	34.778	0.943	28.018	29.027	111.787	140.814	14.400	5.162	19.562
S TOT	84.956	1222.558	68.443	984.934	1566.496	2883.345	4449.841	134.400	163.131	297.531
AFTER	3.172	98.355	2.556	79.238	84.648	361.164	445.812	96.948	16.343	113.291
REM.	88.128	1320.913	70.999	1064.172	1651.144	3244.509	4895.653	231.347	179.475	410.822
CUM.	112.035	207.036								
ULT.	200.163	1527.949								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
YEAR	OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	NET CASHFLOW, M$ YEARLY	CUMULATIVE	DISCOUNTED CASHFLO M$	NO OF WELLS	PRICE $	PRICE $	PCT	M$
1980	249.251	0.000	0.000	249.251	249.251	243.529	1.	18.69	2.394	10.	3209.497
1981	807.626	0.000	0.000	807.626	1056.877	962.866	1.	22.00	2.458	20.	2458.067
1982	787.128	0.000	0.000	787.128	1844.005	1572.415	1.	23.68	2.649	30.	1971.525
1983	659.573	0.000	0.000	659.573	2503.578	2016.502	1.	23.68	2.841	40.	1634.312
1984	513.608	0.000	0.000	513.608	3017.186	2317.165	1.	23.68	3.032	50.	1388.497
1985	383.662	0.000	0.000	383.662	3400.848	2512.436	1.	23.68	3.224	60.	1202.408
1986	277.514	0.000	0.000	277.514	3678.362	2635.241	1.	23.68	3.415	70.	1057.303
1987	201.565	0.000	0.000	201.565	3879.927	2712.792	1.	27.06	3.607	80.	941.406
1988	151.131	0.000	0.000	151.131	4031.058	2763.347	1.	28.82	3.798	90.	847.018
1989	121.252	0.000	0.000	121.252	4152.310	2798.612	1.	30.78	3.990	100.	768.846
S TOT	4152.310	0.000	0.000	4152.310	4152.310	2798.612					
AFTER	332.521	0.000	0.000	332.521	4484.831	2865.463	PROJECT LIFE		16.1 YRS.		
TOTAL	4484.831	0.000	0.000	4484.831	4484.831	2865.463					

PROVED DEVELOPED PRODUCING

TABLE 3
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS STATE COM NO. 1-K
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	10.023	14.789	8.075	11.915	225.197	28.523	253.720	4.800	9.301	14.101
1981	25.969	80.497	20.921	64.851	583.475	159.387	742.862	14.401	27.233	41.634
1982	19.517	142.013	15.724	114.410	438.511	303.101	741.612	14.400	27.187	41.587
1983	13.216	139.705	10.647	128.664	296.938	365.504	662.442	14.400	24.285	38.685
1984	8.621	142.516	6.946	114.816	193.697	348.154	541.851	14.401	19.864	34.265
1985	5.644	114.496	4.547	92.242	126.810	297.368	424.178	14.400	15.550	29.950
1986	3.819	88.597	3.076	71.376	85.809	243.770	329.579	14.400	12.082	26.482
1987	2.680	68.068	2.159	54.838	60.214	197.790	258.004	14.401	9.458	23.859
1988	1.967	53.311	1.585	42.949	45.673	163.134	208.807	14.400	7.655	22.055
1989	1.516	43.151	1.221	34.764	37.579	138.703	176.282	14.400	6.462	20.862
8 TOT	92.972	907.143	74.901	730.825	2093.903	2245.433	4339.337	134.400	159.080	293.480
AFTER	4.560	141.298	3.674	113.835	121.742	527.708	649.450	118.327	23.809	142.136
REM.	97.532	1048.441	78.575	844.660	2215.646	2773.141	4988.787	252.727	182.889	435.616
CUM.	35.586	31.467								
ULT.	133.118	1079.908								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	239.619	0.000	0.000	239.619	239.619	234.118	1.	27.89	2.394	10.	3115.689
1981	701.228	0.000	0.000	701.228	940.847	858.688	1.	27.89	2.458	20.	2323.351
1982	700.025	0.000	0.000	700.025	1640.872	1400.785	1.	27.89	2.649	30.	1833.050
1983	623.757	0.000	0.000	623.757	2264.629	1820.758	1.	27.89	2.841	40.	1503.661
1984	507.586	0.000	0.000	507.586	2772.215	2117.895	1.	27.89	3.052	50.	1268.805
1985	394.228	0.000	0.000	394.228	3166.443	2318.544	1.	27.89	3.224	60.	1093.884
1986	303.097	0.000	0.000	303.097	3469.540	2452.670	1.	27.90	3.415	70.	959.158
1987	234.145	0.000	0.000	234.145	3703.685	2542.756	1.	27.89	3.607	80.	852.577
1988	186.752	0.000	0.000	186.752	3890.437	2605.227	1.	28.82	3.798	90.	766.426
1989	155.420	0.000	0.000	155.420	4045.857	2650.429	1.	30.78	3.990	100.	695.504
8 TOT	4045.857	0.000	0.000	4045.857	4045.857	2650.429					
AFTER	507.314	0.000	0.000	507.314	4553.171	2747.680	PROJECT LIFE		17.6 YRS.		
TOTAL	4553.171	0.000	0.000	4553.171	4553.171	2747.680					

PROVED DEVELOPED PRODUCING

SUMMARY TABLE 3
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED NON-PRODUCING
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	36.112	214.400	29.094	172.728	811.370	424.520	1235.890	14.400	45.320	59.720
1982	60.148	564.536	48.456	454.810	1351.411	1204.905	2556.316	28.800	93.740	122.540
1983	43.058	629.278	34.690	506.968	967.431	1440.175	2407.606	28.801	88.287	117.088
1984	28.086	531.720	22.626	428.370	631.045	1298.935	1929.980	28.800	70.772	99.572
1985	18.388	412.214	14.814	332.094	413.144	1070.600	1483.744	28.799	54.409	83.208
1986	12.080	302.570	9.732	243.762	271.410	832.520	1103.930	28.801	40.481	69.282
1987	7.972	214.756	6.422	173.014	179.117	624.029	803.146	28.799	29.451	58.250
1988	5.516	156.054	4.444	125.722	128.039	477.533	605.572	28.802	22.206	51.008
1989	4.034	118.170	3.250	95.202	99.970	379.840	479.810	28.799	17.595	46.394
9 TOT	215.394	3143.698	173.528	2532.670	4852.938	7753.056	12605.994	244.800	462.262	707.062
AFTER	10.124	312.308	8.156	251.606	270.096	1149.556	1419.654	219.817	52.059	271.876
REM.	225.518	3456.006	181.684	2784.276	5123.034	8902.613	14025.648	464.617	514.321	978.938
CUM.	0.000	0.000								
ULT.	225.518	3456.006								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	8696.336
1981	1176.170	0.000	0.000	1176.170	1176.170	1047.592	1.	27.89	2.458	20.	6197.669
1982	2433.776	0.000	0.000	2433.776	3609.946	2932.301	2.	27.89	2.649	30.	4627.939
1983	2290.518	0.000	0.000	2290.518	5900.464	4474.495	2.	27.89	2.841	40.	3576.077
1984	1830.408	0.000	0.000	1830.408	7730.872	5546.002	2.	27.89	3.032	50.	2836.469
1985	1400.536	0.000	0.000	1400.536	9131.408	6258.828	2.	27.89	3.224	60.	2297.196
1986	1034.648	0.000	0.000	1034.648	10166.056	6716.678	2.	27.89	3.415	70.	1892.554
1987	744.896	0.000	0.000	744.896	10910.952	7003.272	2.	27.89	3.607	80.	1581.728
1988	554.564	0.000	0.000	554.564	11465.516	7188.782	2.	28.81	3.798	90.	1338.332
1989	433.416	0.000	0.000	433.416	11898.932	7314.837	2.	30.76	3.990	100.	1144.528
9 TOT	11898.932	0.000	0.000	11898.932	11898.932	7314.837					
AFTER	1147.778	0.000	0.000	1147.778	13046.710	7543.849	PROJECT LIFE		17.0 YRS.		
TOTAL	13046.710	0.000	0.000	13046.710	13046.710	7543.849					

TABLE 4
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

NORTH TRAVIS 12-1-P
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	---GROSS PRODUCTION--- OIL MBBL	GAS MMCF	----NET PRODUCTION---- OIL MBBL	GAS MMCF	----------NET REVENUE, M$--------- OIL	GAS	TOTAL	----------EXPENSE, M$---------- OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	18.056	107.200	14.547	86.364	405.685	212.260	617.945	7.200	22.660	29.860
1982	30.074	282.268	24.228	227.405	675.705	602.453	1278.158	14.400	46.870	61.270
1983	21.529	314.639	17.345	253.484	483.715	720.088	1203.803	14.401	44.143	58.544
1984	14.043	265.860	11.313	214.185	315.522	649.467	964.990	14.400	35.386	49.786
1985	9.194	206.107	7.407	166.047	206.572	535.300	741.872	14.400	27.204	41.604
1986	6.040	151.285	4.866	121.881	135.705	416.260	551.965	14.400	20.241	34.641
1987	3.986	107.378	3.211	86.507	89.559	312.014	401.573	14.399	14.726	29.125
1988	2.758	78.027	2.222	62.861	64.020	238.766	302.786	14.401	11.103	25.504
1989	2.017	59.085	1.625	47.601	49.985	189.920	239.905	14.400	8.797	23.197
S TOT	107.697	1571.849	86.764	1266.335	2426.469	3876.528	6302.997	122.400	231.131	353.531
AFTER	5.062	156.154	4.078	125.803	135.048	574.778	709.827	109.909	26.029	135.938
REM.	112.759	1728.003	90.842	1392.138	2561.517	4451.306	7012.824	232.309	257.160	489.469
CUM.	0.000	0.000								
ULT.	112.759	1728.003								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	-----UNDISCOUNTED----- NET CASHFLOW, M$ YEARLY	CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	4348.168
1981	588.085	0.000	0.000	588.085	588.085	523.796	0.	27.89	2.458	20.	3098.835
1982	1216.888	0.000	0.000	1216.888	1804.973	1466.150	1.	27.89	2.649	30.	2313.970
1983	1145.259	0.000	0.000	1145.259	2950.232	2237.248	1.	27.89	2.841	40.	1788.038
1984	915.204	0.000	0.000	915.204	3865.436	2773.001	1.	27.89	3.032	50.	1418.235
1985	700.268	0.000	0.000	700.268	4565.704	3129.414	1.	27.89	3.224	60.	1148.598
1986	517.324	0.000	0.000	517.324	5083.028	3358.339	1.	27.89	3.415	70.	946.277
1987	372.448	0.000	0.000	372.448	5455.476	3501.636	1.	27.89	3.607	80.	790.864
1988	277.282	0.000	0.000	277.282	5732.758	3594.391	1.	28.81	3.798	90.	669.166
1989	216.708	0.000	0.000	216.708	5949.466	3657.419	1.	30.76	3.990	100.	572.264
S TOT	5949.466	0.000	0.000	5949.466	5949.466	3657.419					
AFTER	573.889	0.000	0.000	573.889	6523.355	3771.924	PROJECT LIFE		17.0 YRS.		
TOTAL	6523.355	0.000	0.000	6523.355	6523.355	3771.924					

PROVED DEVELOPED NON-PRODUCING.

TABLE 5

RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS STATE 13-1F
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	18.056	107.200	14.547	86.364	405.685	212.260	617.945	7.200	22.660	29.860
1982	30.074	282.268	24.228	227.405	675.705	602.453	1278.158	14.400	46.870	61.270
1983	21.529	314.639	17.345	253.484	483.715	720.088	1203.803	14.401	44.143	58.544
1984	14.043	265.860	11.313	214.185	315.522	649.467	964.990	14.400	35.386	49.786
1985	9.194	206.107	7.407	166.047	206.572	535.300	741.872	14.400	27.204	41.604
1986	6.040	151.285	4.866	121.881	135.705	416.260	551.965	14.400	20.241	34.641
1987	3.986	107.378	3.211	86.507	89.559	312.014	401.573	14.399	14.726	29.125
1988	2.758	78.027	2.222	62.861	64.020	238.766	302.786	14.401	11.103	25.504
1989	2.017	59.085	1.625	47.601	49.985	189.920	239.905	14.400	8.797	23.197
8 TOT	107.697	1571.849	86.764	1266.335	2426.469	3876.528	6302.997	122.400	231.131	353.531
AFTER	5.062	156.154	4.078	125.803	135.048	574.778	709.827	109.909	26.029	135.938
REM.	112.759	1728.003	90.842	1392.138	2561.517	4451.306	7012.824	232.309	257.160	489.469
CUM.	0.000	0.000								
ULT.	112.759	1728.003								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
YEAR	OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	NET CASHFLOW, M$ YEARLY	CUMULATIVE	DISCOUNTED CASHFLO M$	NO OF WELLS	PRICE $	PRICE $	PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	4348.168
1981	588.085	0.000	0.000	588.085	588.085	523.796	0.	27.89	2.458	20.	3098.835
1982	1216.888	0.000	0.000	1216.888	1804.973	1466.150	1.	27.89	2.649	30.	2313.970
1983	1145.259	0.000	0.000	1145.259	2950.232	2237.248	1.	27.89	2.841	40.	1788.038
1984	915.204	0.000	0.000	915.204	3865.436	2773.001	1.	27.89	3.032	50.	1418.235
1985	700.268	0.000	0.000	700.268	4565.704	3129.414	1.	27.89	3.224	60.	1148.598
1986	517.324	0.000	0.000	517.324	5083.028	3358.339	1.	27.89	3.415	70.	946.277
1987	372.448	0.000	0.000	372.448	5455.476	3501.636	1.	27.89	3.607	80.	790.864
1988	277.282	0.000	0.000	277.282	5732.758	3594.391	1.	28.81	3.798	90.	669.166
1989	216.708	0.000	0.000	216.708	5949.466	3657.419	1.	30.76	3.990	100.	572.264
8 TOT	5949.466	0.000	0.000	5949.466	5949.466	3657.419					
AFTER	573.889	0.000	0.000	573.889	6523.355	3771.924	PROJECT LIFE		17.0 YRS.		
TOTAL	6523.355	0.000	0.000	6523.355	6523.355	3771.924					

PROVED DEVELOPED NON-PRODUCING

SUMMARY TABLE 4
HARVEY E. YATES COMPANY
SUMMARY OF PRODUCTIVE AREA AND RESERVOIR VOLUMES
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Description	Area Acres	Average Thickness -Feet-	Reservoir Volume -Acre Feet-	Volumetric Estimate Of Stock Tank Oil-In-Place -Barrels-
Reservoir	2,253	22.60	50,912	13,033,470
Travis Deep Unit	1,505	27.75	41,774	10,694,100
Outside of Travis Deep Unit	748	12.22	9,138	2,339,370
Projected Floodable Area Within Travis Deep Unit Boundary	870	35.84	31,180	7,982,100
Proved Developed Tracts Within Travis Deep Unit Producing and Non-Producing				
S/2 SE/4 Section 12	80	60.65	4,852	1,242,110
N/2 NE/4 Section 13	80	54.65	4,372	1,119,230
S/2 NE/4 Section 13	80	48.63	3,890	995,840
S/2 NW/4 Section 13	80	38.36	3,069	785,660
N/2 SW/4 Section 13	80	54.44	4,355	1,114,880

Values shown above computed from isopachous map.

Volumetric estimate of oil-in-place - Barrels/Acre Foot

$$q = \frac{(0.0639)(1 - .24)\ 7758}{1.4725} = 256 \text{ Barrels/Acre Foot}$$

SUMMARY TABLE 5
HARVEY E. YATES COMPANY
SUMMARY OF RESERVOIR PAY BY WELLS
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Operator	Well Designation	Projected Reservoir Pay - Feet: Most Permeable	Less Permeable	Matrix	Total Pay Thickness	Remarks
Harvey E. Yates Company	Travis Deep Unit No. 2	20	14	31	65	
	Travis Deep Unit No. 3	11	13	45	69	
	State Comm No. 1	11	24	29	64	
	North Travis 12-1	10	28	21	59	
	State 13-1	16	5	27	48	
Holly Energy	State B-14 Com No. 1	-	15	10	25	Need additional information to further evaluate

Projected Formation Characteristics	Most Permeable	Less Permeable	Matrix	Probable Weighted Formation Characteristics for Reservoir
Porosity (Ø) % of Bulk Volume	10.90	7.20	4.00	6.37
Interstitial Water - % of P.V.	15.00	22.50	29.00	24.08
Permeability - Millidarcies	3.30	1.77	1.02	1.71

TABLE 6
HARVEY E. YATES COMPANY
INTERNAL GAS DRIVE
PRESSURE - PRODUCTION PERFORMANCE
DISPERSED DISPLACEMENT
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PRESSURE PSIG	RECOVERY FACTOR %	OIL PROD MSTB	CUM OIL MSTB	CUM GAS--MMSCF TOTAL	CUM GAS--MMSCF NET	GOR SCF/STB	GAS SAT % PV
3725.	0.000	0.00	0.0	0.0	0.0	800.	0.0
3600.	0.216	25.68	25.7	20.5	20.5	800.	0.0
3400.	0.565	41.57	67.3	53.8	53.8	800.	0.0
3200.	0.919	42.15	109.4	87.5	87.5	800.	0.0
3000.	1.278	42.73	152.1	121.7	121.7	800.	0.0
2800.	1.641	43.31	195.5	156.4	156.4	800.	0.0
2600.	2.010	43.88	239.3	191.5	191.5	800.	0.0
2400.	2.383	44.45	283.8	227.0	227.0	800.	0.0
2200.	2.761	45.01	328.8	263.0	263.0	800.	0.0
2066.	3.017	30.47	359.3	287.4	287.4	800.	0.0
2000.	4.873	221.10	580.4	480.3	480.3	873.	2.1
1900.	7.021	255.80	836.2	840.1	840.1	1406.	4.7
1800.	8.490	174.97	1011.1	1252.0	1252.0	2354.	6.8
1700.	9.862	163.32	1174.5	1819.7	1819.7	3476.	8.7
1600.	10.866	119.55	1294.0	2393.3	2393.3	4798.	10.3
1500.	11.677	96.63	1390.6	3035.5	3035.5	6646.	11.9
1400.	12.253	68.57	1459.2	3660.4	3660.4	9114.	13.2
1300.	12.789	63.89	1523.1	4402.5	4402.5	11615.	14.5
1200.	13.191	47.82	1570.9	5098.8	5098.8	14562.	15.6
1100.	13.550	42.74	1613.7	5871.9	5871.9	18087.	16.7
1000.	13.818	31.99	1645.7	6575.6	6575.6	21999.	17.7
900.	14.073	30.29	1675.9	7355.2	7355.2	25739.	18.7
800.	14.272	23.76	1699.7	8052.9	8052.9	29360.	19.7
700.	14.482	24.95	1724.7	8869.5	8869.5	32725.	20.6
600.	14.651	20.13	1744.8	9572.9	9572.9	34945.	21.6
500.	14.856	24.42	1769.2	10370.6	10370.6	32658.	22.5
400.	15.056	23.83	1793.0	11024.1	11024.1	27427.	23.5
300.	15.365	36.77	1829.8	11826.6	11826.6	21826.	24.5
200.	15.652	34.21	1864.0	12391.7	12391.7	16518.	25.5

INITIAL OIL-IN-PLACE (MB) = 11909.3
INITIAL GAS-IN-PLACE, MMF 9527.4

TABLE 7
HARVEY E. YATES COMPANY
RESERVOIR FLUIDS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PRESSURE PSIG----	DIFFERENTIAL DATA FVF V/B---	GAS SOL F/B----	FLASH FVF V/B---	FLASH GAS SOL F/B----	GAS GRAVITY -------	Z FACTOR ------	GAS FVF B/MCF--
200.	1.0900	60.	1.0900	60.	0.000	0.9670	14.0772
400.	1.1300	125.	1.1300	125.	0.000	0.9300	7.0085
600.	1.1700	200.	1.1700	200.	0.000	0.9000	4.5755
800.	1.2100	280.	1.2100	280.	0.000	0.8600	3.2988
1000.	1.2500	360.	1.2500	360.	0.000	0.8300	2.5561
1200.	1.2900	440.	1.2900	440.	0.000	0.7950	2.0452
1400.	1.3300	525.	1.3300	525.	0.000	0.7700	1.7008
1600.	1.3750	610.	1.3750	610.	0.000	0.7550	1.4611
1800.	1.4180	695.	1.4180	695.	0.000	0.7400	1.2743
2066.	1.4800	800.	1.4800	800.	0.000	0.7300	1.0963

N - MSTB	0.000	SAT PSI	2066.
G/N RATIO - CF/B	000.000	SCW - PCT	29.00
G - MMCF	0.000	GAS CAP PSI	0.
BW - RVB/STB	1.0500	CW - V/MMV/PSI	3.192
SEP. CF/STB	40.	CO - V/MMV/PSI	7.000
RESVR TEMP - F	160.	CF - V/MMV/PSI	6.300
NITROGEN - PCT	1.24	CARB. DIOX. - PCT	0.34
HYD. SULF. - PCT	00.000		

Initial Oil Reserves Calculated Using Tarner Technique.
Other Pertinent Data Included on Fluid Characteristics
Data Charts (Included).

TABLE 8
MATERIAL BALANCE RESULTS AND RESERVOIR VOIDAGE CALCULATIONS
TRAVIS UPPER PENN POOL (CANYON ZONE)
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY
Ralph H. Viney & Associates, Inc.
Engineering Consultants

MATERIAL BALANCE

SURVEY DATE: 9/ 8/77

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	3725.	3.0	3.7	0.0	0.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			3.0	3.7	0.0	0.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 11/ 1/77

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	3538.	16.4	18.0	0.0	5802.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			16.4	18.0	0.0	5802.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 11/30/79

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2411.	272.8	351.9	0.0	16176.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			272.8	351.9	0.0	16176.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 6/17/80

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2748.	319.2	402.0	0.0	24247.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			319.2	402.0	0.0	24247.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 8/13/80

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2092.	322.9	406.4	0.0	15804.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			322.9	406.4	0.0	15804.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

Results of Surveys 11/30/1979 and 8/13/1980
Considered to be representative with zero gas cap

MSTB - 1000 Stock Tank Barrels
MMCF - 1,000,000 Cubic Feet
Area No. - Is a Computer Code for Engineering Identification

RESERVOIR VOIDAGE

SEGMENT	RESERVOIR VOLUME OF WITHDRAWALS, MRVB OIL	GAS	WATER	TOTAL
SURVEY DATE: 9/ 8/77				
3	4.338	0.803	0.000	5.141
S-TOTAL	4.338	0.803	0.000	5.141
CAP	0.000	0.000	0.000	0.000
TOTAL	4.338	0.803	0.000	5.141
SURVEY DATE: 11/ 1/77				
3	23.966	3.313	0.000	27.279
S-TOTAL	23.966	3.313	0.000	27.279
CAP	0.000	0.000	0.000	0.000
TOTAL	23.966	3.313	0.000	27.279
SURVEY DATE: 11/30/79				
3	402.808	133.545	0.000	536.354
S-TOTAL	402.808	133.545	0.000	536.354
CAP	0.000	0.000	0.000	0.000
TOTAL	402.808	133.545	0.000	536.354
SURVEY DATE: 6/17/80				
3	470.176	126.959	0.000	597.135
S-TOTAL	470.176	126.959	0.000	597.135
CAP	0.000	0.000	0.000	0.000
TOTAL	470.176	126.959	0.000	597.135
SURVEY DATE: 8/13/80				
3	477.839	174.071	0.000	651.910
S-TOTAL	477.839	174.071	0.000	651.910
CAP	0.000	0.000	0.000	0.000
TOTAL	477.839	174.071	0.000	651.910

MRVB = 1000's of Reservoir Volume Barrels

DISCUSSION (Continued)

	Injection Pattern	Peripheral Injection Program
Development Drilling		
Producing Wells	-	$ 2,420,000
Injection Well Locations	-	3,250,000
Pump Jacks (640's) and Attendent Equipment	$ 330,000	892,000
Operating Expenses (Escalated @ 3% per Annum) Including Ad Valorem Taxes	1,260,500	3,071,400
Total Projected Costs	$ 1,995,500	$ 10,133,400

Enclosed are schematics illustrating a general proposed fluid distribution system, plant layout and equipment installations, typical field line connections and typical equipment inventory and cost projections. The system diagrams and equipment projections were prepared in conjunction with Mr. Gene Campbell of Mid-Continent Supply Company in Midland. The cost estimates are for plant equipment larger than would probably be required in the Travis Deep Unit operations; however, they serve to provide items to be considered.

Whenever injection is to be commenced, it is suggested, due to lead time required to obtain equipment delivery, that the decision be aware of a 180 to 200 day equipment delivery schedule.

Delays beyond a reasonable time to commence fluid injection will result in greater reservoir voidage and will be associated with attendant higher fluid requirements for displacement, higher overall enhanced recovery costs and lower ultimate hydrocarbon fluid recoveries. Maximum costs have been projected for fluid lift pumping equipment and are probably high.

It should be noted that conventional engineering techniques have been used in preparing the projections presented; however, much, if not all, has been prepared using best estimates of formation characteristics and fluid data, all of which was developed empirically.

TABLE 9
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

HARVEY E. YATES COMPANY
TRAVIS DEEP UPPER PENN FIELD
EDDY COUNTY, NEW MEXICO
PATTERN FLOOD

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	24.300	93.600	19.577	75.407	549.507	180.517	730.024	6.400	0.000	6.400
1981	69.000	421.000	55.589	339.172	1560.328	830.889	2391.217	75.600	0.000	75.600
1982	69.350	680.000	55.870	547.831	1568.243	1433.855	3002.098	96.500	0.000	96.500
1983	142.350	2135.000	114.682	1720.029	3219.023	4790.115	8009.138	96.500	0.000	96.500
1984	142.350	712.000	114.682	573.612	3219.023	1693.576	4912.599	96.500	0.000	96.500
1985	122.300	257.000	98.529	207.048	2765.624	646.000	3411.624	99.000	0.000	99.000
1986	94.900	142.400	76.455	114.722	2146.017	377.163	2523.180	102.000	0.000	102.000
1987	62.000	79.400	49.949	63.967	1402.033	221.019	1623.052	105.000	0.000	105.000
1988	40.000	46.200	32.226	37.220	934.881	134.839	1069.720	108.000	0.000	108.000
1989	26.000	26.800	20.946	21.591	647.117	81.837	728.954	112.000	0.000	112.000
S TOT	792.550	4593.400	638.505	3700.599	18011.796	10389.810	28401.606	897.500	0.000	897.500
AFTER	34.000	34.000	27.392	27.392	904.440	111.628	1016.068	363.000	0.000	363.000
REM.	826.550	4627.400	665.897	3727.991	18916.236	10501.438	29417.674	1260.500	0.000	1260.500
CUM.	326.689	444.571								
ULT.	1153.239	5071.971								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	723.624	0.000	0.000	723.624	723.624	709.414	2.	28.07	2.394	10.	19012.852
1981	2315.617	365.000	40.000	1910.617	2634.241	2440.318	4.	28.07	2.450	20.	13764.358
1982	2905.598	0.000	0.000	2905.598	5539.839	4776.052	4.	28.07	2.617	30.	10331.362
1983	7912.638	223.000	0.000	7689.638	13229.477	10261.916	4.	28.07	2.785	40.	7996.739
1984	4816.099	107.000	0.000	4709.099	17938.576	13243.308	4.	28.07	2.952	50.	6356.678
1985	3312.624	0.000	0.000	3312.624	21251.200	15104.499	4.	28.07	3.120	60.	5172.476
1986	2421.180	0.000	0.000	2421.180	23672.380	16311.727	4.	28.07	3.288	70.	4297.011
1987	1518.052	0.000	0.000	1518.052	25190.432	16983.452	4.	28.07	3.455	80.	3636.268
1988	961.720	0.000	0.000	961.720	26152.152	17361.110	4.	29.01	3.623	90.	3128.337
1989	616.954	0.000	0.000	616.954	26769.106	17576.114	4.	30.89	3.790	100.	2731.321
S TOT	27504.106	695.000	40.000	26769.106	26769.106	17576.114					
AFTER	653.068	0.000	0.000	653.068	27422.174	17766.356	PROJECT LIFE		12.3 YRS.		
TOTAL	28157.174	695.000	40.000	27422.174	27422.174	17766.356					

PROJECTED PERFORMANCE
A PATTERN FLOOD

ENHANCED RECOVERY
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

OIL PRODUCTION

WATER PRODUCTION

GAS-OIL RATIO

COMMENCEMENT PROJECTED INITIAL WATER INJECTION - APRIL 1, 1981

OIL PRODUCTION BARRELS PER DAY

32000
28000
24000
20000
16000
12000
8000
4000
0

550
500
450
400
350
300
250
200
150
100
50
0

Mar June Sept Dec

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997

TABLE 10
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

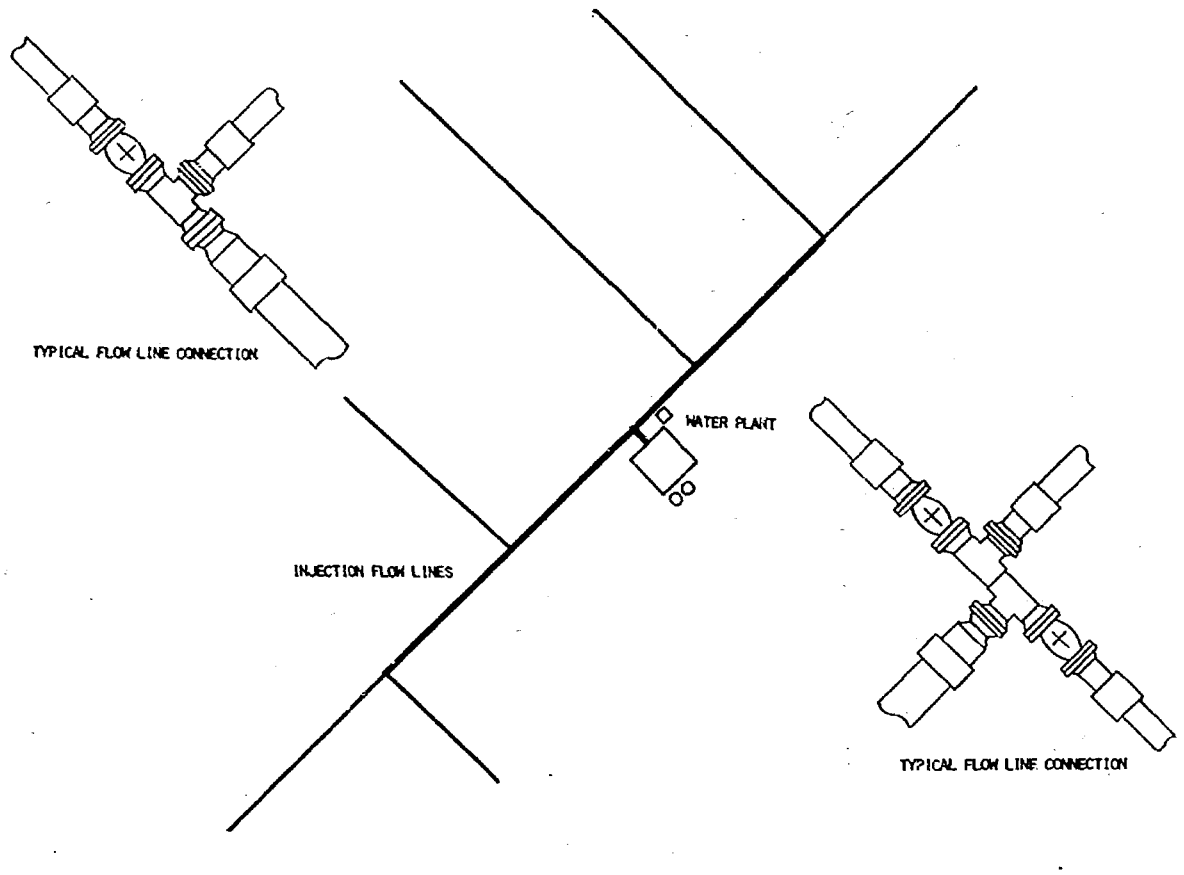
BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

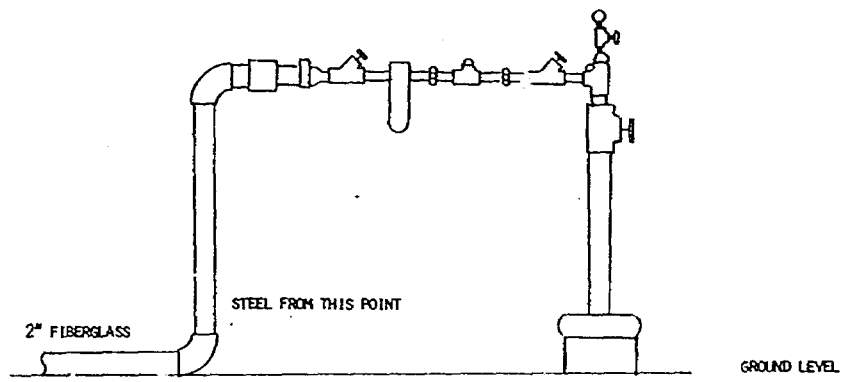
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN FIELD
EDDY COUNTY, NEW MEXICO
PERIPHERAL FLOOD

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	GROSS PRODUCTION		NET PRODUCTION		NET REVENUE, M$			EXPENSE, M$		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	42.000	138.600	33.837	111.661	949.765	267.305	1217.070	6.400	0.000	6.400
1981	102.000	555.800	82.174	447.771	2306.573	1096.930	3403.503	78.000	0.000	78.000
1982	164.000	1541.600	132.124	1241.966	3708.603	3250.635	6959.239	155.000	0.000	155.000
1983	294.000	3969.000	236.857	3197.561	6648.355	8904.900	15553.255	194.000	0.000	194.000
1984	294.000	1470.000	236.856	1184.282	6648.352	3496.565	10144.917	201.000	0.000	201.000
1985	294.000	499.800	236.857	402.656	6648.353	1256.307	7904.660	208.000	0.000	208.000
1986	274.000	328.800	220.743	264.893	6196.083	870.868	7066.952	215.000	0.000	215.000
1987	219.000	240.900	176.434	194.077	4952.346	670.574	5622.920	223.000	0.000	223.000
1988	153.000	153.000	123.262	123.262	3575.914	446.550	4022.464	230.000	0.000	230.000
1989	110.000	110.000	88.620	88.619	2737.804	335.896	3073.700	238.000	0.000	238.000
S TOT	1946.000	9007.500	1567.764	7256.748	44372.152	20596.530	64968.680	1748.400	0.000	1748.400
AFTER	177.900	177.900	143.322	143.323	4739.168	594.070	5333.240	1323.000	0.000	1323.000
REM.	2123.900	9185.400	1711.086	7400.071	49111.320	21190.600	70301.920	3071.400	0.000	3071.400
CUM.	326.689	444.571								
ULT.	2450.589	9629.971								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	M$
1980	1210.670	0.000	0.000	1210.670	1210.670	1186.896	5.	28.07	2.394	10.	37904.100
1981	3325.503	3900.000	300.000	-874.497	336.173	397.032	11.	28.07	2.450	20.	25225.332
1982	6804.239	750.000	600.000	5454.239	5790.412	4782.201	12.	28.07	2.617	30.	17547.664
1983	15359.255	320.000	300.000	14739.255	20529.668	15297.413	14.	28.07	2.785	40.	12657.357
1984	9943.917	446.000	0.000	9497.917	30027.586	21310.754	14.	28.07	2.952	50.	9412.513
1985	7696.660	446.000	0.000	7250.660	37278.248	25384.672	14.	28.07	3.120	60.	7187.455
1986	6851.952	0.000	0.000	6851.952	44130.200	28801.134	14.	28.07	3.238	70.	5620.568
1987	5399.920	0.000	0.000	5399.920	49530.120	31190.558	14.	28.07	3.455	80.	4492.900
1988	3792.464	0.000	0.000	3792.464	53322.584	32679.822	14.	29.01	3.623	90.	3666.602
1989	2835.700	0.000	0.000	2835.700	56158.284	33668.040	14.	30.89	3.790	100.	3051.845
S TOT	63220.280	5862.000	1200.000	56158.284	56158.284	33668.040					
AFTER	4010.240	0.000	0.000	4010.240	60168.524	34799.496	PROJECT LIFE		14.3 YRS.		
TOTAL	67230.520	5862.000	1200.000	60168.524	60168.524	34799.496					





TYPICAL WELL HEAD HOOK-UP

TRAVIS DEEP UNIT

A GENERALIZED WELL HEAD AND FLOW LINE HOOK-UP
FOR ENHANCED RECOVERY SYSTEM

TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

PLATE 9

TABLE 11
COST ESTIMATES
ENHANCED RECOVERY STATION EQUIPMENT AND INSTALLATION
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

QUANTITY	DESCRIPTION	PROJECTED PRICE
2	Ajax T-150 triplex water injection pumps unitized with 150 HP electric motors mounted on oil field type skids. Each unit will deliver 3930 BPD at 2015 PSI based on 100% volumetric efficiency.	$ 70,982.00
2	8" suctions to pumps, each to include a section of hose and suction dampener.	5,600.00
1	Discharge system from each pump including shut off valves, discharge dampener and two outlets at each end of building.	14,514.00
2	Relief and bypass system with return water going back into suction tanks. This to include an air operated bypass with air compressor.	5,625.00
1	20' X 38' X 10' high steel building with two walk-in doors, two 10' overhead doors and a 2-ton bridge crane.	18,760.00
1	9' X 12' office and control building.	8,586.00
1	Lot of electrical equipment to include: 2 - Motor control panels for 150 HP motors with safety shut down and control devices; 1 - Master switch mounted on the incoming power pole. Also included is all wiring, lights and switches.	21,620.00
2	H1-750 BBL Welded steel tanks including sand blasting and co... tar epoxy lined after all welding has been completed. Inlet valves and fittings.	31,624.00
	Total approximate cost for the complete injection plant material.	$ 177,311.00
	Labor charges to construct plant, including the installation of electrical equipment	34,852.00
	Total for plant material and construction.	$ 212,163.00
	Well head hookups including meters, tubing valves, filter, throttle valves and fittings. Price Each	2,024.00
1	Lot of valves and fittings for injection line in field.	4,500.00
	2 3/8" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	3.75 per ft.
	2 7/8" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	4.35 per ft.

COST ESTIMATES (Continued)

QUANTITY	DESCRIPTION	PROJECTED PRICE
	3 1/2" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	$ 5.90 per ft.
	4 1/2" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	9.35 per ft.
	To cut right-of-way ditch to 18" of cover, install, test to 2000# and backfill.	
	2" and 2½" Threaded Fiber Glass Pipe.	1.47 per ft.
	3" and 4" Threaded Fiber Glass Pipe.	1.57 per ft.
	To pad pipe with dirt of R.O.W.	.36 per ft.

TABLE 11

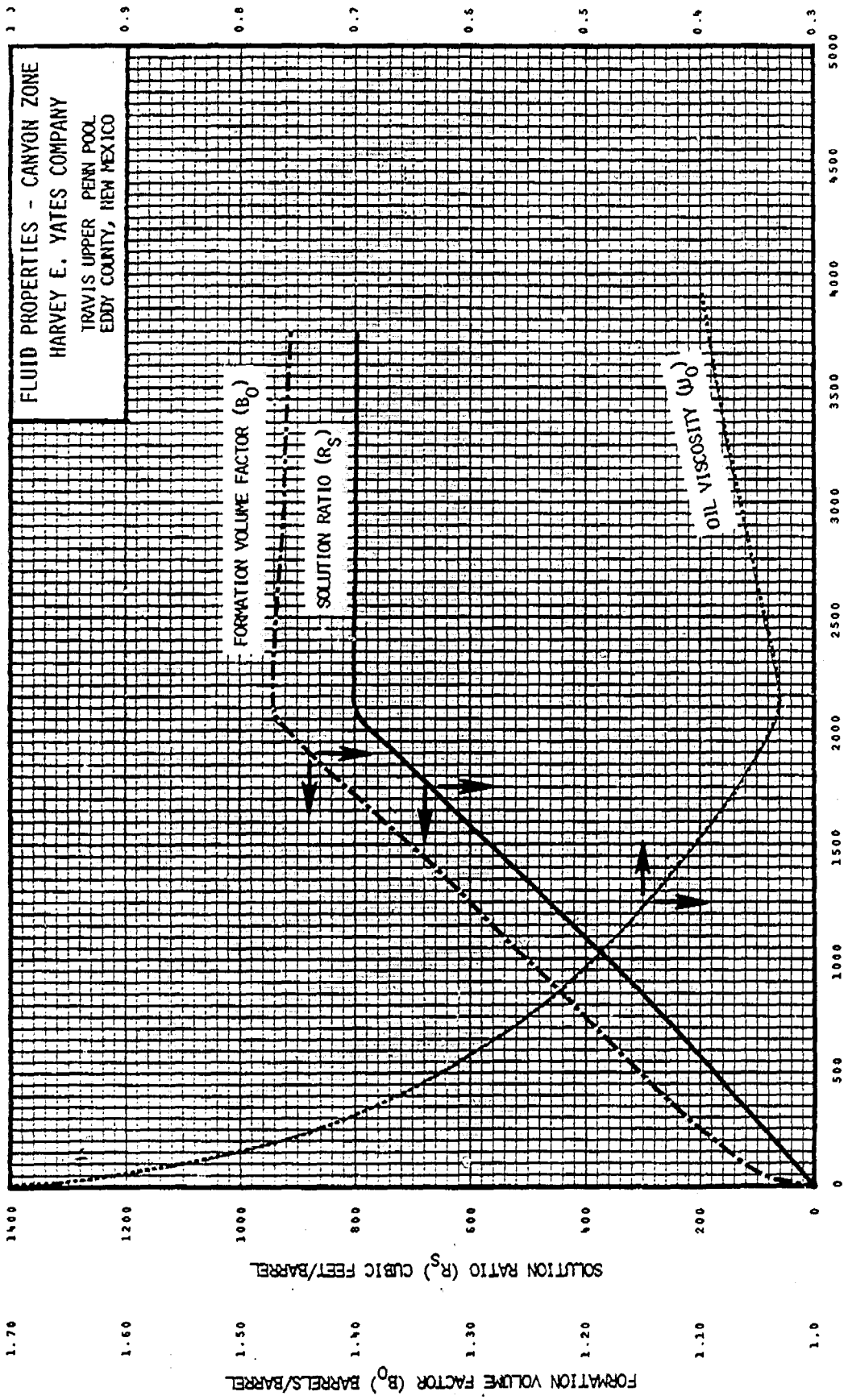

FLUID PROPERTIES - CANYON ZONE
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
FORMATION VOLUME FACTOR (B_O)
SOLUTION RATIO (R_S)
OIL VISCOSITY (μ_O)
PRESSURE - PSIG
OIL VISCOSITY (μ_O) CENTIPOISES
SOLUTION RATIO (R_S) CUBIC FEET/BARREL
FORMATION VOLUME FACTOR (B_O) BARRELS/BARREL

PLATE 14

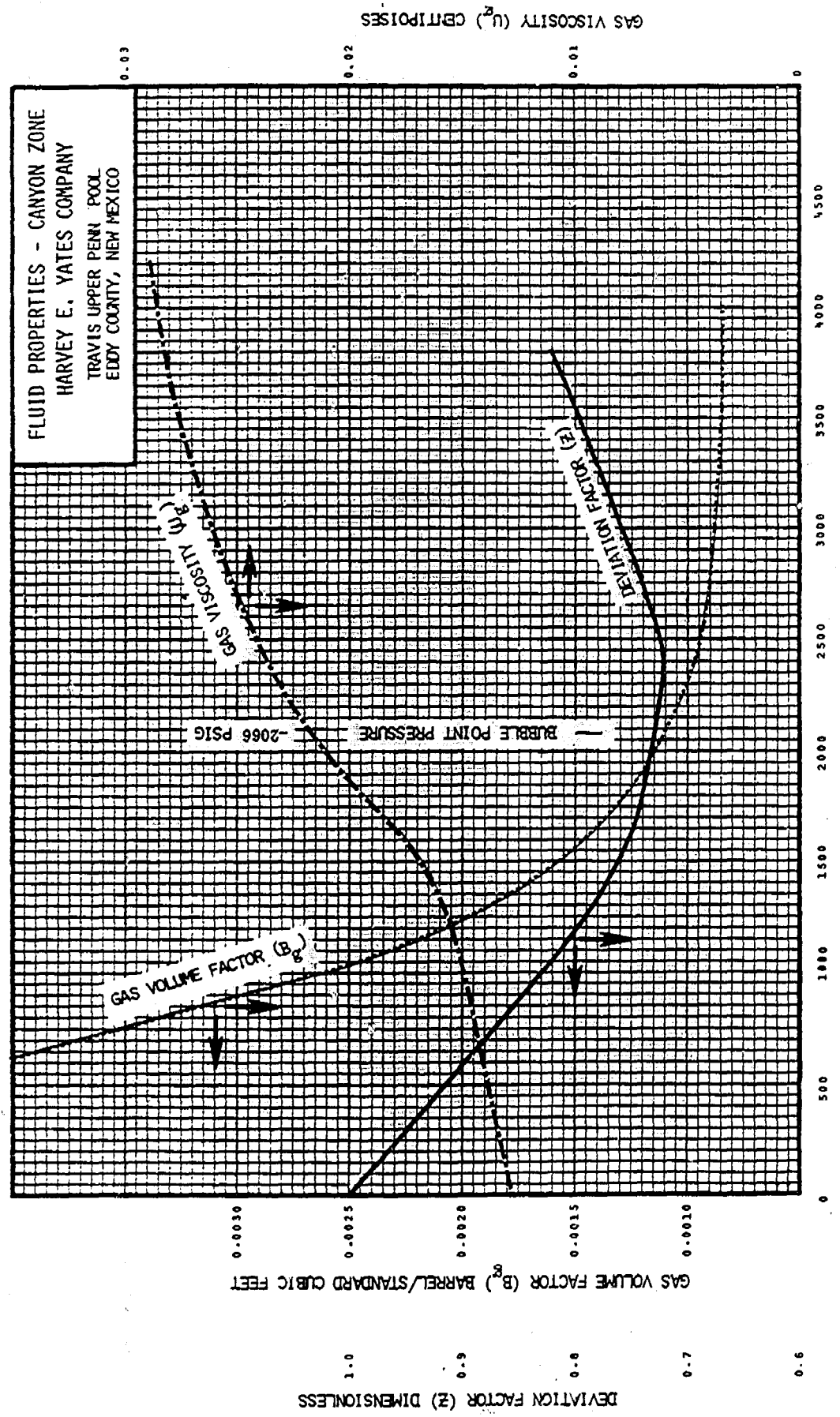

FLUID PROPERTIES - CANYON ZONE
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
BUBBLE POINT PRESSURE — 2066 PSIG
GAS VISCOSITY (μ_g)
GAS VOLUME FACTOR (B_g)
DEVIATION FACTOR (Z)
GAS VISCOSITY (μ_g) CENTIPOISES
0.03
0.02
0.01
0
4500
4000
3500
3000
2500
2000
1500
1000
500
0
PRESSURE - PSIG
0.0030
0.0025
0.0020
0.0015
0.0010
GAS VOLUME FACTOR (B_g) BARREL/STANDARD CUBIC FEET
1.0
0.9
0.8
0.7
0.6
DEVIATION FACTOR (Z) DIMENSIONLESS

PLATE 15

TABLE 12
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY

R E C O M B I N A T I O N

O F

S E P A R A T O R F L U I D S A M P L E S

INPUT DATA:

	STAGE 1	STAGE 2
PRESSURE,(PSIG)	44.0	0.
TEMPERATURE,(DEG.F.)	79.0	74.0
GAS RATE,(MSCF/D)	49.6	

PRESSURE BASE = 14.000 PSIA. TEMPERATURE BASE = 74.0 DEG. F.

LIQUID AND GAS SAMPLE FROM STAGE 1

STAGE 1 GAS / STAGE 1 LIQUID RATIO IS 770 SCF/BBL
OR 1298.7 BBL/MMSCF

BASIS FOR RECOMBINATION:

(1) SEPARATOR GOR = INPUT GOR / SHRINKAGE
= 770 / 1.000 = 770

(2) MOLES OF OIL = DENSITY / M.W.
= 263.9 / 140.3 = 1.882

(3) MOLES OF GAS = SEP. GOR / SCF PER MOLE
= 770 / 409.11 = 1.882

(4) OIL FRACTION = .4999 ; GAS FRACTION = .5001

TABLE 12
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY

S E P A R A T O R R E C O M B I N A T I O N

PAGE 2

COMPONENT NAME	SEPARATOR LIQ. MOL	SEPARATOR GAS MOL	SEPARATOR GAS GPM	WELL STREAM MOL	WELL STREAM GPM
NITROGEN	.10	1.01	0.	.55	0.
CARBON DIOXIDE	.10	.15	0.	.12	0.
HYDROGEN SULFIDE	0.	0.	0.	0.	0.
METHANE	1.61	66.65	0.	34.13	0.
ETHANE	2.28	17.30	0.	9.79	0.
PROPANE	4.08	9.05	2.30	6.56	1.67
ISO-BUTANE	1.28	1.15	.35	1.22	.37
N-BUTANE	4.39	2.74	.80	3.57	1.04
ISO-PENTANE	2.19	.55	.19	1.37	.46
N-PENTANE	2.99	.60	.20	1.80	.60
HEXANE	6.61	.41	.16	3.51	1.34
HEPTANE	13.77	.26	.11	7.02	2.99
OCTANE	16.29	.10	.05	8.20	3.88
NONANE	9.44	.02	.01	4.73	2.46
HEAVY ENDS*	34.87	.01	.01	17.44	13.21
	100.00	100.00	4.17	100.00	28.04
PROPERTIES OF THE HEAVY ENDS					
SPECIFIC GRAV.	.890	.831		.890	
MOLECULAR WT.	230.0	142.0		230.0	

CALCULATED SEPARATOR GAS GRAVITY (AIR=1.00) = .832
CALCULATED GROSS HEATING VALUE FOR SEPARATOR GAS = 1433.5 BTU
PER CUBIC FOOT OF DRY GAS AT 14.000 PSIA AND 74 DEG.

FLASH OF RECOMBINED FLUID GIVES:
STAGE 1 GAS TO STAGE 1 OIL RATIO = 764 SCF/BBL
STAGE 1 OIL GRAVITY = 48.0 DEGREES API.

* THE HEAVY END IS DECANES+

TABLE 13
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.25.

F L U I D A N A L Y S I S

B Y

S I M U L A T I O N T E C H N I Q U E

D A T A

COMPONENT	MOL PER CENT
NITROGEN	.55
CARBON DIOXIDE	.12
HYDROGEN SULFIDE	0.
METHANE	34.13
ETHANE	9.79
PROPANE	6.56
ISO-BUTANE	1.22
N-BUTANE	3.57
ISO-PENTANE	1.37
N-PENTANE	1.80
HEXANE	3.51
HEPTANE	7.02
OCTANE	8.20
NONANE	4.73
HEAVY ENDS	17.44
	100.00

PRESSURE BASE = 14.00 PSI/ATM
TEMP. BASE = 74.0 DEG. F.

SEPARATION CONDITIONS:

PRESSURE	44	0
TEMP.	79	74

THE HEAVY ENDS ARE DECANES +

HEAVY ENDS MOLECULAR WEIGHT	:	230	
SPECIFIC GRAVITY	:	.8900	
CRITICAL PRESSURE	:	298	PSIG
CRITICAL TEMP.	:	1317	DEG. F.
NORM. BOILING PT.	:	580	DEG. F.

TABLE 14
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.41.

O I L P V T P R O P E R T I E S

SIMULATION TECHNIQUE

DIFFERENTIAL LIBERATION

PRESSURE PSIG	FVF-D RVB/RDB	RS-D SCF/RDB	FVF-F RVB/STB	RS-F SCF/STB	VISO-D CF	FVFD-TOTAL RVB/RDB
7000	1.468	1033	1.361	868	.623	1.4683
4600	1.505	1033	1.395	868	.539	1.5049
2200	1.571	1033	1.456	868	.454	1.5710
2000	1.579	1033	1.464	868	.447	1.5793
1800	1.535	926	1.421	766	.483	1.6754
1600	1.497	832	1.384	676	.519	1.7973
1400	1.463	747	1.350	594	.554	1.9581
1200	1.431	667	1.319	518	.589	2.1816
1000	1.400	590	1.289	444	.626	2.5070
800	1.370	515	1.260	372	.665	3.0148
700	1.356	477	1.245	336	.685	3.3846
600	1.341	440	1.231	301	.705	3.8835
500	1.326	402	1.217	265	.726	4.5893
400	1.310	363	1.202	228	.748	5.6581
300	1.293	321	1.187	190	.770	7.4554
200	1.273	272	1.169	146	.793	11.0602
100	1.243	205	1.145	89	.822	21.4499
50	1.437	150	1.323	36	.227	40.2914

BUBBLE-POINT PRESSURE : 2000 PSIG AT 160 DEG. F.
STOCK-TANK VAPOR: 41 SCF/STB
OIL + GAS COMP. : 254.1 B/MMB/PSI
DENSITY : 40.1 LB./CU. FT.

THERMAL EXPANSION AT 2000 PSIG, (V AT 160 DEG)/(V AT 60 DEG) : 1.0913
COMPRESSIBILITY OF SATURATED OIL AT RESERVOIR TEMPERATURE:
FROM 7000 TO 6800 = 8.53 X 10-6 B/B/PSI
FROM 4800 TO 4400 = 12.98 X 10-6 B/B/PSI
FROM 2200 TO 2000 = 28.15 X 10-6 B/B/PSI

RESIDUAL DIFFERENTIAL OIL GRAVITY = 45.3 DEG. API

TABLE 15
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80, 09.09.42.

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

SIMULATION TECHNIQUE

DIFFERENTIAL LIBERATION

PRESSURE PSIG	LIBERATED GAS Z-FACTOR	VISCOSITY CP	F-V-F RVB/MSCF	CG B/MMB/PSI	-PRIMARY SEP. GAS- GRAVITY AIR=1.0	TOTAL GPM*
2000	.8103	.01713	1.1963	539.0	.8423	7.044
1800	.8229	.01633	1.3489	630.3	.8534	7.358
1600	.8349	.01557	1.5381	697.9	.8653	7.694
1400	.8473	.01486	1.7817	793.8	.8781	8.061
1200	.8619	.01416	2.1109	918.1	.8924	8.477
1000	.8765	.01347	2.5702	1088.1	.9088	8.963
800	.8927	.01277	3.2609	1343.5	.9283	9.347
700	.9013	.01241	3.7534	1524.6	.9396	9.894
600	.9100	.01203	4.4069	1763.6	.9522	10.284
500	.9190	.01161	5.3159	2099.3	.9662	10.727
400	.9283	.01113	6.6669	2606.8	.9820	11.235
300	.9388	.01054	8.8897	3457.8	.9995	11.811
200	.9517	.00972	13.2224	5121.3	1.0161	12.384
100	.9619	.00842	25.0876	10171.5	1.0024	12.000
50	.9733	.00725	45.2162	20117.0	.6506	8.792

BUBBLE-POINT PRESSURE : 2000 PSIG AT 160 DEG. F.
DENSITY : 7.96 LBS/CF

*- TOTAL GPM REFERS TO PROPANES+

7501 STEMMONS FREEWAY. BOX 47547. DALLAS. TEXAS 75247 • 214/631-8270

TABLE 16
July 21, 1980

CORE LABORATORIES, INC.
Reservoir Fluid Analysis

Travis Upper Penn Pool
Eddy County, New Mexico

Subject: Hydrocarbon Analyses
Harvey E. Yates
Travis State No. 1 Well
Our File Number: RFL 80474

Gentlemen:

Samples of separator gas and liquid were collected from the subject well by a representative of Tefteller, Inc. on June 28, 1980. These samples were submitted to our Dallas laboratory for hydrocarbon analyses, the results of which are presented in the following report.

The hydrocarbon composition of the seperator gas was measured through pentanes by routine gas chromatography. The hexanes plus portion of the gas was then subjected to temperature programmed chromatographic analysis, in order to obtain the overall hydrocarbon composition of the separator gas through decanes plus. The results of these analyses may be found on page one.

The hydrocarbon composition of the separator liquid was measured through hexanes by low temperature fractional distillation. The heptanes plus fraction of the sample was then subjected to temperature programmed chromatographic analysis. The overall hydrocarbon composition of the separator liquid through decanes plus may be found on page two.

A portion of the separator liquid was then subjected to a separator test at atmospheric pressure and laboratory temperature. The results of this test, including gas-oil ratio, stock tank liquid gravity, shrinkage factor and specific gravity of the flashed gas, may be found on page three.

Thank you for the opportunity to perform these measurements. Should you have any questions or if we may be of further service in any manner, please feel free to call upon us.

Yours very truly,

CORE LABORATORIES, INC.

P. L. Moses, Manager
Reservoir Fluid Analysis

PLM:JF:cs
1 cc: Addressee
1 cc: Harvey E. Yates
Security National Bldg.
Suite 300
Roswell, NM 88201
Attn: Mr. Fred Yates

TABLE 16

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75247

Page 1 of 3

File RFL 80474

Company Ralph Viney Harvey E. Yates Formation

Well Travis State No. 1 County

Field State

HYDROCARBON ANALYSIS OF Separator GAS SAMPLE

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide	0.00	
Carbon Dioxide	0.15	
Nitrogen	1.01	
Methane	66.65	
Ethane	17.30	4.600
Propane	9.05	2.476
iso-Butane	1.15	0.374
n-Butane	2.74	0.859
iso-Pentane	0.55	0.200
n-Pentane	0.60	0.216
Hexanes	0.41	0.166
Heptanes	0.26	0.119
Octanes	0.10	0.051
Nonanes	0.02	0.011
Decanes	0.01	0.006
Undecanes plus	100.00	9.078

Calculated gas gravity (air = 1.000) = 0.831

Calculated gross heating value = 1418 BTU per cubic foot of dry gas at 14.65 psia and 60°F.

Collected at 44 psig and 79 °F. on June 28, 1980.

TABLE 16 (Page 2)

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

TABLE 16
CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75247

Page 2 of 3

File RFL 80474

Company Ralph Viney Harvey E. Yates Formation

Well Travis State No. 1 County

Field State

HYDROCARBON ANALYSIS OF Separator Liquid SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	DENSITY @ 60°F. GRAMS PER CUBIC CENTIMETER	°API @ 60°F.	MOLECULAR WEIGHT
Hydrogen Sulfide	0.00	0.00			
Carbon Dioxide	0.01	Trace			
Nitrogen	0.01	Trace			
Methane	1.61	0.20			
Ethane	2.28	0.52			
Propane	4.08	1.37			
iso-Butane	1.28	0.57			
n-Butane	4.39	1.95			
iso-Pentane	2.19	1.21			
n-Pentane	2.99	1.65			
Hexanes	6.61	4.32			
Heptanes	13.77	10.52			
Octanes	16.29	14.19			
Nonanes	9.44	9.23			
Decanes plus	35.05	54.27	0.8660	31.7	203
	100.00	100.00			

Collected at 44 psig and 79°F. on June 28, 1980.

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TABLE 16
CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75247

Page 3 of 3

File RFL 80474

Well Travis State No. 1

SEPARATOR TESTS OF Separator Liquid SAMPLE

Separator Pressure, PSI Gauge	Separator Temperature °F.	Separator Gas/Oil Ratio(1)	Stock Tank Gas/Oil Ratio(1)	Stock Tank Gravity °API @ 60°F.	Shrinkage Factor, Vr/Vsat(2)	Formation Volume Factor Vsat/Vr(3)	Specific Gravity of Flashed Gas
0	74	39		45.9	0.9619	1.040	1.236

(1) Separator and Stock Tank Gas/Oil Ratio in cubic feet of gas @ 60°F. and 14.65 PSI absolute per barrel of stock tank oil @ 60°F.
(2) Shrinkage Factor: Vr/Vsat is barrels of stock tank oil @ 60°F. per barrel of saturated oil @ 44 PSI gauge and 79 °F.
(3) Formation Volume Factor: Vsat/Vr is barrels of saturated oil @ 44 PSI gauge and 79 °F. per barrel of stock tank oil @ 60°F.

TABLE 16 (Page 4)

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TABLE 17

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 6-30-80

SAMPLE MARKED Travis State No. 1
Separator Liquid, 44 psi @ 79° F.

FILE NO. C-1950-G

LAB. NO. 44313

SAMPLE FROM Harvey E. Yates

DATE SECURED 6-26-80

DATE OF RUN 7-3-80

SECURED BY Tefteller, Inc.

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen			
Carbon Dioxide			
Methane	1.25		0.36
Ethane	2.29		0.98
Propane	4.35		2.03
I-Butane	1.32		0.73
N-Butane	4.74		2.53
I-Pentane	2.29		1.42
N-Pentane	3.11		1.91
Hexanes plus	80.65		90.04
Heptanes & Heavier			
Hydrogen Sulfide			
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00		100.00

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALVE, B.T.U. Per Cu. Ft.*

Calculated from % Composition

Calculated water saturated

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition

*14.696 lbs./sq. in., 60° F

REMARKS Molecular weight of hexanes plus ---------- 169.40

Specific gravity of hexanes plus---------- 0.8148

COPIES: 3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland, Texas 7-15-80 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates

Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1, Separator Liquid, 6-28-80, 44 psi @ 79° F., Flashed at Atmos.

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	94
5	158
10	192
20	246
30	314
40	400
50	488
60	580
70	___
80	___
90	___
95	___
	614 (End Point)

Percent Recovery ------- 68.0
Percent Residue ------- 26.0
Percent Loss ---------- 6.0
Gravity ---------- 45.7 ° A.P.I. @ 60° F.
Color ---------- Orange

Bar. Press. ----688 mm Hg

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H. Barton

Lab. No. 44313

Our letters and reports are for the exclusive use of the clients to whom they are addressed. The use of our names must receive our prior written approval. Our letters and reports apply only to the samples tested and are not necessarily indicative of the qualities of identical or similar products.

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-16-80 File No. C-1950-G

Report of tests on Liquid

To Harvey E. Yates

Received from

Date Rec'd. 6-30-80

Identification Marks Travis State No. 1

DISTRIBUTION OF HEXANES PLUS FRACTION

	Liq. Vol. %
C_6	5.34
Benzene	2.98
C_7	8.27
Toluene	2.08
C_8	12.27
C_9	9.54
C_{10}	8.06
C_{11}	6.11
C_{12}	5.08
C_{13}	5.20
C_{14}	4.99
C_{15}	4.51
C_{16}	3.54
C_{17}	2.76
C_{18}	3.54
C_{19}	5.01
C_{20} plus	10.72
	100.00

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 44313

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TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-15-80 File No. C-1950-G

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State, No. 1, Separator Liquid

Press. & Temp.	Total Vol. ml.	Gas Vol. Cu. ft. C t	Residue Vol. ml
44 PSI @ 79° F.	488.0	0.103 @ 79° F.	478.5

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

Lab. No. 44313

SOUTHWESTERN LABORATORIES

Jack H Barton

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TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-16-80 File No C-1950-W

Report of tests on Water

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1, Separator Water, 6-28-80
Sampled by Tefteller.

	mg/L
Calcium	7200
Magnesium	1846
Sodium (Calc.)	36224
Iron	High, Greater than 25
Carbonate	None
Bicarbonate	None
Sulfate	1685
Chloride	72759

Total Dissolved Solids (Calc.)	119714
Total Hardness (as $CaCO_3$)	25600
Resistivity	0.073 @ 84° F.
pH	2.83

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 31636

Our letters and reports are for the exclusive use of the clients to whom they are addressed. The use of our names must receive our prior written approval. Our letters and reports apply only to the samples tested and are not necessarily indicative of the qualities of identical or similar products.

TABLE 18

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Page 14 of 18

File 3-10149-FT&BU

Midland Texas 11-19-79 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 11-13-79

Received from

Identification Marks State Comm. No. 1, Separator Liquid, 52 psig @ 54° F., 10:00 AM 11-12-79, Sampled by Tefteller

Cylinder Capacity	436.0 ml
Fluid Recovery	411.5 ml
Water Recovery	-0- ml
Flash Gas Recovery	0.131 Cu. ft. @ 66° F.

Bar Press——694 mm Hg

3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney
Lab. No. 43590

SOUTHWESTERN LABORATORIES

Jack H Burton

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TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 15 of 18

FRACTIONAL ANALYSIS REPORT

File 3-10149-FT&BU

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1 Separator Gas

61 psig @ 36° F.

FILE NO. C-1950-G

LAB. NO. 43584

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-14-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	1.07		
Carbon Dioxide	0.48		
Methane	66.38		
Ethane	17.51	4.668	
Propane	9.05	2.483	
I-Butane	1.13	0.368	
N-Butane	2.65	0.833	
I-Pentane	0.55	0.201	
N-Pentane	0.61	0.220	
Hexanes	0.32	0.132	
Heptanes & Heavier	0.25	0.115	
Hydrogen Sulfide	*None Det.		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	9.020	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Composition 1492

Calculated water saturated 1382

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide*

Mercoptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.823

*14,696 lbs./sq. in., 60° F

REMARKS

*Determined on laboratory sample.

Propane + GPM — 4.352

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 18 (Page 2)

TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 16 of 18

File 3-10149-FT&BU

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1

Separator Liquid, Flash Gas

FILE NO. C-1950-G

LAB. NO. 43590

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-15-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	None Det.		
Carbon Dioxide	0.23		
Methane	23.86		
Ethane	30.44	8.115	
Propane	28.31	7.768	
I-Butane	4.33	1.412	
N-Butane	9.43	2.964	
I-Pentane	1.63	0.595	
N-Pentane	1.24	0.448	
Hexanes	0.31	0.127	
Heptanes & Heavier	0.22	0.101	
Hydrogen Sulfide	—		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	21.530	

CONDENSATE VALUES, G.P.M.

Propane	
Butane	
Gasoline	

HEATING VAL T.U. Per Cu. Ft.*

Calculated from % Compo	2082
Calculated water saturated	2046

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide	
Mercaptans	

SPECIFIC GRAVITY*

Calculated from % Composition	1.247

*14,696 lbs./sq. in., 60° F

REMARKS Propane + GPM — 13.415

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 18 (Page 3)

TABLE 18

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Page 17 of 18

File 3-10149-FT&BU

Midland Texas 11-19-79 File No. C-1950-GD

Report of tests on Liquid

To Harvey E. Yates Date Rec'd. 11-13-79

Received from

Identification Marks State Comm. A . 1, Separator Liquid, 52 psig @ 54° F., Liquid after flashing to Atmospheric pressure

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	98
5	160
10	195
20	253
30	322
40	416
50	505
60	594
70	661
80	---
90	---
95	---
	664 (End Point)

Percent Recovery-------73.0
Percent Residue -------21.5
Percent Loss ---------- 5.5
Gravity ---------------45.7 ° A.P.I. @ 60° F
Color-----------------Bronze-Brown

Bar. Press. ---- 694 mm Hg

3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 43590

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TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 18 of 18

File 3-10149-FT&BU

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1

Separator Liquid, 52 psig @ 54° F., 10:00 AM

FILE NO. C-1950-GD

LAB. NO. 43590

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-15-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen			
Carbon Dioxide			
Methane			0.37
Ethane			1.28
Propane			2.62
I-Butane			0.90
N-Butane			3.04
I-Pentane			1.55
N-Pentane			1.97
Hexanes	plus		88.27
Heptanes & Heavier			
Hydrogen Sulfide			
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS			100.00

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Comp.

Calculated water saturated

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition

*14,696 lbs./sq. in., 60° F

REMARKS

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Burton

TABLE 19

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 12-4-79

SAMPLE MARKED Travis Deep, Meter Run, 220 psig @ 54° F.

FILE NO. C-1950-G

LAB. NO. 43639

SAMPLE FROM Harvey E. Yates

DATE SECURED 12-3-79

DATE OF RUN 12-6-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	1.39		
Carbon Dioxide	0.20		
Methane	75.60		
Ethane	14.62	3.898	
Propane	5.79	1.589	
I-Butane	0.58	0.189	
N-Butane	1.24	0.390	
I-Pentane	0.21	0.077	
N-Pentane	0.23	0.083	
Hexanes	0.06	0.025	
Heptanes & Heavier	0.08	0.037	
Hydrogen Sulfide	*None Det.		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	6.288	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALVE, B.T.U. Per Cu. Ft.*

Calculated from % Composition 1252

Calculated water saturated 1230

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.727

*14,696 lbs./sq. in., 60° F

REMARKS *Determined on laboratory sample

Propane + GPM — 2.390

COPIES: 2cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 19

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-7-79 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 12-4-79

Received from

Identification Mark Travis Deep No. 1, Stock tank, Oil, 12-3-79, Sampled by Tefteller

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	94
5	140
10	182
20	240
30	298
40	376
50	478
60	554
70	—
80	—
90	—
95	—
	578 (End Point)

Percent Recovery ------- 63.5
Percent Residue ------- 30.5
Percent Loss ---------- 6.0
Gravity --------------- 46.9 ° A.P.I. @ 60° F
Color ----------------- Bronze

Bar. Press. ---- 686 mm Hg

2cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

Lab. No. 43688

SOUTHWESTERN LABORATORIES
Jack H Barton

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FORM NO. 130-B

TABLE 20
HARVEY E. YATES COMPANY
POROSITY AND PERMEABILITY DETERMINATION
USING DARCY'S STEADY STATE RADIAL OIL FLOW EQUATION
BASED ON PRODUCTION TESTS AND RESERVOIR PRESSURE SURVEYS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Lease and Well No.	Travis Deep Unit No. 2			Travis Deep Unit No. 2			Travis State No. 1			Travis Deep Unit No. 3			North Travis Unit 12-1			Travis State 13-1		
Date	September 8, 1977			November 1, 1977			November 12, 1979			November 30, 1979			June 17, 1980			August 13, 1980		
q - Stock Tank Oil Production Barrels/Day	430			285			175			199			44			37		
B_o - Reservoir Oil Formation Volume Factor Bbl/Bbl	1.46			1.462			1.41			1.402			1.36			1.29		
q_{RVB} - Reservoir Barrels/Day	628			417			247			279			60			481		
Boundary Pressure (P_e) psig	3725			3538			1339			2411			2730			2079		
Flowing Pressure (P_{wf}) psig	3065			3147			2209			1039			335			335		
Oil Viscosity U_o Centipoises	0.381			0.376			0.365			0.37			0.400			0.455		
Permeability - Feet at Various Radii of Drainage	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'
Darcy Feet	0.3490	0.3840	0.4190	0.3870	0.4260	0.4660	0.1000	0.1100	0.1200	0.0730	0.0800	0.0875	0.0097	0.0107	0.0116	0.0121	0.0133	0.0145
Permeability - Millidarcies (k) Where: Pay Section (h) Feet (k)																		
10'	34.900	38.400	41.900	38.700	42.600	46.600	10.000	11.000	12.000	7.3000	8.0000	8.7500	0.9700	1.0700	1.1600	1.2100	1.3300	1.4500
30'	11.600	12.800	13.970	12.900	14.200	15.530	3.300	3.670	4.000	2.4300	2.6700	2.9200	0.3200	0.3600	0.3900	0.4030	0.4400	0.4800
60'	5.800	6.400	6.990	6.450	7.100	7.770	1.650	1.840	2.000	1.2150	1.3400	1.4600	0.1600	0.1780	0.1930	0.2020	0.2200	0.2400
120'	2.900	3.200	3.500	3.225	3.550	3.880	0.825	0.917	1.000							0.1000	0.1100	0.1200
180'							0.550	0.610	0.670									
Empirical Porosity Calculation When (h) 10'	0.0950	0.0965	0.0979	0.0966	0.0982	0.0997	0.0771	0.0783	0.0795	0.0732	0.0743	0.0754	0.0523	0.0531	0.0539	0.0542	0.0551	0.0559
30'	0.0790	0.0804	0.0815	0.0805	0.0818	0.0830	0.0641	0.0652	0.0662	0.0609	0.0619	0.0628	0.0434	0.0443	0.0449	0.0452	0.0458	0.0465
60'	0.0704	0.0716	0.0726	0.0717	0.0728	0.0739	0.0571	0.0582	0.0590	0.0543	0.0552	0.0560	0.0387	0.0394	0.0399	0.0402	0.0408	0.0414
120'	0.0627	0.0638	0.0647	0.0639	0.0649	0.0659	0.0509	0.0518	0.0525							0.0358	0.0364	0.0369
180'							0.0476	0.0484	0.0491									
													Drill Stem Test Formation not Stimulated			Drill Stem Test Formation not Stimulated		

Formulation Used:

$$q_{RVB} = \frac{7.08\ Kh\ (P_e - P_{wf})}{u\ \left(\ln \frac{re}{rw}\right)}$$ Steady State Liquid Radial Flow Equation

$$\phi^3 = \frac{(k)^{\frac{1}{2}}\ (S_w)}{C}$$

Where ϕ = Porosity
k = Permeability - Darcy's
S_w = Interstitial Water Saturation = 0.29
C = Wylie Constant = 200 - Oil

The Porosity Values Computed Using Methods of A. Timur, Wyllie and Rose.

TABLE 21
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 2
TRAVIS UPPER PENN POOL
TEST DATA SEPTEMBER 8, 1977
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FEL.T, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL.. EFF., %	SIBHP PSIG	AVG. P PSIG
1-12	67.	285.2	1.84	0.42	166.0	3526.	4087.
12-21	225.	101.3	5.18	0.65	97.7	3614.	3728.
21-35	793.	64.6	8.13	0.70	69.5	3660.	3678.
35-39	865.	195.1	2.69	0.65	179.5	3672.	3729.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	3175.	3175.	0.10	1655.884	1655.780
2	3244.	3244.	0.20	828.442	828.454
3	3297.	3297.	0.30	552.628	552.622
4	3337.	3337.	0.40	414.721	414.727
5	3367.	3367.	0.50	331.977	331.976
6	3393.	3393.	0.60	276.814	276.811
7	3415.	3415.	0.70	237.412	237.413
8	3431.	3431.	0.80	207.860	207.860
9	3447.	3447.	0.90	184.876	184.877
10	3462.	3462.	1.00	166.488	166.488
11	3501.	3501.	1.50	111.326	111.326
12	3526.	3526.	2.00	83.744	83.744
13	3550.	3550.	3.00	56.163	56.163
14	3565.	3565.	4.00	42.372	42.372
15	3576.	3576.	5.00	34.098	34.098
16	3584.	3584.	6.00	28.581	28.581
17	3591.	3591.	7.00	24.641	24.641
18	3595.	3595.	8.00	21.686	21.686
19	3602.	3602.	10.00	17.549	17.549
20	3607.	3607.	12.00	14.791	14.791
21	3614.	3614.	16.00	11.343	11.343
22	3617.	3617.	20.00	9.274	9.274
23	3620.	3620.	24.00	7.895	7.895
24	3622.	3622.	28.00	6.910	6.910
25	3626.	3626.	36.00	5.597	5.597
26	3632.	3632.	48.00	4.448	4.448
27	3637.	3637.	60.00	3.758	3.758
28	3639.	3639.	66.00	3.507	3.507
29	3643.	3643.	78.00	3.122	3.122
30	3647.	3647.	90.00	2.839	2.839
31	3649.	3649.	96.00	2.724	2.724
32	3651.	3651.	100.00	2.655	2.655
33	3654.	3654.	110.00	2.504	2.504
34	3657.	3657.	120.00	2.379	2.379
35	3660.	3660.	130.00	2.273	2.273
36	3663.	3663.	140.00	2.182	2.182
37	3666.	3666.	150.00	2.103	2.103
38	3669.	3669.	160.00	2.034	2.034
39	3672.	3672.	170.00	1.973	1.973

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 22
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 2
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 1, 1977
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FEET, FT	SLOPE PSI/CYC	K (MDS)	P.I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1--14	111.	95.1	3.66	0.56	131.9	3408.	3660.
14--39	1735.	51.9	6.71	0.73	97.8	3522.	3538.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	3248.	3248.	0.10	13759.316	13762.673
2	3294.	3294.	0.20	6880.158	6881.823
3	3316.	3316.	0.30	4587.106	4586.353
4	3328.	3328.	0.40	3440.579	3440.366
5	3338.	3338.	0.50	2752.663	2752.661
6	3346.	3346.	0.60	2294.053	2294.144
7	3352.	3352.	0.70	1966.474	1966.610
8	3356.	3356.	0.80	1720.790	1720.681
9	3360.	3360.	0.90	1529.702	1529.660
10	3364.	3364.	1.00	1376.832	1376.832
11	3378.	3378.	1.50	918.221	918.220
12	3388.	3388.	2.00	688.916	688.915
13	3400.	3400.	3.00	459.611	459.610
14	3408.	3408.	4.00	344.958	344.958
15	3416.	3416.	6.00	230.305	230.305
16	3424.	3424.	8.00	172.979	172.979
17	3428.	3428.	10.00	138.583	138.583
18	3432.	3432.	12.00	115.653	115.653
19	3438.	3438.	16.00	86.989	86.989
20	3442.	3442.	20.00	69.792	69.792
21	3446.	3446.	24.00	58.326	58.326
22	3451.	3451.	30.00	46.861	46.861
23	3455.	3455.	36.00	39.218	39.218
24	3462.	3462.	48.00	29.663	29.663
25	3466.	3466.	60.00	23.931	23.931
26	3468.	3468.	71.00	20.378	20.378
27	3472.	3472.	78.00	18.639	18.639
28	3474.	3474.	90.00	16.287	16.287
29	3476.	3476.	100.00	14.758	14.758
30	3478.	3478.	110.00	13.508	13.508
31	3480.	3480.	120.00	12.465	12.465
32	3482.	3482.	130.00	11.583	11.583
33	3484.	3484.	140.00	10.827	10.827
34	3486.	3486.	150.00	10.172	10.172
35	3487.	3487.	160.00	9.599	9.599
36	3488.	3488.	170.00	9.093	9.093
37	3489.	3489.	180.00	8.644	8.644
38	3491.	3491.	192.00	8.166	8.166
39	3522.	3522.	718.50	2.915	2.915

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 23
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
STATE COM NO. 1
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 12, 1979
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FFLT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL., EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	192.	34.3	8.26	1.47	238.9	1338.	1458.
2- 5	386.	85.7	3.31	0.59	226.4	1428.	1638.
5- 7	549.	162.6	1.74	0.36	257.2	1512.	1820.
7-21	2168.	324.8	0.87	0.22	298.1	1999.	2136.
21-22	2193.	534.5	0.53	0.20	436.5	2004.	2209.
22-39	2485.	534.5	0.53	0.20	436.5	1986.	2209.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1314.	1314.	0.10	15836.887	15840.741
2	1338.	1338.	0.50	3168.177	3168.171
3	1362.	1362.	1.00	1584.589	1584.587
4	1408.	1408.	3.00	528.863	528.863
5	1428.	1428.	6.00	264.931	264.931
6	1460.	1460.	10.00	159.359	159.359
7	1512.	1512.	20.00	80.179	80.179
8	1646.	1646.	50.00	32.672	32.672
9	1733.	1733.	100.00	16.836	16.836
10	1825.	1825.	200.00	8.918	8.918
11	1884.	1884.	300.00	6.279	6.279
12	1923.	1923.	400.00	4.959	4.959
13	1952.	1952.	500.00	4.167	4.167
14	1964.	1964.	600.00	3.639	3.639
15	1974.	1974.	700.00	3.262	3.262
16	1982.	1982.	800.00	2.979	2.979
17	1990.	1990.	920.00	2.721	2.721
18	1995.	1995.	1000.00	2.584	2.584
19	1997.	1997.	1040.00	2.523	2.523
20	1998.	1998.	1060.00	2.494	2.494
21	1999.	1999.	1080.00	2.466	2.466
22	2004.	2004.	1120.00	2.414	2.414
23	2003.	2003.	1180.00	2.342	2.342
24	2002.	2002.	1300.00	2.218	2.218
25	2001.	2001.	1320.00	2.200	2.200
26	2000.	2000.	1340.00	2.182	2.182
27	1999.	1999.	1360.00	2.164	2.164
28	1998.	1998.	1380.00	2.148	2.148
29	1997.	1997.	1400.00	2.131	2.131
30	1996.	1996.	1420.00	2.115	2.115
31	1995.	1995.	1440.00	2.100	2.100
32	1994.	1994.	1460.00	2.085	2.085
33	1993.	1993.	1480.00	2.070	2.070
34	1992.	1992.	1500.00	2.056	2.056
35	1991.	1991.	1520.00	2.042	2.042
36	1990.	1990.	1540.00	2.028	2.028
37	1989.	1989.	1560.00	2.015	2.015
38	1988.	1988.	1580.00	2.002	2.002
39	1986.	1986.	1599.00	1.990	1.990

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 24
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 3
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 30, 1979
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	STBHP PSIG	AVG. P PSIG
1- 8	23.	92.9	1.59	0.21	130.2	1200.	1566.
8- 9	27.	142.1	1.00	0.15	142.6	1229.	1764.
9-17	125.	231.0	0.59	0.10	156.3	1594.	2090.
17-34	302.	373.6	0.34	0.08	183.4	1921.	2411.
34-39	346.	373.6	0.34	0.08	183.4	1912.	2411.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1065.	1065.	0.10	231221.4	232127.9
2	1096.	1096.	0.20	115611.2	116064.5
3	1117.	1117.	0.30	77074.461	76874.062
4	1135.	1135.	0.50	46245.070	46244.957
5	1146.	1146.	0.70	33032.477	33069.336
6	1158.	1158.	1.00	23123.035	23123.014
7	1177.	1177.	1.60	14452.272	14455.780
8	1200.	1200.	2.50	9249.814	9249.804
9	1229.	1229.	4.00	5781.509	5781.506
10	1309.	1309.	10.00	2313.204	2313.202
11	1378.	1378.	20.00	1157.102	1157.101
12	1438.	1438.	36.00	643.279	643.278
13	1478.	1478.	52.00	445.655	445.654
14	1496.	1496.	64.00	362.282	362.281
15	1516.	1516.	80.00	290.025	290.025
16	1545.	1545.	100.00	232.220	232.220
17	1594.	1594.	150.00	155.147	155.147
18	1634.	1634.	200.00	116.610	116.610
19	1699.	1699.	300.00	78.073	78.073
20	1747.	1747.	400.00	58.805	58.805
21	1771.	1771.	450.00	52.382	52.382
22	1792.	1792.	500.00	47.244	47.244
23	1810.	1810.	560.00	42.289	42.289
24	1821.	1821.	600.00	39.537	39.537
25	1832.	1832.	660.00	36.033	36.033
26	1839.	1839.	700.00	34.031	34.031
27	1854.	1854.	760.00	31.424	31.424
28	1863.	1863.	800.00	29.903	29.903
29	1873.	1873.	860.00	27.886	27.886
30	1886.	1886.	920.00	26.133	26.133
31	1894.	1894.	1000.00	24.122	24.122
32	1906.	1906.	1100.00	22.020	22.020
33	1918.	1918.	1200.00	20.268	20.268
34	1921.	1921.	1240.00	19.647	19.647
35	1920.	1920.	1340.00	18.255	18.255
36	1919.	1919.	1400.00	17.516	17.516
37	1918.	1918.	1500.00	16.415	16.415
38	1915.	1915.	1600.00	15.451	15.451
39	1912.	1912.	1674.50	14.808	14.808

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 25
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
NORTH TRAVIS DEEP NO. 12-1
TRAVIS UPPER PENN POOL
TEST DATE JUNE 17, 1980
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	10.	2051.0	0.04	0.01	200.3	1506.	3883.
2- 3	11.	4580.5	0.02	0.01	220.2	2244.	6815.
3- 4	12.	3365.9	0.02	0.01	207.6	2617.	5603.
4- 5	14.	620.0	0.13	0.02	87.2	2668.	3167.
5- 7	20.	170.0	0.47	0.02	31.2	2688.	2806.
7-15	144.	61.4	1.31	0.02	12.7	2717.	2730.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	920.	920.	0.15	27.867	27.867
2	1506.	1506.	0.30	14.433	14.433
3	2244.	2244.	0.45	9.956	9.956
4	2617.	2617.	0.60	7.717	7.717
5	2668.	2668.	0.75	6.373	6.373
6	2682.	2682.	0.90	5.478	5.478
7	2688.	2688.	1.05	4.838	4.838
8	2690.	2690.	1.20	4.358	4.358
9	2693.	2693.	1.35	3.985	3.985
10	2695.	2695.	1.50	3.687	3.687
11	2708.	2708.	2.77	2.455	2.455
12	2713.	2713.	4.03	1.999	1.999
13	2717.	2717.	5.30	1.760	1.760
14	2715.	2715.	6.57	1.613	1.613
15	2717.	2717.	7.85	1.513	1.513

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 26
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS STATE NO. 13-1
TRAVIS UPPER PENN POOL
TEST DATA AUGUST 13, 1980
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	14.	1600.6	0.05	0.01	196.8	1971.	3059.
2-15	70.	153.9	0.52	0.02	38.4	2051.	2079.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1566.	1566.	0.27	8.564	8.564
2	1971.	1971.	0.53	4.781	4.781
3	2000.	2000.	0.80	3.521	3.521
4	2009.	2009.	1.07	2.891	2.891
5	2016.	2016.	1.33	2.512	2.512
6	2022.	2022.	1.60	2.260	2.260
7	2028.	2028.	1.87	2.080	2.080
8	2035.	2035.	2.13	1.945	1.945
9	2035.	2035.	2.40	1.840	1.840
10	2041.	2041.	2.67	1.756	1.756
11	2044.	2044.	2.93	1.688	1.688
12	2047.	2047.	3.20	1.630	1.630
13	2051.	2051.	3.47	1.582	1.582
14	2051.	2051.	3.73	1.540	1.540
15	2051.	2051.	4.00	1.504	1.504

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 2
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC

HISTORY | PROJECTION

OIL - BARRELS

GAS-OIL RATIO

OIL PRODUCTION - BARRELS PER MONTH

10000
1000
100

Mar June Sept Dec

1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 3
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.

HISTORY | PROJECTION

OIL - BARRELS

GAS-OIL RATIO

OIL PRODUCTION - BARRELS PER MONTH

10000
1000
100

Mar June Sept Dec

1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 1-K
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.

HISTORY | PROJECTION

OIL - BARRELS

GAS-OIL RATIO

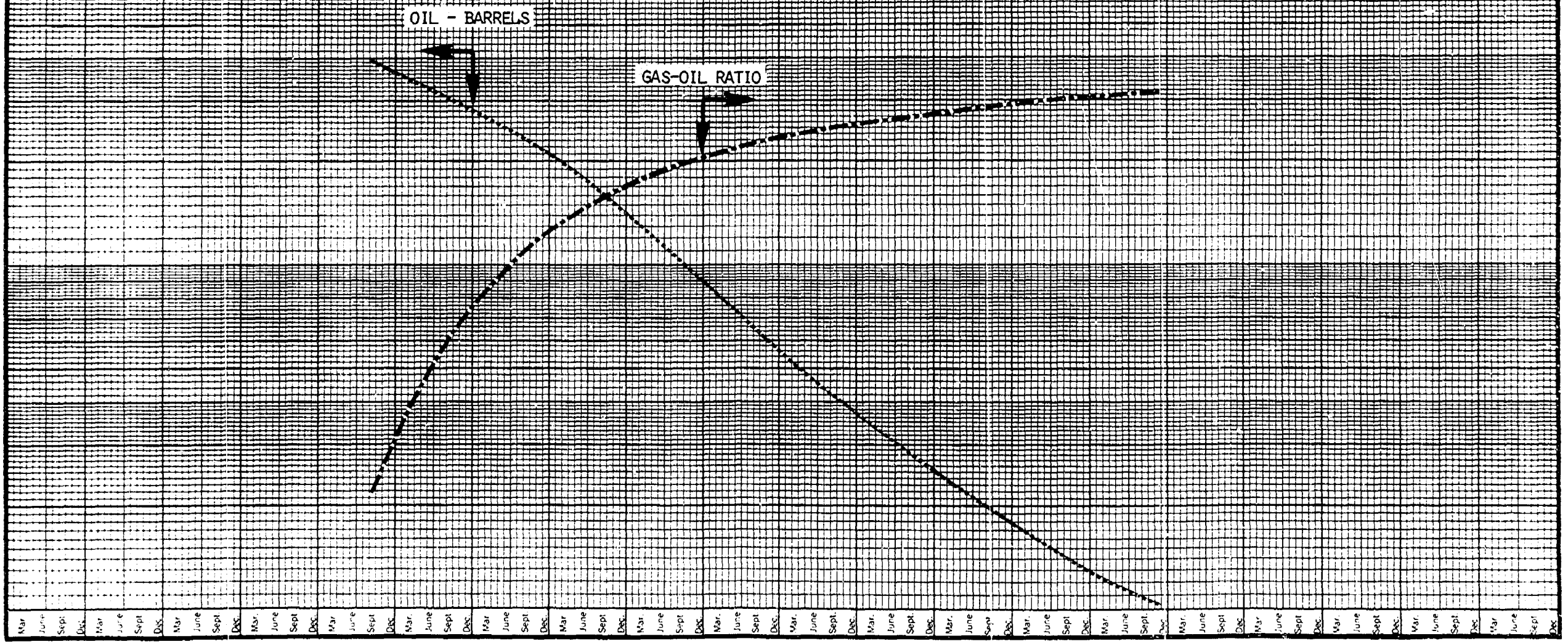
OIL PRODUCTION - BARRELS PER MONTH

10000
1000
100

Mar June Sept Dec

1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT AVERAGE WELL
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.



		Travis Deep Unit Well No. 2						Travis Deep Unit Well No.			
		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF	
Year	Month	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulativ
1977	August	1,238	1,238	1,733	1,733	1400	1400	-	-	-	-
	September	6,476	7,714	7,352	9,085	1135	1178	-	-	-	-
	October	8,624	16,338	8,932	18,017	1035	1103	-	-	-	-
	November	23	16,361	-	18,017	-	1103	-	-	-	-
	December	-	16,361	-	18,017	-	1103	-	-	-	-
1978	January	-	16,361	13	18,030	-	1102	-	-	-	-
	February	-	16,361	-	18,030	-	1102	-	-	-	-
	March	6,867	23,228	8,516	26,546	1240	1143	-	-	-	-
	April	10,456	33,684	12,382	38,928	1184	1156	-	-	-	-
	May	10,593	44,277	11,096	50,024	1047	1130	2,730	2,730	2,976	2,976
	June	8,209	52,486	9,003	59,027	1098	1125	6,649	9,379	9,432	12,408
	July	6,312	58,798	8,179	67,206	1296	1143	6,465	15,844	7,989	20,397
	August	4,167	62,965	4,381	71,587	1051	1137	7,194	23,038	9,486	29,883
	September	2,081	65,046	1,920	73,507	923	1130	4,965	28,003	6,452	36,335
	October	10,974	76,020	11,858	85,365	1080	1123	9,635	37,638	14,044	50,379
	November	8,666	84,686	9,143	94,508	1055	1116	7,619	45,257	11,817	62,196
	December	7,016	91,702	8,208	102,716	1170	1120	5,764	51,021	10,350	72,546
1979	January	7,326	99,028	9,197	111,913	1255	1130	2,749	53,770	5,176	77,722
	February	8,660	107,688	11,446	123,359	1322	1143	6,307	60,077	11,709	89,431
	March	8,533	116,221	10,826	134,185	1269	1152	6,388	66,465	12,220	101,651
	April	5,632	121,853	7,120	141,305	1264	1158	5,772	72,237	11,766	113,417
	May	5,829	127,682	6,367	147,672	1092	1155	5,840	78,077	13.221	126,638
	June	3,529	131,211	3,929	151,601	1111	1154	4,903	82,980	11,051	137,689
	July	5,084	136,295	5,736	157,337	1135	1153	5,025	88,005	11,123	148,812
	August	2,771	139,066	3,354	160,691	1210	1154	5,086	93,091	10,780	159,592
	September	5,050	144,116	5,059	165,750	1002	1148	4,648	97,739	10,326	169,918
	October	4,475	148,591	4,681	170,431	1046	1145	4,278	102,017	10,685	180,603
	November	5,535	154,126	5,805	176,236	1049	1142	3,959	105,976	9,594	190,197
	December	4,862	158,988	2,977	179,213	612	1126	SI	105,976	SI	190,197
1980	January	5,184	164,172	5,242	184,455	1019	1122	SI	105,976	26	190,223
	February	4,728	168,900	5,576	190,031	1179	1124	2,950	108,926	5,977	196,200
	March	4,002	172,902	3,553	193,584	888	1118	2,072	110,998	4,670	200,870
	April	2,800	175,702	4,311	197,895	1540	1125	SI	110,998	SI	200,870
	May	2,548	178,250	5,561	203,456	2182	1140	SI	110,998	SI	200,870
	June	101	178,351	368	203,824	3644	1143	SI	110,998	SI	200,870
	July	-	178,351	-	203,824	-	1143	SI	110,998	SI	200,870
	August	717	179,068	2,244	206,068	3130	1151	1,037	112,035	6,166	207,036

SUMMARY TABLE 6
'EY E. YATES COMPANY
)RY BY WELL AND RESERVOIR TOTALS
N POOL, EDDY COUNTY, NEW MEXICO
. Viney & Associates, Inc.
gineering Consultants

Gas-Oil Ratio Cubic Feet/Barrel		Travis Deep Unit Well No. 1-K						Reservoir Totals					
		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel	
onthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
-	-	-	-	-	-	-	-	1,238	1,238	1,733	1,733	1400	1400
-	-	-	-	-	-	-	-	6,476	7,714	7,352	9,085	1135	1178
-	-	-	-	-	-	-	-	8,624	16,338	8,932	18,017	1035	1103
-	-	-	-	-	-	-	-	23	16,361	-	18,017	-	1103
-	-	-	-	-	-	-	-	-	16,361	-	18,017	-	1103
-	-	-	-	-	-	-	-	-	16,361	13	18,030	-	1102
-	-	-	-	-	-	-	-	-	16,361	-	18,030	-	1102
-	-	-	-	-	-	-	-	6,867	23,228	8,516	26,546	1240	1143
-	-	-	-	-	-	-	-	10,456	33,684	12,382	38,928	1184	1156
090	1090	-	-	-	-	-	-	13,323	47,007	14,072	53,000	1056	1127
419	1323	-	-	-	-	-	-	14,858	61,865	18,435	71,435	1241	1155
236	1287	-	-	-	-	-	-	12,777	74,642	16,168	87,603	1265	1174
318	1297	-	-	-	-	-	-	11,361	86,003	13,867	101,470	1221	1180
300	1298	-	-	-	-	-	-	7,046	93,049	8,372	109,842	1188	1180
458	1338	-	-	-	-	-	-	20,609	113,658	25,902	135,744	1257	1194
551	1374	-	-	-	-	-	-	16,285	129,943	20,960	156,704	1287	1206
796	1422	-	-	-	-	-	-	12,780	142,723	18,558	175,262	1452	1228
883	1445	-	-	-	-	-	-	10,075	152,798	14,373	189,635	1427	1241
857	1489	-	-	-	-	-	-	14,967	167,765	23,155	212,790	1547	1268
912	1529	-	-	-	-	-	-	14,921	182,686	23,046	246,836	1544	1291
038	1570	-	-	-	-	-	-	11,404	194,090	18,886	254,722	1656	1312
264	1622	-	-	-	-	-	-	11,669	205,769	19,588	274,310	1679	1333
254	1659	-	-	-	-	-	-	8,432	214,191	14,980	289,290	1777	1351
214	1691	-	-	-	-	-	-	10,109	224,300	16,859	306,149	1668	1365
120	1714	991	991	762	762	769	769	8,848	233,148	14,896	321,045	1684	1377
222	1738	4,458	5,449	2,979	3,741	668	687	14,156	247,304	18,364	339,409	1297	1372
498	1770	5,313	10,762	6,211	9,952	1169	925	14,066	261,370	21,577	360,986	1534	1381
423	1795	1,962	12,724	2,427	12,379	1237	973	11,456	272,826	17,826	378,812	1556	1388
-	-	SI	12,724	SI	12,379	-	973	4,862	277,688	2,977	381,789	612	1375
-	1795	1,687	14,411	793	13,172	470	914	6,871	284,559	6,061	387,850	882	1363
026	1801	5,263	19.674	2,793	15,965	531	812	12,941	297,500	14,346	402,196	1109	1352
254	1810	3,832	23,506	2,193	18,158	572	773	9,906	307,406	10,416	412,612	1052	1342
-	1810	2,384	25,880	2,765	20,923	1165	809	5,174	312,580	7,076	419,688	1368	1343
-	1810	2,698	28,578	2,866	23,789	956	825	5,246	317,826	8,427	428,115	1606	1347
-	1810	1,859	30,437	1,974	25,763	1060	846	1,960	319,786	2,342	430,457	1195	1346
-	1810	2,462	32,899	2,598	28,361	1060	862	2,462	322,248	2,598	433,055	1055	1344
950	1848	2,687	35,586	3,106	31,467	1160	884	4,441	326,689	11,516	444,571	2593	1361

SUMMA

Operator Lease Name	Location	Section	Township	Range	Elevation	Total Depth	Casing Size	Weight	Depth	Cement	Prod Zo
Harvey E. Yates, Inc.											
Travis Deep Unit Well No. 2	1980' FNL & 1780' FEL	13	18-S	28-E	3618' GL 3633' KB	11,270' 11,223' PB	12-3/4" 8-5/8" 5-1/2"	34# 24# 28# 17#	360' 3,500' 11,268'	425 Sks 300 Sks 950 Sks	Can (Cis
Travis Deep Unit Well No. 3	1980' FEL & 660' FNL	13	18-S	28-E	3639' GL 3654' KB	11,270' 10,904'	12-3/4" 8-5/8" 5-1/2"	50# 24# 28# 17#	376' 2,900' 11,290'	475 Sks 300 Sks 900 Sks	Can (Cis
Travis State Com Well No. 1	1780' FSL & 2080' FWL	13	18-S	28-E	3585' GL 3597' KB	11,061' KB 10,538' PB CIBP	13-3/8" 9-5/8" 5-1/2"	48# 32,36# 17#	388' 2,938' 11,061'	475 Sks 2050 Sks 1190 Sks	Upp (Cis

SUMMARY TABLE 7
HARVEY E. YATES COMPANY
WELL DATA
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

ucing ne	Perforations	Completion Date	Initial Potential Test Data									
			Test Date	Choke Size	Oil Bbls/Day	Gas MCF/Day	Water	Gravities Oil °API	Gravities Gas Sp. Gr.	Gas-Oil Ratio Cubic Ft/Bbl	Pressures (psig) Tubing	Pressures (psig) Casing
ron co)	9924', 28', 31', 33' 9935', 37', 41', 44' 9950', 52', 54', 57' 9963', 65', 68', 71' 9978', 83', 94', 96' 9998', 03' 22 shots	8-18-77	8-24-77	18/64"	433	631	0	45.6	0.69	1450	965	Packer
	Production tubing string reported to be 2-3/8" EUE											
ron co)	9830-40' 6 shots 9864-75' 6 shots 9891-94' 6 shots 9911-20' 6 shots	5-16-78	5-13-78	24/64"	684	889	Some Acid Water	45/6		1298	580	Packer
	Production tubing string reported to be 2-7/8" EUE											
r Penn co)	9816'-24', 9830'-36' 9838'-47', 9850'-62' 2 shots per foot	7-11-79	7-13-79	24/64"	412	413	2	45.0		1100	330	

Remarks
Packer to shut off upper Morrow perforations at 10,579'. Production packer @ 9772'. Cisco Canyon treated with 250 gallons 10% acetic acid and 4000 gallons HCL.
Cisco perforations treated with 500 gallons acetic acid and 3500 gallons 15% DS-30.
DST #1: interval 9810'-9900' Upper Penn initial hydrostatic 4473 psi, 30 mins initial flow pressures 152-217 psi; 60 mins initial shut-in pressure 2390 psi; 120 mins final flow pressure 196-370 psi; 240 min final shut in pressure 2477 psi. Final hydrostatic 4551 psi. Acidized with 6000 gallons DS-30 Acid.

TRAVIS DEEP UNIT
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

PREPARED FOR:

HARVEY E. YATES COMPANY
OPERATOR OF TRAVIS DEEP UNIT
SUITE 300
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201

ATTENTION: MR. GEORGE YATES

RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

511 North Main Place
MIDLAND, TEXAS 79701
Telephone: 915-682-5346

November 11, 1980

Harvey E. Yates Company
Suite 300
Security National Bank Building
Roswell, New Mexico 88201

Attention: Mr. George Yates

Gentlemen:

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

Pursuant to your request, an in-depth study of the Canyon producing interval in the captioned pool was conducted. The results of our study are summarized below:

Proved Developed Producing Reserves at September 1, 1980

Lease and Well Number	Oil - Barrels (8/8)	Gas - MCF - 8/8)
Travis Deep Unit Well No. 2	123,989	1,443,701
Travis Deep Unit Well No. 3	88,128	1,320,913
State Com Well No. 1	97,532	1,048,441
Totals	309,649	3,813,055
Proved Developed Non-Producing Reserves		
North Travis 12 Deep Well No. 1	112,759	1,728,003
Travis 13 State Well No. 1	112,759	1,728,003
Totals	225,518	3,456,006
Proved Developed Producing and Non-Producing Reserves	535,167	7,269,061
Projected Recoverable Enhanced Reserves Travis Deep Unit - A Single Pattern Flood		
Travis Deep Unit No. 2, North Travis 12 Deep No. 1 and Travis 13 State No. 1; Injection of Fluids into Travis Deep Unit Well No. 3	1,153,239	5,071,971
Projected Recoverable Enhanced Reserves Travis Deep Unit - A Peripheral Flood		
Travis Deep Unit	2,450,589	9,629,971

The original in-place oil reserves of the Canyon Reservoir in the Travis Upper Penn Pool are projected at 14,231,000 barrels. This value is a statistical mean of estimates obtained using results from the Tarner Dispersed Gas Drive Method, Material Balance and volumetric estimates.

The Canyon Reservoir in the Travis Upper Penn Pool is a shallow water shelf edge bioherm. Seasonal or epochal tide actions acting as a re-occurring water level advances and retreats

coupled with possible periods of heavy fresh water contact (rains) and leaching actions could account for the potential high porosity and the apparent horizontal stratification of hydrocarbon bearing intervals within the overall Canyon-Penn section. The porosity within the stratified layers may or may not be interconnected beyond the well bores. Production performance tends to suggest possible separation of zones; however, pressure data as measured at wells throughout the field suggests excellent pressure transmissibility in a South-Southwest direction with some loss of pressure transmissibility and possibly a lower permeability in a North-Northeast direction from the Travis Deep Unit Well No. 3. The overall producing interval is approximately one hundred (100) to one hundred and twenty (120) feet thick. Empirical data developed from electric log surveys of the drilled wells and analysis of the production-pressure performance of the individual wells suggests the Canyon pay intervals exhibit different formation characteristics. In our opinion, the Canyon appears to exhibit three possible producing intervals throughout gross hydrocarbon bearing section.

The reservoir fluid characteristics were difficult to define. Only after numerous iterations of several laboratory fluid analyses of the recovered separator fluids was a recombination computer simulation obtained that compared favorably with actual well and field performance characteristics. Our best judgement as to the reason for the difficulty of readily obtaining a valid reservoir simulation was possibly the result of either the presence of free gas in the reservoir or difficulty in recognizing a severe permeability variation in the formation of the selected sample well.

The reservoir fluid is considered to be undersaturated and to have a bubble point pressure in a range from 1800 psig to 2200 psig. The statistical best fit indicates 2066 psig to be the saturation pressure with the oil containing 800 cubic feet of gas per barrel at bubble point pressure and reservoir temperature.

The fluid properties are presented in both graphic and tabular form together with laboratory analysis of sampled fluids.

Relative permeability data, developed empirically, and used in frontal-advance calculations of both gas and liquid displacement recovery methods supports the numerical and computer analysis of the production-pressure relationships observed in the producing field wells. The reservoir produces with an internal dispersed (solution gas) drive mechanism, and it is doubtful that the primary oil recovery should be expected to exceed 10.8% of the initial oil-in-place. When the free gas saturation in the reservoir exceeds the critical gas saturation, oil ahead of the gas will not move; or possibly only small amounts of oil will accompany the continuing free gas production.

This condition appears to be occuring rapidly in the Travis Deep Unit Well No. 3, and continued operation of this well will be accompanied with increasing gas rates and declining oil production. The reservoir voidage with high gas withdrawals and decreasing reservoir pressure in a well's drainage area can effectively reduce the volumes of reservoir hydrocarbons to be recovered by enhanced recovery methods.

The Travis Deep Unit Well No. 3 has displayed production characteristics different from either the Travis Deep Unit Well No. 2 or the State Com Well No. 1. An inspection of the completion intervals as reported and compared with the section on the electric logs suggests a definite possibility the Travis Deep Well No. 3 may be producing through only one set of the perforated intervals in the casing. The other two wells (TDU No. 2 and State Com No. 1) are possibly recovering reservoir fluids from thicker intervals which could result in a lower pressure drop in the reservoir and between the reservoir and well bores. Consideration might be given to conducting differential temperature surveys in one or all of the producing wells to verify if all perforations are contributing to production. An analysis of the overall performance of the reservoir pressure-production relationships and reservoir fluid characteristics suggests primary recovery performance should not be expected to exceed thirteen percent (13%) and will probably not exceed the ten percent (10%) estimate mentioned above.

To maximize hydrocarbon recovery from the Travis Deep Unit, enhanced fluid injection recovery techniques are suggested. In presenting enhanced hydrocarbon recoveries by fluid

injection, the Buckley-Leverett and Hutchinson, Dyes and Erickson methods were utilized. Three potential stratified fluid displaceable intervals were considered in the projection. As previously mentioned, it is our opinion that three hydrocarbon bearing intervals, possibly not interconnected, exist and exhibit varying porosities and permeabilities. The porosity and permeability information is included elsewhere in the report. No attempt was made to project potential recoveries using miscible fluid flood techniques nor was carbon dioxide (Co_2) considered. With additional development of the reservoir, which should provide additional depositional and structural information, the enhanced recovery estimates can be refined and fluid injection points can be advantageously located. Details of enhanced recovery estimates, values and costs are detailed in a section of the report.

The production forecast and reserve estimates presented are based on projections prepared utilizing all production-pressure information, reservoir fluid data as computed by a simulated recombination of fluids, pressure-volume-temperature relationships and empirical relative permeability data developed utilizing the formation characteristics developed empirically from the electric logs of the field wells.

Oil pricing is in accordance with existing Department of Energy guidelines and Windfall Excise tax schedules. Gas pricing is projected according to existing contracts. Operating costs including severance and ad valorem taxes are based on current expense history and taxing rates. Development costs and equipment additions are projected on current drilling historical costs and are itemized by category. The present worth values of the projected after operating and development costs income are discounted at twelve percent (12%) per annum and are included for guideline purposes only. All income projections are before depletion and depreciation expense allowances and Federal income taxes. All supporting information is presented under the respective sub-heading.

Gentlemen, you are cognizant that in the case of all projections, operating and economic conditions may change such that the information presented herewith must be accepted with the understanding that actual performance subsequent to the effective date of this report may necessitate a revision to increase or decrease the values presented. All statistical information and supporting data are on file and available for review and inspection.

RALPH H. VINEY & ASSOCIATES, INC.
Engineering Consultants

Ralph H. Viney

Saeed Afghahi

Job No. 022380

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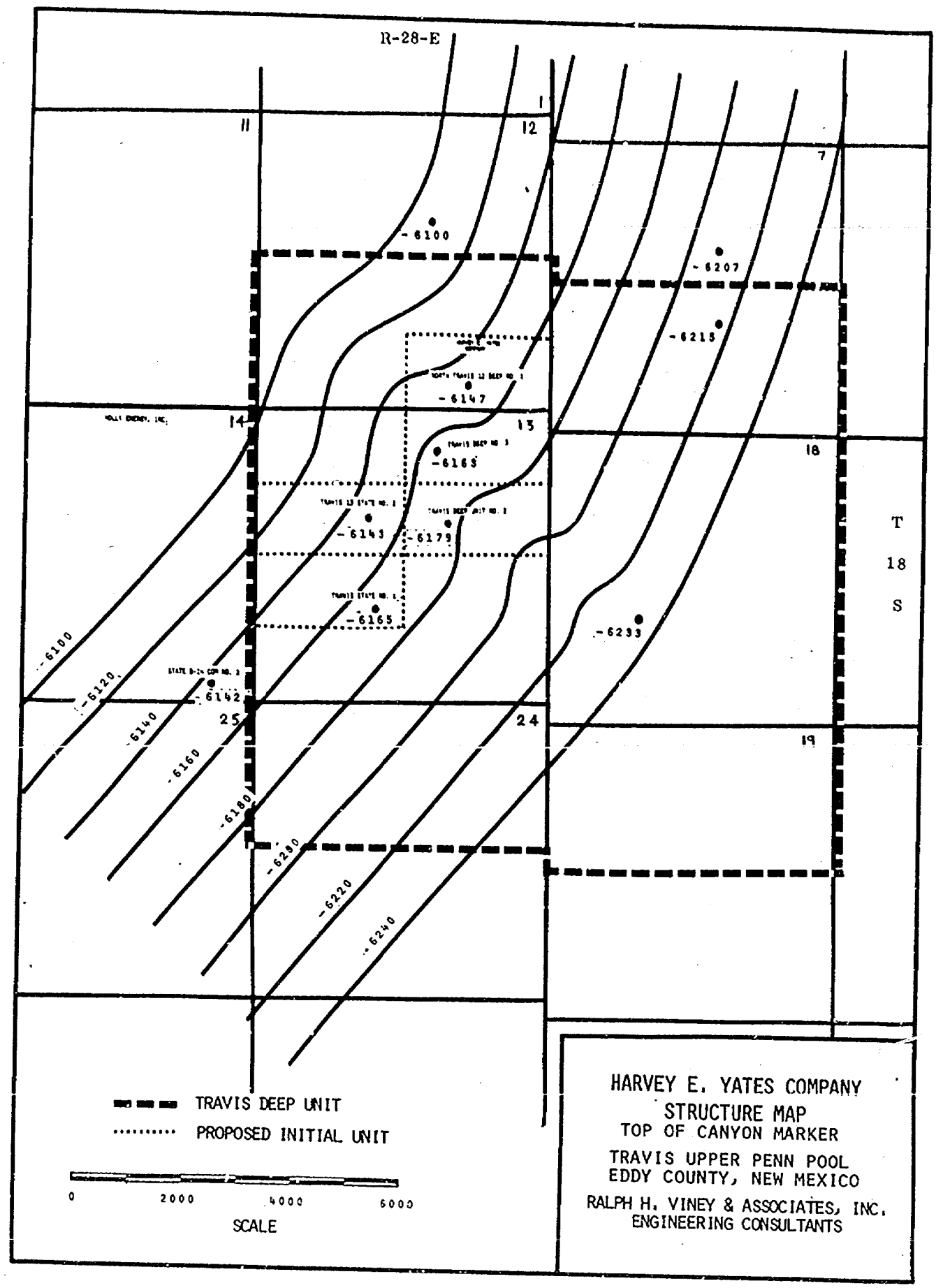

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TRAVIS DEEP UNIT
PROPOSED INITIAL UNIT
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SCALE
HARVEY E. YATES COMPANY
STRUCTURE MAP
TOP OF CANYON MARKER
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 1

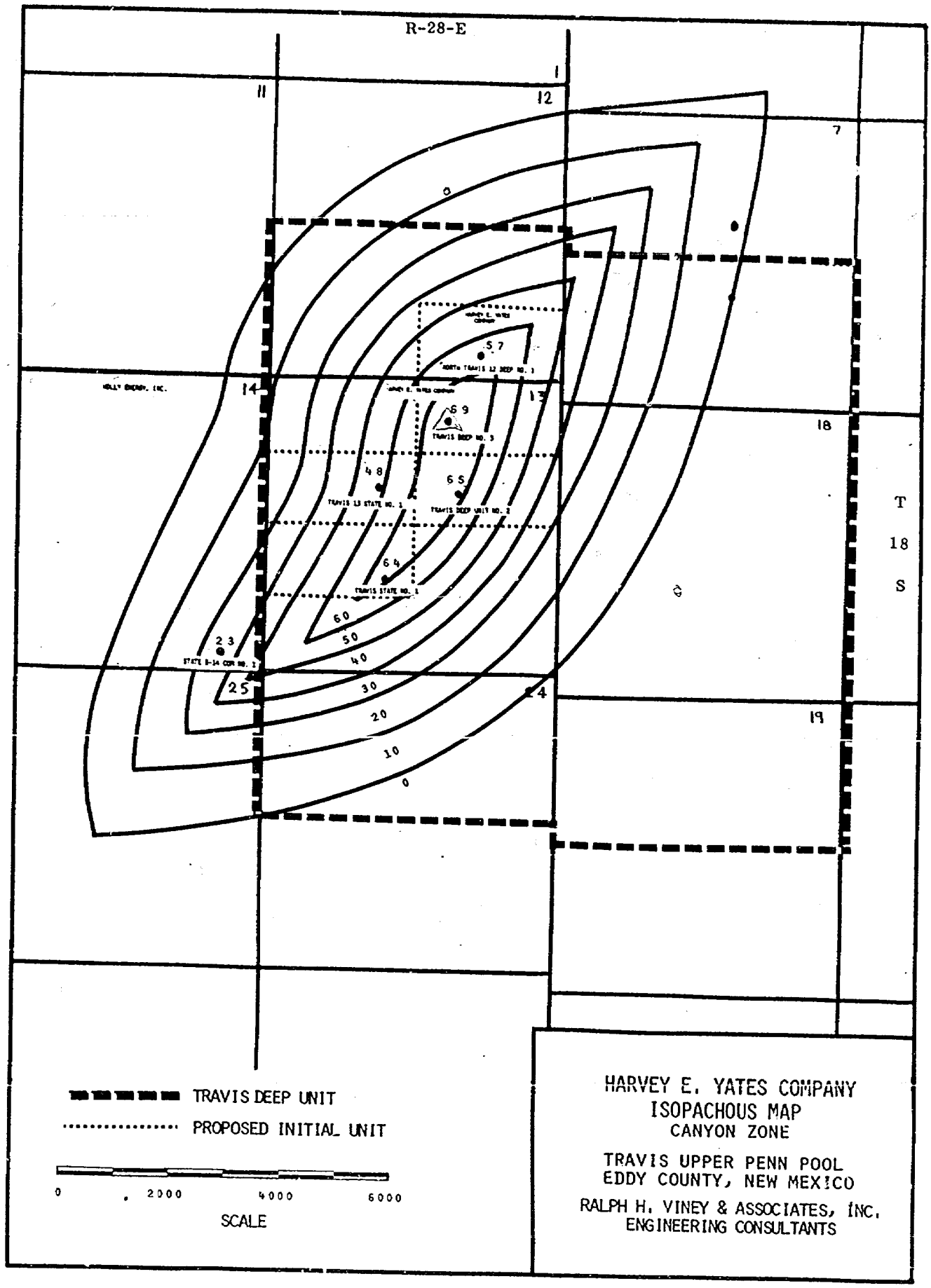

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SCALE
HARVEY E. YATES COMPANY
ISOPACHOUS MAP
CANYON ZONE
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 2

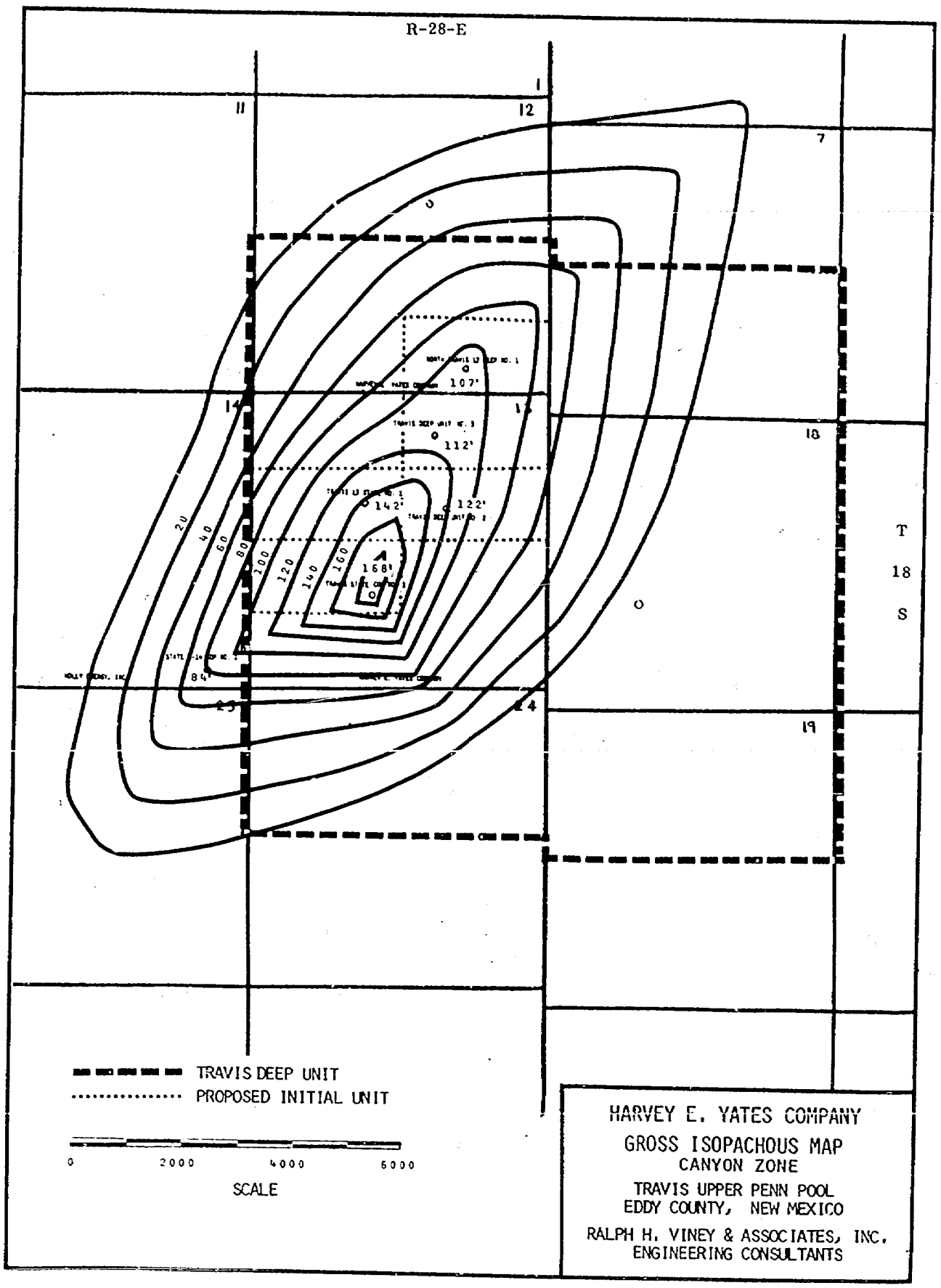

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PROPOSED INITIAL UNIT
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SCALE
HARVEY E. YATES COMPANY
GROSS ISOPACHOUS MAP
CANYON ZONE
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 3

SUMMARY TABLE 1
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED PRODUCING AND
PROVED DEVELOPED NON-PRODUCING
TRAVIS UPPER PENN POOL

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	33.290	107.080	26.819	86.268	575.594	206.517	782.111	14.400	28.672	43.072
1981	119.911	649.824	96.606	523.520	2419.717	1286.675	3706.392	57.600	135.889	193.489
1982	122.280	1159.107	98.512	933.816	2602.907	2473.911	5076.818	71.999	186.142	258.141
1983	85.594	1242.138	68.958	1000.709	1823.719	2842.775	4666.495	72.001	171.098	243.099
1984	55.832	1045.860	44.980	842.579	1189.597	2554.930	3744.527	72.000	137.294	209.294
1985	36.552	809.390	29.447	652.073	778.803	2102.143	2880.946	71.999	105.630	177.629
1986	24.125	596.136	19.435	480.268	514.149	1640.258	2154.407	72.000	78.992	150.992
1987	16.081	427.155	12.955	344.130	348.849	1241.211	1590.060	71.999	58.300	130.299
1988	11.267	314.956	9.077	253.739	260.155	963.782	1223.937	72.002	44.876	116.878
1989	8.363	242.920	6.737	195.704	207.270	780.826	988.097	71.999	36.228	108.227
S TOT	513.295	6594.566	413.526	5312.806	10720.762	16093.032	26813.794	648.000	983.120	1631.120
AFTER	21.872	674.495	17.622	543.397	583.610	2487.158	3070.776	535.046	112.589	647.635
REM.	535.167	7269.061	431.148	5856.203	11304.372	18580.190	29884.570	1183.047	1095.708	2278.755
CUM.	326.689	444.571								
ULT.	861.856	7713.632								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	739.039	0.000	0.000	739.039	739.039	722.073	3.	21.46	2.394	10.	18872.246
1981	3512.903	0.000	0.000	3512.903	4251.942	3850.947	4.	25.05	2.458	20.	13860.120
1982	4818.677	0.000	0.000	4818.677	9070.619	7582.516	5.	26.42	2.649	30.	10696.611
1983	4423.396	0.000	0.000	4423.396	13494.015	10560.768	5.	26.45	2.841	40.	8558.293
1984	3535.233	0.000	0.000	3535.233	17029.248	12630.267	5.	26.45	3.032	50.	7037.354
1985	2703.317	0.000	0.000	2703.317	19732.566	14006.164	5.	26.45	3.224	60.	5913.244
1986	2003.415	0.000	0.000	2003.415	21735.982	14892.711	5.	26.45	3.415	70.	5056.929
1987	1459.761	0.000	0.000	1459.761	23195.744	15454.346	5.	26.93	3.607	80.	4388.317
1988	1107.059	0.000	0.000	1107.059	24302.804	15824.673	5.	28.66	3.798	90.	3855.609
1989	879.870	0.000	0.000	879.870	25182.674	16080.575	5.	30.77	3.990	100.	3423.692
S TOT	25182.674	0.000	0.000	25182.674	25182.674	16080.575					
AFTER	2423.140	0.000	0.000	2423.140	27605.814	16561.797	PROJECT LIFE		17.6 YRS.		
TOTAL	27605.814	0.000	0.000	27605.814	27605.814	16561.797					

SUMMARY TABLE 2
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED PRODUCING
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	33.290	107.080	26.819	86.268	575.594	206.517	782.111	14.400	28.672	43.072
1981	83.799	435.424	67.512	350.792	1608.347	862.155	2470.502	43.200	90.569	133.769
1982	62.132	594.571	50.056	479.006	1251.496	1269.006	2520.502	43.199	92.402	135.601
1983	42.536	612.860	34.268	493.741	856.289	1402.600	2258.889	43.200	82.811	126.011
1984	27.746	514.140	22.354	414.209	558.552	1255.995	1814.547	43.201	66.521	109.722
1985	18.164	397.176	14.633	319.979	365.658	1031.544	1397.202	43.200	51.221	94.421
1986	12.045	293.566	9.703	236.506	242.739	807.738	1050.477	43.200	38.510	81.710
1987	8.109	212.099	6.533	171.116	169.731	617.183	786.914	43.201	28.848	72.049
1988	5.751	158.902	4.633	128.017	132.115	486.250	618.365	43.201	22.669	65.870
1989	4.329	124.750	3.487	100.502	107.301	400.986	508.287	43.199	18.634	61.833
8 TOT	297.901	3450.868	239.998	2780.136	5867.821	8339.975	14207.797	403.200	520.858	924.058
AFTER	11.748	362.187	9.466	291.791	313.513	1337.602	1651.117	315.229	60.530	375.759
REM.	309.649	3813.055	249.464	3071.927	6181.335	9677.577	15858.914	718.429	581.388	1299.817
CUM.	326.689	444.571								
ULT.	636.338	4257.626								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	739.039	0.000	0.000	739.039	739.039	722.073	3.	21.46	2.394	10.	10175.981
1981	2336.733	0.000	0.000	2336.733	3075.772	2803.355	3.	23.82	2.458	20.	7662.478
1982	2384.901	0.000	0.000	2384.901	5460.673	4650.214	3.	25.00	2.549	30.	5648.675
1983	2132.678	0.000	0.000	2132.878	7593.551	6086.272	3.	24.99	2.841	40.	4982.217
1984	1704.825	0.000	0.000	1704.825	9298.376	7084.264	3.	24.99	3.032	50.	4200.887
1985	1302.781	0.000	0.000	1302.781	10601.157	7747.336	3.	24.99	3.224	60.	3616.050
1986	968.767	0.000	0.000	968.767	11569.924	8176.032	3.	25.02	3.415	70.	3164.374
1987	714.865	0.000	0.000	714.865	12284.789	8451.073	3.	25.98	3.607	80.	2806.589
1988	552.495	0.000	0.000	552.495	12837.284	8635.890	3.	28.52	3.798	90.	2517.278
1989	446.454	0.000	0.000	446.454	13283.738	8765.737	3.	30.77	3.990	100.	2279.163
8 TOT	13283.738	0.000	0.000	13283.738	13283.738	8765.737					
AFTER	1275.358	0.000	0.000	1275.358	14559.096	9017.995	PROJECT LIFE		17.6 YRS.		
TOTAL	14559.096	0.000	0.000	14559.096	14559.096	9017.995					

TABLE 1
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS DEEP UNIT WELL NO. 2
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	13.350	32.989	10.755	26.577	201.049	63.623	264.672	4.800	9.703	14.503
1981	33.181	144.590	26.732	116.487	588.038	286.294	874.332	14.400	32.053	46.453
1982	24.939	220.720	20.092	177.819	475.773	471.087	946.860	14.400	34.712	49.112
1983	17.531	245.729	14.123	197.968	334.445	562.380	896.825	14.399	32.878	47.277
1984	11.435	207.313	9.213	167.018	218.151	506.444	724.595	14.400	26.564	40.964
1985	7.486	160.558	6.031	129.351	142.814	417.000	559.814	14.400	20.523	34.923
1986	4.918	117.774	3.962	94.883	93.821	324.054	417.875	14.400	15.319	29.719
1987	3.246	83.558	2.615	67.317	61.926	242.800	304.726	14.400	11.171	25.571
1988	2.245	61.115	1.808	49.237	50.710	187.018	237.728	14.401	8.715	23.116
1989	1.642	46.821	1.323	37.720	40.694	150.497	191.191	14.400	7.009	21.409
S TOT	119.973	1321.167	96.654	1064.377	2207.422	3211.196	5418.618	134.400	198.647	333.047
AFTER	4.016	122.534	3.236	98.718	107.124	448.731	555.855	99.954	20.378	120.332
REM.	123.989	1443.701	99.890	1163.095	2314.546	3659.927	5974.473	234.355	219.024	453.379
CUM.	179.068	206.068								
ULT.	303.057	1649.769								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	250.169	0.000	0.000	250.169	250.169	244.426	1.	18.69	2.394	10.	3850.834
1981	827.879	0.000	0.000	827.879	1078.048	981.802	1.	22.00	2.458	20.	2881.074
1982	897.748	0.000	0.000	897.748	1975.796	1677.015	1.	23.68	2.649	30.	2264.105
1983	849.548	0.000	0.000	849.548	2825.344	2249.011	1.	23.68	2.841	40.	1844.247
1984	683.631	0.000	0.000	683.631	3508.975	2649.204	1.	23.68	3.032	50.	1543.585
1985	524.891	0.000	0.000	524.891	4033.866	2916.356	1.	23.68	3.224	60.	1319.757
1986	388.156	0.000	0.000	388.156	4422.022	3088.122	1.	23.68	3.415	70.	1147.913
1987	279.155	0.000	0.000	279.155	4701.177	3195.525	1.	23.68	3.607	80.	1012.605
1988	214.612	0.000	0.000	214.612	4915.789	3267.316	1.	28.05	3.798	90.	903.834
1989	169.782	0.000	0.000	169.782	5085.571	3316.695	1.	30.76	3.990	100.	814.814
S TOT	5085.571	0.000	0.000	5085.571	5085.571	3316.695					
AFTER	435.523	0.000	0.000	435.523	5521.094	3404.882	PROJECT LIFE		16.3 YRS.		
TOTAL	5521.094	0.000	0.000	5521.094	5521.094	3404.882					

PROVED DEVELOPED PRODUCING

TABLE 2
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS DEEP UNIT WELL NO. 3
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	9.917	59.302	7.989	47.776	149.348	114.371	263.719	4.800	9.668	14.468
1981	24.649	210.337	19.859	169.454	436.835	416.473	853.308	14.400	31.282	45.682
1982	17.676	231.838	14.240	186.777	337.211	494.819	832.030	14.400	30.502	44.902
1983	11.789	207.426	9.498	167.109	224.905	474.717	699.622	14.401	25.648	40.049
1984	7.690	164.311	6.195	132.375	146.704	401.397	548.101	14.400	20.093	34.493
1985	5.034	122.122	4.035	98.386	96.035	317.175	413.210	14.400	15.148	29.548
1986	3.308	87.195	2.665	70.247	63.109	239.914	303.023	14.400	11.109	25.509
1987	2.183	60.773	1.759	48.961	47.591	176.593	224.184	14.400	8.219	22.619
1988	1.539	44.476	1.240	35.831	35.732	136.098	171.830	14.400	6.299	20.699
1989	1.171	34.778	0.943	28.018	29.027	111.787	140.814	14.400	5.162	19.562
8 TOT	84.956	1222.558	68.443	984.934	1566.496	2883.345	4449.841	134.400	163.131	297.531
AFTER	3.172	98.355	2.556	79.238	84.648	361.164	445.812	96.948	16.343	113.291
REM.	88.128	1320.913	70.999	1064.172	1651.144	3244.509	4895.653	231.347	179.475	410.822
CUM.	112.035	207.036								
ULT.	200.163	1527.949								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	249.251	0.000	0.000	249.251	249.251	243.529	1.	18.69	2.394	10.	3209.497
1981	807.626	0.000	0.000	807.626	1056.877	962.866	1.	22.00	2.458	20.	2458.067
1982	787.128	0.000	0.000	787.128	1844.005	1572.415	1.	23.68	2.649	30.	1971.525
1983	659.573	0.000	0.000	659.573	2503.578	2014.502	1.	23.68	2.841	40.	1634.312
1984	513.608	0.000	0.000	513.608	3017.186	2317.165	1.	23.68	3.032	50.	1388.497
1985	383.662	0.000	0.000	383.662	3400.848	2512.436	1.	23.68	3.224	60.	1202.408
1986	277.514	0.000	0.000	277.514	3678.362	2635.241	1.	23.68	3.415	70.	1057.303
1987	201.565	0.000	0.000	201.565	3879.927	2712.792	1.	27.06	3.607	80.	941.406
1988	151.131	0.000	0.000	151.131	4031.058	2763.347	1.	28.82	3.798	90.	847.018
1989	121.252	0.000	0.000	121.252	4152.310	2798.612	1.	30.78	3.990	100.	768.846
8 TOT	4152.310	0.000	0.000	4152.310	4152.310	2798.612					
AFTER	332.521	0.000	0.000	332.521	4484.831	2865.463	PROJECT LIFE		16.1 YRS.		
TOTAL	4484.831	0.000	0.000	4484.831	4484.831	2865.463					

PROVED DEVELOPED PRODUCING

TABLE 3
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS STATE COM NO. 1-K
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	10.023	14.789	8.075	11.915	225.197	28.523	253.720	4.800	9.301	14.101
1981	25.969	80.497	20.921	64.851	583.475	159.387	742.862	14.401	27.233	41.634
1982	19.517	142.013	15.724	114.410	438.511	303.101	741.612	14.400	27.187	41.587
1983	13.216	159.705	10.647	128.664	296.938	365.504	662.442	14.400	24.285	38.685
1984	8.621	142.516	6.946	114.816	193.697	348.154	541.851	14.401	19.864	34.265
1985	5.644	114.496	4.547	92.242	126.810	297.368	424.178	14.400	15.550	29.950
1986	3.819	88.597	3.076	71.376	85.809	243.770	329.579	14.400	12.082	26.482
1987	2.680	68.068	2.159	54.838	60.214	197.790	258.004	14.401	9.458	23.859
1988	1.967	53.311	1.585	42.949	45.673	163.134	208.807	14.400	7.655	22.055
1989	1.516	43.151	1.221	34.764	37.579	138.703	176.282	14.400	6.462	20.862
S TOT	92.972	907.143	74.901	730.825	2093.903	2245.433	4339.337	134.400	159.080	293.480
AFTER	4.560	141.298	3.674	113.835	121.742	527.708	649.450	118.327	23.809	142.136
REM.	97.532	1048.441	78.575	844.660	2215.646	2773.141	4988.787	252.727	182.889	435.616
CUM.	35.586	31.467								
ULT.	133.118	1079.908								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	239.619	0.000	0.000	239.619	239.619	234.118	1.	27.89	2.394	10.	3115.689
1981	701.228	0.000	0.000	701.228	940.847	858.688	1.	27.89	2.458	20.	2323.351
1982	700.025	0.000	0.000	700.025	1640.872	1400.785	1.	27.89	2.649	30.	1833.050
1983	623.757	0.000	0.000	623.757	2264.629	1820.758	1.	27.89	2.841	40.	1503.661
1984	507.586	0.000	0.000	507.586	2772.215	2117.895	1.	27.89	3.052	50.	1268.805
1985	394.228	0.000	0.000	394.228	3166.443	2318.544	1.	27.89	3.224	60.	1093.884
1986	303.097	0.000	0.000	303.097	3469.540	2452.670	1.	27.90	3.415	70.	959.158
1987	234.145	0.000	0.000	234.145	3703.685	2542.756	1.	27.89	3.607	80.	852.577
1988	186.752	0.000	0.000	186.752	3890.437	2605.227	1.	28.82	3.798	90.	766.426
1989	155.420	0.000	0.000	155.420	4045.857	2650.429	1.	30.78	3.990	100.	695.504
S TOT	4045.857	0.000	0.000	4045.857	4045.857	2650.429					
AFTER	507.314	0.000	0.000	507.314	4553.171	2747.680	PROJECT LIFE		17.6 YRS.		
TOTAL	4553.171	0.000	0.000	4553.171	4553.171	2747.680					

PROVED DEVELOPED PRODUCING

SUMMARY TABLE 3
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED NON-PRODUCING
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	36.112	214.400	29.094	172.728	811.370	424.520	1235.890	14.400	45.320	59.720
1982	60.148	564.536	48.456	454.810	1351.411	1204.905	2556.316	28.800	93.740	122.540
1983	43.058	629.278	34.690	506.968	967.431	1440.175	2407.606	28.801	88.287	117.088
1984	28.086	531.720	22.626	428.370	631.045	1298.935	1929.980	28.800	70.772	99.572
1985	18.388	412.214	14.814	332.094	413.144	1070.600	1483.744	28.799	54.409	83.208
1986	12.080	302.570	9.732	243.762	271.410	832.520	1103.930	28.801	40.481	69.282
1987	7.972	214.756	6.422	173.014	179.117	624.029	803.146	28.799	29.451	58.250
1988	5.516	156.054	4.444	125.722	128.039	477.533	605.572	28.802	22.206	51.008
1989	4.034	118.170	3.250	95.202	99.970	379.840	479.810	28.799	17.595	46.394
8 TOT	215.394	3143.698	173.528	2532.670	4852.938	7753.056	12605.994	244.800	462.262	707.062
AFTER	10.124	312.308	8.156	251.606	270.096	1149.556	1419.654	219.817	52.059	271.876
REM.	225.518	3456.006	181.684	2784.276	5123.034	8902.613	14025.648	464.617	514.321	978.938
CUM.	0.000	0.000								
ULT.	225.518	3456.006								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	8696.336
1981	1176.170	0.000	0.000	1176.170	1176.170	1047.592	1.	27.89	2.458	20.	6197.669
1982	2433.776	0.000	0.000	2433.776	3609.946	2932.301	2.	27.89	2.649	30.	4627.939
1983	2290.518	0.000	0.000	2290.518	5900.464	4474.495	2.	27.89	2.841	40.	3576.077
1984	1830.408	0.000	0.000	1830.408	7730.872	5546.002	2.	27.89	3.032	50.	2836.469
1985	1400.536	0.000	0.000	1400.536	9131.408	6258.828	2.	27.89	3.224	60.	2297.196
1986	1034.648	0.000	0.000	1034.648	10166.056	6716.678	2.	27.89	3.415	70.	1892.554
1987	744.896	0.000	0.000	744.896	10910.952	7003.272	2.	27.89	3.607	80.	1581.728
1988	554.564	0.000	0.000	554.564	11465.516	7188.782	2.	28.81	3.798	90.	1338.332
1989	433.416	0.000	0.000	433.416	11898.932	7314.837	2.	30.76	3.990	100.	1144.528
8 TOT	11898.932	0.000	0.000	11898.932	11898.932	7314.837					
AFTER	1147.778	0.000	0.000	1147.778	13046.710	7543.849	PROJECT LIFE		17.0 YRS.		
TOTAL	13046.710	0.000	0.000	13046.710	13046.710	7543.849					

TABLE 4
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

NORTH TRAVIS 12-1-P
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	18.056	107.200	14.547	86.364	405.685	212.260	617.945	7.200	22.660	29.860
1982	30.074	282.268	24.228	227.405	675.705	602.453	1278.158	14.400	46.870	61.270
1983	21.529	314.639	17.345	253.484	483.715	720.088	1203.803	14.401	44.143	58.544
1984	14.043	265.860	11.313	214.185	315.522	649.467	964.990	14.400	35.386	49.786
1985	9.194	205.107	7.407	166.047	206.572	535.300	741.872	14.400	27.204	41.604
1986	6.040	151.285	4.866	121.881	135.705	416.260	551.965	14.400	20.241	34.641
1987	3.986	107.378	3.211	86.507	89.559	312.014	401.573	14.399	14.726	29.125
1988	2.758	78.027	2.222	62.861	64.020	238.766	302.786	14.401	11.103	25.504
1989	2.017	59.085	1.625	47.601	49.985	189.920	239.905	14.400	8.797	23.197
S TOT	107.697	1571.849	86.764	1266.335	2426.469	3876.528	6302.997	122.400	231.131	353.531
AFTER	5.062	156.154	4.078	125.803	135.048	574.778	709.827	109.909	26.029	135.938
REM.	112.759	1728.003	90.842	1392.138	2561.517	4451.306	7012.824	232.309	257.160	489.469
CUM.	0.000	0.000								
ULT.	112.759	1728.003								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	4348.168
1981	588.085	0.000	0.000	588.085	588.085	523.796	0.	27.89	2.458	20.	3098.835
1982	1216.888	0.000	0.000	1216.888	1804.973	1466.150	1.	27.89	2.649	30.	2313.970
1983	1145.259	0.000	0.000	1145.259	2950.232	2237.248	1.	27.89	2.841	40.	1788.038
1984	915.204	0.000	0.000	915.204	3865.436	2773.001	1.	27.89	3.032	50.	1418.235
1985	700.268	0.000	0.000	700.268	4565.704	3129.414	1.	27.89	3.224	60.	1148.598
1986	517.324	0.000	0.000	517.324	5083.028	3358.339	1.	27.89	3.415	70.	946.277
1987	372.448	0.000	0.000	372.448	5455.476	3501.636	1.	27.89	3.607	80.	790.864
1988	277.282	0.000	0.000	277.282	5732.758	3594.391	1.	28.81	3.798	90.	669.166
1989	216.708	0.000	0.000	216.708	5949.466	3657.419	1.	30.76	3.990	100.	572.264
S TOT	5949.466	0.000	0.000	5949.466	5949.466	3657.419					
AFTER	573.389	0.000	0.000	573.889	6523.355	3771.924	PROJECT LIFE		17.0 YRS.		
TOTAL	6523.355	0.000	0.000	6523.355	6523.355	3771.924					

PROVED DEVELOPED NON-PRODUCING

TABLE 5

RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS STATE 13-1F
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	18.056	107.200	14.547	86.364	405.685	212.260	617.945	7.200	22.660	29.860
1982	30.074	282.268	24.228	227.405	675.705	602.453	1278.158	14.400	46.870	61.270
1983	21.529	314.639	17.345	253.484	483.715	720.088	1203.803	14.401	44.143	58.544
1984	14.043	265.860	11.313	214.185	315.522	649.467	964.990	14.400	35.386	49.786
1985	9.194	206.107	7.407	166.047	206.572	535.300	741.872	14.400	27.204	41.604
1986	6.040	151.285	4.866	121.881	135.705	416.260	551.965	14.400	20.241	34.641
1987	3.986	107.378	3.211	86.507	89.559	312.014	401.573	14.399	14.726	29.125
1988	2.758	78.027	2.222	62.861	64.020	238.766	302.786	14.401	11.103	25.504
1989	2.017	59.085	1.625	47.601	49.985	189.920	239.905	14.400	8.797	23.197
8 TOT	107.697	1571.849	86.764	1266.335	2426.469	3876.528	6302.997	122.400	231.131	353.531
AFTER	5.062	156.154	4.078	125.803	135.048	574.778	709.827	109.909	26.029	135.938
REM.	112.759	1728.003	90.842	1392.138	2561.517	4451.306	7012.824	232.309	257.160	489.469
CUM.	0.000	0.000								
ULT.	112.759	1728.003								

	NET OPERATING	FUTURE INVESTMENT, M$		-----UNDISCOUNTED----- NET CASHFLOW, M$		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	4348.168
1981	588.085	0.000	0.000	588.085	588.085	523.796	0.	27.89	2.458	20.	3098.835
1982	1216.888	0.000	0.000	1216.888	1804.973	1466.150	1.	27.89	2.649	30.	2313.970
1983	1145.259	0.000	0.000	1145.259	2950.232	2237.248	1.	27.89	2.841	40.	1788.038
1984	915.204	0.000	0.000	915.204	3865.436	2773.001	1.	27.89	3.032	50.	1418.235
1985	700.268	0.000	0.000	700.268	4565.704	3129.414	1.	27.89	3.224	60.	1148.598
1986	517.324	0.000	0.000	517.324	5083.028	3358.339	1.	27.89	3.415	70.	946.277
1987	372.448	0.000	0.000	372.448	5455.476	3501.636	1.	27.89	3.607	80.	790.864
1988	277.282	0.000	0.000	277.282	5732.758	3594.391	1.	28.81	3.798	90.	669.166
1989	216.708	0.000	0.000	216.708	5949.466	3657.419	1.	30.76	3.990	100.	572.264
8 TOT	5949.466	0.000	0.000	5949.466	5949.466	3657.419					
AFTER	573.889	0.000	0.000	573.889	6523.355	3771.924	PROJECT LIFE		17.0 YRS.		
TOTAL	6523.355	0.000	0.000	6523.355	6523.355	3771 924					

PROVED DEVELOPED NON-PRODUCING

SUMMARY TABLE 4
HARVEY E. YATES COMPANY
SUMMARY OF PRODUCTIVE AREA AND RESERVOIR VOLUMES
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Description	Area Acres	Average Thickness -Feet-	Reservoir Volume -Acre Feet-	Volumetric Estimate Of Stock Tank Oil-In-Place -Barrels-
Reservoir	2,253	22.60	50,912	13,033,470
Travis Deep Unit	1,505	27.75	41,774	10,694,100
Outside of Travis Deep Unit	748	12.22	9,138	2,339,370
Projected Floodable Area Within Travis Deep Unit Boundary	870	35.84	31,180	7,982,100
Proved Developed Tracts Within Travis Deep Unit Producing and Non-Producing				
S/2 SE/4 Section 12	80	60.65	4,852	1,242,110
N/2 NE/4 Section 13	80	54.65	4,372	1,119,230
S/2 NE/4 Section 13	80	48.63	3,890	995,840
S/2 NW/4 Section 13	80	38.36	3,069	785,660
N/2 SW/4 Section 13	80	54.44	4,355	1,114,880

Values shown above computed from isopachous map.

Volumetric estimate of oil-in-place - Barrels/Acre Foot

$$q = \frac{(0.0639)(1 - .24)\ 7758}{1.4725} = 256 \text{ Barrels/Acre Foot}$$

SUMMARY TABLE 5
HARVEY E. YATES COMPANY
SUMMARY OF RESERVOIR PAY BY WELLS
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Operator	Well Designation	Projected Reservoir Pay - Feet: Most Permeable	Less Permeable	Matrix	Total Pay Thickness	Remarks
Harvey E. Yates Company	Travis Deep Unit No. 2	20	14	31	65	
	Travis Deep Unit No. 3	11	13	45	69	
	State Comm No. 1	11	24	29	64	
	North Travis 12-1	10	28	21	59	
	State 13-1	16	5	27	48	
Holly Energy	State B-14 Com No. 1	-	15	10	25	Need additional information to further evaluate

Projected Formation Characteristics	Most Permeable	Less Permeable	Matrix	Probable Weighted Formation Characteristics for Reservoir
Porosity (Ø) % of Bulk Volume	10.90	7.20	4.00	6.37
Interstitial Water - % of P.V.	15.00	22.50	29.00	24.08
Permeability - Millidarcies	3.30	1.77	1.02	1.71

TABLE 6
HARVEY E. YATES COMPANY
INTERNAL GAS DRIVE
PRESSURE - PRODUCTION PERFORMANCE
DISPERSED DISPLACEMENT
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PRESSURE PSIG	RECOVERY FACTOR %	OIL PROD MSTB	CUM OIL MSTB	CUM GAS--MMSCF TOTAL	CUM GAS--MMSCF NET	GOR SCF/STB	GAS SAT % PV
3725.	0.000	0.00	0.0	0.0	0.0	800.	0.0
3600.	0.216	25.68	25.7	20.5	20.5	800.	0.0
3400.	0.565	41.57	67.3	53.8	53.8	800.	0.0
3200.	0.919	42.15	109.4	87.5	87.5	800.	0.0
3000.	1.278	42.73	152.1	121.7	121.7	800.	0.0
2800.	1.641	43.31	195.5	156.4	156.4	800.	0.0
2600.	2.010	43.88	239.3	191.5	191.5	800.	0.0
2400.	2.383	44.45	283.8	227.0	227.0	800.	0.0
2200.	2.761	45.01	328.8	263.0	263.0	800.	0.0
2066.	3.017	30.47	359.3	287.4	287.4	800.	0.0
2000.	4.873	221.10	580.4	480.3	480.3	873.	2.1
1900.	7.021	255.80	836.2	840.1	840.1	1406.	4.7
1800.	8.490	174.97	1011.1	1252.0	1252.0	2354.	6.8
1700.	9.862	163.32	1174.5	1819.7	1819.7	3476.	8.7
1600.	10.866	119.55	1294.0	2393.3	2393.3	4798.	10.3
1500.	11.677	96.63	1390.6	3035.5	3035.5	6646.	11.9
1400.	12.253	68.57	1459.2	3660.4	3660.4	9114.	13.2
1300.	12.789	63.89	1523.1	4402.5	4402.5	11615.	14.5
1200.	13.191	47.82	1570.9	5098.8	5098.8	14562.	15.6
1100.	13.550	42.74	1613.7	5871.9	5871.9	18087.	16.7
1000.	13.818	31.99	1645.7	6575.6	6575.6	21999.	17.7
900.	14.073	30.29	1675.9	7355.2	7355.2	25739.	18.7
800.	14.272	23.76	1699.7	8052.9	8052.9	29360.	19.7
700.	14.482	24.95	1724.7	8869.5	8869.5	32725.	20.6
600.	14.651	20.13	1744.8	9572.9	9572.9	34945.	21.6
500.	14.856	24.42	1769.2	10370.6	10370.6	32658.	22.5
400.	15.056	23.83	1793.0	11024.1	11024.1	27427.	23.5
300.	15.365	36.77	1829.8	11826.6	11826.6	21826.	24.5
200.	15.652	34.21	1864.0	12391.7	12391.7	16518.	25.5

INITIAL OIL-IN-PLACE (MB) = 11909.3
INITIAL GAS-IN-PLACE, MMF 9527.4

TABLE 7
HARVEY E. YATES COMPANY
RESERVOIR FLUIDS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PRESSURE PSIG----	DIFFERENTIAL DATA FVF V/B---	GAS SOL F/B----	FLASH FVF V/B---	FLASH GAS SOL F/B----	GAS GRAVITY -------	Z FACTOR ------	GAS FVF B/MCF--
200.	1.0900	60.	1.0900	60.	0.000	0.9670	14.0772
400.	1.1300	125.	1.1300	125.	0.000	0.9300	7.0085
600.	1.1700	200.	1.1700	200.	0.000	0.9000	4.5755
800.	1.2100	280.	1.2100	280.	0.000	0.8600	3.2988
1000.	1.2500	360.	1.2500	360.	0.000	0.8300	2.5561
1200.	1.2900	440.	1.2900	440.	0.000	0.7950	2.0452
1400.	1.3300	525.	1.3300	525.	0.000	0.7700	1.7008
1600.	1.3750	610.	1.3750	610.	0.000	0.7550	1.4611
1800.	1.4180	695.	1.4180	695.	0.000	0.7400	1.2743
2066.	1.4800	800.	1.4800	800.	0.000	0.7300	1.0963

N - MSTB	0.000	SAT PSI	2066.
G/N RATIO - CF/B	000.000	SCW - PCT	29.00
G - MMCF	0.000	GAS CAP PSI	0.
BW - RVB/STB	1.0500	CW - V/MMV/PSI	3.192
SEP. CF/STB	40.	CO - V/MMV/PSI	7.000
RESVR TEMP - F	160.	CF - V/MMV/PSI	6.300
NITROGEN - PCT	1.24	CARB. DIOX. - PCT	0.34
HYD. SULF. - PCT	00.000		

Initial Oil Reserves Calculated Using Tarner Technique.
Other Pertinent Data Included on Fluid Characteristics
Data Charts (Included).

TABLE 8
MATERIAL BALANCE RESULTS AND RESERVOIR VOIDAGE CALCULATIONS
TRAVIS UPPER PENN POOL (CANYON ZONE)
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY
Ralph H. Vlney & Associates, Inc.
Engineering Consultants

MATERIAL BALANCE

SURVEY DATE: 9/ 8/77

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	3725.	3.0	3.7	0.0	0.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			3.0	3.7	0.0	0.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 11/ 1/77

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	3538.	16.4	18.0	0.0	5802.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			16.4	18.0	0.0	5802.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 11/30/79

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2411.	272.8	351.9	0.0	16176.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			272.8	351.9	0.0	16176.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 6/17/80

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2748.	319.2	402.0	0.0	24247.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			319.2	402.0	0.0	24247.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 8/13/80

AREA NO.	ORIG. PRES.	CURR. PREB.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2092.	322.9	406.4	0.0	15804.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			322.9	406.4	0.0	15804.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

Results of Surveys 11/30/1979 and 8/13/1980
Considered to be representative with zero gas cap

MSTB - 1000 Stock Tank Barrels
MMCF - 1,000,000 Cubic Feet
Area No. - Is a Computer Code for Engineering Identification

RESERVOIR VOIDAGE

RESERVOIR VOLUME OF WITHDRAWALS, MRVB

SEGMENT	OIL	GAS	WATER	TOTAL
SURVEY DATE: 9/ 8/77				
3	4.338	0.803	0.000	5.141
S-TOTAL	4.338	0.803	0.000	5.141
CAP	0.000	0.000	0.000	0.000
TOTAL	4.338	0.803	0.000	5.141
SURVEY DATE: 11/ 1/77				
3	23.966	3.313	0.000	27.279
S-TOTAL	23.966	3.313	0.000	27.279
CAP	0.000	0.000	0.000	0.000
TOTAL	23.966	3.313	0.000	27.279
SURVEY DATE: 11/30/79				
3	402.808	133.545	0.000	536.354
S-TOTAL	402.808	133.545	0.000	536.354
CAP	0.000	0.000	0.000	0.000
TOTAL	402.808	133.545	0.000	536.354
SURVEY DATE: 6/17/80				
3	470.176	126.959	0.000	597.135
S-TOTAL	470.176	126.959	0.000	597.135
CAP	0.000	0.000	0.000	0.000
TOTAL	470.176	126.959	0.000	597.135
SURVEY DATE: 8/13/80				
3	477.839	174.071	0.000	651.910
S-TOTAL	477.839	174.071	0.000	651.910
CAP	0.000	0.000	0.000	0.000
TOTAL	477.839	174.071	0.000	651.910

MRVB = 1000's of Reservoir Volume Barrels

DISCUSSION

ENHANCED RECOVERY BY FLUID INJECTION

A pattern and a peripheral injection program have been prepared using developed data and are presented for comparative purposes. New development should provide additional geological control to more appropriately locate both future injection and producing wells and, hopefully, provide more definitive formation and fluid information. For the purpose of illustration the peripheral program projected a total of six (6) injection wells and eight (8) total producers. This should not be considered to be rigid but subject to re-evaluation.

To calculate fluid injection capacities of the injection wells, the projected net pay was delineated into three stratified layers with separate formation characteristics of porosity, interstitial water saturation and permeability. The pressure at the formation face of each injection well was projected at 5200 psig. After allowance for the hydrostatic fluid head pressure, a 1000 psig injection surface pressure at each injection well is required. Conventional engineering parameters were used to prepare the estimates. It must be recognized that fluid injection rates will probably decline during the recovery program due to possible changes in fluid mobility ratios, variation of permeabilities, which as of this writing cannot be finitely know. The initial oil saturation in each zone was considered to be identical at commencement of injection; consequently, actual performance may vary from the estimates presented.

The cost estimates used in the fluid injection proformas are based upon the use of two (2) Ajax T-150 pumps. These pumps are capable of handling a total of 7900 barrels of fluid per day which exceeds the fluid injection requirements projected for either a pattern or peripheral enhanced recovery fluid injection plan. The pumps can be resized resulting in additional savings. It is our opinion that electric motors be used rather than gas engines which will result in lower first costs and operating costs. As a comparison, electric motors will operate at approximately one-half the cost of a gas engine and will provide higher reliability and flexibility of operation.

The results of the injection programs are summarized below.

	Injection Pattern	Peripheral Injection Program
Number of Injection Wells	1	6
Number of Producers Affected	3	9
Projected Injection Pattern Flood Area		
Area - Acres	154	870
Average Thickness - Feet	60.25	35.84
Reservoir Volume - Acre Feet	9280	31,180
Projected Oil-In-Place at Initialtion of Injection		
Barrels/Acre Foot	239	239
Barrels	2,218,000	10,133,400
Projected Recoverable Primary and Enhanced Reserves		
Projected Primary and Enhanced Barrels	826,550	2,123,900
Projected Enhanced Barrels	451,550	1,568,800
Projected Recoverable Gas - MCF	4,627,400	9,185,400
Projected Average Thickness at Injection Well - Feet	59	28
Projected Average Injection Rate		
Barrels Per Day Per Well	771	384
Barrels Per Day	771	2304
Projected Total Injection Fluid Requirements - Barrels	2,392,000	7,140,000
Projected Costs		
Water Plant and Distribution System	$ 365,000	$ 500,000
Well Conversions	40,000	-

DISCUSSION (Continued)

	Injection Pattern	Peripheral Injection Program
Development Drilling		
Producing Wells	-	$ 2,420,000
Injection Well Locations	-	3,250,000
Pump Jacks (640's) and Attendent Equipment	$ 330,000	892,000
Operating Expenses (Escalated @ 3% per Annum) Including Ad Valorem Taxes	1,260,500	3,071,400
Total Projected Costs	$ 1,995,500	$ 10,133,400

Enclosed are schematics illustrating a general proposed fluid distribution system, plant layout and equipment installations, typical field line connections and typical equipment inventory and cost projections. The system diagrams and equipment projections were prepared in conjunction with Mr. Gene Campbell of Mid-Continent Supply Company in Midland. The cost estimates are for plant equipment larger than would probably be required in the Travis Deep Unit operations; however, they serve to provide items to be considered.

Whenever injection is to be commenced, it is suggested, due to lead time required to obtain equipment delivery, that the decision be aware of a 180 to 200 day equipment delivery schedule.

Delays beyond a reasonable time to commence fluid injection will result in greater reservoir voidage and will be associated with attendant higher fluid requirements for displacement, higher overall enhanced recovery costs and lower ultimate hydrocarbon fluid recoveries. Maximum costs have been projected for fluid lift pumping equipment and are probably high.

It should be noted that conventional engineering techniques have been used in preparing the projections presented; however, much, if not all, has been prepared using best estimates of formation characteristics and fluid data, all of which was developed empirically.

TABLE 9
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

HARVEY E. YATES COMPANY
TRAVIS DEEP UPPER PENN FIELD
EDDY COUNTY, NEW MEXICO
PATTERN FLOOD

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	24.300	93.600	19.577	75.407	549.507	180.517	730.024	6.400	0.000	6.400
1981	69.000	421.000	55.589	339.172	1560.328	830.889	2391.217	75.600	0.000	75.600
1982	69.350	680.000	55.870	547.831	1568.243	1433.855	3002.098	96.500	0.000	96.500
1983	142.350	2135.000	114.682	1720.029	3219.023	4790.115	8009.138	96.500	0.000	96.500
1984	142.350	712.000	114.682	573.612	3219.023	1693.576	4912.599	96.500	0.000	96.500
1985	122.300	257.000	98.529	207.048	2765.624	646.000	3411.624	99.000	0.000	99.000
1986	94.900	142.400	76.455	114.722	2146.017	377.163	2523.180	102.000	0.000	102.000
1987	62.000	79.400	49.949	63.967	1402.033	221.019	1623.052	105.000	0.000	105.000
1988	40.000	46.200	32.226	37.220	934.881	134.839	1069.720	108.000	0.000	108.000
1989	26.000	26.800	20.945	21.591	647.117	81.837	728.954	112.000	0.000	112.000
S TOT	792.550	4593.400	638.505	3700.599	18011.796	10389.810	28401.606	897.500	0.000	897.500
AFTER	34.000	34.000	27.392	27.392	904.440	111.628	1016.068	363.000	0.000	363.000
REM.	826.550	4627.400	665.897	3727.991	18916.236	10501.438	29417.674	1260.500	0.000	1260.500
CUM.	326.689	444.571								
ULT.	1153.239	5071.971								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	723.624	0.000	0.000	723.624	723.624	709.414	2.	28.07	2.394	10.	19012.852
1981	2315.617	365.000	40.000	1910.617	2634.241	2440.318	4.	28.07	2.450	20.	13764.358
1982	2905.598	0.000	0.000	2905.598	5539.839	4776.052	4.	28.07	2.617	30.	10331.362
1983	7912.638	223.000	0.000	7689.638	13229.477	10261.916	4.	28.07	2.785	40.	7995.739
1984	4816.099	107.000	0.000	4709.099	17938.576	13243.308	4.	28.07	2.952	50.	6356.678
1985	3312.624	0.000	0.000	3312.624	21251.200	15104.499	4.	28.07	3.120	60.	5172.476
1986	2421.180	0.000	0.000	2421.180	23672.380	16311.727	4.	28.07	3.288	70.	4297.011
1987	1518.052	0.000	0.000	1518.052	25190.432	16983.452	4.	28.07	3.455	80.	3636.268
1988	961.720	0.000	0.000	961.720	26152.152	17361.110	4.	29.01	3.623	90.	3128.337
1989	616.954	0.000	0.000	616.954	26769.106	17576.114	4.	30.89	3.790	100.	2731.321
S TOT	27504.106	695.000	40.000	26769.106	26769.106	17576.114					
AFTER	653.068	0.000	0.000	653.068	27422.174	17766.356	PROJECT LIFE	12.3 YRS.			
TOTAL	28157.174	695.000	40.000	27422.174	27422.174	17766.356					

TABLE 10
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

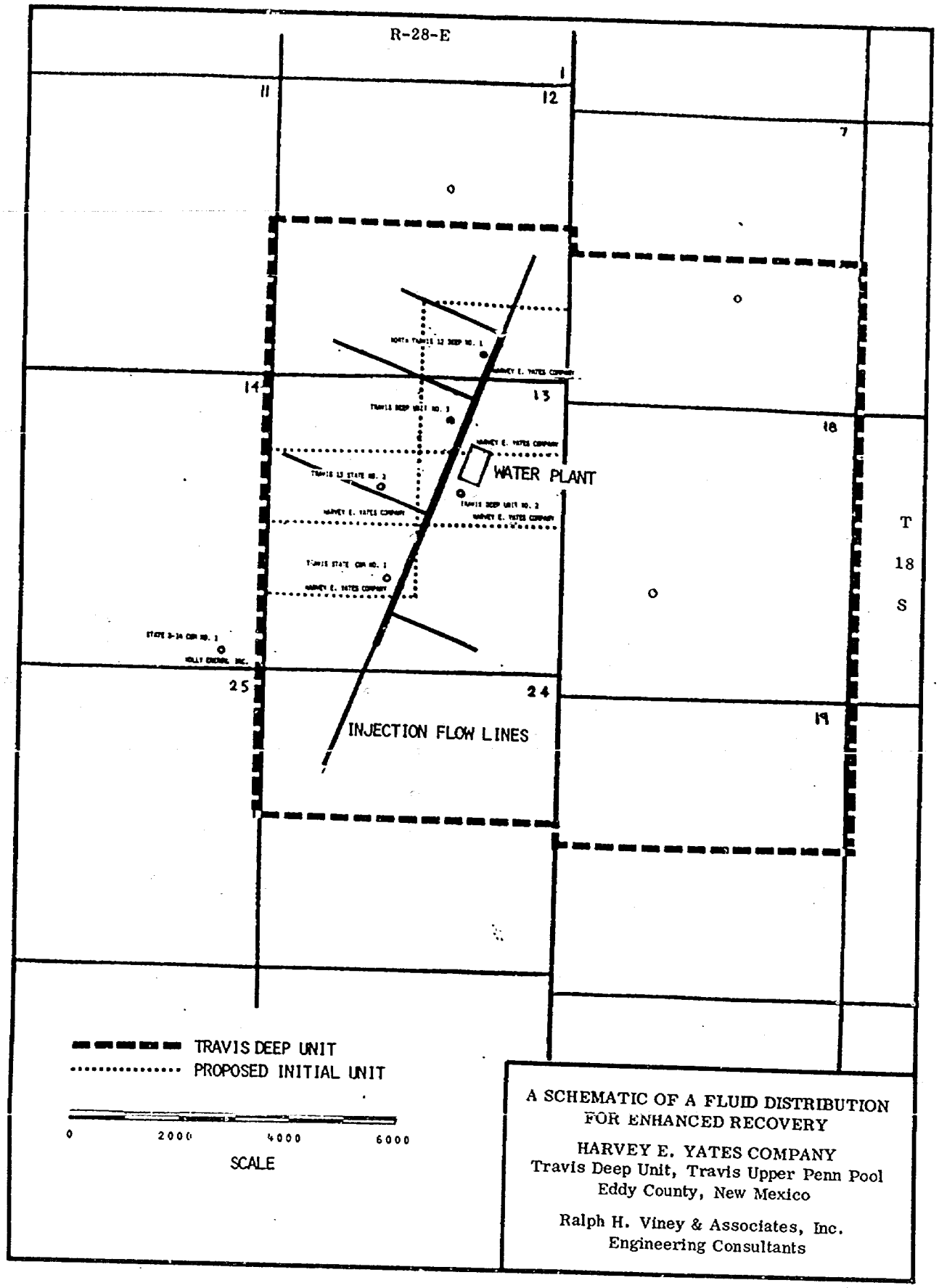
BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

HARVEY E. YATES COMPANY
TRAVIS UPPER PENN FIELD
EDDY COUNTY, NEW MEXICO
PERIPHERAL FLOOD

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	GROSS PRODUCTION		NET PRODUCTION		NET REVENUE, M$			EXPENSE, M$		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	42.000	138.600	33.837	111.661	949.765	267.305	1217.070	6.400	0.000	6.400
1981	102.000	555.800	82.174	447.771	2306.573	1096.930	3403.503	78.000	0.000	78.000
1982	164.000	1541.600	132.124	1241.966	3708.603	3250.635	6959.239	155.000	0.000	155.000
1983	294.000	3969.000	236.857	3197.561	6648.355	8904.900	15553.255	194.000	0.000	194.000
1984	294.000	1470.000	236.856	1184.282	6648.352	3496.565	10144.917	201.000	0.000	201.000
1985	294.000	499.800	236.857	402.656	6648.353	1256.307	7904.660	208.000	0.000	208.000
1986	274.000	328.800	220.743	264.893	6196.083	870.868	7066.952	215.000	0.000	215.000
1987	219.000	240.900	176.434	194.077	4952.346	670.574	5622.920	223.000	0.000	223.000
1988	153.000	153.000	123.262	123.262	3575.914	446.550	4022.464	230.000	0.000	230.000
1989	110.000	110.000	88.620	88.619	2737.804	335.896	3073.700	238.000	0.000	238.000
S TOT	1946.000	9007.500	1567.764	7256.748	44372.152	20596.530	64968.680	1748.400	0.000	1748.400
AFTER	177.900	177.900	143.322	143.323	4739.168	594.070	5333.240	1323.000	0.000	1323.000
REM.	2123.900	9185.400	1711.086	7400.071	49111.320	21190.600	70301.920	3071.400	0.000	3071.400
CUM.	326.689	444.571								
ULT.	2450.589	9629.971								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	M$
1980	1210.670	0.000	0.000	1210.670	1210.670	1186.896	5.	28.07	2.394	10.	37904.100
1981	3325.503	3900.000	300.000	-874.497	336.173	397.032	11.	28.07	2.450	20.	25225.332
1982	6804.239	750.000	600.000	5454.239	5790.412	4782.201	12.	28.07	2.617	30.	17547.664
1983	15359.255	320.000	300.000	14739.255	20529.668	15297.413	14.	28.07	2.785	40.	12657.357
1984	9943.917	446.000	0.000	9497.917	30027.586	21310.754	14.	28.07	2.952	50.	9412.513
1985	7696.660	446.000	0.000	7250.660	37278.248	25384.672	14.	28.07	3.120	60.	7187.455
1986	6851.952	0.000	0.000	6851.952	44130.200	28801.134	14.	28.07	3.238	70.	5620.568
1987	5399.920	0.000	0.000	5399.920	49530.120	31190.558	14.	28.07	3.455	80.	4492.900
1988	3792.464	0.000	0.000	3792.464	53322.584	32679.822	14.	29.01	3.623	90.	3666.602
1989	2835.700	0.000	0.000	2835.700	56158.284	33668.040	14.	30.89	3.790	100.	3051.845
S TOT	63220.280	5862.000	1200.000	56158.284	56158.284	33668.040					
AFTER	4010.240	0.000	0.000	4010.240	60168.524	34799.496	PROJECT LIFE		14.3 YRS.		
TOTAL	67230.520	5862.000	1200.000	60168.524	60168.524	34799.496					

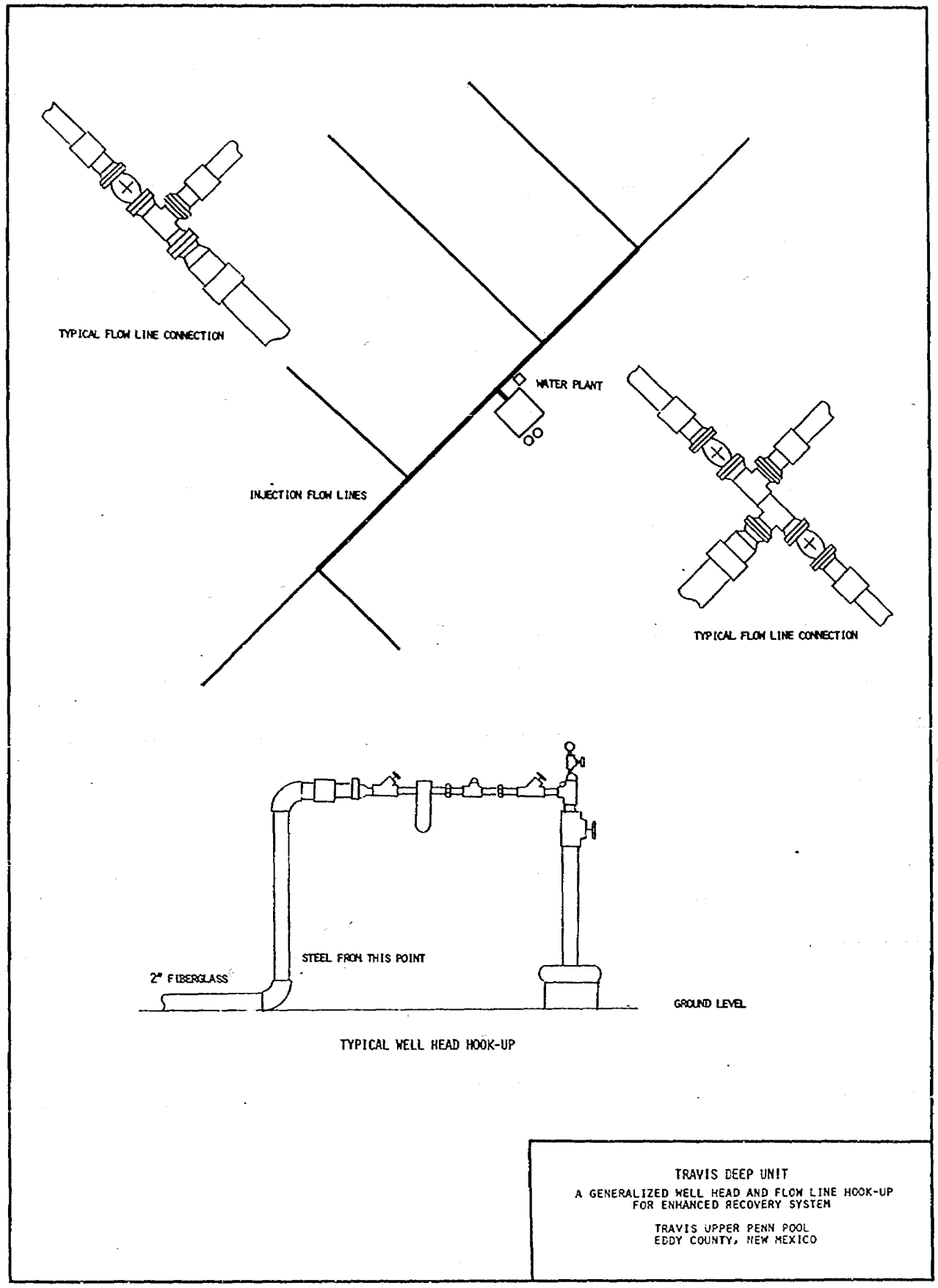


A SCHEMATIC OF A FLUID DISTRIBUTION FOR ENHANCED RECOVERY

HARVEY E. YATES COMPANY
Travis Deep Unit, Travis Upper Penn Pool
Eddy County, New Mexico

Ralph H. Viney & Associates, Inc.
Engineering Consultants

PLATE 7



TYPICAL WELL HEAD HOOK-UP

TRAVIS DEEP UNIT

A GENERALIZED WELL HEAD AND FLOW LINE HOOK-UP
FOR ENHANCED RECOVERY SYSTEM

TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

PLATE 9

TABLE 11
COST ESTIMATES
ENHANCED RECOVERY STATION EQUIPMENT AND INSTALLATION
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

QUANTITY	DESCRIPTION	PROJECTED PRICE
2	Ajax T-150 triplex water injection pumps unitized with 150 HP electric motors mounted on oil field type skids. Each unit will deliver 3930 BPD at 2015 PSI based on 100% volumetric efficiency.	$ 70,982.00
2	8" suctions to pumps, each to include a section of hose and suction dampener.	5,600.00
1	Discharge system from each pump including shut off valves, discharge dampener and two outlets at each end of building.	14,514.00
2	Relief and bypass system with return water going back into suction tanks. This to include an air operated bypass with air compressor.	5,625.00
1	20' X 38' X 10' high steel building with two walk-in doors, two 10' overhead doors and a 2-ton bridge crane.	18,760.00
1	9' X 12' office and control building.	8,586.00
1	Lot of electrical equipment to include: 2 - Motor control panels for 150 HP motors with safety shut down and control devices; 1 - Master switch mounted on the incoming power pole. Also included is all wiring, lights and switches.	21,620.00
2	H1-750 BBL Welded steel tanks including sand blasting and coal tar epoxy lined after all welding has been completed. Inlet valves and fittings.	31,624.00
	Total approximate cost for the complete injection plant material.	$ 177,311.00
	Labor charges to construct plant, including the installation of electrical equipment	34,852.00
	Total for plant material and construction.	$ 212,163.00
	Well head hookups including meters, tubing valves, filter, throttle valves and fittings. Price Each	2,024.00
1	Lot of valves and fittings for injection line in field.	4,500.00
	2 3/8" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	3.75 per ft.
	2 7/8" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	4.35 per ft.

COST ESTIMATES (Continued)

QUANTITY	DESCRIPTION	PROJECTED PRICE
	3 1/2" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	$ 5.30 per ft.
	4 1/2" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	9.35 per ft.
	To cut right-of-way ditch to 18" of cover, install, test to 2000# and backfill.	
	2" and 2½" Threaded Fiber Glass Pipe.	1.47 per ft.
	3" and 4" Threaded Fiber Glass Pipe.	1.57 per ft.
	To pad pipe with dirt of R.O.W.	.36 per ft.

TABLE 11

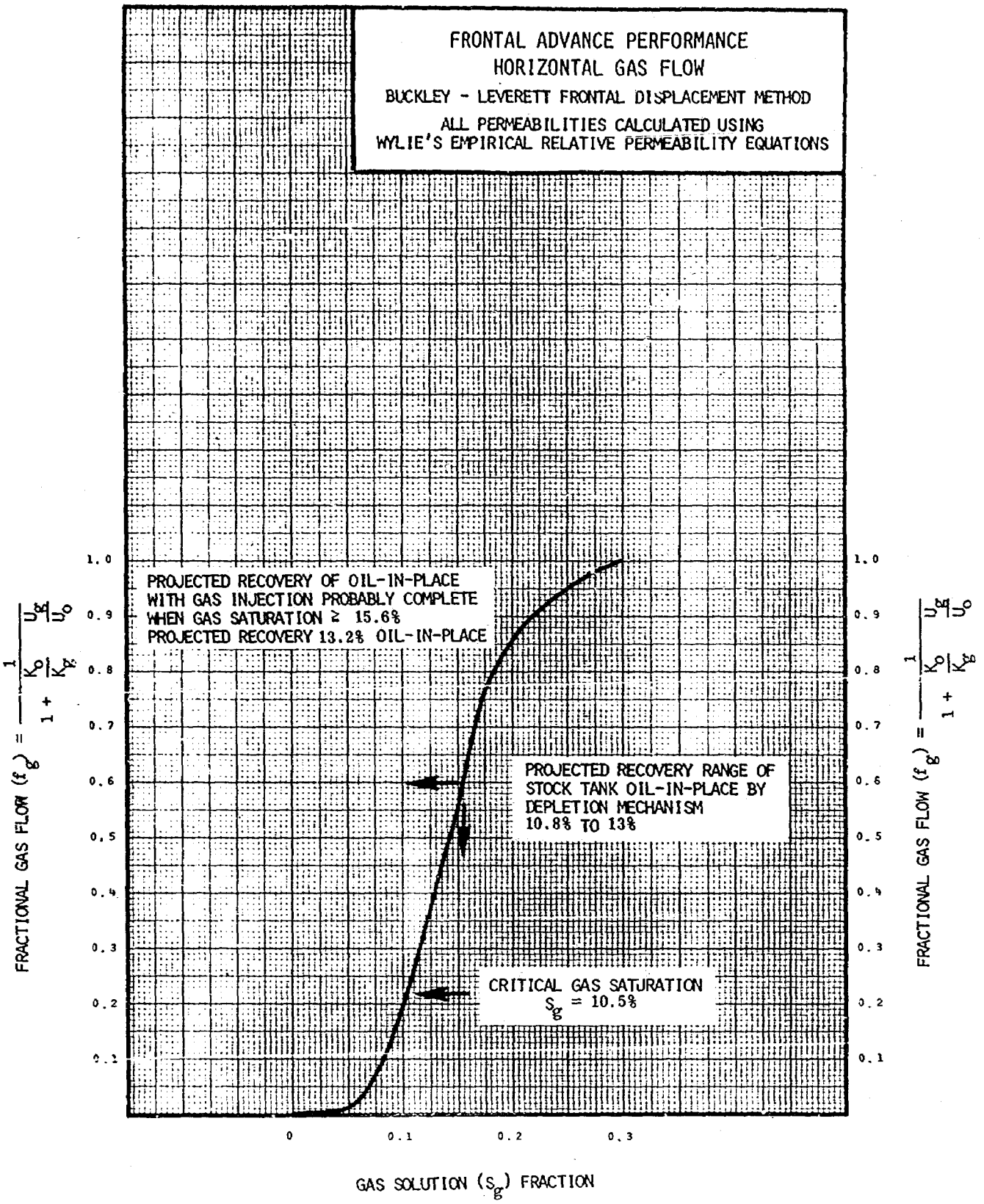

FRONTAL ADVANCE PERFORMANCE
HORIZONTAL GAS FLOW
BUCKLEY - LEVERETT FRONTAL DISPLACEMENT METHOD
ALL PERMEABILITIES CALCULATED USING
WYLIE'S EMPIRICAL RELATIVE PERMEABILITY EQUATIONS
PROJECTED RECOVERY OF OIL-IN-PLACE
WITH GAS INJECTION PROBABLY COMPLETE
WHEN GAS SATURATION ≥ 15.6%
PROJECTED RECOVERY 13.2% OIL-IN-PLACE
PROJECTED RECOVERY RANGE OF
STOCK TANK OIL-IN-PLACE BY
DEPLETION MECHANISM
10.8% TO 13%
CRITICAL GAS SATURATION
S_g = 10.5%
$f_g = \frac{1}{1 + \frac{K_o}{K_g}\frac{U_g}{U_o}}$
FRACTIONAL GAS FLOW (f_g)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.1
0.2
0.3
GAS SOLUTION (S_g) FRACTION

PLATE 11

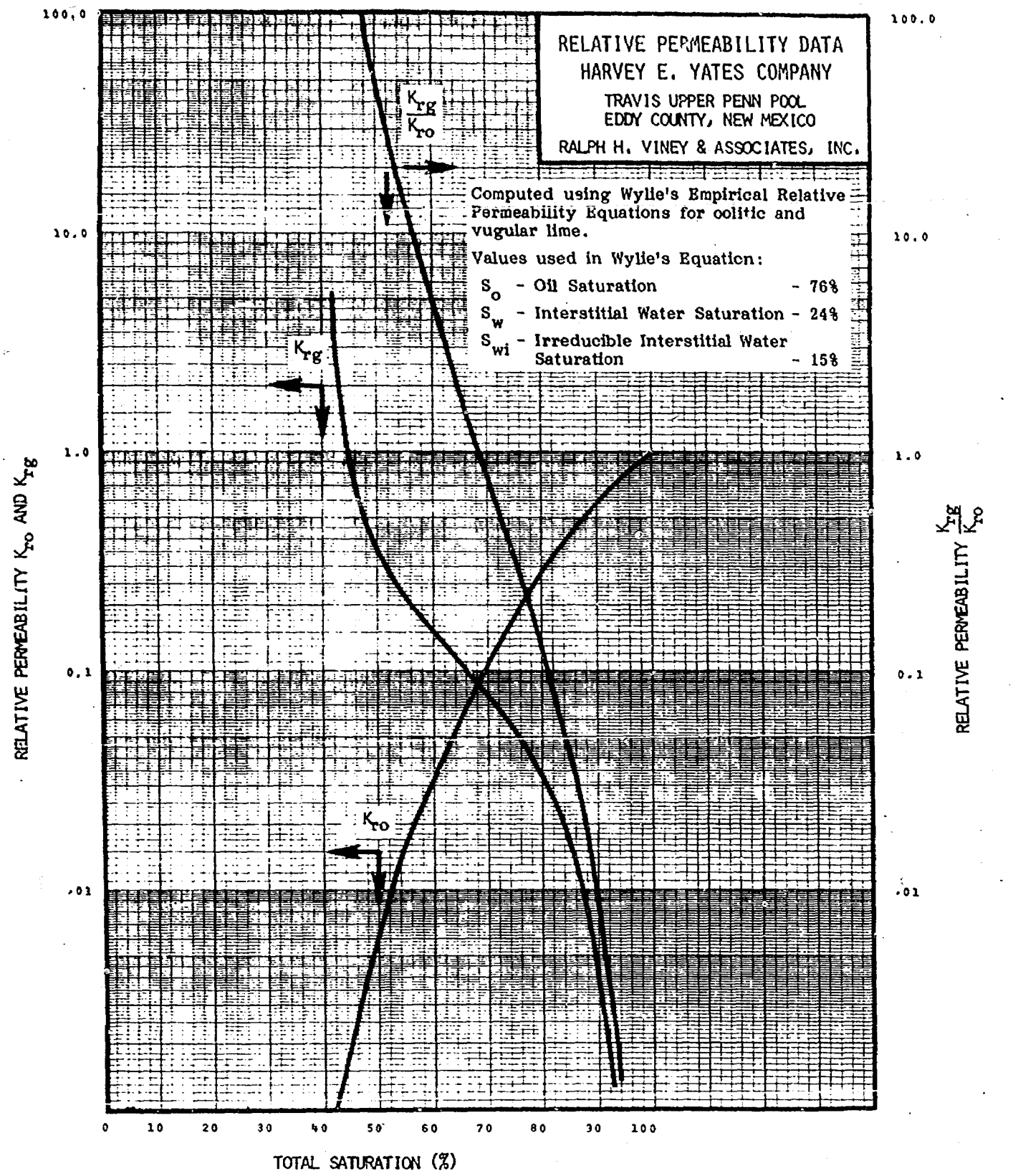

RELATIVE PERMEABILITY DATA
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
Computed using Wylie's Empirical Relative Permeability Equations for oolitic and vugular lime.
Values used in Wylie's Equation:
S_o - Oil Saturation - 76%
S_w - Interstitial Water Saturation - 24%
S_{wi} - Irreducible Interstitial Water Saturation - 15%
$\frac{K_{rg}}{K_{ro}}$
K_{rg}
K_{ro}
100.0
10.0
1.0
0.1
.01
RELATIVE PERMEABILITY K_{ro} AND K_{rg}
RELATIVE PERMEABILITY $\frac{K_{rg}}{K_{ro}}$
0 10 20 30 40 50 60 70 80 30 100
TOTAL SATURATION (%)

PLATE 12

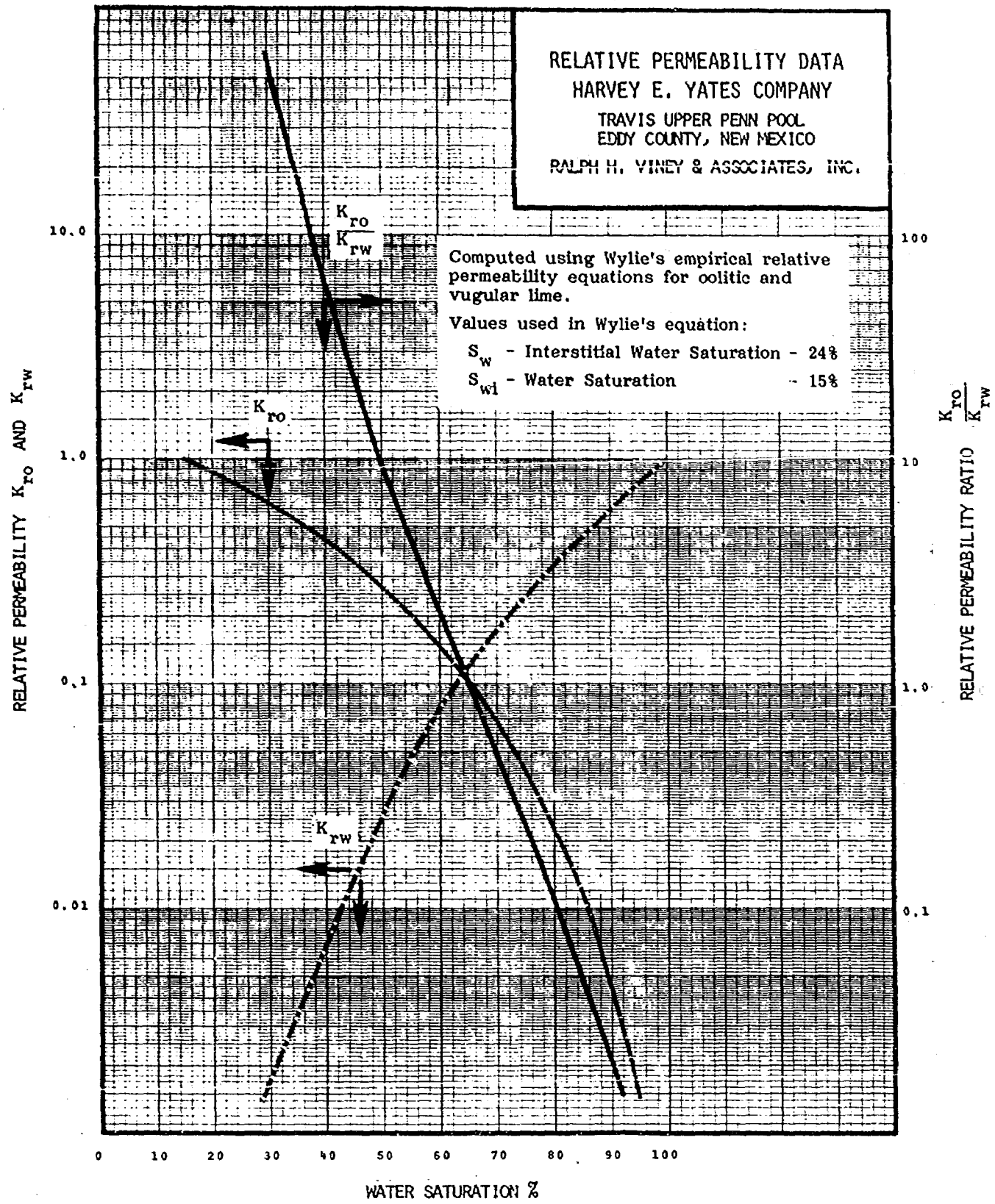

RELATIVE PERMEABILITY DATA
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
Computed using Wylie's empirical relative permeability equations for oolitic and vugular lime.
Values used in Wylie's equation:
S_w - Interstitial Water Saturation - 24%
S_{wi} - Water Saturation - 15%
$\frac{K_{ro}}{K_{rw}}$
K_{ro}
K_{rw}
RELATIVE PERMEABILITY K_{ro} AND K_{rw}
10.0
1.0
0.1
0.01
100
10
1.0
0.1
$\frac{K_{ro}}{K_{rw}}$ RELATIVE PERMEABILITY RATIO
0 10 20 30 40 50 60 70 80 90 100
WATER SATURATION %

PLATE 13

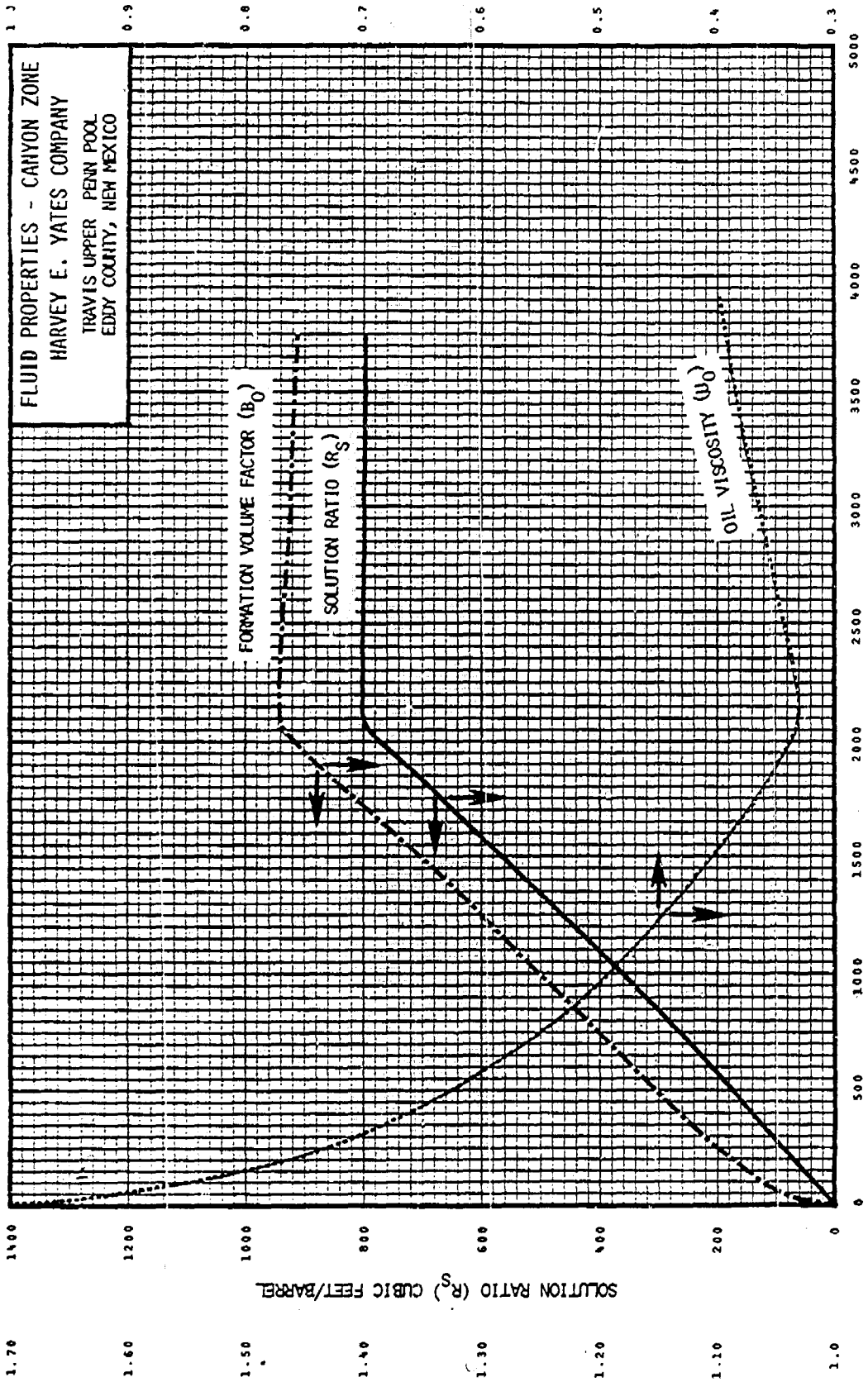

FLUID PROPERTIES - CANYON ZONE
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
FORMATION VOLUME FACTOR (B_O)
SOLUTION RATIO (R_S)
OIL VISCOSITY (μ_O)
PRESSURE - PSIG
OIL VISCOSITY (μ_O) CENTIPOISES
SOLUTION RATIO (R_S) CUBIC FEET/BARREL
FORMATION VOLUME FACTOR (B_O) BARRELS/BARREL

PLATE 14

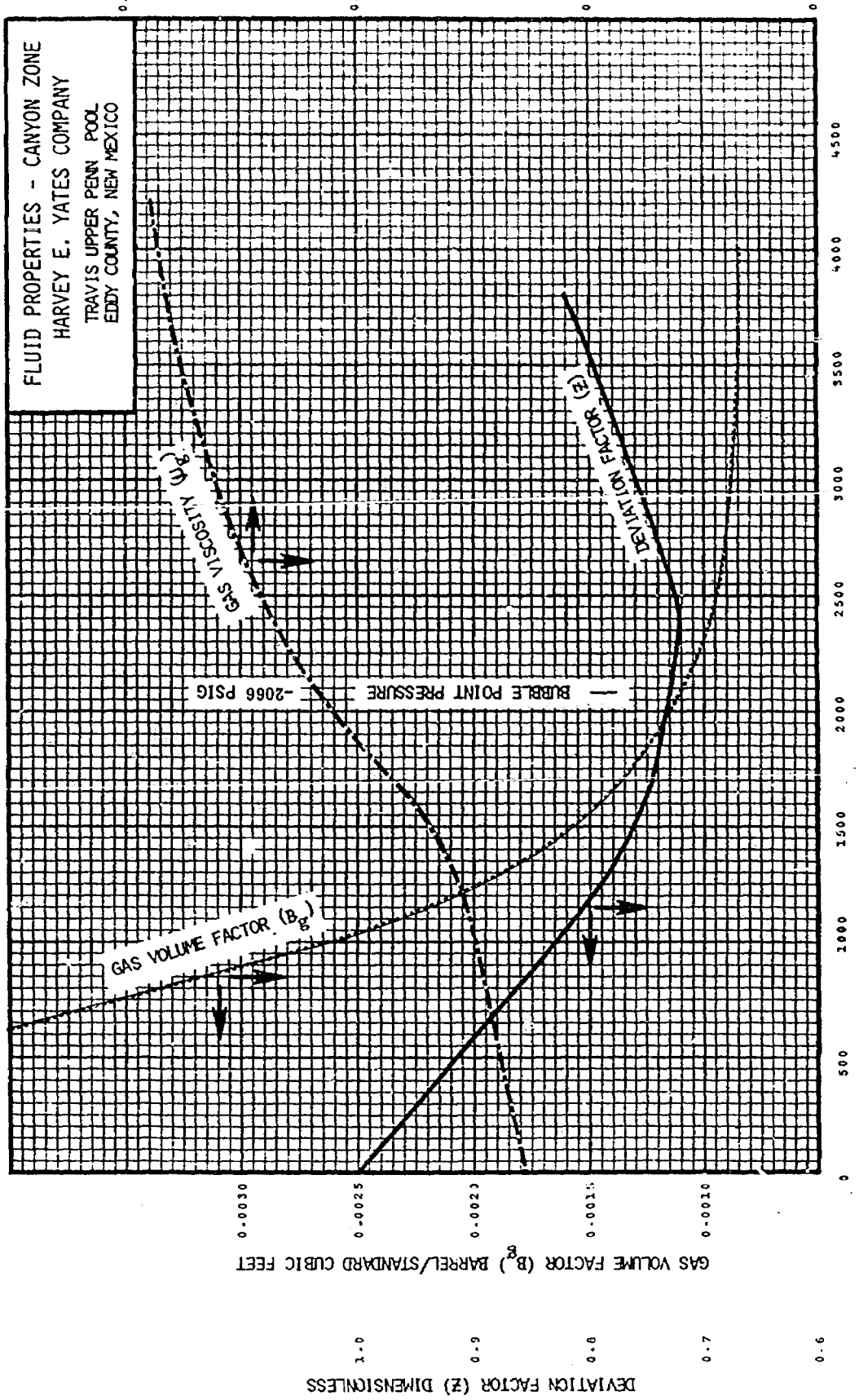

FLUID PROPERTIES - CANYON ZONE
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
BUBBLE POINT PRESSURE -2066 PSIG
GAS VISCOSITY (μ_g)
GAS VOLUME FACTOR (B_g)
DEVIATION FACTOR (Z)
GAS VISCOSITY (U_g) CENTIPOISES
0.03
0.02
0.01
0
PRESSURE - PSIG
4500
4000
3500
3000
2500
2000
1500
1000
500
0
GAS VOLUME FACTOR (B_g) BARREL/STANDARD CUBIC FEET
0.0030
0.0025
0.0020
0.0015
0.0010
DEVIATION FACTOR (Z) DIMENSIONLESS
1.0
0.9
0.8
0.7
0.6

PLATE 15

TABLE 12
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY

R E C O M B I N A T I O N

O F

S E P A R A T O R F L U I D S A M P L E S

INPUT DATA:

	STAGE 1	STAGE 2
PRESSURE,(PSIG)	44.0	0.
TEMPERATURE,(DEG.F.)	79.0	74.0
GAS RATE,(MSCF/D)	49.6	

PRESSURE BASE = 14.000 PSIA. TEMPERATURE BASE = 74.0 DEG. F.

LIQUID AND GAS SAMPLE FROM STAGE 1

STAGE 1 GAS / STAGE 1 LIQUID RATIO IS 770 SCF/BBL
OR 1298.7 BBL/MMSCF

BASIS FOR RECOMBINATION:

(1) SEPARATOR GOR = INPUT GOR / SHRINKAGE
= 770 / 1.000 = 770

(2) MOLES OF OIL = DENSITY / M.W.
= 263.9 / 140.3 = 1.882

(3) MOLES OF GAS = SEP. GOR / SCF PER MOLE
= 770 / 409.11 = 1.882

(4) OIL FRACTION = .4999 ; GAS FRACTION = .5001

TABLE 12
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY

S E P A R A T O R R E C O M B I N A T I O N

PAGE 2

COMPONENT NAME	SEPARATOR LIQ. MOL	SEPARATOR GAS MOL	SEPARATOR GAS GPM	WELL STREAM MOL	WELL STREAM GPM
NITROGEN	.10	1.01	0.	.55	0.
CARBON DIOXIDE	.10	.15	0.	.12	0.
HYDROGEN SULFIDE	0.	0.	0.	0.	0.
METHANE	1.61	66.65	0.	34.13	0.
ETHANE	2.28	17.30	0.	9.79	0.
PROPANE	4.08	9.05	2.30	6.56	1.67
ISO-BUTANE	1.28	1.15	.35	1.22	.37
N-BUTANE	4.39	2.74	.80	3.57	1.04
ISO-PENTANE	2.19	.55	.19	1.37	.46
N-PENTANE	2.99	.60	.20	1.80	.60
HEXANE	6.61	.41	.16	3.51	1.34
HEPTANE	13.77	.26	.11	7.02	2.99
OCTANE	16.29	.10	.05	8.20	3.88
NONANE	9.44	.02	.01	4.73	2.46
HEAVY ENDS*	34.87	.01	.01	17.44	13.21
	100.00	100.00	4.17	100.00	28.04

PROPERTIES OF THE HEAVY ENDS			
SPECIFIC GRAV.	.890	.831	.890
MOLECULAR WT.	230.0	142.0	230.0

CALCULATED SEPARATOR GAS GRAVITY (AIR=1.00) = .832
CALCULATED GROSS HEATING VALUE FOR SEPARATOR GAS = 1433.5 BTU
PER CUBIC FOOT OF DRY GAS AT 14.000 PSIA AND 74 DEG.

FLASH OF RECOMBINED FLUID GIVES:
STAGE 1 GAS TO STAGE 1 OIL RATIO = 764 SCF/BBL
STAGE 1 OIL GRAVITY = 48.0 DEGREES API.

* THE HEAVY END IS DECANES+

TABLE 13
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.25.

F L U I D A N A L Y S I S

B Y

S I M U L A T I O N T E C H N I Q U E

D A T A

COMPONENT	MOL PER CENT
NITROGEN	.55
CARBON DIOXIDE	.12
HYDROGEN SULFIDE	0.
METHANE	34.13
ETHANE	9.79
PROPANE	6.56
ISO-BUTANE	1.22
N-BUTANE	3.57
ISO-PENTANE	1.37
N-PENTANE	1.80
HEXANE	3.51
HEPTANE	7.02
OCTANE	8.20
NONANE	4.73
HEAVY ENDS	17.44
	100.00

PRESSURE BASE = 14.00 PSI/ATM
TEMP. BASE = 74.0 DEG. F.

SEPARATION CONDITIONS:
PRESSURE 44 0
TEMP. 79 74

THE HEAVY ENDS ARE DECANES +

HEAVY ENDS MOLECULAR WEIGHT	230	
SPECIFIC GRAVITY	.8900	
CRITICAL PRESSURE	298	PSIG
CRITICAL TEMP.	1317	DEG. F.
NORM. BOILING PT.	580	DEG. F.

TABLE 14
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.41.

O I L P V T P R O P E R T I E S

SIMULATION TECHNIQUE

DIFFERENTIAL LIBERATION

PRESSURE PSIG	FVF-D RVB/RDB	RS-D SCF/RDB	FVF-F RVB/STB	RS-F SCF/STB	VISO-D CF	FVFD-TOTAL RVB/RDB
7000	1.468	1033	1.361	868	.623	1.4683
4600	1.505	1033	1.395	868	.539	1.5049
2200	1.571	1033	1.456	868	.454	1.5710
2000	1.579	1033	1.464	868	.447	1.5793
1800	1.535	926	1.421	766	.483	1.6754
1600	1.497	832	1.384	676	.519	1.7973
1400	1.463	747	1.350	594	.554	1.9581
1200	1.431	667	1.319	518	.589	2.1816
1000	1.400	590	1.289	444	.626	2.5070
800	1.370	515	1.260	372	.665	3.0148
700	1.356	477	1.245	336	.685	3.3846
600	1.341	440	1.231	301	.705	3.8835
500	1.326	402	1.217	265	.726	4.5893
400	1.310	363	1.202	228	.748	5.6581
300	1.293	321	1.187	190	.770	7.4554
200	1.273	272	1.169	146	.793	11.0602
100	1.243	205	1.145	89	.822	21.4499
50	1.437	150	1.323	36	.227	40.2914

BUBBLE-POINT PRESSURE : 2000 PSIG AT 160 DEG. F.
STOCK-TANK VAPOR: 41 SCF/STB
OIL + GAS COMP. : 254.1 B/MMB/PSI
DENSITY : 40.1 LB./CU. FT.

THERMAL EXPANSION AT 2000 PSIG, (V AT 160 DEG)/(V AT 60 DEG) : 1.0913
COMPRESSIBILITY OF SATURATED OIL AT RESERVOIR TEMPERATURE:
FROM 7000 TO 6800 = 8.53 X 10-6 B/B/PSI
FROM 4800 TO 4400 = 12.98 X 10-6 B/B/PSI
FROM 2200 TO 2000 = 28.15 X 10-6 B/B/PSI

RESIDUAL DIFFERENTIAL OIL GRAVITY = 45.3 DEG. API

TABLE 15
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.42.

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

SIMULATION TECHNIQUE

DIFFERENTIAL LIBERATION

PRESSURE PSIG	LIBERATED GAS Z-FACTOR	VISCOSITY CP	F-V-F RVB/MSCF	CG B/MMB/PSI	PRIMARY SEP. GAS GRAVITY AIR=1.0	TOTAL GPM*
2000	.8103	.01713	1.1963	539.0	.8423	7.044
1800	.8229	.01633	1.3489	630.3	.8534	7.358
1600	.8349	.01557	1.5381	697.9	.8653	7.694
1400	.8473	.01486	1.7817	793.8	.8781	8.061
1200	.8619	.01416	2.1109	918.1	.8924	8.477
1000	.8765	.01347	2.5702	1088.1	.9088	8.963
800	.8927	.01277	3.2609	1343.5	.9283	9.547
700	.9013	.01241	3.7534	1524.6	.9396	9.894
600	.9100	.01203	4.4069	1763.6	.9522	10.284
500	.9190	.01161	5.3159	2099.3	.9662	10.727
400	.9283	.01113	6.6669	2606.8	.9820	11.235
300	.9388	.01054	8.8897	3457.8	.9995	11.811
200	.9517	.00972	13.2224	5121.3	1.0161	12.384
100	.9619	.00842	25.0876	10171.5	1.0024	12.000
50	.9733	.00725	45.2162	20117.0	.6506	8.792

BUBBLE-POINT PRESSURE : 2000 PSIG AT 160 DEG. F.
DENSITY : 7.96 LBS/CF

*- TOTAL GPM REFERS TO PROPANES+

7501 STEMMONS FREEWAY, BOX 47547 DALLAS, TEXAS 75247 - 214 631-8270

TABLE 16
July 21, 1980

CORE LABORATORIES, INC.
Reservoir Fluid Analysis

Travis Upper Penn Pool
Eddy County, New Mexico

Subject: Hydrocarbon Analyses
Harvey E. Yates
Travis State No. 1 Well
Our File Number: RFL 80474

Gentlemen:

Samples of separator gas and liquid were collected from the subject well by a representative of Tefteller, Inc. on June 28, 1980. These samples were submitted to our Dallas laboratory for hydrocarbon analyses, the results of which are presented in the following report.

The hydrocarbon composition of the seperator gas was measured through pentanes by routine gas chromatography. The hexanes plus portion of the gas was then subjected to temperature programmed chromatographic analysis, in order to obtain the overall hydrocarbon composition of the separator gas through decanes plus. The results of these analyses may be found on page one.

The hydrocarbon composition of the separator liquid was measured through hexanes by low temperature fractional distillation. The heptanes plus fraction of the sample was then subjected to temperature programmed chromatographic analysis. The overall hydrocarbon composition of the separator liquid through decanes plus may be found on page two.

A portion of the separator liquid was then subjected to a separator test at atmospheric pressure and laboratory temperature. The results of this test, including gas-oil ratio, stock tank liquid gravity, shrinkage factor and specific gravity of the flashed gas, may be found on page three.

Thank you for the opportunity to perform these measurements. Should you have any questions or if we may be of further service in any manner, please feel free to call upon us.

Yours very truly,

CORE LABORATORIES, INC.

P. L. Moses, Manager
Reservoir Fluid Analysis

PLM:JF:cs
1 cc: Addressee
1 cc: Harvey E. Yates
Security National Bldg.
Suite 300
Roswell, NM 88201
Attn: Mr. Fred Yates

TABLE 16

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75247

Page 1 of 3

File RFL 80474

Company Ralph Viney Harvey E. Yates Formation

Well Travis State No. 1 County

Field State

HYDROCARBON ANALYSIS OF Separator GAS SAMPLE

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide	0.00	
Carbon Dioxide	0.15	
Nitrogen	1.01	
Methane	66.65	
Ethane	17.30	4.600
Propane	9.05	2.476
iso-Butane	1.15	0.374
n-Butane	2.74	0.859
iso-Pentane	0.55	0.200
n-Pentane	0.60	0.216
Hexanes	0.41	0.166
Heptanes	0.26	0.119
Octanes	0.10	0.051
Nonanes	0.02	0.011
Decanes	0.01	0.006
Undecanes plus	100.00	9.078

Calculated gas gravity (air = 1.000) = 0.831

Calculated gross heating value = 1418 BTU per cubic foot of dry gas at 14.65 psia and 60°F.

Collected at 44 psig and 79 °F. on June 28, 1980.

TABLE 16 (Page 2)

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

TABLE 16
CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75247

Page 2 of 3

File RFL 80474

Company Ralph Viney Harvey E. Yates Formation

Well Travis State No. 1 County

Field State

HYDROCARBON ANALYSIS OF Separator Liquid SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	DENSITY @ 60°F. GRAMS PER CUBIC CENTIMETER	°API @ 60°F.	MOLECULAR WEIGHT
Hydrogen Sulfide	0.00	0.00			
Carbon Dioxide	0.01	Trace			
Nitrogen	0.01	Trace			
Methane	1.61	0.20			
Ethane	2.28	0.52			
Propane	4.08	1.37			
iso-Butane	1.28	0.57			
n-Butane	4.39	1.95			
iso-Pentane	2.19	1.21			
n-Pentane	2.99	1.65			
Hexanes	6.61	4.32			
Heptanes	13.77	10.52			
Octanes	16.29	14.19			
Nonanes	9.44	9.23			
Decanes plus	35.05	54.27	0.8660	31.7	203
	100.00	100.00			

Collected at 44 psig and 79°F. on June 28, 1980.

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TABLE 16
CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75247

Page 3 of 3

File RFL 80474

Well Travis State No. 1

SEPARATOR TESTS OF Separator Liquid SAMPLE

Separator Pressure, PSI Gauge	Separator Temperature °F.	Separator Gas/Oil Ratio(1)	Stock Tank Gas/Oil Ratio(1)	Stock Tank Gravity °API @ 60°F.	Shrinkage Factor, Vr/Vsat(2)	Formation Volume Factor Vsat/Vr(3)	Specific Gravity of Flashed Gas
0	74	39		45.9	0.9619	1.040	1.236

(1) Separator and Stock Tank Gas/Oil Ratio in cubic feet of gas @ 60°F. and 14.65 PSI absolute per barrel of stock tank oil @ 60°F.
(2) Shrinkage Factor: Vr/Vsat is barrels of stock tank oil @ 60°F. per barrel of saturated oil @ 44 PSI gauge and 79 °F.
(3) Formation Volume Factor: Vsat/Vr is barrels of saturated oil @ 44 PSI gauge and 79 °F. per barrel of stock tank oil @ 60°F.

TABLE 16 (Page 4)

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

TABLE 17

SOUTHWESTERN LABORATORIES

1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 6-30-80

SAMPLE MARKED Travis State No. 1
Separator Liquid, 44 psi @ 79° F.

FILE NO. C-1950-G

LAB. NO. 44313

SAMPLE FROM Harvey E. Yates

DATE SECURED 6-26-80

DATE OF RUN 7-3-80

SECURED BY Tefteller, Inc.

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen			
Carbon Dioxide			
Methane	1.25		0.36
Ethane	2.29		0.98
Propane	4.35		2.03
I-Butane	1.32		0.73
N-Butane	4.74		2.53
I-Pentane	2.29		1.42
N-Pentane	3.11		1.91
Hexanes plus	80.65		90.04
Heptanes & Heavier			
Hydrogen Sulfide			
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00		100.00

CONDENSATE VALUES, G.P.M.

Propane
Butane
Gasoline

HEATING VALVE, B.T.U. Per Cu. Ft.*

Calculated from % Composition
Calculated water saturated

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide
Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition

*14,696 lbs./sq. in., 60° F

REMARKS Molecular weight of hexanes plus ---------- 169.40

Specific gravity of hexanes plus---------- 0.8148

COPIES: 3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-15-80 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1, Separator Liquid, 6-28-80, 44 psi @ 79° F., Flashed at Atmos.

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	94
5	158
10	192
20	246
30	314
40	400
50	488
60	580
70	___
80	___
90	___
95	___
	614 (End Point)

Percent Recovery ------- 68.0
Percent Residue ------- 26.0
Percent Loss ---------- 6.0
Gravity ---------- 45.7 ° A.P.I. @ 60° F.
Color ---------- Orange

Bar. Press. ----688 mm Hg

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H. Burton

Lab. No. 44313

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TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-16-80 File No. C-1950-G

Report of tests on Liquid

To Harvey E. Yates

Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1

DISTRIBUTION OF HEXANES PLUS FRACTION

	Liq. Vol. %
C_6	5.34
Benzene	2.98
C_7	8.27
Toluene	2.08
C_8	12.27
C_9	9.54
C_{10}	8.06
C_{11}	6.11
C_{12}	5.08
C_{13}	5.20
C_{14}	4.99
C_{15}	4.51
C_{16}	3.54
C_{17}	2.76
C_{18}	3.54
C_{19}	5.01
C_{20} plus	10.72
	100.00

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 44313

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1

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-15-80 File No. C-1950-G

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State, No. 1, Separator Liquid

Press. & Temp.	Total Vol. ml.	Gas Vol. Cu. ft. C t	Residue Vol. ml
44 PSI @ 79° F.	488.0	0.103 @ 79° F.	478.5

3cc Harvey E. Yates
1cc R. Viney
1cc Teftteller

Lab. No. 44313

SOUTHWESTERN LABORATORIES

Jack H Barton

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FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-16-80 File No. C-1950-W

Report of tests on Water

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1, Separator Water, 6-28-80
Sampled by Tefteller.

	mg/L
Calcium	7200
Magnesium	1846
Sodium (Calc.)	36224
Iron	High, Greater than 25
Carbonate	None
Bicarbonate	None
Sulfate	1685
Chloride	72759
Total Dissolved Solids (Calc.)	119714
Total Hardness (as $CaCO_3$)	25600
Resistivity	0.073 @ 84° F.
pH	2.83

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 31636

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TABLE 18

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Page 14 of 18

File 3-10149-FT&BU

Midland Texas 11-19-79 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 11-13-79

Received from

Identification Marks State Comm. No. 1, Separator Liquid, 52 psig @ 54° F., 10:00 AM 11-12-79, Sampled by Tefteller

Cylinder Capacity	436.0 ml
Fluid Recovery	411.5 ml
Water Recovery	-0- ml
Flash Gas Recovery	0.131 Cu. ft. @ 66° F.

Bar Press——694 mm Hg

3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

Lab. No. 43590

SOUTHWESTERN LABORATORIES

Jack H Burton

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TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 15 of 18

FRACTIONAL ANALYSIS REPORT

File 3-10149-FT&BU

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1 Separator Gas

61 psig @ 36° F.

FILE NO. C-1950-G

LAB. NO. 43584

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-14-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	1.07		
Carbon Dioxide	0.48		
Methane	66.38		
Ethane	17.51	4.668	
Propane	9.05	2.483	
I-Butane	1.13	0.368	
N-Butane	2.65	0.833	
I-Pentane	0.55	0.201	
N-Pentane	0.61	0.220	
Hexanes	0.32	0.132	
Heptanes & Heavier	0.25	0.115	
Hydrogen Sulfide	*None Det.		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	9.020	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Composition 1496

Calculated water saturated 1382

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.829

*14,696 lbs./sq. in., 60° F

REMARKS

*Determined on laboratory sample.

Propane + GPM — 4.352

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 18 (Page 2)

TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 16 of 18

File 3-10149-FT&BU

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1

FILE NO. C-1950-G

Separator Liquid, Flash Gas

LAB. NO. 43590

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-15-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	None Det.		
Carbon Dioxide	0.23		
Methane	23.86		
Ethane	30.44	8.115	
Propane	28.31	7.768	
I-Butane	4.33	1.412	
N-Butane	9.43	2.964	
I-Pentane	1.63	0.595	
N-Pentane	1.24	0.448	
Hexanes	0.31	0.127	
Heptanes & Heavier	0.22	0.101	
Hydrogen Sulfide	—		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	21.530	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VAL T.U. Per Cu. Ft.*

Calculated from % Compo 2082

Calculated water saturated 2046

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 1.247

*14.696 lbs./sq. in., 60° F

REMARKS Propane + GPM — 13.415

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 18 (Page 3)

TABLE 18

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Page 17 of 18

File 3-10149-FT&BU

Midland Texas 11-19-79 File No. C-1950-GD

Report of tests on Liquid

To Harvey E. Yates Date Rec'd. 11-13-79

Received from

Identification Marks State Comm. A 1, Separator Liquid, 52 psig @ 54° F., Liquid after flashing to Atmospheric pressure

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	98
5	160
10	195
20	253
30	322
40	416
50	505
60	594
70	661
80	---
90	---
95	---
	664 (End Point)

Percent Recovery-------73.0
Percent Residue -------21.5
Percent Loss ---------- 5.5
Gravity ----------45.7 ° A.P.I. @ 60° F
Color----------Bronze-Brown

Bar. Press. ---- 694 mm Hg

3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Burton

Lab. No. 43590

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TABLE 18

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1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 18 of 18

File 3-10149-FT&BU

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1

FILE NO. C-1950-CD

Separator Liquid, 52 psig @ 54° F., 10:00 AM

LAB. NO. 43590

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-15-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen			
Carbon Dioxide			
Methane			0.37
Ethane			1.28
Propane			2.62
I-Butane			0.90
N-Butane			3.04
I-Pentane			1.55
N-Pentane			1.97
Hexanes	plus		88.27
Heptanes & Heavier			
Hydrogen Sulfide			
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS			100.00

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Comp.

Calculated water saturated

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition

*14,696 lbs./sq. in., 60° F

REMARKS

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack N Easton

TABLE 19

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 12-4-79

SAMPLE MARKED Travis Deep Meter Run, 220 psig @ 54° F.

FILE NO. C-1950-G

LAB. NO. 43639

SAMPLE FROM Harvey E. Yates

DATE SECURED 12-3-79

DATE OF RUN 12-6-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	1.39		
Carbon Dioxide	0.20		
Methane	75.60		
Ethane	14.62	3.898	
Propane	5.79	1.589	
I-Butane	0.58	0.189	
N-Butane	1.24	0.390	
I-Pentane	0.21	0.077	
N-Pentane	0.23	0.083	
Hexanes	0.06	0.025	
Heptanes & Heavier	0.08	0.037	
Hydrogen Sulfide	*None Det.		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	6.288	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALVE, B.T.U. Per Cu. Ft.*

Calculated from % Composition 1252

Calculated water saturated 1230

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.727

*14,696 lbs./sq. in., 60° F

REMARKS *Determined on laboratory sample

Propane + GPM — 2.390

COPIES: 2cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 19

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-7-79 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 12-4-79

Received from

Identification Mark Travis Deep No. 1, Stock tank, Oil, 12-3-79, Sampled by Tefteller

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	94
5	140
10	182
20	240
30	298
40	376
50	478
60	554
70	—
80	—
90	—
95	—
	578 (End Point)

Percent Recovery ------- 63.5
Percent Residue ------- 30.5
Percent Loss ---------- 6.0
Gravity ---------- 46.9 ° A.P.I. @ 60° F
Color ---------- Bronze

Bar. Press. ---- 686 mm Hg

2cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

Lab. No. 43688

SOUTHWESTERN LABORATORIES
Jack H Barton

Our letters and reports are for the exclusive use of the clients to whom they are addressed. The use of our names must receive our prior written approval. Our letters and reports apply only to the samples tested and are not necessarily indicative of the qualities of identical or similar products.

FORM NO. 130-B

TABLE 20
HARVEY E. YATES COMPANY
POROSITY AND PERMEABILITY DETERMINATION
USING DARCY'S STEADY STATE RADIAL OIL FLOW EQUATION
BASED ON PRODUCTION TESTS AND RESERVOIR PRESSURE SURVEYS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Lease and Well No.	Travis Deep Unit No. 2			Travis Deep Unit No. 2			Travis State No. 1			Travis Deep Unit No. 3			North Travis Unit 12-1			Travis State 13-1		
Date	September 8, 1977			November 1, 1977			November 12, 1979			November 30, 1979			June 17, 1980			August 13, 1980		
q - Stock Tank Oil Production Barrels/Day	430			285			175			199			44			37		
B_o - Reservoir Oil Formation Volume Factor Bbl/Bbl	1.46			1.462			1.41			1.402			1.36			1.29		
q_{RVB} - Reservoir Barrels/Day	628			417			247			279			60			481		
Boundary Pressure (P_e) psig	3725			3538			1339			2411			2730			2079		
Flowing Pressure (P_{wf}) psig	3065			3147			3209			1039			335			335		
Oil Viscosity U_o Centipoises	0.381			0.376			0.365			0.37			0.400			0.455		
Permeability - Feet at Various Radii of Drainage	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'
Darcy Feet	0.3490	0.3840	0.4190	0.3870	0.4260	0.4660	0.1000	0.1100	0.1200	0.0730	0.0800	0.0875	0.0097	0.0107	0.0116	0.0121	0.0133	0.0145
Permeability - Millidarcies (k) Where: Pay Section (h) Feet (k)																		
10'	34.900	38.400	41.900	38.700	42.600	46.600	10.000	11.000	12.000	7.3000	8.0000	8.7500	0.9700	1.0700	1.1600	1.2100	1.3300	1.4500
30'	11.600	12.800	13.970	12.900	14.200	15.530	3.300	3.670	4.000	2.4300	2.6700	2.9200	0.3200	0.3600	0.3900	0.4030	0.4400	0.4800
60'	5.800	6.400	6.990	6.450	7.100	7.770	1.650	1.840	2.000	1.2150	1.3400	1.4600	0.1600	0.1780	0.1930	0.2020	0.2200	0.2400
120'	2.900	3.200	3.500	3.225	3.550	3.880	0.825	0.917	1.000							0.1000	0.1100	0.1200
180'							0.550	0.610	0.670									
Empirical Porosity Calculation When (h) 10'	0.0950	0.0965	0.0979	0.0966	0.0982	0.0997	0.0771	0.0783	0.0795	0.0732	0.0743	0.0754	0.0523	0.0531	0.0539	0.0542	0.0551	0.0559
30'	0.0790	0.0804	0.0815	0.0805	0.0818	0.0830	0.0641	0.0652	0.0662	0.0609	0.0619	0.0628	0.0434	0.0443	0.0449	0.0452	0.0458	0.0465
60'	0.0704	0.0716	0.0726	0.0717	0.0728	0.0739	0.0571	0.0582	0.0590	0.0543	0.0552	0.0560	0.0387	0.0394	0.0399	0.0402	0.0408	0.0414
120'	0.0627	0.0638	0.0647	0.0639	0.0649	0.0659	0.0509	0.0518	0.0525							0.0358	0.0364	0.0369
180'							0.0476	0.0484	0.0491									
													Drill Stem Test Formation not Stimulated			Drill Stem Test Formation not Stimulated		

Formulation Used:

$$q_{RVB} = \frac{7.08\ Kh\ (P_e - P_{wf})}{u\ \left(\ln \frac{re}{rw}\right)}$$ Steady State Liquid Radial Flow Equation

$$\phi^3 = \frac{(k)^{\frac{1}{2}}\ (S_w)}{C}$$

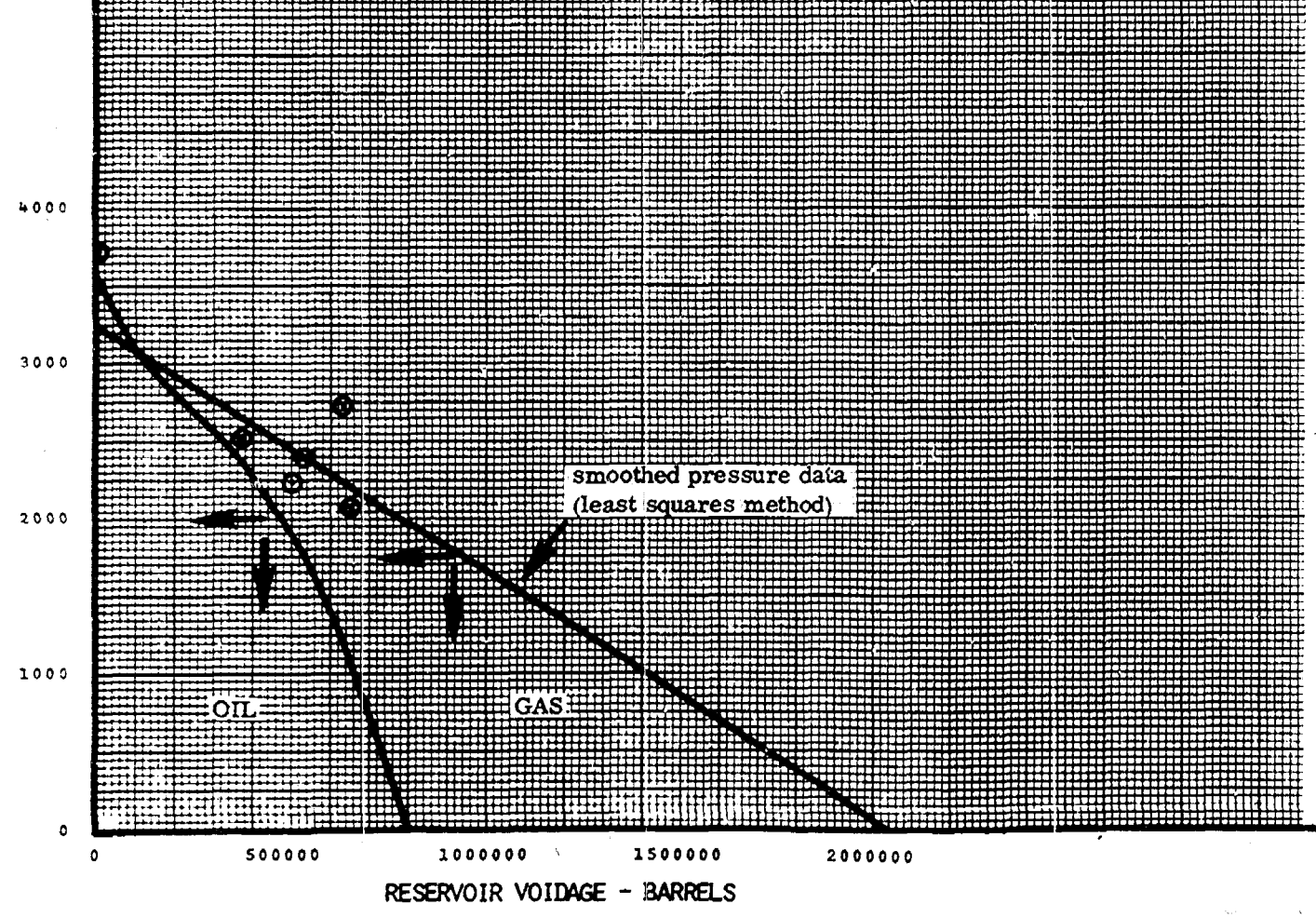
Where ϕ = Porosity
k = Permeability - Darcy's
S_w = Interstitial Water Saturation = 0.29
C = Wylie Constent = 200 - Oil

The Porosity Values Computed Using Methods of A. Timur, Wyllie and Rose.

HARVEY E. YATES COMPANY
PROJECTED PERFORMANCE
TRAVIS DEEP UNIT WELLS NO. 2 AND 3; STATE COMM WELL NO. 1

NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES
OF PRODUCTION AND PRESSURE DATA
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

Date	Well Name and No.	Reservoir Pressure psig	Cumulative Production		Reservoir Voidage - Barrels		
			Oil-Barrels	Gas-MCF	Oil	Gas	Total
9- 8-77	TDU 2	3729	-	-	-	-	-
11- 1-77	TDU 2	3538	16,361	18,017	23,966	3,313	27,279
4-17-79	State Com 1	2513	194,090	254,722	285,000	85,000	370,000
11-12-79	TDU 3	2209	261,370	360,986	380,000	120,000	500,000
11-30-79	State Com 1	2421	272,826	378,812	402,800	133,550	535,340
6-17-80	North Travis 12-1	2730	319,786	430,055	470,600	155,000	625,200
8-13-80	Travis 13 State 1	2079	326,689	444,571	477,839	174,071	651,900



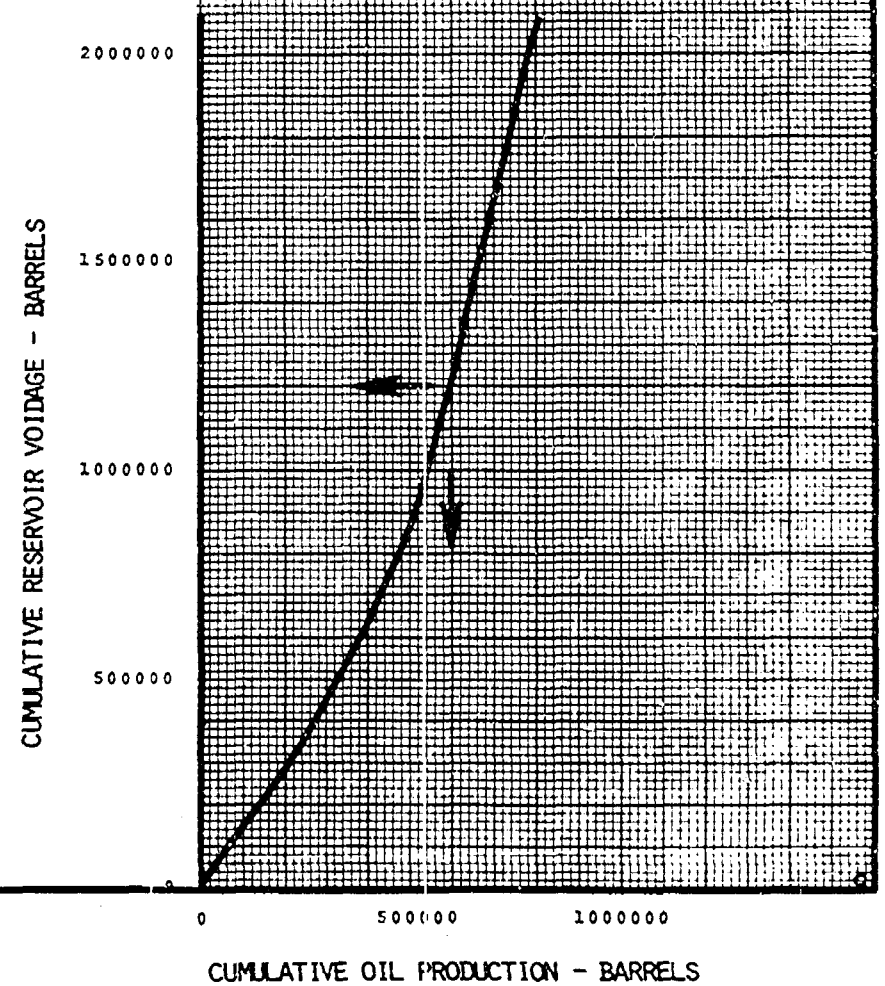


PLATE 16

TABLE 21
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 2
TRAVIS UPPER PENN POOL
TEST DATA SEPTEMBER 8, 1977
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL.. EFF., %	SIBHP PSIG	AVG. P PSIG
1-12	67.	285.2	1.84	0.42	166.0	3526.	4087.
12-21	225.	101.3	5.18	0.65	97.7	3614.	3728.
21-35	793.	64.6	8.13	0.70	69.5	3660.	3678.
35-39	865.	195.1	2.69	0.65	179.5	3672.	3729.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	3175.	3175.	0.10	1655.884	1655.780
2	3244.	3244.	0.20	828.442	828.454
3	3297.	3297.	0.30	552.628	552.622
4	3337.	3337.	0.40	414.721	414.727
5	3367.	3367.	0.50	331.977	331.976
6	3393.	3393.	0.60	276.814	276.811
7	3415.	3415.	0.70	237.412	237.413
8	3431.	3431.	0.80	207.860	207.860
9	3447.	3447.	0.90	184.876	184.877
10	3462.	3462.	1.00	166.488	166.488
11	3501.	3501.	1.50	111.326	111.326
12	3526.	3526.	2.00	83.744	83.744
13	3550.	3550.	3.00	56.163	56.163
14	3565.	3565.	4.00	42.372	42.372
15	3576.	3576.	5.00	34.098	34.098
16	2584.	3584.	6.00	28.581	28.581
17	3591.	3591.	7.00	24.641	24.641
18	3595.	3595.	8.00	21.686	21.686
19	3602.	3602.	10.00	17.549	17.549
20	3607.	3607.	12.00	14.791	14.791
21	3614.	3614.	16.00	11.343	11.343
22	3617.	3617.	20.00	9.274	9.274
23	3620.	3620.	24.00	7.895	7.895
24	3622.	3622.	28.00	6.910	6.910
25	3626.	3626.	36.00	5.597	5.597
26	3632.	3632.	48.00	4.448	4.448
27	3637.	3637.	60.00	3.758	3.758
28	3639.	3639.	66.00	3.507	3.507
29	3643.	3643.	78.00	3.122	3.122
30	3647.	3647.	90.00	2.839	2.839
31	3649.	3649.	96.00	2.724	2.724
32	3651.	3651.	100.00	2.655	2.655
33	3654.	3654.	110.00	2.504	2.504
34	3657.	3657.	120.00	2.379	2.379
35	3660.	3660.	130.00	2.273	2.273
36	3663.	3663.	140.00	2.182	2.182
37	3666.	3666.	150.00	2.103	2.103
38	3669.	3669.	160.00	2.034	2.034
39	3672.	3672.	170.00	1.973	1.973

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 22
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 2
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 1, 1977
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1-14	111.	95.1	3.66	0.56	131.9	3408.	3660.
14-39	1735.	51.9	6.71	0.73	97.8	3522.	3538.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	3248.	3248.	0.10	13759.316	13762.673
2	3294.	3294.	0.20	6980.158	6881.823
3	3316.	3316.	0.30	4587.106	4586.353
4	3328.	3328.	0.40	3440.579	3440.366
5	3338.	3338.	0.50	2752.663	2752.661
6	3346.	3346.	0.60	2294.053	2294.144
7	3352.	3352.	0.70	1966.474	1966.610
8	3356.	3356.	0.80	1720.790	1720.681
9	3360.	3360.	0.90	1529.702	1529.660
10	3364.	3364.	1.00	1376.832	1376.832
11	3378.	3378.	1.50	918.221	918.220
12	3388.	3388.	2.00	688.916	688.915
13	3400.	3400.	3.00	459.611	459.610
14	3408.	3408.	4.00	344.958	344.958
15	3416.	3416.	6.00	230.305	230.305
16	3424.	3424.	8.00	172.979	172.979
17	3428.	3428.	10.00	138.583	138.583
18	3432.	3432.	12.00	115.653	115.653
19	3438.	3438.	16.00	86.989	86.989
20	3442.	3442.	20.00	69.792	69.792
21	3446.	3446.	24.00	58.326	58.326
22	3451.	3451.	30.00	46.861	46.861
23	3455.	3455.	36.00	39.218	39.218
24	3462.	3462.	48.00	29.663	29.663
25	3466.	3466.	60.00	23.931	23.931
26	3468.	3468.	71.00	20.378	20.378
27	3472.	3472.	78.00	18.639	18.639
28	3474.	3474.	90.00	16.287	16.287
29	3476.	3476.	100.00	14.758	14.758
30	3478.	3478.	110.00	13.508	13.508
31	3480.	3480.	120.00	12.465	12.465
32	3482.	3482.	130.00	11.583	11.583
33	3484.	3484.	140.00	10.827	10.827
34	3486.	3486.	150.00	10.172	10.172
35	3487.	3487.	160.00	9.599	9.599
36	3488.	3488.	170.00	9.093	9.093
37	3489.	3489.	180.00	8.644	8.644
38	3491.	3491.	192.00	8.166	8.166
39	3522.	3522.	718.50	2.915	2.915

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 23
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
STATE COM NO. 1
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 12, 1979
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FT-LT, FT	SLOPE PSI/CYC	K (MDS)	P.I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	192.	34.3	8.26	1.47	238.9	1338.	1458.
2- 5	386.	85.7	3.31	0.59	226.4	1428.	1638.
5- 7	549.	162.6	1.74	0.36	257.2	1512.	1820.
7-21	2168.	324.8	0.87	0.22	298.1	1999.	2136.
21-22	2193.	534.5	0.53	0.20	436.5	2004.	2209.
22-39	2485.	534.5	0.53	0.20	436.5	1986.	2209.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1314.	1314.	0.10	15836.887	15840.741
2	1338.	1338.	0.50	3168.177	3168.171
3	1362.	1362.	1.00	1584.589	1584.587
4	1408.	1408.	3.00	528.863	528.863
5	1428.	1428.	6.00	264.931	264.931
6	1460.	1460.	10.00	159.359	159.359
7	1512.	1512.	20.00	80.179	80.179
8	1646.	1646.	50.00	32.672	32.672
9	1733.	1733.	100.00	16.836	16.836
10	1825.	1825.	200.00	8.918	8.918
11	1884.	1884.	300.00	6.279	6.279
12	1923.	1923.	400.00	4.959	4.959
13	1952.	1952.	500.00	4.167	4.167
14	1964.	1964.	600.00	3.639	3.639
15	1974.	1974.	700.00	3.262	3.262
16	1982.	1982.	800.00	2.979	2.979
17	1990.	1990.	920.00	2.721	2.721
18	1995.	1995.	1000.00	2.584	2.584
19	1997.	1997.	1040.00	2.523	2.523
20	1998.	1998.	1060.00	2.494	2.494
21	1999.	1999.	1080.00	2.466	2.466
22	2004.	2004.	1120.00	2.414	2.414
23	2003.	2003.	1180.00	2.342	2.342
24	2002.	2002.	1300.00	2.218	2.218
25	2001.	2001.	1320.00	2.200	2.200
26	2000.	2000.	1340.00	2.182	2.182
27	1999.	1999.	1360.00	2.164	2.164
28	1998.	1998.	1380.00	2.148	2.148
29	1997.	1997.	1400.00	2.131	2.131
30	1996.	1996.	1420.00	2.115	2.115
31	1995.	1995.	1440.00	2.100	2.100
32	1994.	1994.	1460.00	2.085	2.085
33	1993.	1993.	1480.00	2.070	2.070
34	1992.	1992.	1500.00	2.056	2.056
35	1991.	1991.	1520.00	2.042	2.042
36	1990.	1990.	1540.00	2.028	2.028
37	1989.	1989.	1560.00	2.015	2.015
38	1988.	1988.	1580.00	2.002	2.002
39	1986.	1986.	1599.00	1.990	1.990

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 24
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 3
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 30, 1979
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 8	23.	92.9	1.59	0.21	130.2	1200.	1566.
8- 9	27.	142.1	1.00	0.15	142.6	1229.	1764.
9-17	125.	231.0	0.59	0.10	156.3	1594.	2090.
17-34	302.	373.6	0.34	0.08	183.4	1921.	2411.
34-39	346.	373.6	0.34	0.08	183.4	1912.	2411.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1065.	1065.	0.10	231221.4	232127.9
2	1096.	1096.	0.20	115611.2	116064.5
3	1117.	1117.	0.30	77074.461	76874.062
4	1135.	1135.	0.50	46245.070	46244.957
5	1146.	1146.	0.70	33032.477	33069.336
6	1158.	1158.	1.00	23123.035	23123.014
7	1177.	1177.	1.60	14452.272	14455.780
8	1200.	1200.	2.50	9249.814	9249.804
9	1229.	1229.	4.00	5781.509	5781.506
10	1309.	1309.	10.00	2313.204	2313.202
11	1378.	1378.	20.00	1157.102	1157.101
12	1438.	1438.	36.00	643.279	643.278
13	1478.	1478.	52.00	445.655	445.654
14	1496.	1496.	64.00	362.282	362.281
15	1516.	1516.	80.00	290.025	290.025
16	1545.	1545.	100.00	232.220	232.220
17	1594.	1594.	150.00	155.147	155.147
18	1634.	1634.	200.00	116.610	116.610
19	1699.	1699.	300.00	78.073	78.073
20	1747.	1747.	400.00	58.805	58.805
21	1771.	1771.	450.00	52.382	52.382
22	1792.	1792.	500.00	47.244	47.244
23	1810.	1810.	560.00	42.289	42.289
24	1821.	1821.	600.00	39.537	39.537
25	1832.	1832.	660.00	36.033	36.033
26	1839.	1839.	700.00	34.031	34.031
27	1854.	1854.	760.00	31.424	31.424
28	1863.	1863.	800.00	29.903	29.903
29	1873.	1873.	860.00	27.886	27.886
30	1886.	1886.	920.00	26.133	26.133
31	1894.	1894.	1000.00	24.122	24.122
32	1906.	1906.	1100.00	22.020	22.020
33	1918.	1918.	1200.00	20.268	20.268
34	1921.	1921.	1240.00	19.647	19.647
35	1920.	1920.	1340.00	18.255	18.255
36	1919.	1919.	1400.00	17.516	17.516
37	1918.	1918.	1500.00	16.415	16.415
38	1915.	1915.	1600.00	15.451	15.451
39	1912.	1912.	1674.50	14.808	14.808

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 25
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
NORTH TRAVIS DEEP NO. 12-1
TRAVIS UPPER PENN POOL
TEST DATE JUNE 17, 1980
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	10.	2051.0	0.04	0.01	200.3	1506.	3883.
2- 3	11.	4580.5	0.02	0.01	220.2	2244.	6815.
3- 4	12.	3365.9	0.02	0.01	207.6	2617.	5603.
4- 5	14.	620.0	0.13	0.02	87.2	2668.	3167.
5- 7	20.	170.0	0.47	0.02	31.2	2688.	2806.
7-15	144.	61.4	1.31	0.02	12.7	2717.	2730.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	920.	920.	0.15	27.867	27.867
2	1506.	1506.	0.30	14.433	14.433
3	2244.	2244.	0.45	9.956	9.956
4	2617.	2617.	0.60	7.717	7.717
5	2668.	2668.	0.75	6.373	6.373
6	2682.	2682.	0.90	5.478	5.478
7	2688.	2688.	1.05	4.838	4.838
8	2690.	2690.	1.20	4.358	4.358
9	2693.	2693.	1.35	3.985	3.985
10	2695.	2695.	1.50	3.687	3.687
11	2708.	2708.	2.77	2.455	2.455
12	2713.	2713.	4.03	1.999	1.999
13	2717.	2717.	5.30	1.760	1.760
14	2715.	2715.	6.57	1.613	1.613
15	2717.	2717.	7.85	1.513	1.513

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 26
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS STATE NO. 13-1
TRAVIS UPPER PENN POOL
TEST DATA AUGUST 13, 1980
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	14.	1600.6	0.05	0.01	196.8	1971.	3059.
2-15	70.	153.9	0.52	0.02	38.4	2051.	2079.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1566.	1566.	0.27	8.564	8.564
2	1971.	1971.	0.53	4.781	4.781
3	2000.	2000.	0.80	3.521	3.521
4	2009.	2009.	1.07	2.891	2.891
5	2016.	2016.	1.33	2.512	2.512
6	2022.	2022.	1.60	2.260	2.260
7	2028.	2028.	1.87	2.080	2.080
8	2035.	2035.	2.13	1.945	1.945
9	2035.	2035.	2.40	1.840	1.840
10	2041.	2041.	2.67	1.756	1.756
11	2044.	2044.	2.93	1.688	1.688
12	2047.	2047.	3.20	1.630	1.630
13	2051.	2051.	3.47	1.582	1.582
14	2051.	2051.	3.73	1.540	1.540
15	2051.	2051.	4.00	1.504	1.504

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

HEYCO
PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY
P O BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

RECEIVED
AUG 19 1981
OIL CONSERVATION DIVISION
SANTA FE

August 17, 1981

Mr. Daniel S. Nutter
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

RE: Case 7320
Travis Penn Unit
T-18S, R-28E, N.M.P.M.
Eddy County, New Mexico

Dear Mr. Nutter:

Enclosed is the additional information you requested during the hearing of the above referenced case.

(1) Exhibit 3-E - A letter to replace the previous estimate of the top of the cement. Mr. Hardee tells me his estimate in the first letter was based on his assurance that the cement reached at least 900 feet above the highest perforations in the Canyon. The figure in the replacement letter is calculated from well data.

(2) Exhibit 4-D - Copies of Form C-103 which indicate the amount of surface casing set in the Travis 13 State 2.

(3) Exhibit 5 - A second letter from James I. Wright stating the depth of the Artesia Group.

Sincerely,

Thomas J. Hall III
Attorney

TJH:dk

Enclosures

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

ROSWELL

S. E. REYNOLDS
STATE ENGINEER

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OIL CONSERVATION DIVISION
SANTA FE

ADDRESS CORRESPONDENCE TO:
P. O. BOX 1717
ROSWELL, NEW MEXICO
88201

August 13, 1981

Harvey E. Yates Company
500 North Main
Roswell, NM 88201

Attention: Mr. Rod Thompson

Gentlemen:

In accordance with your telephone request, please be advised that the base of the Artesia Group in Sections 12 and 13, Township 18 South, Range 28 East, is about 2700 feet below land surface. In all probability the only fresh water that will be encountered in your immediate area will be within 350 feet of the surface.

My opinion that the water in the San Andres will be highly mineralized is based on the occurence of salt water in the formation in adjacent areas.

Yours truly,

James I. Wright
Asst. District Supervisor

JIW*td

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STATE OF NEW MEXICO

STATE ENGINEER OFFICE

ROSWELL

S. E. REYNOLDS
STATE ENGINEER

August 13, 1981

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My opinion that the water in the San Andres will be highly mineralized is based on the occurence of salt water in the formation in adjacent areas.

Yours truly,

James I. Wright
Asst. District Supervisor

JIW*td

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P. O. BOX 1933 SUITE 300, SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

RECEIVED
AUG 19 1981
SANTA FE

August 13, 1981

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

RE: Travis Deep Unit #2
1980' FNL & 1780' FEL
Section 13, T-18S, R-28E
Eddy County, New Mexico
Lease # NM-23417

Gentlemen:

The calculated top of cement is based on the following data:

Est. Avg hole size 8.75 inches
5 1/2" casing set @ 11270 feet
Cement: 950 sxs Class "H" w/5# Kcl/sx
Weight: 15.6 lbs/gal.
Yield: 1.18 cubic feet/sx

Cement Volume: 950 sxs X 1.18 cubic ft/sx = 1121 cubic ft. slurry
Less Shoe Joint: 40 ft X 0.1245 cubic ft/ft = 5 cubic ft slurry
Net slurry volume = 1121 - 5 = 1116 cubic ft slurry
Calculated Fill-Up = 1116 cubic ft X 3.9589 ft/cubic ft = 4418 feet
Calculated Top of Cement = 11270 - 4418 feet = 6852 feet

If you should have any questions, please contact us.

Very truly yours,

HARVEY E. YATES COMPANY

Peck Hardee

Peck Hardee
Production Engineer

PH:lc

HEYCO
PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY
P. O. BOX 1933 SUITE 900 SECURITY NATIONAL BANK BUILDING 505/623-6601
ROSWELL, NEW MEXICO 88201

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OIL CONSERVATION DIVISION
SANTA FE

August 13, 1981

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

RE: Travis Deep Unit #2
1980' FNL & 1780' FEL
Section 13, T-18S, R-28E
Eddy County, New Mexico
Lease # NM-23417

Gentlemen:

The calculated top of cement is based on the following data:

Est. Avg hole size 8.75 inches
5 1/2" casing set @ 11270 feet
Cement: 950 sxs Class "H" w/5# Kcl/sx
Weight: 15.6 lbs/gal.
Yield: 1.18 cubic feet/sx

Cement Volume: 950 sxs X 1.18 cubic ft/sx = 1121 cubic ft. slurry
Less Shoe Joint: 40 ft X 0.1245 cubic ft/ft = 5 cubic ft slurry
Net slurry volume = 1121 - 5 = 1116 cubic ft slurry
Calculated Fill-Up = 1116 cubic ft X 3.9589 ft/cubic ft = 4418 feet
Calculated Top of Cement = 11270 - 4418 feet = 6852 feet

If you should have any questions, please contact us.

Very truly yours,

HARVEY E. YATES COMPANY

Peck Hardee

Peck Hardee
Production Engineer

PH:lc

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NEW MEXICO OIL CONSERVATION COMMISSION

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SANTA FE

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JUN 01 1981
O. C. D.
ARTESIA, OFFICE

Form C-103
Supersedes Old C-102 and C-103
Effective 1-1-65

5. Indicate Type of Lease: State [X] Fee [ ]

5. State Oil & Gas Lease No.: E-1287

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

7. Unit Agreement Name

OIL WELL [X] GAS WELL [ ] OTHER-

2. Name of Operator: Harvey E. Yates Co. ✓

8. Farm or Lease Name: Travis 13 State

3. Address of Operator: P.O. Box 1933, Roswell, NM 88201

9. Well No.: 2

4. Location of Well: UNIT LETTER C, 660 FEET FROM THE North LINE AND 1980 FEET FROM THE West LINE, SECTION 13, TOWNSHIP 18S, RANGE 28E, NMPM

10. Field and Pool, or Wildcat: Travis Upper Penn

15. Elevation (Show whether DF, RT, GR, etc.): 3616.8 GR

12. County: Eddy

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [X]	PLUG AND ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [X]	
OTHER [ ]		OTHER [ ]	

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

5/03/81 SPUDDED @ 7;00 a. m. 5/2/81. Formation-Rd Bds; drlg 2/spud mud;

Ran 11 jts 48#, K-55, ST&C 13 3/8" csg (402') and set @ 380'. Cemented 2/400 sx Class "C" w/2% CaCl. PD @ 9:00 p. m. 5/2/81. Circulated approximately 50 sx.

5/04/81 Depth-1170'. Formation-anhy and salt; drlg w/brine water: 1/2 hr.-testing BOP w/650 psi. After 18 hrs. WOC tested 13 3/8" casing for 30 min. Held OK

5/09/81 Depth-3100' WOC. Formation-li; drlg w/brine water;
Ran 3118.91' 8 5/8" csg and set @ 3100'.

18 jts	32# ST&C J-55	(718.33')
60 jts	24# ST&C J-55	(2400.58')
78 jts		3118.91'

Cemented w/1800 sx Hal Lite w/5# Gilsonite; 1/4# Flocele and 8# salt; followed w/200 sx Class"C" w/2% CaCl. PD @ 10:45 p. m. 5/8/81. Bumped plug w/1500 psi; held o. k. Circulated 88 sx.

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

SIGNED Perk Hardee TITLE Engineer DATE May 27, 1981

APPROVED W. A. Gressett TITLE SUPERVISOR, DISTRICT II DATE JUN 08 1981

5/10/81 Depth-3205'. Formation-li and sh; drlg w/fresh water; 18 hrs WOC, NU and testing BOP w/3000#; 1/2 hr-testing csg w/1500 psi;

5/18/81 Depth-6120'. Formation-li and sh;

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JUN 4 1981
O. C. D.
ARTESIA, OFFICE

5/18/81 (Cont'd) RESULTS OF DST #1 from 6080' to 6120' (40'):

Tool open @ 5:56 p. m. w/good blow; 1 1/2 psi.
No increase in press throughout 30" PF.

6.26 p. m.	Closed tool for 60" ISIP
7:26 p. m.	Opened tool for 2nd flow w/ very weak blow
7:46 p. m.	1/4" in bucket
8:00 p. m.	Increased to 1/2" in bucket
8:15 p. m.	Increased to 3/4" in bucket
8:56 p. m.	Closed tool for 180" FSIP; 0 psi; 3/4" in bucket
11:56 p. m.	Pulled pkrs free
2:26 a. m.	ROH (5/18/81)

Recovery: 70' formation water w/trace of oil & gas
740' drlg fluid
Formation above pkrs taking fluid throughout test
Sampler: 225 psi
.915 CFG
2400' gas-cut formation water w/trace of oil

PRESSURES:	TOP CHART	BOTTOM CHART
HPi	2591 psi	2617 psi
30" IF-FF	63-189 psi	36-217 psi
60" ISIP	2465 psi	2473 psi
90" snd IF-FF	221-379 psi	217-397 psi
180" FSIP	2450 psi	2455 psi
HPo	2591 psi	2689 psi

ENERGY AND MINERALS DEPARTMENT

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

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OIL CONSERVATION DIVISION
SANTA FE

Form C-103
Revised 10-1-78

5a. Indicate Type of Lease: State [X] Fee [ ]
5. State Oil & Gas Lease No. 287

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

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

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O. C. D.
ARTESIA, OFFICE

7. Unit Agreement Name

2. Name of Operator: Harvey E. Yates Company

8. Farm or Lease Name: Travis 13 State

3. Address of Operator: P. O. Box 1933 Roswell, NM 88201

9. Well No. 2

4. Location of Well: UNIT LETTER C, 660 FEET FROM THE North LINE AND 1980 FEET FROM THE West LINE, SECTION 13, TOWNSHIP 18S, RANGE 28E, NMPM.

10. Field and Pool, or Wildcat: Travis Upper Penn

15. Elevation (Show whether DF, RT, GR, etc.): 3616.8 GR

12. County: Eddy

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG AND ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [X]	
OTHER [ ]		OTHER Plug lost circulation zones; DST #3 Core #1 [X]	

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

5/29/81 Depth 8644'. TIH O/E to 8644'. Pumped 100 Bbls Brine Water. 1000 gals SAF MK III, 150 sxs Cl "H" w/1% A-7, 7% A-10, Displaced plug to 8644' w/drlg mud. POH TIH w/BH assembly. T/Plug @ 8429' (466' Plug)

5/30/81 Depth 8730' - Formation Li & Sh. Drlg w/cut brine w/full returns

6/04/81 Depth 9900' Coring Core No. 1 9840 to 9900'. Rec 22'.

6/05/81 Depth-9900' TIH w/bit.

RESULTS OF DST #3 from 9720' to 9900':

Rec 50' of drlg fluid (oil-cut) and 238' of drlg fluid.
LD 7 jts bad DP. Sampler: 1950 cc drlg fluid w/trace of oil; 0.158 CFG; 775 psi.

PRESSURES:	TOP CHART	BOTTOM CHART (Clock Stopped)
IHP	5159 psi	
30" IF-FF	541-631 psi	
60" ISIP	1364 psi	
120" 2nd IF-FF	792-971 psi	
240" FSIP	2509 psi	
IHPo	5159 psi	

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

SIGNED Paul Harden TITLE Engineer DATE 6/22/81

APPROVED BY Mike Williams TITLE OIL AND GAS INSPECTOR DATE JUN 25 1981

CONDITIONS OF APPROVAL, IF ANY:

7/28 ✓

6/07/81 TD-9950' WOC RR 11:00 p. m. 6/6/81.

Ran 250 jts 4 1/2" csg (87 jts 11.6# N-80, LT&C; 87 jts 11.6# J-55, LT&C and 76 jts 10.5# J-55, ST&C) and set @ 9942'. Cemented w/875 sx 50/50 "H"-Poz w/2% Gel, 5# KCl and .5% CFR-2/sx.

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JUN 10 1981

O. C. D.
ARTESIA, OFFICE

E-1287

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT—" FOR SUCH PROPOSALS.)

OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: Harvey E. Yates Co. ✓

3. ADDRESS OF OPERATOR: P.O. Box 1933, Roswell, NM 88201

4. LOCATION OF WELL: Unit Letter C, 660 Feet From The North Line And 1980 Feet From The West Line, Section 13, Township 18S, Range 28E, NMPM

5. FARM OR LEASE NAME: Travis 13 State

9. WELL NO.: 2

10. FIELD AND POOL, OR WILDCAT: Travis Upper Penn

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 3616.8 GR

12. COUNTY: Eddy

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF [ ]	PULL OR ALTER CASING [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
FRACTURE TREAT [ ]	MULTIPLE COMPLETE [ ]	COMMENCE DRILLING OPNS. [X]	PLUG AND ABANDONMENT [ ]
SHOOT OR ACIDIZE [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [X]	
(Other) [ ]		(Other) [ ]	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

5/03/81 SPUDDED @ 7:00 a. m. 5/2/81. Formation-Rd Bds; drlg 2/spud mud;

Ran 11 jts 48#, K-55, ST&C 13 3/8" csg (402') and set @ 380'. Cemented 2/400 sx Class "C" w/2% CaCl. PD @ 9:00 p. m. 5/2/81. Circulated approximately 50 sx.

5/04/81 Depth-1170'. Formation-anhy and salt; drlg w/brine water: 1/2 hr.-testing BOP w/650 psi. After 18 hrs. WOC tested 13 3/8" casing for 30 min. Held OK

5/09/81 Depth-3100' WOC. Formation-li; drlg w/brine water; Ran 3118.91' 8 5/8" csg and set @ 3100'.

18 jts	32# ST&C J-55	(718.33')
60 jts	24# ST&C J-55	(2400.58')
78 jts		3118.91'

Cemented w/1800 sx Hal Lite w/5# Gilsonite; 1/4# Flocele and 8# salt; followed w/200 sx Class"C" w/2% CaCl. PD @ 10:45 p. m. 5/8/81. Bumped plug w/1500 psi; held o. k. Circulated 88 sx.

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

Jack Yates — Engineer — May 27, 1981

(Orig. Signed) J. A. Gressett — SUPERVISOR, DISTRICT II — JUN 08 1981

5/10/81 Depth-3205'. Formation-li and sh; drlg w/fresh water; 18 hrs WOC, NU and testing BOP w/3000#; 1/2 hr-testing csg w/1500 psi;

5/18/81 Depth-6120'. Formation-li and sh;

5/18/81 (Cont'd) RESULTS OF DST #1 from 6080' to 6120' (40'):

RECEIVED
JUN 4 1981
O. C. D.
ARTESIA, OFFICE

Tool open @ 5:56 p. m. w/good blow; 1 1/2 psi.
No increase in press throughout 30" PF.

6.26 p. m.	Closed tool for 60" ISIP
7:26 p. m.	Opened tool for 2nd flow w/ very weak blow
7:46 p. m.	1/4" in bucket
8:00 p. m.	Increased to 1/2" in bucket
8:15 p. m.	Increased to 3/4" in bucket
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2:26 a. m.	ROH (5/18/81)

Recovery: 70' formation water w/trace of oil & gas
740' drlg fluid
Formation above pkrs taking fluid throughout test
Sampler: 225 psi
.915 CFG
2400' gas-cut formation water w/trace of oil

PRESSURES:	TOP CHART	BOTTOM CHART
HPi	2591 psi	2617 psi
30" IF-FF	63-189 psi	36-217 psi
60" ISIP	2465 psi	2473 psi
90" snd IF-FF	221-379 psi	217-397 psi
180" FSIP	2450 psi	2455 psi
HPo	2591 psi	2689 psi

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OIL CONSERVATION DIVISION
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SANTA FE, NEW MEXICO 87501

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SANTA FE

Form C-103
Revised 10-1-78

5. Indicate Type of Lease: State [X] Fee [ ]
5. State Oil & Gas Lease No.: LG-287

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

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

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JUN 23 1981
O. C. D.
ARTESIA, OFFICE

7. Unit Agreement Name

2. Name of Operator: Harvey E. Yates Company

8. Farm or Lease Name: Travis 13 State

3. Address of Operator: P. O. Box 1933 Roswell, NM 88201

9. Well No.: 2

4. Location of Well: UNIT LETTER C, 660 FEET FROM THE North LINE AND 1980 FEET FROM THE West LINE, SECTION 13, TOWNSHIP 18S, RANGE 28E, NMPM.

10. Field and Pool, or Wildcat: Travis Upper Penn

15. Elevation (Show whether DF, RT, GR, etc.): 3616.8 GR

12. County: Eddy

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

NOTICE OF INTENTION TO:

- PERFORM REMEDIAL WORK [ ]
- TEMPORARILY ABANDON [ ]
- PULL OR ALTER CASING [ ]
- PLUG AND ABANDON [ ]
- CHANGE PLANS [ ]
- OTHER [ ]

SUBSEQUENT REPORT OF:

- REMEDIAL WORK [ ]
- COMMENCE DRILLING OPNS. [ ]
- CASING TEST AND CEMENT JOB [X]
- ALTERING CASING [ ]
- PLUG AND ABANDONMENT [ ]
- OTHER Plug lost circulation zones; DST #3 Core #1 [X]

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

5/29/81 Depth 8644'. TIH O/E to 8644'. Pumped 100 Bbls Brine Water. 1000 gals SAF MK III, 150 sxs Cl "H" w/1% A-7, 7% A-10, Displaced plug to 8644' w/drlg mud. POH TIH w/BH assembly. T/Plug @ 8429' (466' Plug)

5/30/81 Depth 8730' - Formation Li & Sh. Drlg w/cut brine w/full returns

6/04/81 Depth 9900' Coring Core No. 1 9840 to 9900'. Rec 22'.

6/05/81 Depth-9900' TIH w/bit.

RESULTS OF DST #3 from 9720' to 9900':

Rec 50' of drlg fluid (oil-cut) and 238' of drlg fluid.
LD 7 jts bad DP. Sampler: 1950 cc drlg fluid w/trace of oil; 0.158 CF6; 775 psi.

PRESSURES:	TOP CHART	BOTTOM CHART (Clock Stopped)
HPI	5159 psi	
30" IF-FF	541-631 psi	
60" ISIP	1364 psi	
120" 2nd IF-FF	792-971 psi	
240" FSIP	2509 psi	
HPo	5159 psi	

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

SIGNED Paul Jarvis TITLE Engineer DATE 6/22/81

APPROVED BY Mike Williams TITLE OIL AND GAS INSPECTOR DATE JUN 25 1981

CONDITIONS OF APPROVAL, IF ANY:

7/28/81

6/07/81 TD-9950' WOC RR 11:00 p. m. 6/6/81.

Ran 250 jts 4 1/2" csg (87 jts 11.6# N-80, LT&C; 87 jts 11.6# J-55, LT&C and 76 jts 10.5# J-55, ST&C) and set @ 9942'. Cemented w/875 sx 50/50 "H"-Poz w/2% Gel, 5# KCl and .5% CFR-2/sx.

UNIT AGREEMENT

TRAVIS PENN UNIT

COUNTY OF EDDY

STATE OF NEW MEXICO

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 1
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co
HEARING DATE 8/12/81

UNIT AGREEMENT
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO

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Exhibit "A" (Map of Unit Area)
Exhibit "B" (Schedule of Ownership)
Exhibit "C" (Schedule of Tract Participation)
Exhibit "D" (Section 202 of Executive Order 11246)

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION OF THE
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO
NO.

THIS AGREEMENT, entered into as of the 1st day of May, 19 81, by and between the parties subscribing, ratifying or consenting hereto, and herein referred to as "Parties hereto";

W I T N E S S E T H

WHEREAS, the parties hereto are the owners of working, royalty or other oil or gas interests in the Unit Area subject to this Agreement; and

WHEREAS, the Mineral Leasing Act of February 25, 1920, (41 Stat. 437, as amended 30 U.S.C. Sections 181 et seq.) authorizes Federal lessees and their representatives to unite with each other, or jointly or separately with others in collectively adopting and operating a unit plan of development or operation of any oil or gas pool, field, or like area, or any part thereof for the purpose of more properly conserving the natural resources thereof whenever determined and certified by the Secretary of the Interior to be necessary or advisable in the public interest; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 3, Chap. 88, Laws 1943 as amended by Section 1 of Chap. 162, Laws of 1951, Section 19-10-45 to 47 N.M.S.A. (1978)) to consent to or approve this Agreement on behalf of the State of New Mexico, insofar as it covers and includes lands and mineral interests of the State of New Mexico; and

WHEREAS, the Oil Conservation Division of the State of New Mexico Department of Energy is authorized by law (Chap. 72, Laws of 1935, as amended by Chap. 193, Laws of 1937, Chap. 166, Laws of 1941, and Chap. 168, Laws of 1949) to approve this Agreement, and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the Travis Penn Unit covering the land hereinafter described to give reasonably effective control of operation therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources, to prevent waste and secure the other benefits obtainable through development and operation of the area subject to this Agreement under the terms, conditions and limitations herein set forth.

NOW, THEREFORE, in consideration of the premises and the promises herein contained, the parties hereto commit to this Agreement their respective interests in the Unitized Formation of the below defined Unit Area, and agree severally among themselves as follows:

SECTION 1. ENABLING ACT AND REGULATIONS. The Mineral Leasing Act of February 25, 1920, as amended, supra, and all valid pertinent regulations, including operating and unit plan regulations, heretofore issued thereunder and valid, pertinent and reasonable regulations hereafter issued thereunder are accepted and made a part of this Agreement as to Federal lands, provided such regulations are not inconsistent with the terms of this Agreement; and as to non-Federal lands, the oil and gas operating regulation

in effect as of the effective date hereof governing drilling and producing operations, not inconsistent with the terms hereof or the laws of the State in which the non-Federal land is located, are hereby accepted and made a part of this Agreement.

SECTION 2. UNIT AREA AND DEFINITIONS. For the purpose of this Agreement, the following terms and expressions as used herein shall mean;

(a) "Unit Area" is defined as those lands described in Exhibit "B" and depicted on Exhibit "A" hereof, and such land is hereby designated and recognized as constituting the Unit Area, containing 400.00 acres, more or less, in Eddy County, New Mexico.

(b) "Land Commissioner" is defined as the Commissioner of Public Lands of the State of New Mexico.

(c) "Division" is defined as the Oil Conservation Division of the State of New Mexico, Department of Energy;

(d) "Director" is defined as the Director of the United States Geological Survey.

(e) "Secretary" is defined as the Secretary of the Interior of the United States of America, or his duly authorized delegate.

(f) "Department" is defined as the Department of the Interior of the United States of America.

(g) "Supervisor" is defined as the Oil and Gas Supervisor of the United States Geological Survey for the area in which the Unit Area is situated.

(h) "Unitized Formation" shall mean that subsurface portion of the Unit Area commonly known as the Cisco-Canyon formation, which is that continuous stratigraphic interval that was encountered between the logged depths of 9,815 feet and 9,935 feet in Harvey E. Yates Company's Travis Deep Unit #2 Well, as shown on the CNL Density Radioactive log of said well dated June 23, 1977 which well is located 1980 feet from the North line and 1780 feet from the East line of Section 13, Township 18 South, Range 28 East, Eddy County, New Mexico.

(i) "Unitized Substances" are all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constitutent liquid or liquefiable hydrocarbons within and produced from the Unitized Formation, of the Unitized Land.

(j) "Tract" is each parcel of land described as such and given a Tract number in Exhibit "B".

(k) "Tract Participation" is defined as the percentage of participation shown on Exhibit "C" for allocating Unitized Substances to a Tract under this Agreement.

(l) "Unit Participation" is the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract.

(m) "Working Interest" is the right to search for, produce and acquire Unitized Substances whether held as an incident of ownership of mineral fee simple title, under an oil and gas lease, or otherwise held, which interest is chargeable with and obligated to pay or bear, either in cash or out of production, or otherwise, all or a portion of the cost of drilling, developing and producing the Unitized Substance from the Unitized Formation and operations thereof hereunder. Provided that any royalty interest created out of a working interest subsequent to the execution of this Agreement by the owner of the working interest shall continue to be subject to such working interest burdens and obligations.

(n) "Working Interest Owner" is any party hereto owning a Working Interest, including a carried working interest owner, holding an interest in Unitized Substances by virtue of a lease, operating agreement, fee title or otherwise. The owner of Oil and Gas Rights that are free of lease or other instrument creating a working interest in another shall be regarded as a Working Interest Owner to the extent of seven-eighths (7/8) of his interest in Unitized Substances, and as a Royalty Owner with respect to his remaining one-eighth (1/8) interest therein.

(o) "Royalty Interest" or "Royalty" is an interest other than a Working Interest in or right to receive a portion of the Unitized Substances or the proceeds thereof and includes the royalty interest reserved by the lessor by an oil and gas lease and any overriding royalty interest, oil payment interest, net profit contracts, or any other payment or burden which does not carry with it the right to search for and produce Unitized Substances.

(p) "Royalty Owner" is the owner of a Royalty Interest.

(q) "Unit Operating Agreement" is the agreement entered into by and between the Unit Operator and the Working Interest Owners as provided in Section 9, infra, and shall be styled "Unit Operating Agreement, Travis Penn Unit, Eddy County, New Mexico".

(r) "Oil and Gas Rights" is the right to explore, develop and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof.

(s) "Outside Substances" is any substance obtained from any source other than the Unitized Formation and injected into the Unitized Formation.

(t) "Unit Manager" is any person or corporation appointed by Working Interest Owners to perform the duties of Unit Operator until the selection and qualification of a successor Unit Operator as provided for in Section 7 hereof.

(u) "Unit Operator" is the party designated by Working Interest Owners under the Unit Operating Agreement to conduct Unit Operations.

(v) "Unit Operations" is any operation conducted pursuant to this Agreement and the Unit Operating Agreement.

(w) "Unit Equipment" is all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for the joint account for use in Unit Operations.

(x) "Unit Expense" is all cost, expense, or indebtedness incurred pursuant to this Agreement and the Unit Operating Agreement for or on account of Unit Operations.

SECTION 3. EXHIBITS. Exhibit "A" attached hereto is a map showing the Unit Area and the boundaries and identity of tracts and leases in said Unit Area to the extent known to the Unit Operator. Exhibit "B" attached hereto is a schedule showing, to the extent known to the Unit Operator, the acreage comprising each Tract, percentages and kind of ownership of oil and gas interests in all land in the Unit Area. Exhibit "C" attached hereto shows the Tract Participation of each Tract in the Unit Area. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. Exhibit "D" attached hereto is the provisions of paragraphs 1 through 7 of Section 202 of Executive Order 11246. Exhibits, "A", "B" and "C" shall be revised by the Unit Operator whenever changes in the Unit Area render such revision necessary or when requested by the Supervisor, and copies of such revision shall be filed with the Land Commissioner, and not less than five copies shall be filed with the Supervisor.

SECTION 4. EXPANSION. The above described Unit Area may when practicable or necessary be expanded to include therein any additional Tract or Tracts regarded as reasonably necessary or advisable for the purposes of this Agreement. Such expansion shall be effected in the following manner:

(a) Voluntary Expansion.

(1) The Working Interest Owner or Owners of a Tract or Tracts desiring to bring such Tract or Tracts into this unit, shall file an application therefor with Unit Operator requesting such admission.

(2) Unit Operator shall circulate a notice of the proposed expansion to each Working Interest Owner in the Unit Area and in the Tract proposed to be included in the Unit, setting out the basis for admission, the Tract Participation to be assigned to each Tract in the enlarged Unit Area and other pertinent data. If at least three Working Interest Owners having in the aggregate eighty percent (80%) Unit Participation then in effect have agreed to inclusion of such Tract or Tracts in the Unit Area, then Unit Operator shall:

(A) After obtaining preliminary concurrence by the Supervisor, prepare a notice of proposed expansion describing the contemplated changes in the boundaries of the Unit Area, the reason therefor, the basis for admission of the additional Tract or Tracts, the Tract Participation to be assigned thereto and the proposed effective date thereof; and

(B) Deliver copies of said notice to the Land Commissioner, the Supervisor, each Working Interest Owner and to the lessee and lessor whose interests are affected, advising such parties that thirty (30) days will be allowed for submission to the Unit Operator of any objection to such proposed expansion; and

(C) File, upon the expiration of said thirty (30) day period as set out in (2) immediately above with the Land Commissioner and Supervisor the following: (a) Evidence of mailing or delivering copies of said notice of expansion; (b) An application for approval of such expansion;

(c) An instrument containing the appropriate joinders in compliance with the participation requirements of Section 14, and Section 32, infra; and
(d) A copy of all objections received along with the operators response thereto.

(3) The expansion shall, after due consideration of all pertinent information and approval by the Land Commissioner and the Supervisor, become effective as of the date prescribed in the notice thereof, preferably the first day of a month subsequent to the date of notice. The revised Tract Participation of the respective Tracts included within the Unit Area prior to such enlargement shall remain the same ratio one to another.

(b) Compulsory Expansion.

(1) If in Unit Operators opinion, the Unit Area should at any time be expanded to include an additional Tract or Tracts, and the Working Interest Owners of such Tract or Tracts are unwilling to join the expanded Unit, Unit Operator shall circulate a notice of proposed compulsory expansion to each working interest owner in the Unit Area and in the Tract or Tracts proposed to be included in the Unit setting out the proposed basis for admission and Tract participation to be assigned to each Tract in the expanded Unit Area and other pertinent data. If at least three Working Interest Owners having in the aggregate eighty percent (80%) unit participation then in effect concur in the necessity for such expansion, then Unit Operator shall:

(A) File with the Division an application for compulsory unitization requesting inclusion of such Tract or Tracts in the proposed expanded unit and prosecute such application to entry of a final order by the Division.

(B) Deliver copies of such order to the Land Commissioner, the Supervisor, each Working Interest Owner and to the Lessees and Lessors whose interests are affected by such order.

(2) If such order grants the requested relief, the expansion of the Unit will be effective as of the effective date of such order or as set out therein.

SECTION 5. UNITIZED LAND. All land committed to this Agreement as to the Unitized Formation shall constitute land referred to herein as "Unitized Land" or "Land subject to this Agreement". Nothing herein shall be construed to unitize, pool, or in any way affect the oil, gas and other minerals contained in or that may be produced from any formation other than the Unitized Formation as defined in Section 2(h) of this Agreement.

SECTION 6. UNIT OPERATOR. Harvey E. Yates Company is hereby designated the Unit Operator, and by signing this instrument as Unit Operator agrees and consents to accept the duties and obligations of Unit Operator for the operation, development and production of Unitized Substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in that capacity and not as an owner of interests in Unitized Substances, when such interests are owned by it and the term "Working Interest Owner" when used herein shall include or refer to the Unit Operator as the owner of a Working Interest when such an interest is owned by it.

Unit Operator shall have a lien upon interests of Working Interest Owners in the Unit Area to the extent provided in the Unit Operating Agreement.

SECTION 7. RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after written notice of intention to resign has been given by Unit Operator to all Working Interest Owners, the Land Commissioner and the Supervisor unless a new Unit Operator shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period. The resignation or removal of Unit Operator shall not release Unit Operator from any liability for any default by it hereunder occurring prior to the effective date of its resignation or removal.

The Unit Operator shall be subject to removal if it fails or refuses to carry out its duties hereunder, or becomes insolvent, bankrupt or is placed in receivership by the affirmitive vote of two (2) or more Working Interest Owners owning a majority of the Unit Participation then in effect including the Unit Participation attributable to the Unit Operator.

In all such instances of effective resignation or removal, until a successor to Unit Operator is selected and approved as hereinafter provided, the Working Interest Owners shall be jointly responsible for the performance of the duties of the Unit Operator and shall, not later than thirty (30) days before such resignation or removal becomes effective, appoint a Unit Manager to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this Agreement shall not terminate its right, title or interest as the owner of a Working Interest or other interest in Unitized Substances, but upon the resignation or removal of Unit Operator becoming effecttive, such Unit Operator shall deliver possession of all wells, equipment, books and records, materials, appurtenances and any other assets used in connection with the Unit Operations and owned by the Working Interest Owners to the new duly qualified successor Unit Operator or to the Unit Manager if no such new Unit Operator is elected, to be used for the purpose of conducting Unit Operations hereunder. Nothing herein shall be construed as authorizing the removal of any material, equipment of appurtenances needed for the preservation of any wells. Nothing herein contained shall be construed to relieve or discharge an Unit Operator or Unit Manager who resigns or is removed hereunder from any liability or duties accruing or performable by it prior to the effective date of such resignation or removal.

SECTION 8. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender its resignation as Unit Operator or shall be removed as hereinabove provided, the Working Interest Owners shall select a successor Unit Operator as herein provided. Such selection shall not become effective until (a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Land Commissioner and the Supervisor. If no successor Unit Operator or Unit Manager is selected and qualified as herein provided, the Land Commissioner and/or the Director, at their election, may declare this Agreement terminated.

In selecting a successor Unit Operator the affirmative vote of three or more Working Interest Owners having a total of sixty-five percent (65%) or more of the total Unit Participation shall prevail; provided that if any one Working Interest Owner has a Unit Participation of more than thirty-five percent (35%), its negative vote or failure to vote shall not be regarded as sufficient unless supported by the vote of one or more other Working Interest Owners having a total Unit Participation of at least five percent (5%). If the Unit Operator who is removed votes only to succeed itself or fails to vote, the successor Unit Operator may be selected by the affirmative vote of the owners of at least seventy-five percent (75%) of the Unit Participation remaining after excluding the Unit Participation of Unit Operator so removed.

SECTION 9. ACCOUNTING PROVISIONS & UNIT OPERATING AGREEMENT. Costs and expenses incurred by Unit Operator in conducting Unit Operations hereunder shall be paid, apportioned among and borne by the Working Interest Owners in accordance with the Unit Operating Agreement. Such Unit Operating Agreement shall also provide the manner in which the Working Interest Owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases or other contracts and such other rights and obligations as between Unit Operator and the Working Interest Owners as may be agreed upon by the Unit Operator and the Working Interest Owners; however, no such Unit Operating Agreement shall be deemed either to modify any of the terms and conditions of this Agreement or to relieve the Unit Operator of any right or obligation established under this Agreement, and in case of any inconsistency or conflict between this Agreement and the Unit Operating Agreement, this Agreement shall prevail. Copies of any Unit Operating Agreement executed pursuant to this Section shall be filed with the Land Commissioner and with the Supervisor as required prior to approval of this Agreement.

SECTION 10. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein the exclusive right, privilege and duty of exercising any and all rights of the parties hereto which are necessary or convenient for prospecting for, producing, storing, allocating and distributing the Unitized Substances are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Upon request, acceptable evidence of title to said rights shall be deposited with said Unit Operator, and together gether with this Agreement, shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease or operating agreement, it being understood that under this Agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

SECTION 11. PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this agreement is reasonably proved to be productive of Unitized Substances and that that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a Plan of Operation by the Working Interest Owners, the Supervisor, the Land Commissioner and the Division, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic

and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions may warrant.

The initial Plan of Operation shall be filed with the Supervisor, the Land Commissioner and the Division concurrently with the filing of this Unit Agreement for final approval. Said initial plan of operations and all revisions thereof shall be as complete and adequate as the Supervisor, the Land commissioner and the Division may determine to be necessary for timely operation consistent herewith. Said initial plan shall provide for the injection of the residue gas produced from the Unitized Formation commencing within twelve months from the effective date hereof and continuing until such time as the initial plan is terminated or modified by a subsequent plan with the approval of all necessary parties, including the Supervisor, the Land Commissioner and the Division. Upon approval of this Agreement and the initial plan by the Supervisor and Commissioner, said plan, and all subsequently approved plans shall constitute the operating obligations of the Unit Operator under this Agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall submit for like approval a plan for an additional specified period of operation. After such operations are commenced, reasonable diligence shall be exercised by the Unit Operator in complying with the obligations of the approved Plan of Operation.

Notwithstanding anything to the contrary herein contained, should the Unit Operator fail to commence operation of an improved recovery project incorporating the injection of produced gas within one (1) year after the effective date of this Agreement, or any extension thereof approved by the Supervisor, this Agreement shall terminate automatically as of the date of default.

SECTION 12. USE OF SURFACE AND USE OF WATER. The parties have to the extent of their rights and interests, hereby granted to Unit Operator the right to use as much of the surface of the Unitized Land as may reasonably be necessary for Unit Operations; provided that nothing herein shall be construed as leasing or otherwise conveying to the Unit Operator a site for water, gas injection or other plants or camp site.

Unit Operator shall have free use of water or brine or both from the Unitized Land for Unit Operations, except water from any well, lake, pond or irrigation ditch of a surface Owner, unless approval for such use is granted by the surface Owner.

Unit Operator shall pay the Owner for damages to growing crops, timber, fences, improvements and structures on the Unitized Land that result from Unit Operations.

SECTION 13. TRACT PARTICIPATION. In Exhibit "C" attached hereto there are listed and numbered the various Tracts within the Unit Area, and set forth opposite each Tract are figures which represent the Tract Participation if all Tracts in the Unit Area qualify as provided herein. The Tract Participations of each Tract as shown in Exhibit "C" were determined in accordance with the following parameters:

A. The net feet of porosity pay above four percent (4%) porosity cut off shall be determined from interpretation of generally accepted calibrated electric log surveys of the qualifying wells through the unitized formation. The net porosity feet so determined at each well in the formation to be unitized shall be plotted on a map at the respective well locations and an isopachous map constructed.

B. The productive net-porosity acre feet for each qualifying tract shall be determined by planimeter methods from the constructed isopachous net porosity feet of unitized formation.

C. The tract participation of each qualifying tract shall be the ratio of the individual tract net porosity acre feet volume divided by the summation of the net porosity acre feet volumes of all qualifying tracts.

In the event less than all Tracts are qualified on the Effective Date hereof, the Tract Participations shall be calculated on the basis of all such qualified Tracts rather that all Tracts in the Unit Area.

SECTION 14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof the Tracts within the Unit Area which shall be entitled to participation in the production of Unitized Substances shall be those Tracts more particularly described in Exhibit "B" that corner or have a common boundary (Tracts separated only by a public highway or a railroad right of way shall be considered to have a common boundary), and that otherwise qualify as follows:

(a) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement and as to which Royalty Owners owning seventy-five percent (75%) or more of the Royalty Interest have become parties to this Agreement.

(b) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement, and as to which Royalty Owners owning less than seventy-five percent (75%) of the Royalty Interest have become parties to this Agreement, and as to which (1) the Working Interest Owner who operates the Tract and at least seventy-five percent (75%) of all other Working Interest Owners in such Tract have joined in a request for the inclusion of such Tract, and as to which (2) owners of seventy-five percent (75%) of the combined Unit Participation in all Tracts that meet the requirements of Section 14 (a) above have voted in favor of the inclusion of such tract.

(c) Each Tract as to which Working Interest Owners owning less than one hundred percent (100%) of the Working Interest have become parties to this Agreement, regardless of the percentage of Royalty Interest therein that is committed hereto; and as to which (1) the Working Interest Owner who operates the Tract and a total of seventy-five percent (75%) or more of the other Working Interest Owners in such Tract who have become parties to this Agreement have joined in a request for inclusion of such Tract, and have executed and delivered, or obligated themselves to execute and deliver, an indemnity agreement indemnifying and agreeing to hold harmless the other owners of committed Working Interests, their successors and assigns, against all claims and demands that may be made by the owners of Working Interest in such Tract who are not parties to this Agreement, and which arise out of the inclusion of the Tract; and as to which (2) the owners of seventy-five percent (75%) of the Unit Participation in all Tracts that meet the requirements of Section 14 (a) and 14 (b) have voted in favor of the inclusion of such tract and to accept the indemnity agreement. Upon the inclusion of such a Tract, the Tract Participations which would have been attributed to the non-subscribing owners of Working Interest in such Tract, had they become parties to this Agreement and the Unit Operating Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements, and joined in the indemnity agreement, in proportion to their respective Working Interests in the Tract.

If on the Effective Date of this Agreement there is any Tract or Tracts which have not been effectively committed to or made subject to this Agreement by qualifying as above provided, then such Tract or Tracts shall not be entitled to participate hereunder. Unit Operator shall, when submitting this Agreement for final approval by the Land Commissioner and the Supervisor, file therewith a schedule of those Tracts which have been committed and made subject to this Agreement and are entitled to participate in Unitized Substances. Said schedule shall set forth opposite each such committed Tract the lease number or assignment number, the owner of record of the lease, and the percentage participation of such Tract which shall be computed according to the participation formula set out in Section 13 (Tract Participation) above. This schedule of participation shall be Revised Exhibit "C" and upon approval thereof by the Land Commissioner and the Supervisor shall become a part of this Agreement and shall govern the allocation of production of Unitized Substances until a new schedule is approved by the Land Commissioner and Supervisor.

SECTION 15. ALLOCATION OF UNITIZED SUBSTANCES. All Unitized Substances produced and saved (less, save and except any part of such Unitized Substances used in conformity with good operating practices on unitized land for drilling, operating, camp and other production or development purposes and for injection or unavoidable loss in accordance with a Plan of Operation approved by the Supervisor) shall be apportioned among and allocated to the qualified Tracts in accordance with the respective Tract Participations effective hereunder during the respective periods such Unitized Substances were produced, as set forth in the schedule of participation in Exhibit "C". The amount of Unitized Substances so allocated to each Tract, and only that amount, (regardless of whether it be more or less than the amount of the actual production of Unitized Substances from the well or wells, if any, on such Tract) shall, for all intents, uses and purposes, be deemed to have been produced from such Tract.

The Unitized Substances allocated to each Tract shall be distributed among, or accounted for, to the parties entitled to share in the production from such Tract in the same manner, in the same proportions, and upon the same conditions, as they would have participated and shared in the production from such Tracts, or in the proceeds thereof, had this Agreement not been entered into; and with the same legal force and effect.

No Tract committed to this Agreement and qualified for participation as above provided shall be subsequently excluded from participation hereunder on account of depletion of Unitized Substances.

If the Working Interest and/or the Royalty Interest in any Tract are divided with respect to separate parcels or portions of such Tract and owned now or hereafter in severalty by different persons, the Tract Participation shall, in the absence of a recordable instrument executed by all owners and furnished to Unit Operator fixing the divisions of ownership, be divided among such parcels or portions in proportion to the number of surface acres in each.

The Unitized Substances allocated to each Tract shall be delivered in kind to the respective Working Interest Owners and parties entitled thereto by virtue of the ownership of Oil and Gas Rights therein. Each Working Interest Owner and the parties entitled thereto shall have the continuing right to receive such production in kind at a common point within the Unit Area and to sell or dispose of the same as it sees fit. Each such party shall have the right to construct, maintain and operate all necessary facilities for that purpose on Unitized Land, provided the same are so constructed, maintained and operated as not to interfere with operations carried on pursuant hereto. Subject to Section 17 hereof, any extra expenditure

incurred by Unit Operator by reason of the delivery in kind of any portion of the Unitized Substances shall be borne by the party responsible therefor under the controlling lease or contract. In the event any Interest Owner shall fail to take or otherwise adequately dispose of its proportionate share of the production from the Unitized Unitized Formation currently as and when produced, then so long as such condition continues, Unit Operator, for the account and at the expense of the Working Interest Owner of the Tract or Tracts concerned, and in order to avoid curtailing the operation of the Unit Area, may, but shall not be required to, sell or otherwise dispose of such production to itself or to others on a day-to-day basis, provided that all contracts of sale by Unit Operator or any other party's share of Unitized Substances shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the circumstances, but in no event shall any such contract be for a period in excess of one year, and at not less than the prevailing market price in the area for like production, and the account of such Working Interest Owner shall be charged therewith as having received such production. The net proceeds, if any, of the Unitized Substances so disposed of by Unit Operator shall be paid to the Working Interest Owner of the Tract or Tracts concerned. Notwithstanding the foregoing, Unit Operator shall not make a sale into interstate commerce of any Working Interest Owner's share of gas production without first giving such Working Interest Owner sixty (60) days notice of such intended sale.

Any Working Interest Owner receiving in kind or separately disposing of all or any part of the Unitized Substances allocated to any Tract, or receiving the proceeds therefrom if the same is sold or purchased by Unit Operator, shall be responsible for the payment of all Royalty, overriding royalty and production payments due thereon, and each such party shall hold each other Working Interest Owner harmless against all claims, demands and causes of action by owners of such Royalty, overriding royalty and production payments.

If, after the Effective Date of this Agreement, there is any Tract or Tracts that are subsequently committed hereto, as provided in Section 4 (Expansion) hereof, or any Tract or Tracts within the Unit Area not committed hereto as of the Effective Date hereof but which are subsequently committed hereto under the provisions of Section 14 (Tracts Qualified for Participation) and Section 32 (Nonjoinder and Subsequent Joinder), or if any Tract is excluded from this Agreement as provided for in Section 31 (Loss of Title), the schedule of participation as shown in Exhibit "C", shall be revised by the Unit Operator; and the revised Exhibit "C", upon approval by the Land Commissioner and the Supervisor, shall govern the allocation of production on and after the effective date thereof until a revised schedule is approved as hereinabove provided.

If the Unit Area is enlarged, the revised Tract Participations of the Tracts which were within the Unit Area prior to the enlargement shall remain in the same ratio one to another.

SECTION 16. OUTSIDE SUBSTANCES. If gas obtained from formations not subject to this Agreement is introduced into the Unitized Formation for use in repressuring, stimulating of production or increasing ultimate recovery which shall be in conformity with a Plan of Operation first approved by the Land Commissioner and the Supervisor, a like amount of gas with appropriate deduction for loss or depletion from any cause may be withdrawn from unit wells completed in the Unitized Formation royalty free as to dry gas, but not royalty free as to the products extracted therefrom; provided that such withdrawal shall be at such time as may be provided in the approved Plan of Operation or as otherwise may be consented to or prescribed by the Land Commissioner and the Supervisor as conforming

to good petroleum engineering practices and provided further that such right of withdrawal shall terminate on the termination date of this Agreement.

SECTION 17. ROYALTY SETTLEMENT. The State of New Mexico and United States of America and all Royalty Owners who, under an existing contract, are entitled to take in kind a share of the substances produced from any Tract unitized hereunder, shall continue to be entitled to such right to take in kind their share of the Unitized Substances allocated to such Tract, and Unit Operator shall make deliveries of such Royalty share taken in kind in conformity with the applicable contracts, laws and regulations. Settlement for Royalty not taken in kind shall be made by Working Interest Owners responsible therefor under existing contracts, laws and regulations on or before the last day of each month for Unitized Substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any Royalty due under their leases, except that such Royalty shall be computed on Unitized Substances as allocated to each Tract in accordance with the terms of this Agreement. With respect to Federal leases committed hereto on which the royalty rate depends upon the daily average production per well, such average production shall be determined in accordance with the operating regulations pertaining to Federal leases as though the committed Tracts were included in a single consolidated lease.

If the amount of production or the proceeds thereof accruing to any Royalty Owner (except the United States of America) in a Tract depends upon the average production per well or the average pipeline runs per well from such Tract during any period of time, then such production shall be determined from and after the effective date hereto by dividing the quantity of Unitized Substances allocated hereunder to such Tract during such period of time by the number of wells located thereon capable of producing Unitized Substances as of the Effective Date hereof, provided that any Tract not having any well so capable of producing Unitized Substances on the Effective Date hereof shall be considered as having one such well for the purpose of this provision.

All Royalty due the State of New Mexico and the United States of America and the other Royalty Owners hereunder shall be computed and paid on the basis of all Unitized Substances allocated to the respective Tract or Tracts committed hereto, in lieu of actual production from such Tract or Tracts.

Each Royalty Owner (other than the State of New Mexico and the United States of America) that executes this Agreement represents and warrants that it is the owner of a Royalty Interest in a Tract or Tracts within the Unit Area as its interest appears in Exhibit "B" attached hereto. If any Royalty Interest in a Tract or Tracts should be lost by title failure or otherwise in whole or in part, during the term of this Agreement, then the Royalty Interest of the party representing himself to be the owner thereof shall be reduced proportionately and the interests of all parties shall be adjusted accordingly.

SECTION 18. RENTAL SETTLEMENT. Rentals or minimum Royaltis due on leases committed hereto shall be paid by Working Interest Owners responsible therefor under existing contracts, laws and regulations provided that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental or minimum Royalty in lieu thereof, due under their leases. Rental for lands of the State of New Mexico subject to this Agreement shall be paid at the rate specified in the respective leases from the State of New Mexico.

Rental or minimum Royalty for lands of the United States of America subject to this Agreement shall be paid at the rate specified in the respective leases from the United States of America, unless such rental or minimum Royalty is waived, suspended or reduced by law or by approval of the Secretary or his duly authorized representative.

SECTION 19. CONSERVATION. Operations hereunder and production of Unitized Substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to Federal and State laws and regulations.

SECTION 20. DRAINAGE. The Unit Operator shall take appropriate and adequate measures to prevent drainage of Unitized Substances from unitized land by wells on land not subject to this Agreement, including, but not limited to, proceedings under the New Mexico Compulsory Pooling Act.

The Unit Operator, upon approval by the Working Interest Owners, the Supervisor and the Land Commissioner, is hereby empowered to enter into a border line agreement or agreements with working interest owners of adjoining lands not subject to this Agreement with respect to operation in the border area for the maximum economic recovery, conservation purposes and proper protection of the parties and interest affected.

SECTION 21. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas on lands committed to this Agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect, and the parties hereto hereby consent that the Secretary and the Land Commissioner, respectively, shall and by their approval hereof, or by the approval hereof by their duly authorized representatives, do hereby establish, alter, change or revoke the drilling, producing, rental, minimum Royalty and Royalty requirements of Federal and State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this Agreement.

Without limiting the generality of the foregoing, all leases, subleases and contracts are particularly modified in accordance with the following:

(a) The development and operation of lands subject to this Agreement under the terms hereof shall be deemed full performance of all obligations for development and operation with respect to each part or separately owned Tract subject to this Agreement, regardless of whether there is any development of any particular part or Tract of the Unit Area, notwithstanding anything to the contrary in any lease, operating agreement or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

(b) Drilling, producing or improved recovery operations preformed hereunder shall be deemed to be performed upon and for the benefit of each Tract, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Land Commissioner and the Secretary, or their duly authorized representatives, shall be deemed to constitute such suspension pursuant to such direction or consent as to each Tract of unitized lands.

(d) Each lease, sublease, or contract relating to the exploration, drilling, development or operation for oil and gas which by its terms might expire prior to the termination of this Agreement, is hereby extended beyond any such term so provided therein, so that it shall be continued in full force and effect for and during the term of this Agreement.

(e) Any lease embracing lands of the State of New Mexico which is made subject to this Agreement shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(f) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto shall be segregated as to that portion committed and that not committed, and the terms of such lease shall apply separately to such segregated portions commencing as of the effective date hereof. Provided, however, that notwithstanding any of the provisions of this Agreement to the contrary, such lease shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease if oil or gas is, or has heretofore been discovered in paying quantities on some part of the lands embraced in such lease committed to this Agreement or, so long as a portion of the Unitized Substances produced from the Unit Area is, under the terms of this Agreement, allocated to the portion of the lands covered by such lease committed to this Agreement, or, at any time during the term hereof, as to any lease that is then valid and subsisting and upon which the lessee or the Unit Operator is then engaged in bona fide drilling, reworking, or improved recovery operations on any part of the lands embraced in such lease, then the same as to all lands embraced therein shall remain in full force and effect so long as such operations are diligently prosecuted, and if they result in the production of oil or gas, said lease shall continue in full force and effect as to all of the lands embraced therein, so long thereafter as oil or gas in paying quantities is being produced from any portion of said lands.

(g) The segregation of any Federal lease committed to this Agreement is governed by the following provision in the fourth paragraph of Section 17(j) of the Mineral Leasing Act, as amended by the Act of September 2, 1960, (74 Stat. 781-784): "Any (Federal) lease heretofore or hereafter committed to any such (unit) plan embracing lands that are in part within and in part outside of the area covered by any such plan shall be segregated into separate leases as to the lands committed and the lands not committed as of the Effective Date of unitization; provided, however, that any such lease as to the non-unitized portion shall continue in force and effect for the term thereof but for not less than two years from the date of such segregation and so long thereafter as oil or gas is produced in Paying Quantities."

SECTION 22. COVENANTS RUN WITH LAND. The covenants herein shall be construed to be covenants running with the land with respect to the interest of the parties hereto and their successors in interest until this Agreement terminates, and any grant, transfer or conveyance of interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee or other successor in interest. No assignment or transfer of any Working Interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument or transfer; and no assignment or transfer of any Royalty Interest subject hereto shall be binding upon the Working Interest Owner responsible therefor until the first day

of the calendar month after said Working Interest Owner is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument or transfer.

SECTION 23. EFFECTIVE DATE AND TERM. This Agreement shall become binding upon each party who executes or ratifies it as of the date of execution or ratification by such party and shall become effective on the first day of the calendar month next following the approval of this Agreement by the Supervisor, the Land Commissioner and the Division.

If this Agreement does not become effective on or before _____, 19___, it shall ipso facto expire on said date (hereinafter called "expiration date") and thereafter be of no further force or effect, unless prior thereto this Agreement has been executed or ratified by Working Interest Owners owning a combined Participation of at least eighty percent (80%), and at least seventy-five percent (75%) of such Working Interest Owners committed to this Agreement have decided to extend said expiration date for a period not to exceed six months (hereinafter called "extended expiration date"). If said expiration date is so extended and this Agreement does not become effective on or before said extended expiration date, it shall ipso facto expire on said extended expiration date and thereafter be of no further force or effect.

Unit Operator shall file for record within thirty (30) days after the Effective Date of this Agreement, in the office where a counterpart of this Agreement is recorded, a certificate to the effect that this Agreement has become effective according to its terms and stating further the effective date.

The term of this Agreement shall be for and during the time that Unitized Substances are produced from the unitized land and so long thereafter as drilling, reworking or other operations (including improved recovery operations) are prosecuted thereon without cessation of more than ninety (90) consecutive days unless sooner terminated as herein provided.

This Agreement may be terminated with the approval of the Land Commissioner and the Supervisor by Working Interest Owners owning eighty percent (80%) of the Unit Participation then in effect whenever such Working Interest Owners determine that Unit Operations are no longer profitable, or in the interest of conservation. Upon approval, such termination shall be effective as of the first day of the month after said Working Interest Owners' determination. Notice of any such termination shall be filed by Unit Operator in the office of the County Clerk of _____ County, New Mexico, within thirty (30) days of the effective date of termination.

Upon termination of this Agreement, the parties hereto shall be governed by the terms and provisions of the leases and contracts affecting the separate Tracts just as if this Agreement had never been entered into.

If not otherwise provided by the leases unitized under this Agreement, Royalty Owners hereby grant Working Interest Owners a period of six months after termination of this Agreement in which to salvage, sell, distribute or otherwise dispose of the personal property and facilities used in connection with Unit Operations.

SECTION 24. RATE OF PROSPECTING, DEVELOPMENT AND PRODUCTION. All production and the disposal thereof shall be in conformity with allocations and quotas made or fixed by any duly authorized person or regulatory body under any Federal or State statute. The Director is hereby vested with authority to alter or modify from time to time, in his discretion, the rate of prospecting and development and within

the limits made or fixed by the Commission to alter or modify the quantity and rate of production under this Agreement, such authority being hereby limited to alteration or modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alteration or modification; provided, further, that no such alteration or modification shall be effective as to any land of the State of New Mexico as to the rate of prospecting and development in the absence of the specific written approval thereof by the Land Commissioner and as to any lands of the State of New Mexico or privately owned lands subject to this Agreement or to the quantity and rate of production from such lands in the absence of specific written approval thereof by the Commission.

Powers in this Section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than fifteen (15) days from notice, and thereafter subject to administrative appeal before becoming final.

SECTION 25. NONDISCRIMINATION. Unit Operator in connection with the performance of work under this Agreement relating to leases of the United States agrees to comply with the clauses set forth in Exhibit "D" attached hereto and made a part hereof.

SECTION 26. APPEARANCES. Unit Operator shall have the right to appear for or on behalf of any interests affected hereby before the Land Commissioner, the Department, and the Division, and to appeal from any order issued under the rules and regulations of the Land Commissioner, the Department or the Division, or to apply for relief from any of said rules and regulations or in any proceedings relative to operations before the Land Commissioner, the Department or the Division or any other legally constituted authority; provided, however, that any other interested party shall also have the right at his or its own expense to be heard in any such proceeding.

SECTION 27. NOTICES. All notices, demands, objections or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if made in writing and personally delivered to the party or parties or sent by postpaid certified or registered mail, addressed to such party or parties at their respective addresses set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party or parties may have furnished in writing to the party sending the notice, demand or statement.

SECTION 28. NO WAIVER OF CERTAIN RIGHTS. Nothing in this Agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State wherein said Unitized Lands are located, or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive; provided, however, each party hereto convenants that it will not resort to any action to partition the unitized land or the Unit Equipment.

SECTION 29. EQUIPMENT AND FACILITIES NOT FIXTURES ATTACHED TO REALTY. Each Working Interest Owner has heretofore placed and used on its Tract or Tracts committed to this Agreement various well and lease equipment and other property, equipment and facilities. It is also recognized that additional equipment and facilities may hereafter be placed and used upon the Unitized Land as now or hereafter constituted. Therefore, for all purposes of this Agreement any such equipment shall be considered to be personal property and not fixtures attached to realty. Accordingly, said well and lease equipment and personal property is hereby severed from the mineral estates affected by this Agreement, and it is agreed that any such

equipment and personal property shall be and remain personal property of the Working Interest Owners for all purposes.

SECTION 30. UNAVOIDABLE DELAY. All obligations under this Agreement requiring the Unit Operator to commence or continue improved recovery operations or to operate on or produce Unitized Substances from any of the lands covered by this Agreement shall be suspended while, but only so long as, the Unit Operator, despite the exercise of due care and diligence, is prevented from complying with such obligations, in whole or in part, by strikes, acts of God, Federal, State of municipal law or agency, unavoidable accident, uncontrollable delays in transportation, inability to obtain necessary materials in open market, or other matters beyond the reasonable control of the Unit Operator whether similar to matters herein enumerated or not.

SECTION 31. LOSS OF TITLE. In the event title to any Tract of unitized land shall fail so as to render the Tract inoperable under this Agreement and the true owner cannot be induced to join this Agreement, or forced to join in compulsory unitization proceedings, such Tract shall be automatically regarded as not committed hereto as of the first day of the calendar month in which the failure of title is determined and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to title as to any Royalty, Working Interest or other interest subject thereto, payment or delivery on account thereof may be withheld without liability or interest until the dispute is finally settled; provided, that as to State or Federal land or leases, no payments of funds due the State of New Mexico or the United States of America shall be withheld, but such funds shall be deposited as directed by the Land Commissioner and/or the Supervisor (as the case may be), to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

Unit Operator as such is relieved from any responsibility for any defect of failure of any title hereunder.

SECTION 32. NONJOINDER AND SUBSEQUENT JOINDER. Joinder by any Royalty Owner, at any time, must be accompanied by appropriate joinder of the corresponding Working Interest Owner in order for the Interest of such Royalty Owner to be regarded as effectively committed. Joinder of this Agreement by a Working Interest Owner, at any time, must be accompanied by appropriate joinder to the Unit Operating Agreement in order for such interest to be regarded as effectively committed to this Agreement.

Any oil or gas interest in the Unitized Formations not committed hereto prior to submission of this Agreement to the Land Commissioner and the Supervisor for final approval may thereafter be committed hereto upon compliance with the applicable provisions of this Section and of Section 14 (Tracts Qualified for Participation) hereof, at any time up to the effective date hereof on the same basis of participation as provided in said Section 14, by the owner or owners thereof subscribing, ratifying, or consenting in writing to this Agreement and, if the interest is a Working Interest, by the owner of such interest subscribing also to the Unit Operating Agreement.

It is understood and agreed, however, that from and after the Effective Date hereof the right of subsequent Joinder as provided in this Section shall be subject to such requirements or approvals and on such basis as may be agreed upon by Working Interest Owners owning not less than sixty-five percent (65%) of the Unit Participation then in effect, and approved by the Land Commissioner and Supervisor. Such subsequent joinder by a proposed Working Interest Owner must be evidenced by his execution or ratification of this Agreement

and the Unit Operating Agreement and, where State or Federal land is involved, such Joinder must be approved by the Land Commissioner or Supervisor. Such Joinder by a proposed Royalty Owner must be evidenced by his execution, ratification or consent of this Agreement and must be consented to in writing by the Working Interest Owner responsible for the payment of any benefits that may accrue hereunder in behalf of such proposed Royalty Owner. Except as may be otherwise herein provided, subsequent joinder to this Agreement shall be effective as of the first day of the month following the filing with the Land Commissioner and the Supervisor of duly executed counterparts of any and all documents necessary to establish effective commitment of any Tract or interest to this Agreement, unless objection to such joinder by the Land Commissioner or the Supervisor is duly made sixty (60) days after such filing.

SECTION 33. COUNTERPARTS. This Agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties and may be ratified or consented to by separate instrument in writing, specifically referring hereto, and shall be binding upon all those parties who have executed such a counterpart, ratification or consent hereto with the same force and effect as if all parties had signed the same document, and regardless of whether or not it is executed by all other parties owning or claiming an interest in the land within the above described Unit Area.

SECTION 34. JOINDER IN DUAL CAPACITY. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests owned or controlled by such party; provided, that if the party is the owner of a Working Interest, he must also execute the Unit Operating Agreement.

SECTION 35. TAXES. Each party hereto shall, for its own account, render and pay its share of any taxes levied against or measured by the amount or value of the Unitized Substances produced from the unitized land; provided, however, that if it is required or if it be determined that the Unit Operator or the several Working Interest Owners must pay or advance said taxes for the account of the parties hereto, it is hereby expressly agreed that the parties so paying or advancing said taxes shall be reimbursed therefor by the parties hereto, including Royalty Owners, who may be responsible for the taxes on their respective allocated share of said Unitized Substances. No taxes shall be charged to the United States or to the State of New Mexico, nor to any lessor who has a contract with a lessee which requires his lessee to pay such taxes.

SECTION 36. NO PARTNERSHIP. The duties, obligations and liabilities of the parties hereto are intended to be several and not joint or collective. This Agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

SECTION 37. PRODUCTION AS OF THE EFFECTIVE DATE. Unit Operator shall make a proper and timely gauge of all leases and other tanks within the unitized land in order to ascertain the amount of merchantable oil above the pipe line connection in such tanks as of the effective date hereof. All such oil which has then been produced in accordance with established allowables shall be and remain the property of the Interest Owner entitled thereto, the same as if the unit had not been formed; and the responsible Working Interest Owner shall promptly remove said oil from the unitized land. Any such oil not so removed shall be sold by Unit Operator for the account of such Working Interest Owners, subject to the payment of all Royalty to Royalty Owners under the terms hereof. The oil that is in excess of the prior allowable of the wells from which it was produced shall be regarded as Unitized Substances produced after Effective Date hereof.

If, as of the Effective Date hereof, any Tract is overproduced with respect to the allowable of the wells on that Tract and the amount of over-production has been sold or otherwise disposed of, such over-production shall be regarded as a part of the Unitized Substances produced after the Effective Date hereof and shall be charged to such Tract as having been delivered to the parties entitled to Unitized Substances allocated to such Tract.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and have set opposite their representive names the date of execution.

ATTEST:

HARVEY E. YATES COMPANY

_____
Asst. Secretary

BY: _____
Vice President

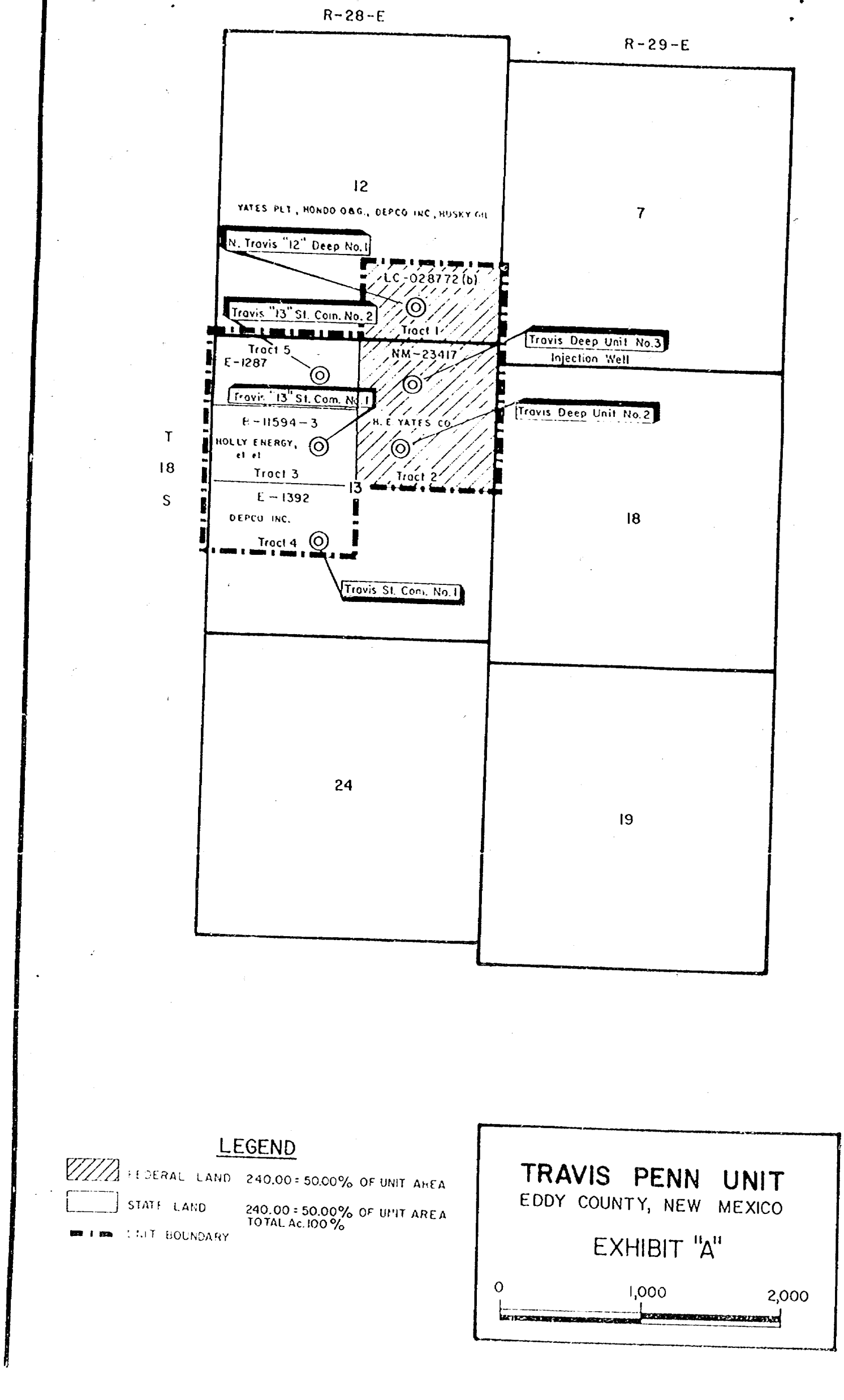
STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

The foregoing instrument was acknowledged before me this _____ day of _____, 1980 by _____, Vice President of HARVEY E. YATES COMPANY, a New Mexico Corporation, on behalf of said corporation.

My Commission Expires:

_____

_____
Notary Public



LEGEND

FEDERAL LAND 240.00 = 50.00% OF UNIT AREA

STATE LAND 240.00 = 50.00% OF UNIT AREA
TOTAL Ac. 100%

UNIT BOUNDARY

TRAVIS PENN UNIT

EDDY COUNTY, NEW MEXICO

EXHIBIT "A"

0 1,000 2,000

EXHIBIT "B"

SCHEDULE SHOWING THE PERCENTAGE AND KIND OF OWNERSHIP OF OIL AND GAS INTERESTS

TRAVIS PENN UNIT AREA

EDDY COUNTY, NEW MEXICO

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
TOWNSHIP 18 SOUTH, RANGE 28 EAST, N.M.P.M.							
1	Sec. 12: S/2 SE/4 (Below 500')	80.0	LC-028772(b) HBP	U.S.A. 12.5%	Hondo Oil & Gas Company 50.0000% Yates Petroleum Corp. 18.0556% Husky Oil Company 15.9722% DEPCO, Inc. 15.9722%	Yates Bros 2.256940% Colkelan Corporation .021404% Hanson Oil Corporation .018230% Hondo Oil & Gas Co. .630700% Mobil Producing Tx & NM .437600% Tenneco Oil Company .080220% Fred G. Yates, Inc. .002594% James H. Yates, Inc. .021402%	Hondo Oil & Gas Company 50.0000% Yates Petroleum Corp. 18.0556% Husky Oil Company 15.9722% DEPCO, Inc. 15.9722%
2	Sec. 13: N/2 NE/4 (Below 3100')	80.0	NM-23417 HBP	U.S.A. 12.5%	Anadarko Production Company & Southland Royalty Company 100.0000%	Robert F. Travis, Jr. .500004% Dolores Ponton .083333% Eudora Hawley Heilman .250000% Frank Edward Hawley .125000% James Clayton Hawley .125000% Featherstone Farms, Ltd. .500000% Yates Bros. .250000%	Harvey E. Yates Company 100.0000%

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
2	Sec. 13: N/2 NE/4 (Continued)					Gladys Travis, Trustee .083333% Nell T. Michel .083333% Harvey E. Yates 1.500000% Louise D. Yates 1.500000% Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	
2	Sec. 13: S/2 NE/4 (Below 3500')	80.0	NM-23417 HBP	U.S.A. 12.5%	Anadarko Production Company & Southland Royalty Company 100.0000%	Robert F. Travis, Jr. .500004% Dolores Ponton .083333% Eudora Hawley Heilman .250000% Frank Edward Hawley .125000% James Clayton Hawley .125000% Featherstone Farms, Ltd. .500000%	Harvey E. Yates Company 100.0000%

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
2	Sec. 13: S/2 NE/4 (Continued)					Yates Bros. .250000% Gladys Travis, Trustee .083333% Nell T. Michel .083333% Harvey E. Yates 1.500000% Louise D. Yates 1.500000% Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	

2 Federal Tracts - 240.0 acres or 50.0% of unit area

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
3	Sec. 13: S/2 NW/4 (Below 2650')	80.0	B-11594-3 HBP	State of New Mexico - 12.5%	Holly Energy, Inc. 100.0000%	Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	Holly Energy, Inc. 87.5000% Read & Stevens, Inc. 12.5000%
4	Sec. 13: N/2 SW/4 (Below 3500')	80.0	E-1392 HBP	State of New Mexico - 12.5%	Anadarko Production 100.0000%	Robert Boling .500000% Mary Boling .500000% Gladys Browne .500000% Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Mark Wilson 1.000000% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	DEPCO, Inc. 100.0000%

TRACT NO.	DESCRIPTION OF LAND	NUMBER OF ACRES	SERIAL NUMBER & EXPIRATION DATE OF LEASE	BASIC ROYALTY AND PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST * AND PERCENTAGE
5	Sec. 13: N/2 NW/4	80.0	E-1287 HBP	State of New Mexico - 12.5%	Holly Energy, Inc. 100.0000%	Colkelan Corporation .025473% Hanson Oil Corporation .021690% Hondo Oil & Gas Company .750580% Mobil Producing TX & NM .520780% Tenneco Oil Company .095470% Fred G. Yates, Inc. .003087% James H. Yates, Inc. .025470%	Holly Energy, Inc. 87.5000% Read & Stevens, Inc. 12.5000%

3 State Tracts - 240.0 acres or 50.0% of unit area

*Subject to the terms of the Operating Agreements dated June 1, 1976 and April 25, 1980, by and between Harvey E. Yates Company, as Operator, and other parties as Non-Operators.

Exhibit "C"
Harvey E. Yates Company - Travis Penn Unit
Working Interest Calculations
Revised July 28, 1981

WORKING INTEREST OWNERS		PRESENT WORKING INTEREST						NEW WORKING INTERESTS
Number	Name	TRAVIS DEEP No. 2 8019	TRAVIS DEEP No. 3 8038	TRAVIS STATE No. 1 8081	TRAVIS 13 STATE No. 1 9043	NORTH TRAVIS 12 No. 1 9042	TRAVIS 13 STATE No. 2 9082	TRAVIS PENN UNIT 9075*
05540	Rogers Aston	.00173120	.00173120	.00173120	.00173120	.00145469	.00173120	.00168512
05550	Charles Albert Aston	.00173120	.00173120	.00173120	.00173120	.00145469	.00173120	.00168512
05560	Lincoln Aston	.00173120	.00173120	.00173120	.00173120	.00145469	.00173120	.00168512
05570	Rogers Aston Trust-FNB	.00519350	.00519350	.00519350	.00519350	.00436398	.00519350	.00505525
08310	Bassett-Birney Corporation	.04154820	.04154820	.04154820	.04154820	.03491203	.04154820	.04044217
09865	Black-Shield Development Co.	.03471840	.03471840	.03471840	.03471840	.02917310	.03471840	.03379418
15170	Colkelan Corporation	.00990171	.00990171	.00990171	.00990171	.00832019	.00990171	.00963812
15725	Coronado Exploration Corp.	.07273469	.07273469	.07273471	.07273469	.06111735	.07273469	.07079847
18100	Depco, Inc.	.12797620	.12797620	.12797620	.12797620	.10753556	.12797620	.12456943
26620	Explorers Petroleum Corp.	.02034880	.02034880	.02034880	.02034880	.01709864	.02034880	.01980711
27340	Fair Oil Company	.00867960	.00867960	.00867960	.00867960	.00729328	.00867960	.00844855
34482	Hanson Oil Company	.00867960	.00867960	.00867960	.00867960	.00729328	.00867960	.00844855
37040	Holly Energy, Inc.	.07270920	.07270920	.07270920	.07270920	.06109593	.07270920	.07077366
37206	Hondo Oil & Gas Corp.	.05003900	.05003900	.05003890	.05003900	.04204658	.05003900	.04870691
51425	LDY Corporation	.01763220	.01763220	.01763220	.01763220	.01481595	.01763220	.01716283
57695	Mobil Producing Co. TX & NM	.03471840	.03471840	.03471840	.03471840	.02917310	.03471840	.03379418
73600	Read & Stevens Inc.	.01038700	.01038700	.01038700	.01038700	.00872797	.01038700	.01011050
80700	Spiral, Inc.	.01763220	.01763220	.01763220	.01763220	.01481595	.01763220	.01716283
83730	Tenneco Oil Co.	.01301940	.01301940	.01301940	.01301940	.01093991	.01301940	.01267282
96823	Yates Exploration Co. Inc.	.01017440	.01017440	.01017440	.01017440	.00854932	.01017440	.00990355
96865	Fred G. Yates Inc.	.02034870	.02034870	.02034870	.02034870	.01709856	.02034870	.01980701
96875	Yates Petroleum Corp.	.04324850	.04324850	.04324850	.04324850	.03634075	.04324850	.04209721
96884	James H. Yates Inc.	.01980330	.01980330	.01980330	.01980330	.01664027	.01980330	.01927613
99980	Harvey E. Yates Company	.35531340	.35531340	.35531348	.35531340	.29856203	.35531340	.34585481
38360	Husky Oil Company					.15972220		.02662037
		1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000

EXHIBIT "D"

ATTACHED TO AND MADE A PART OF
UNIT AGREEMENT DATED
BETWEEN HARVEY E. YATES COMPANY AS OPERATOR,
AND OTHER SIGNATORY PARTIES THERETO AS
NON-OPERATORS.

NONDISCRIMINATION CLAUSE

HARVEY E. YATES COMPANY, hereinafter referred to as "Operator," agrees, unless exempt therefrom, to comply with all provisions of Executive Order 11246, which are incorporated herein by reference, and if Operator has more than 50 employees, Operator must file Standard Form 100 (EEO-1) and develop a written "Affirmative Action Compliance Program" for each of its establishments according to the Rules and Regulations published by the United States Department of Labor in 41 C.F.R., Chapter 60. Operator further hereby certifies that it does not now and will not maintain any facilities provided for its employees in a segregated manner or permit its employees to perform their services at any location under its control where segregated facilities are maintained, as such segregated facilities are defined in Title 41, Chapter 60-1.8, Code of Federal Regulations, revised as of 1/1/69, unless exempt therefrom.

Unless exempt by rules, regulations or orders of the United States Secretary of Labor, issued pursuant to Section 204 of the Executive Order 11246 dated September 24, 1965, during the performance of this contract, the Operator agrees as follows:

"(1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Operator will take affirmative action to ensure the Applicants are employed and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting office setting forth the provisions of this nondiscrimination clause.

"(2) The Operator will, in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

"(3) The Operator will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

"(4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

"(5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

"(6) In the event of the Operator's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

"(7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States."

PS Form 3811, Jun. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered.....¢
- ☐ Show to whom, date and address of delivery.....¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered.....¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$ ____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:

SANTA FE NM 87501 JAN 13 1981

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.

SIGNATURE ☐ Addressee ☐ Authorized agent

/S/ Caron [illegible]

4. DATE OF DELIVERY

POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

☆GPO : 1980 [illegible]

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 2
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

HEYCO
PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY
505 [illegible]
ROSWELL, NEW MEXICO 88201

July 29, 1981

Bureau of Land Management
U.S. Department of the Interior
Post Office Box 1449
Santa Fe, New Mexico 87501

RE: Notice of Application of
Harvey E. Yates Company
for Waterflood Injection
Eddy County, New Mexico

Gentlemen:

Harvey E. Yates Company, as Operator under the Travis Penn Unit Agreement, has filed an Application with the Oil Conservation Division of the State of New Mexico for a hearing August 12, 1981, seeking authorization under Rule 701 of the Rules and Regulations of the Oil Conservation Commission to commence a waterflood injection operation on the following property:

Township 18 South, Range 28 East, N.M.P.M.

Section 12: S/2SE/4
Section 13: N/2, N/2SW/4

Enclosed is a copy of the above application.

Sincerely,

Thomas J. Hall, III
Attorney

TJH:dk

Enclosure

Peabody Vann

FILING NO.

COMPANY HEYCO, INC.

WELL NORTH TRAVIS "12" DEEP #1

FIELD TURKEY TRACK

COUNTY EDDY STATE NEW MEXICO

LOCATION 660' FSL & 1650' FEL

SEC 12 TWP 18-S RGE 28-E

OTHER SERVICES: GRCCL

PERMANENT DATUM	G L	ELEV. 3633.7'
LOG MEASURED FROM	K B 15 FT ABOVE PERM. DATUM	ELEV. 3648.7'
DRILLING MEASURED FROM	K B	ELEV. 3633.7'

DATE	7/13/80	
RUN NO	ONE	
TYPE LOG	CEMENT BOND	(DUAL CURVE)
DEPTH—DRILLER	-	
DEPTH—LOGGER	11,177'	
BOTTOM LOGGED INTERVAL	11,171'	
TOP LOGGED INTERVAL	9,655'	
TYPE FLUID IN HOLE	WATER	
SALINITY, PPM CL	-	
DENSITY	-	
LEVEL	300'	
MAX. REC. TEMP. DEG. F	-	
OPERATING RIG TIME	5 HOURS	
RECORDED BY	T. BUTTS	
WITNESSED BY	MR. HARDEE	

RUN NO	BORE—HOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO
				5½"	17	SURF.	PBTD

REC

INTERVAL TRANSIT TIME — TIME INCREASE

9650 60 70 80 90 9700 10

CEMENT BOND CURVE — BOND INCREASE

0% 50 100%

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 3-a
CASE NO. 7320
SUBMITTED BY Harvey E Yates Co
HEARING DATE 8/12/81

Peebody Wells

CEMENT BOND LOG

HEYCO, INC.

TRAVIS "24" STATE COM. #1

WILDCAT

EDDY COUNTY, STATE NEW MEXICO

1980' FNL & 660' FEL

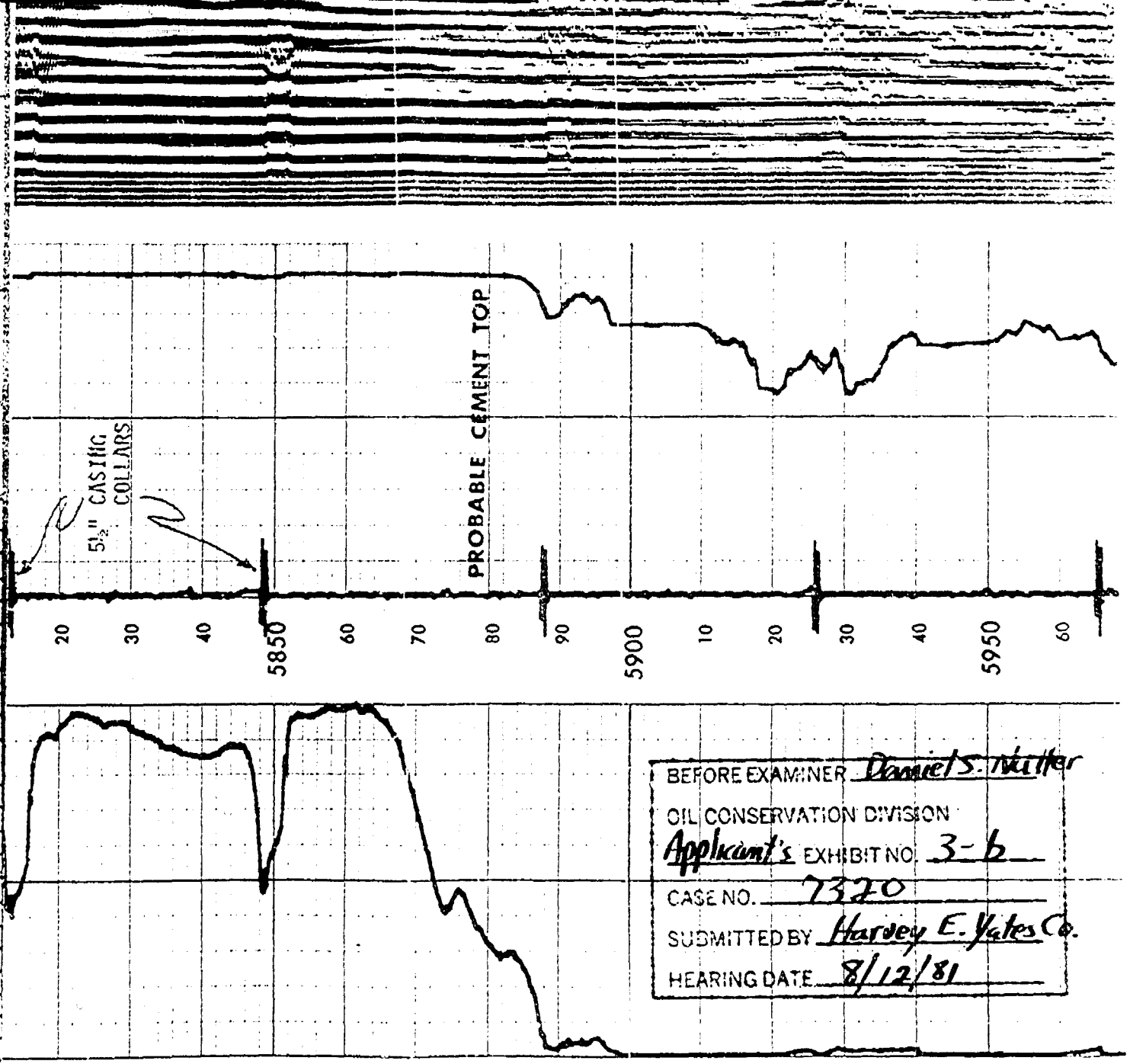
24 — 18-S — 28-E

GRCCL

PERMANENT DATUM	G L	ELEV.	3525'
LOG MEASURED FROM	K B 15 FT ABOVE PERM. DATUM		3540'
DRILLING MEASURED FROM	K B		3525'

DATE	10/14/80		
RUN NO.	ONE		
TYPE LOG	SEISMOGRAM	CEMENT BOND	(DUAL CURVE)
DEPTH-DRILLER	-		
DEPTH-LOGGER	11,143'		
BOTTOM LOGGED INTERVAL	11,137'		
TOP LOGGED INTERVAL	5,750'		
TYPE FLUID IN HOLE	WATER		
SALINITY, PPM CL	-		
DENSITY	-		
LEVEL	870'		
MAX. REC. TEMP. DEG. F	-		
OPERATING RIG TIME	36 HRS.		
RECORDED BY	M. BUTTS		
WITNESSED BY	MR. HARDEE		

RUN	BORE-HOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
				5½"	17# & 20#	SURF.	PBTD



BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 3-b
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

Peabody Vann

Seismogram
CEMENT BOND LOG

COMPANY: MEYCO, INC.

WELL: TRAVIS "13" STATE # 1

FIELD: TRAVIS DEEP

COUNTY: EDDY STATE: NEW MEXICO

LOCATION: 1980' FNL & 1980' FWL

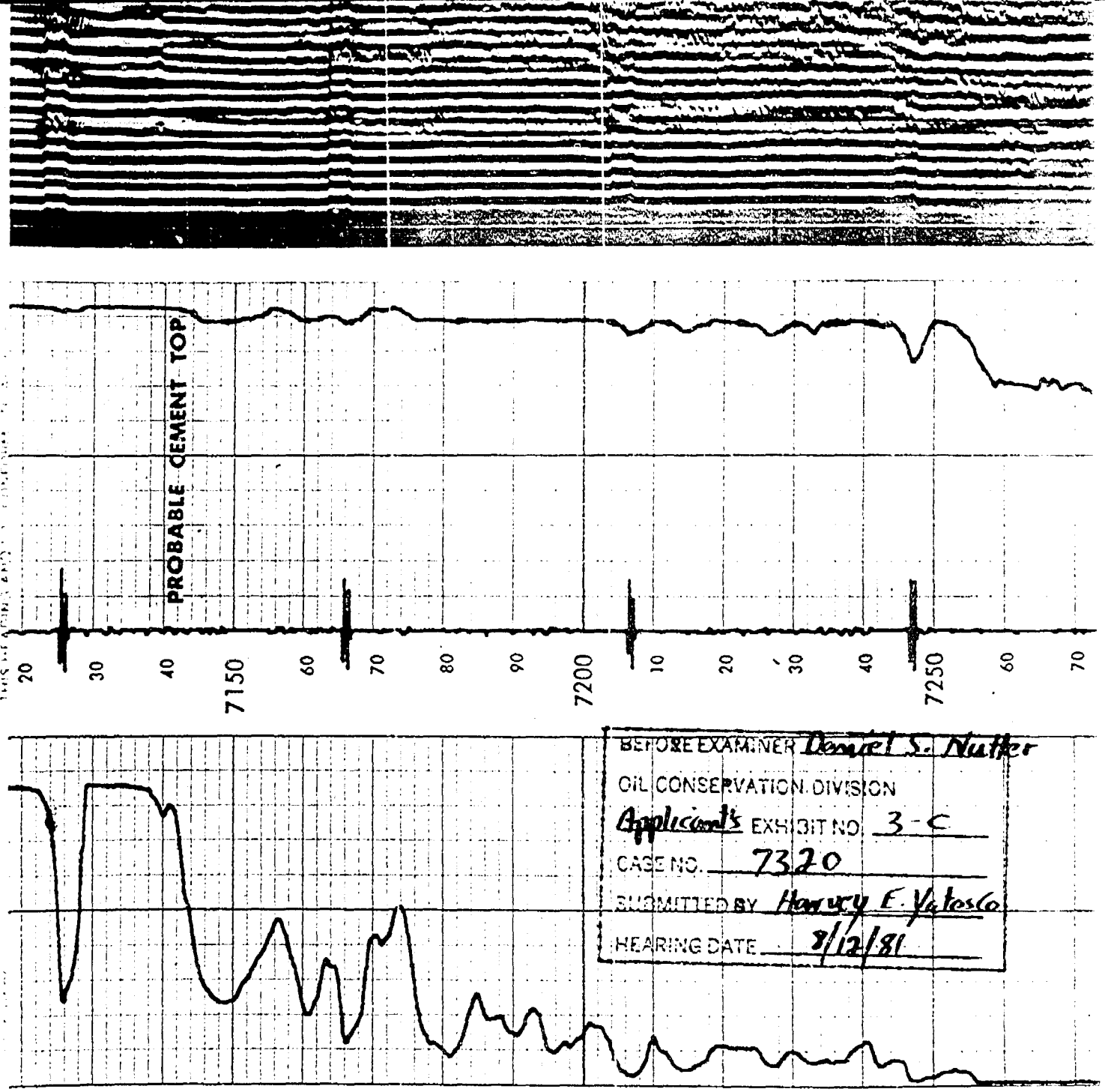
OTHER SERVICES: GRCCL

SEC 13 TWP 18-S RGE 28-E

PERMANENT DATUM	G.L.	ELEV. 3604.5'	K.B. 3620'
LOG MEASURED FROM	K.B. 15.5'	ABOVE PERM. DATUM	D.F. -
DRILLING MEASURED FROM	K.B.		G.L. 3604.5'

DATE	9/9/80
RUN NO.	ONE
TYPE LOG	SEISMOGRAM CEMENT BOND
DEPTH—DRILLER	-
DEPTH—LOGGER	11,135'
BOTTOM LOGGED INTERVAL	11,129'
TOP LOGGED INTERVAL	7,005'
TYPE FLUID IN HOLE	WATER
SALINITY PPM CL	-
DENSITY	-
LEVEL	1100'
MAX REC TEMP DEG F	-
OPERATING RIG TIME	24 HOURS
RECORDED BY	M. BUTTS
WITNESSED BY	MR. WILCOX

RUN NO	BORE—HOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT	FROM	TO
				5½"	15.5# & 17#	SURF.	PBTD



BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 3-C
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 9/12/81

RECEIVED SEP 1 2 1980

Gamma-Ray Log

Seismogram

CEMENT BOND LOG

Vann

COMPANY HEYCO, INC.

WELL TRAVIS 13 STATE # 3

FIELD TRAVIS

COUNTY EDDY STATE NEW MEXICO

LOCATION 660' FNL & 1980' FWL

SEC 13 TWP 16-S RGE 28-E

OTHER SERVICES NONE

ELEV. K.B. 3614'

D.F. -

G.L. 3602'

ELEV. 3602'

K.B. 12 FT. ABOVE PERM. DATUM

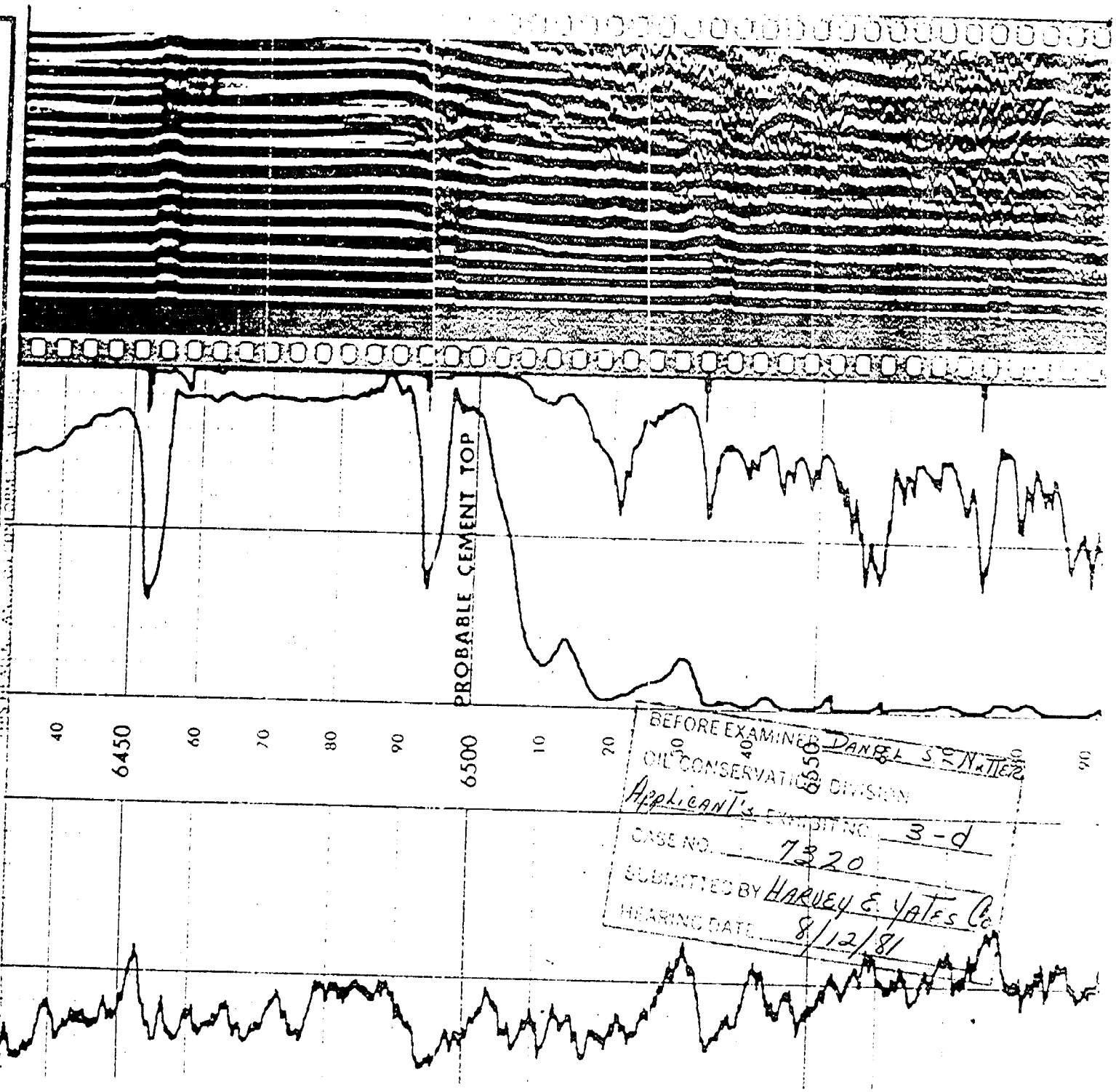
DATE	6/20/81
RUN	ONE
TYPE LOG	GR-CCL-CBL ORIGINAL SURVEY W/SEISMOGRAM
DEPTH-DRILLER	6600'
DEPTH-LOGGER	6596'
BTM. LOGGED INTERVAL	6596'
TOP LOGGED INTERVAL	6000'
TYPE FLUID IN HOLE	WATER
SALINITY PPM CL	-
DENSITY	-
LEVEL	FULL
MAX. REC. TEMP. DEG. F	160°
OPERATING RIG TIME	8 HOURS
RECORDED BY	B. CARTER
WITNESSED BY	MR. WILLIAMS

BORE-HOLE RECORD

BIT	FROM	TO

CASING RECORD

SIZE	WGT.	FROM	TO
4½"	11.6#	SURF.	PBTD



BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 3-d
CASE NO. 7320
SUBMITTED BY HARVEY E. YATES CO.
HEARING DATE 8/12/81

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P O BOX 1933 SUITE 300 SECURITY NATIONAL BANK BUILDING 505 623 6601
ROSWELL NEW MEXICO 88201

August 12, 1981

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

RE: Travis Deep #2
Estimated Top of Cement

Gentlemen:

The estimated top of cement for the above referenced well is 8824'.

If you have any questions, please contact us.

Very truly yours,

HARVEY E. YATES COMPANY

Peck Hardee
Production Engineer

PH:lc

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 3-e
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/12/81

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

B-11594-3

Travis 13 State Com

1

Travis Upper Penn.

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico 88201

F 1980 North 1980

West 13 18S 28E

Eddy

Spudded	Date T.D. Reached	Date Compl. (Ready to Prod.)	Elevations (DF, RKB, RT, GR, etc.)	Elev. Casinghead
Started 7/14/80	12/26/80		3604.5' GL	3604.5'

Total Depth	P.B.T.D.	Rotary Tools	Cable Tools
11,100'	10,725'	---	0-11,100'

9824' to 9870' Upper Penn.

Was Directional Survey Made
NO

Dresser Atlas CD/CN, DLL & MLL, PVTCo GR-CBL

Was Well Cored
YES

CASING RECORD

CASING SIZE	WEIGHT LB/FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5#	350'	17 1/2"	350 sxs	-0-
8 5/8"	28#-24#	3100'	11"	1930 sxs	-0-
5 1/2"	17#-15.5#	11,100'	7 7/8"	925 sxs	-0-

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
	NONE			

TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 3/8"	9761'	9761'

PERFORATION RECORD (Interval, size and number)	ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
	DEPTH INTERVAL	AMOUNT AND KIND OF MATERIAL USED
9824' to 9870' 80 1/2" dia holes	9824'-9870'	250 gal - 10% acetic 2500 gal - 20% MSR-100

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
12/26/80	FLOWING	Shut In

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas-Oil Ratio
12/26/80	8	32/64"	→	146	438	0	3000

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API (Corr.)
250	0	→	438			47°

Disposition of Gas (Sold, used for fuel, vented, etc.)
VENTED

Test Witnessed By

BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 4-A
CASE NO. 7320
SUBMITTED BY HARVEY E. YATES CO
HEARING DATE 8/12/81

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

NAME Jack Sandle TITLE Engineer DATE 1/5/81

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon	9805'	T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	10004'	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka	10307'	T. Pictured Cliffs		T. Penn. "D"	
T. Yates		T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen		T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg		T. Montoya		T. Mancos		T. McCracken	
T. San Andres		T. Simpson		T. Gallup		T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Spring	6143'	T. Wingate		T.	
T. Wolfcamp	8220'	2nd Bone Spgs	7034'	T. Chinle		T.	
T. Penn	9254'	3rd Bone Spgs	7918'	T. Permian		T.	
T. Cisco (Bough C)		T. Lr. Morrow	10893'	T. Penn. "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from ..... to ..... No. 4, from ..... to .....

No. 2, from ..... to ..... No. 5, from ..... to .....

No. 3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ..... to ..... feet. .....

No. 2, from ..... to ..... feet. .....

No. 3, from ..... to ..... feet. .....

No. 4, from ..... to ..... feet. .....

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
1,170'	1,366'	196'	Anhydrite				
1,366'	1,705'	339'	Anhydrite & Lime				
1,705'	2,210'	505'	Anhydrite				
2,210'	3,100'	890'	Anhydrite & Lime				
3,100'	5,007'	1,907'	Lime				
5,007'	8,253'	3,246'	Lime & Shale				
8,253'	8,720'	467'	Lime, Shale & Sand				
8,720'	9,806'	1,086'	Lime & Shale				
9,806'	9,866'	60'	Lime, Shale & Sand				
9,866'	9,950'	84'	Lime, Sand & Shale				
9,950'	10,050'	100'	Lime, Shale & Sand				
10,050'	11,039'	989'	Lime & Shale				
11,039'	11,100'	61'	Shale				

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-23417
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT AGREEMENT NAME: Travis Deep Unit
8. FARM OR LEASE NAME:
9. WELL NO.: 2
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E
12. COUNTY OR PARISH: Eddy
13. STATE: N. M.

1a. TYPE OF WELL:
1b. TYPE OF COMPLETION:
2. NAME OF OPERATOR: Harvey E. Yates Company, Inc.
3. ADDRESS OF OPERATOR: P. O. Box 1933, Roswell, New Mexico 88201
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980' FSL & 1780' FEL
At top prod. interval reported below: Same
At total depth: Same
14. PERMIT NO.:
DATE ISSUED:

15. DATE SPUDDED: 5-6-77
16. DATE T.D. REACHED: 6-23-77
17. DATE COMPL. (Ready to prod.): 8-24-77
18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*: 3618' GL
19. ELEV. CASINGHEAD:
20. TOTAL DEPTH, MD & TVD: 11,270'KB
21. PLUG, BACK T.D., MD & TVD: 11,223'KB
22. IF MULTIPLE COMPL., HOW MANY*: Single
23. INTERVALS DRILLED BY: → 0' - 11,270'
ROTARY TOOLS:
CABLE TOOLS:
24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*: Cisco 9824' - 9903'KB
25. WAS DIRECTIONAL SURVEY MADE: Yes
26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL & DLL
27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	34#	360'	17 1/2"	425 Sx Class C 2% CaCl	
8 5/8"	24# & 28#	3500'		800 Sx Class C 2% CaCl	
5 1/2"	17#	11268'	7 7/8"	950 Sx Class H	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	9775' KB	9772' KB

31. PERFORATION RECORD (Interval, size and number): **Please see attachment

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
**Please see attachment	

33. PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump)	WELL STATUS (Producing or shut-in)
8-24-77	Flowing	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
9-8-77	24 Hrs	18/64	→	433.35	630.85	-0-	1456

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
965	Packer	→	433.35	630.85	-0-	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): TEST WITNESSED BY: Teftteller, Inc.
35. LIST OF ATTACHMENTS:
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED: [signature] TITLE: Vice President DATE: July 26, 1977

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 4-B
CASE NO. 7320
SUBMITTED BY Harvey E Yates Co
8/12/81

*(See Instructions and Spaces for Additional Data on Reverse Side)

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES: SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES				38. GEOLOGIC MARKERS		
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
Yates	958	1263				
Seven Rivers	1263	1693				
Bowers	1693	1926				
Queen	1926	2080				
Penrose	2080	2295				
Grayburg	2295	2695				
San Andres	2695	3755				
Glorieta	3755	6226				
1st Bonespring Sd	6226	7125				
2nd Bonespring Sd	7125	8010				
rd Bonespring Sd	8010	8225				
Wolfcamp	8225	9210				
Pennsylvanian	9210	9265				
Cisco LS	9265	9815				
Unidentified Penn LS	9815	10010				
Strawn	10010	10321				
Atoka	10321	10592				
Morrow	10592	10898				
Lower Morrow	10898	11222				
Chester	11222	TD				

U.S. GOVERNMENT PRINTING OFFICE: 1963 O-685536

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: LC-026777-B

Sec. 12, T-10S, R-28E

14. PERMIT NO.	12. COUNTY OR PARISH	13. STATE
	Eddy	N.M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
5/01/80	7/08/80	7/24/80	3633.7 GR	3633.7'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,215'	11,171'		→	0-11,215'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*

10,916' - 10,956' Morrow

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN

Dresser Atlas - DLL-ML CDC-CN-GR-BHC-AL-Cal Cement Bond

27. WAS WELL CORED: NO

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	355	17 1/2"	370 sx C1"C" - 2% CaCl	NONE
8 5/8"	24# & 32#	2900	11"	1200 sxs	NONE
5 1/2"	17#	11215	7 7/8"	1000 sxs	NONE

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
		NONE		

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	10,850'	10,850'

31. PERFORATION RECORD (*Interval, size and number*)

10916' to 10924' 8' - 16' - 1/2" dia hole
10949' to 10956' 7' - 14' - 1/2" dia hole

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
10916'-10924'	800 gal - 7 1/2% MSR-100
10949'-10956'	250 gal - 10% Acetic & 700 gal - 7 1/2% MSR-100
10916'-10956'	4000 gal - 10% MSR-100

33. PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
7/18/80	Flowing	Shut In

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
7/26/80	6	3/4"	→	0	409	0	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
100	0	→	0	1630	0	---

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*): Vented

TEST WITNESSED BY: James Davis

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED Jack Hinds TITLE Engineer DATE July 28, 1980

BEFORE EXAMINER DANIEL S NUTTER
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 4-C
CASE NO. 7320
SUBMITTED BY HARVEY E. YATES CO.
HEARING DATE 8/12/81

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Yates	965'	
Seven Rivers	1270'	
Queen	1935'	
Grayburg	2305'	
San Andres	2705'	
1st Bone Springs	SD 6140'	
2nd Bone Springs	SD 7008'	
3rd Bone Springs	SD 7932'	
Wolfcamp	8115'	
Pennsylvanian	9180'	
Canyon	9795'	
Strawn	9995'	
Atoka	10295'	
Morrow	10665'	
Lower Morrow	10883'	
Chester	11192'	

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683836
837-497

E-1357

X

Travis 13 State

2

Travis Upper Penn

Harvey E. Yates Company

P. O. Box 1933, Roswell, New Mexico

C 660 North

1980 West 13 18S 28E

Eddy

10,000' Canyon Rotary

3616.8' GR $50,000 blanket 2/20/81

PROPOSED CASING AND CEMENTING PROGRAM

17 1/2"	13 3/8"	48#	475'	X	Circulate
11"	8 5/8"	24#-28#	4000'		Circulate
7 7/8"	4 1/2"	10.5#-11.6#	10000'		Sufficient to cover 600' above pay zone

BEFORE EXAMINER Daniel S. Nutter
OIL CONSERVATION DIVISION
Applicant's EXHIBIT NO. 4-D
CASE NO. 7320
SUBMITTED BY Harvey E Yates Co
HEARING DATE 8/12/81

Vice President 1/22/81

Form 9-330
(Rev. 5-63)

OPERATOR'S COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM - 23417

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL [XX] GAS WELL [ ] DRY [ ] Other

7. UNIT AGREEMENT NAME: Travis Deep Com

b. TYPE OF COMPLETION: NEW WELL [ ] WORK OVER [ ] DEEP EN [ ] PLUG BACK [XX] DIFF. RESVR. [XX] Other

8. FARM OR LEASE NAME:

2. NAME OF OPERATOR: Harvey E. Yates Company

9. WELL NO.: 3

3. ADDRESS OF OPERATOR: Post Office Box 1933, Roswell, New Mexico 88201

10. FIELD AND POOL, OR WILDCAT: Travis Upper Penn

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1980' FEL & 660' FNL
At top prod. interval reported below: 1980' FEL & 660' FNL
At total depth: 1980' FEL & 660' FNL

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 13, T-18S, R-28E

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Eddy | 13. STATE: N.M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
11/21/77	12/27/77	5/16/78	3639' GL	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
11,270'	10,904'	single	→	0 - 11,270	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION- TOP, BOTTOM, NAME (MD AND TVD)*: 9830' - 9920' Canyon

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: CNL DLL GR

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB/FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
12 3/4"	50#	376' ✓	17 1/2"	475 sx cl C w/2% CaCl	
8 5/8"	24# & 28#	2,900' KB	11"	300 sx Halliburton LW & 200 sx cl C	
5 1/2"	17#	11,290'	7 7/8"	900 sx cl H w/6% Halad	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	10,904'	10,904'

31. PERFORATION RECORD (Interval, size and number)
9830-9840 - 6 holes
9864-9875 - 6 holes
9891-9894 - 6 holes
9911-9920 - 6 holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
9830-9920	500 gal 10% acetic acid
	& 3500 gal 15% DS-30

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
5/13/78	Flowing	SI

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
5/17/78	4	24/64"		114	87	22 load water	4-5298

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
580	PKR		684	87	132	7320

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented

TEST WITNESSED BY

35. LIST OF ATTACHMENTS: None

BEFORE EXAMINER Daniel E. Nutter
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO.
CASE NO.
SUBMITTED BY Harvey E. Yates Co
HEARING DATE 4/12/81

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Jack Wardlaw TITLE Engineer DATE 5/25/78

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

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Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

38. GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Yates	986'	1302'				
Seven Rivers	1302'	1717'				
Bowers	1717'	1953'				
Queen	1953'	2116'				
Penrose	2116'	2328'				
Grayburg	2328'	2708'				
San Andres	2708'	6226'				
1st Bone Sp. Sd.	6226'	7080'				
2nd Bone Sp. Sd.	7080'	7964'				
3rd Bone Sp. Sd.	7964'	8160'				
Wolfcamp	8160'	9266'				
Cisco	9266'	9817'				
Canyon	9817'	10,025'				
Strawn	10,025'	10,324'				
Atoka	10,324'	10,687'				
Morrow	10,687'	10,905'				
L. Morrow Sds.	10,905'	11,225'				
Chester	11,225'	11,270'TD				

U.S. GOVERNMENT PRINTING OFFICE 1963 O-678636

871-233

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

Lease: E-1392

Well No.: 1

Pool: Und. S. Empire Morrow

Unit Letter: K; 1780 South; 2080 West; Line of Sec. 13; 18S; 28E

County: Eddy

Operator: Harvey E. Yates Company

Address: P. O. Box 1933, Roswell, New Mexico 88201

Lease: Travis State Com

Date Spudded	Date T.D. Reached	Date Compl. (Ready to Prod.)	Elevations (DF, RKB, RT, GR, etc.)	Elev. Casinghead
3-19-79	4-22-79	7-14-79	3585.5' GL	

Total Depth	P.B.T.D.	Rotary Tools	Cable Tools
11,061' KB	10,538' KB	----> 0'-11,061'	

Producing Interval(s), of this completion - Top, Bottom, Name

9816' - 9862' Canyon

Was Directional Survey Made: No

Type Electric and Other Logs Run

CNL-DLL; GR-Depth Control

Was Well Cored: No

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	380' KB	17 1/2"	475 Sx + 8 Yds. Redi-mix	None
9 5/8"	32.3#, 36#	2900' KB	12 1/4"	2050 Sx	None
5 1/2"	17#	11,061' KB	8 3/4"	1190 Sx - 2 stages TOC - 2750'	None

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 3/8"	9733'	9733'

Perforation Record (Interval, size and type of shot)

9850 - 9862' w/2/JSPF - 70 1/2" dia holes
9816 - 9824'; 9830 - 9836'; 9838 - 9847'

ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
9816 - 9862	126 gals 10% acetic acid
	6000 gals 15% DS-30 acid

PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type of pump)	Well Status (Prod. or Shut-in)
7-11-79	Flowing	

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbls.	Gas - MCF	Water - Bbls.	Gas - Oil Ratio
7-13-79	6 hrs	24/64"	---->	103	103.3	2	1100

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbls.	Gas - MCF	Water - Bbls.	Oil Gravity - API - (Corr.)
330	---	---->	412	413.2	8	45

Disposition of Gas (Sold, used for fuel, vented, etc.)

Vented

Test Witnessed By: Gerald Lynch

List of Attachments

Deviation survey

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED: Paul Harden TITLE: Engineer DATE: 7-25-79

BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT EXHIBIT NO. 4
CASE NO. 7320
SUBMITTED BY Harvey E. Yates Co.
HEARING DATE 8/13/81

INSTRUCTIONS

This form is to be filed with the appropriate [illegible] Office of the Commission not later than [illegible] days after the completion of any newly-drilled or deepened well. It shall be accompanied by [illegible] as well as a summary of all special tests conducted, including drill stem tests. All depths [illegible] shall also be reported. For multiple completions, items [illegible] should be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon	9796'	T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	10,014'	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka	10,296'	T. Pictured Cliffs		T. Penn. "D"	
T. Yates	905'	T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers	1210'	T. Devonian		T. Menefee		T. Madison	
T. Queen	1892'	T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg	2260'	T. Montoya		T. Mancos		T. McCracken	
T. San Andres	2660'	T. Simpson		T. Gallup		T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Springs		T. Wingate		T.	
T. Wolfcamp	8260'	T. Bowers	1663'	T. Chinle		T.	
T. Penn	9260'	T. Penrose	2060'	T. Permian		T.	
T. Cisco (Bough C)		T. Morrow	10,645'	T. Penn. "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from 9816 to 9862 No. 4, from ..... to .....

No. 2, from ..... to ..... No. 5, from ..... to .....

No. 3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ..... to ..... feet. .....

No. 2, from ..... to ..... feet. .....

No. 3, from ..... to ..... feet. .....

No. 4, from ..... to ..... feet. .....

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0'	380'	380'	Surface rock				
380'	575'	195'	Anhy and lime				
575'	1295'	720'	Anhy and salt				
1295'	1692'	397'	Lime and anhy				
1692'	2225'	533'	Lime and shale				
2225'	7075'	4850'	Lime				
7075'	8315'	1240'	Lime and shale				
8315'	9900'	1585'	Lime and sand				
9900'	10305'	405'	Lime, shale and sand				
10305'	11061'	756'	Lime and shale				

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

ROSWELL

S. E. REYNOLDS
STATE ENGINEER

August 10, 1981

ADDRESS CORRESPONDENCE TO:
P. O. BOX 1717
ROSWELL, NEW MEXICO
88201

Harvey E. Yates Company
500 North Main
Roswell, New Mexico 88201

Attention: Mr. Rod Thompson

Gentlemen:

This is to advise that our records do not indicate any fresh water in the formations below the Artesia Group in the vicinity of Sections 12 and 13, Township 18 South, Range 28 East. There is some fresh water being produced from the Grayburg in the general area. It is my opinion that any water encountered in the San Andres will be highly mineralized.

Yours truly,

James I. Wright
Asst. District Supervisor

JIW*td

BEFORE EXAMINER DANIEL S. NUTTER
OIL CONSERVATION DIVISION
APPLICANT'S EXHIBIT NO. 5
CASE NO. 7320
SUBMITTED BY HARVEY E. YATES CO.
HEARING DATE 8-12-81

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Harvey E. Yates Company for a waterflood project, project, Eddy County, New Mexico. CASE 7320

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: Joe Hall, Esq.
Harvey E. Yates Company
P. O. Box 1933
Roswell, New Mexico 88201

I N D E X

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RALPH H. VINEY

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Applicant Exhibit Five, Letter 11

Applicant Exhibit Six, Compendium 15

MR. NUTTER: Call next Case 7320.

MR. PADILLA: Application of Harvey E. Yates Company for a waterflood project, Eddy County, New Mexico.

MR. HALL: Mr. Examiner, my name is Joe Hall. I'm an attorney for Harvey E. Yates Company, appearing for the applicant, and I will have two witnesses today.

(Witnesses sworn.)

MR. HALL: Mr. Examiner, before entering any direct testimony, I'd like to make a brief statement about the applicant's position regarding this Travis Penn Unit.

The Travis Penn Unit was initially proposed to include 480 acres in Township 18 South, Range 28 East, in Section 12, the south half of the southeast quarter, and in Section 13, the northeast quarter of the south half and the northwest quarter of the north half of the southwest quarter of Eddy County, New Mexico, and by Order 6520, of which I have a copy here for you, the Division approved the unit agreement and the plan for the development that was contained therein, but in this application we file to implement the plan that was approved in that order.

There is one wringle in this presentation today, which I feel obliged to point out. It is that the original area under this Travis Penn Unit covered five wells and 400 acres, approximately.

The applicant is now nearing completion on the sixth well covering an additional 80 acres, and concurrently with this -- this application we are proceeding to try to expand the unit to include this sixth well, and we're doing this under Article Four of the unit agreement.

MR. NUTTER: Which contains provisions for expansion.

MR. HALL: That's correct, Mr. Examiner. And Mr. Viney's testimony today will include data on that sixth well.

CARLYN JARM

being called as a witness and being duly sworn upon her oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HALL:

Q. Will you state your name, please?

A. Carlyn Jarm.

Q. And where do you live, Ms. Jarm?

A. Roswell, New Mexico.

Q. And by whom are you employed?

A. Harvey E. Yates Company.

Q. And what are your duties with Harvey E. Yates Company?

A. I'm responsible for the preparation of all the agreements and documents in regards to the wells for the Land Department.

Q. All right. What is your title at Harvey E. Yates?

A. I'm the Land Contract Supervisor.

Q. All right. Are you familiar with the application filed in this case, 7320?

A. Yes.

Q. All right, and in your position as Land Contract Supervisor, are you familiar with the Travis Penn Unit?

A. Yes, sir.

Q. What has been your connection with this particular unit?

A. I have supervised the preparation of the agreement, the ratification, and also supervised the sending of these agreements to all the working interest owners.

Q. Okay, so you supervised the preparation

of all the documents --

A. Correct.

Q. -- under this unit.

Are you familiar, then, with the Travis Penn Unit Agreement, which was approved in the Division Order R-6502?

A. Yes, I am.

Q. I'll hand you what's been marked for identification as Applicant's Exhibit Number One, and ask you to look at that and see if you can identify it for us, please, ma'am.

A. Exhibit Number One is the unit agreement for the Travis Penn Unit.

Q. All right, and that is a copy of the --

A. Yes, it is.

Q. -- unit agreement that was approved in the --

A. Yes.

Q. -- Order 6502.

A. Yes, sir.

Q. All right. Where was that -- where did you obtain that copy?

A. From Harvey E. Yates Company files.

Q. All right.

MR. HALL: Mr. Examiner, I'd like to offer Exhibit Number One.

MR. NUTTER: Exhibit Number One will be admitted in evidence.

Q All right. Ms. Jarm, would you turn to Section 11 on page seven and read into the record the paragraph relating to the plan of development?

A Section 11. Plan of Operation. It is recognized and agreed by the parties hereto that all of the land subject to this agreement is reasonably proved to be productive of unitized substances and that the object and purpose of this agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of unitized substances, prevent waste, and conserve natural resources.

The parties hereto agree that the unit operator may, subject to the consent and approval of a plan of operation by the working interest owners, supervisor, the Land Commissioner, and the Division, inject into the unitized formation through any well or wells completed therein brine, water, air, gas, oil, liquified petroleum gases, and any one or more other substances or combination of substances, whether produced from the unitized land or not, and that the location of input wells and the rates of injection therein shall be

governed by standards of good geologic and petroleum engineering practices and conservation methods.

Subject to like approval the plan of operation may be revised as conditions may warrant.

Q. All right, thank you, ma'am.

In reference again to this unit agreement, do you have the latest figures on the ratification by the working interest?

A. Yes, sir.

Q. And what are those figures, please?

A. We have 81.9 percent of the working interest in.

Q. All right, thank you. I'll hand you what has been marked for Exhibit -- for identification as Applicant's Exhibit Number Two, and ask you if you can identify what that is, please?

A. Exhibit Two is a certified receipt of an application sent to the Bureau of Land Management.

Q. All right, how are you able to identify that as a receipt sent to the Bureau of Land Management?

A. Since the address of the Bureau of Land Management does not appear, I personally called the Bureau of Land Management office yesterday to verity that Karen T. Klein does indeed work for the Bureau of Land Management.

Q. All right, and does Karen T. Klein's name appear on that receipt, is that --

A. Yes, it does.

Q. -- correct? All right.

I'll hand you what has been marked for Exhibit -- for identification as Applicant's Exhibits Three-A through Three-E, and ask if you can identify what those particular documents are?

A. Exhibits Three-A through Three-E are cement bond logs.

Q. Are they all cement bond logs or are they -- if you would go through each one of them, Three-A, Three-B, Three-C, and Three-D are all bond logs, but what is Three-E, please, ma'am?

A. Okay. Three-E is a letter from the production engineer of Harvey E. Yates Company with the estimated top of cement.

Q. All right.

I'll hand you what has been marked for identification as Applicant's Exhibits Four-A through Four-F and ask if you would identify what those comprise, please?

A. These are well completion reports on the well in the proposed Travis Penn Unit.

Q. All right. Is Three -- excuse me, Four-

in any way different?

A. Four-D is a permit to drill.

Q. All right.

A. For the Travis Penn Unit.

Q. Okay. IN reference to Exhibits -- Applicant's Exhibits Number Two, Three, and Four, would you tell me where you obtained these exhibits, please?

A. These were obtained from the Harvey E. Yates Company files.

Q. And were they done, were they obtained there under your supervision and direction, or personally by you?

A. Yes, sir, they were.

MR. HALL: Mr. Examiner, I would like to submit Applicant's Exhibits Two, Three, and Four.

MR. NUTTER: Exhibits Two, Three, and Four will be admitted in evidence.

MR. HALL: Thank you, sir.

MR. NUTTER: Except I want to ask about Exhibit Three-E. This man doesn't give any explanation of how he estimates the top of the cement in the referenced well. He simply states the estimated top of cement is so-and-so.

This is unsubstantiated hearsay, so that's bad two ways.

MR. HALL: Yes, sir. Would we be able to get you some supplemental --

MR. NUTTER: Yes, sir.

MR. HALL: -- information on that?

MR. NUTTER: That would be all right.

MR. HALL: All right.

Q. Let me hand you what has been marked for identification as Applicant's Exhibit Number Five and ask you to identify that, please, ma'am.

A. Exhibit Number Five is a letter from Mr. James Wright, the State Engineer's Office, in Roswell.

Q. All right, and what does that particular letter state, please, ma'am?

A. Would you like for me to read it?

Q. I would like you to read it, please.

A. It's addressed to Harvey E. Yates Company, 500 North Main, Roswell, New Mexico, attention Mr. Rod Thompson.

Gentlemen. This is to advise that our records do not indicate any fresh water in the formations below the Artesia Group in the vicinity of Sections 12 and 13, Township 18 South, Range 28 East.

There is some fresh water being produced from the Grayburg in the general area.

It is my opinion that any water encountered in the San Andres will be highly mineralized.

Yours truly, James Wright, Assistant District Supervisor.

Q. And would you tell the Examiner where and how you obtained that particular exhibit, please?

A. I contacted Mr. Wright earlier in this week to put into letter form what he had already stated to our geologist, Rod Thompson, and I sent my secretary over yesterday to obtain the letter.

MR. HALL: Mr. Examiner, I'd like to enter Applicant's Exhibit Number Five.

MR. NUTTER: Exhibit Five will be admitted in evidence.

MR. HALL: Thank you, sir. That's all the questions I have of this particular witness.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Ms. Jarm, now Mr. Hall in his initial opening statement indicated that another 80 acres was being added to the unit.

Now with reference to the plat which is Exhibit A to the unit agreement, and also to the order he

handed me which was the original order approving the unit agreement, it would appear that the north half of the northwest quarter of Section 13 would be the 80 acres you're talking about, is that right?

A. Yes, sir.

Q. And what is the status of the commitment of those lands to the unit at this time?

A. The -- I don't understand, sir.

Q. Well, he says that these lands are going to be committed to the unit. Now you mentioned that you had 81.9 percent of the working interest committed to the unit. Does that include this 80 acres tract?

A. Yes, sir. Most of those working interests are -- have interest in the other wells, as well, so we do have their commitments also.

Q. Okay. How far along is the commitment of Tract Five to the unit?

A. That I'm not sure, sir. It's in the completion stages right now.

Q. And you expect that the unit will be expanded to include that 80 acres?

A. Yes.

Q. And it does have a well on it, this Travis "13" State Com Well No. 2?

A. Yes, sir, it is presently drilling and near completion.

Q. Oh, it's drilling at the present?

A. Yes, and it's near completion stage.

Q. Okay.

MR. NUTTER: Are there any further questions of the witness? She may be excused.

RALPH H. VINEY

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HALL:

Q. Would you state your name and address, please, sir?

A. My name is Ralph Viney. I live in Midland, Texas.

Q. And what is your occupation, Mr. Viney?

A. We have an engineering consulting company.

Q. All right, sir, have you testified before the Division before?

A. Yes, sir.

Q. And at that time, or previously, have your qualifications been accepted by the Division?

A. Yes, sir.

MR. HALL: Mr. Examiner, would you accept Mr. Viney as a qualified expert to testify in this particular matter?

MR. NUTTER: Yes, Mr. Viney is qualified.

Q. Mr. Viney, are you familiar with the application filed in Case 7320?

A. Yes, sir.

Q. And have you conducted certain studies in connection with the waterflood project proposed in that application?

A. Yes, sir.

Q. All right. Let me hand you what has been marked for identification as Applicant's Exhibit Number Six and ask you if you can identify that, please, sir?

A. Yes, sir. Exhibit Six is a compendium of the complete study of the Travis Upper Penn Pool in Eddy County, New Mexico, which incorporates reserves maps, geology, estimates of formation porosity characteristics, permeabilities, material balance, enhanced recovery methods, outlines of complete installation of equipment, and production statistics and some compendium of the well completion records.

Q. And, Mr. Viney, was this, the material contained in this report compiled or produced under your direct supervision?

A. Yes, sir.

Q. And control?

MR. HALL: Mr. Examiner, I'd like to enter Applicant's Exhibit Number Six.

MR. NUTTER: Exhibit Six will be admitted in evidence.

Q. Mr. Viney, would you please turn to Plate No. 1 of your report, beging Applicant's Exhibit Number Six?

A. Yes, sir.

Q. And what does that page of the exhibit show?

A. This page, aside from showing the structural tops on the Canyon Marker, also includes a proposed unit boundary outline.

Q. All right, and is this the area covered by your study?

A. Yes, sir.

Q. In Exhibit Number Six. Before we leave this page, would you please indicate the well through which the proposed waterflood injection is due to be?

A. The initial pilot injection well, being

the Travis Deep No. 3 Well, located in the north half of the northeast quarter of Section 13, Township 18 South, Range 28 East.

Q. All right. Mr. Viney, do you have some figures on the current production from the wells in this particular area that comprises the Travis Penn Unit?

A. Yes, sir.

Q. All right. From these figures can you determine whether the production is stable, decreasing, or increasing?

A. There is a natural decrease with depletion of reservoir pressures of the well, but primarily only one well has shown any severe decline, that well being the Travis Deep No. 2, located in the south half of the northeast quarter of Section 13.

Q. In your opinion would the -- would you consider that the wells in this unit are nearing a state of depletion?

A. They're being depleted and possibly reaching middle to advanced stages of depletion.

Q. Let's turn our attention now to the reason for the waterflood project. To complete your report you had to determine certain characteristics of this reservoir, did you not?

A. Yes, sir.

Q. And how did you make the determination of the reservoir characteristics?

A. Well, this is a rather lengthy study, but to begin with we have conducted a series of reservoir pressure buildups on a period, a scheduled basis, and relating the performance and withdrawals of all condensate type oil and gas from the reservoir, have been able to utilize this material to make material balances as well as volumetric estimates of the hydrocarbons in place.

Q. What have your studies and empirical estimates enabled you to determine about the characteristics of the reservoir?

A. Mr. Hall, that question encompasses many questions.

First of all, the characteristics of this producing period is a volatile to possibly almost condensate type fluid. We are looking at either a bubble point fluid of close to 3800 pounds or a dewpoint of around 3800 pounds.

The performance of the wells would indicate volatile to condensate type liquid hydrocarbon production and associated with that I think the operator has noticed a severe paraffin condition in all his producing

tubing strings. The determination of the rock characteristics has been a little more difficult in that attempts to recover cores have all failed. We've lost cores on every attempt to run cores, losing them in the barrel; losing them up the barrel.

Basically, we had to then relate performance of the wells, using engineering empirical methods, as well as using the electric logs and the determination of the parameters that you can ordinarily calculate from the standard service type company log.

Q. So in other words, Mr. Viney, you do not have a definite clear picture of the reservoir. You are basing your findings on --

A. No, Mr. Hall, I would say we have a clear picture of the reservoir based on the performance pressurewise as well as production. We do not have a firm, positive laboratory measurement of the rock characteristics as measured from a sample recovered from beneath the surface of the ground.

Q. Do you have enough of a -- the reservoir characteristics determined to make an estimation of the total reserves that are present in this reservoir?

A. Yes, sir. Basically the characteristics of the reservoir are not necessarily required in many methods

to obtain the reserves. We check reserves by both pressure and material balance methods and determined that the reserves could be as high as 24-million barrels in this particular reservoir.

Q. All right. What is the estimated total recovery from this reservoir under the current method of recovery?

A. At the time we did this study we had five wells that were completed and producing.

The wells completed early in the life of the field, of course, had the higher recovery;on the average the production primary-wise would be about 150,000 barrels of high gravity hydrocarbons.

Q. And is that the estimation of the total life of the reservoir, what we would be able to expect from this point forward if the current methods are not -- are not changed?

A. Normally under depletion type recovery mechanisms you could not possibly expect more than, probably, 8 to 12 percent of the hydrocarbons in place as being recoverable.

Q. Have you made any estimation of the total recovery that ould be expected if a scondary recovery project is instituted?

A. Approximately 25 to 32 percent of the hydrocarbons in place could be recovered.

Q. Mr. Viney, I understand that you recommended the initial use of water as the injection fluid for this -- for a secondary recovery project. Would you tell us why?

A. Basically the availability and the economics. At this point I think most here will recognize that this is a rather deep waterflood. We're injecting into a zone at approximately 9800 feet. We are looking at varying permeabilities and porosities in the range of 4 to 10 percent. We have seen definite variations of permeability between wells. Consequently, water is being suggested as the media to pilot the area, hopefully without damage to the formation.

But this would not abbrogate the use of CO_2 or intert gases or missible type operations in the future.

Q. Okay, but -- but as of today the least cost method would be -- would be water.

A. Plus the availability. At this time if we go to the exotic CO_2 now being touted, that we couldn't -- first, we cannot get it to location at economic cost, and second, it is not readily available.

Q. All right. You previously testified that you were going to use Travis Deep Unit No. 3 as the injection

well. Could you tell us what you base this decision on?

A. Basically the reason for recommending the No. 3 was the availability of offset wells both to the north and to the south of this located well, plus the fact that we are trying to orient permeability to see if we have any Isotrophic orientation of permeability along the strike of the structure.

Q. All right. Your study includes a recommendation of the surface equipment that's proposed to be used for the injection project, does it not?

A. Yes, sir.

Q. Would you indicate to the Examiner where in your report this particular matter is covered?

A. Mr. Examiner, you will find a complete documentation layout plans, costs, under tabbed section enhanced recovery section of Exhibit Six.

Q. Now, concerning the subsurface portion of the operation, how do you propose to control the downhole fluids and keep them within the zone?

A. Normally a conventional completion techniques with utilizing packers and bridge plugs, or plug, will be utilized, and at present we have been conducting injectivity profiles as well as tracer surveys to affirm that all fluids are entering the producing formation.

Q. As a corollary to this, did you in your study find any evidence of any potable water aquifers within the one mile of the injection well?

A. No, sir, we did not.

Q. I'll hand you what has been entered as Applicant's Exhibit Three-A, which are bonding logs for the wells in the area, and also Exhibits Four-A through F, which are completion reports of the wells, and have you look through those and give an opinion as to the -- the protection which would be afforded any possible fresh water aquifers in the area.

A. Basically, Mr. Hall, the copies of the sections of the logs presented under Section Three-A are nothing more than bond logs with in some instances the top of the cement behind the 5-1/2 casing being shown.

This would indicate that we do have cement to the top. Whether we have integrity of that cement behind the casing, of course, we do not know until pressures and fluids are injected into the wellbore.

Other than that, the exhibit that Mr. Nutter brought out on that, on Three-E, I would assume that possibly Mr. Hardy calculated that by volumetric, but it does not state.

Exhibits Four are copies of the

completion reports filed with New Mexico Oil Conservation Commission, and set out the casing, casing programs that were utilized in the completion of these wells.

In all cases, well, in most cases, 13-3/8ths casing was set through the surface waters down to approximately 3350 feet, and the casing cemented with cement circulated.

The 8-5/8ths in most cases was set between 2900 and 3500 feet, and with the exception of two wells, sufficient cement was utilized that should have circulated the cement behind the casing to surface.

Q. Mr. Viney, is it your opinion that the -- any aquifers in the area would be adequately protected under this particular project?

A. They should be adequately protected with the programs shown on the completion reports.

Q. What rate of injection of water to you propose to use under this particular project?

A. Under the basis of what we could calculate as to the flow rate, or the capacity of the fluid to produce oil accept fluids, formation to accept fluids, the injectivity rate being from 700 barrels to about 1200 barrels a day, it is proposed that we -- in our initial proposal we are going to use approximately 700 barrels a day and limit our surface

injection pressure to approximately 1000 pounds.

Q. All right. What would be the maximum pressure you would propose to use? Would it be this 1000 pounds?

A. We would like to stay under 1200 pounds because with a pressure, surface pressure greater than that, we are reaching the frac gradient of this formation.

Q. What is the proposed source of water to be used in this injection project?

A. I am told and I have read an agreement whereby water will be supplied to the unit area from Double Eagle Water Company.

Q. Have you developed a comprehensive plan for this secondary water recovery project based on the performance of the initial water injection?

A. We have proposed some alternatives, but until we have the results of the pilot program it is difficult to say that one will be or another will be the program to be used.

Basically what we have -- what we are trying to determine is whether a pattern flood would be necessary or if we will use a peripheral type flood. At this point we cannot definitely say which pattern will be used.

Q. But would the applicant be able to ap-

proach the Division with an amended plan when and if needed to keep the project running smoothly?

A. Yes, sir, we would want to keep them advised of the progress.

Q. All right. Do you feel that the institution and successful operation of this waterflood project would enhance the recovery from the reservoir and conserve the resources therein?

A. Basically if it works as the calculations would suggest, we would increase the recoverable hydrocarbons yes, sir.

MR. HALL: That's all the questions I have of Mr. Viney.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Viney, in his letter Mr. Wright stated that there wasn't any fresh water --

A. Below the base of the Artesia --

Q. -- below the Artesia Group.

A. And I do not know what the base of the Artesia Group is, Mr. Nutter. I do not know.

Q. Okay. Well now, you mentioned that on thes completion reports for these wells that it showed the

surface casing had been set at approximately 360 plus feet.

A. Yes, sir.

Q. In these wells. Now, Exhibit Four-A is for the Travis 13-1. It was set at 350 with 350 sacks.

Four-B shows the Travis Deep 2 at 360 with 425 sacks.

Exhibit Four-C shows the Travis Deep No. 1 had surface pipe to 355 with 370 sacks.

Exhibit Four-E shows the Travis Deep Com No. 3 has 376 sacks of surface pipe set with 470 -- 376 feet of surface pipe set with 475 sacks.

Exhibit Four-F shows the Travis State Com No. 1 has 380 feet of surface pipe set with 475 sacks.

And the only one that's not a completion report is for the Travis State -- Travis 13 State 2. Now is that the well that is presently drilling?

A. That well is presently cased and they have tested the Canyon section and they have some cross flow between the intervals perforated in the Canyon section and they have resqueezed them and are now perforating.

Q. Okay, well, all we've got here rather than a completion report was the original drilling permit and they had proposed to set 13-3/8ths, and I believe, it is very difficult to read on this exhibit, 375 feet and circulated

cement. Do you know what amount of surface pipe was actually set in that well?

A. No, sir, I do not.

Q. Can you get that information for us?

MR. HALL: Yes, we can, yes.

Q. And also, I'd be interested to know whether these surface casing programs on these wells would be adequate to reach below this Artesia Group that Mr. Wright refers to in his letter.

A. Well, that's a fact that we do not know.

Q. Now, in specific response to certain items on the Form C-108, the application for the authorization to inject, I believe that your application, Mr. Hall, had section, relating to various sections, in that form.

MR. HALL: Yes, sir.

MR. NUTTER: Now, let's take them a step at a time, Mr. Hall. I don't know if Mr. Viney could testify to some of these or if they are actually included in the data that he submitted in his Exhibit Number Six, or not.

MR. HALL: Some of it, Mr. Examiner, probably is, but I did not take this from Mr. Viney's report.

MR. NUTTER: This is an independent study made in your office.

MR. HALL: These are our independent

exhibits drawn up in our office, yes, sir.

MR. NUTTER: Okay. Now item number three, well data, complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached, if necessary.

Okay, do we have all of the items that are covered under Roman numeral III, Sections A and B, do you know?

MR. HALL: All right, sir, under Section A, the lease name.

MR. NUTTER: We've got that.

MR. HALL: And location. At casing and string size, setting and depth, I attached a copy of the -- this exhibit of the dual -- multiple completion installation, which was prepared by our engineer, Mr. Pat Hardy.

MR. NUTTER: Well now, that's -- that's a multiple completion which I would presume would be for production purposes, but this is going to be the injection well, isn't it?

MR. HALL: That's correct.

A. Mr. Nutter, that dual completion string will be withdrawn. A bridge plug will be set below the base of the Canyon, and a single injection string will be run in the hole with a packer.

Q. Okay, now can you tell me the depths of the perforations for the injection zone, Mr. Viney?

A. Yes, sir, they'll be the same zones that are shown on the completion, from 9830 to 9920.

Q. That's the upper set of perforations, then.

A. Yes, sir. The lower sets are Morrow.

Q. Okay, now how will the annulus be treated, Mr. Viney?

A. We will use a chromate (sic) solution above the packer.

Q. And the annulus would be filled?

A. Yes, sir.

Q. And a pressure gauge installed at the --

A. Yes, sir.

Q. -- surface or some other means of detecting leaks.

A. Yes, sir, we need safety for detecting rupture in case of rupture, yes, sir.

Q. Leakage in the packer, tubing, or casing?

A. Yes, sir.

Q. Okay, now Item 3 under Roman numeral III A is a description of the tubing to be used, including size, lining material, and setting depth. Would you have that information?

A. At this time we will go with 3-2/8ths string, which will be plastic-lined tubing, and in this case it will have to be N tubing because of the strength requirements.

Q. It will have to be what?

A. N grade tubing.

Q. N grade?

A. N grade, N-80.

Q. And what would its setting depth be, Mr. Viney?

A. Approximately 9750, 97-to-9750.

Q. Okay. Do we have the information required by item III-A-4, name model and setting depth of the packer?

A. Not as yet. We'll probably use a Baker type packer.

Q. Okay, now under well data, item III, Roman numeral III, Section B, it calls for a number of things and that is covered on the application.

MR. HALL: That is correct, sir.

MR. NUTTER: Is it all here, Joe?

MR. HALL: Yes, sir, I feel -- I thought that it was. I feel that it is.

MR. NUTTER: Okay. Then we get back to the front page. Roman numeral V, Section 5 there, Joe.

MR. HALL: The land plat. That was -- was prepared by our geologist in Midland and I felt for -- for purposes of not putting on as many witnesses, that's why we used Mr. Viney's report today, rather than have --

MR. NUTTER: All right, does he have a map in his book?

A. Yes, sir.

MR. HALL: Yes, sir, he does.

A. Pages one, two, and three of Exhibit Six, Mr. Nutter.

MR. NUTTER: Now, Joe, you've got a map there that has a circle drawn around it.

MR. HALL: Yes, sir, I do.

MR. NUTTER: That was part of the application or is that --

MR. HALL: That's part of the application.

MR. NUTTER: -- an exhibit at the hearing?

MR. HALL: That's part of the application, yes, sir.

MR. NUTTER: Okay.

MR. HALL: That was under Roman numeral V there.

MR. NUTTER: How about Roman numeral VI?

MR. HALL: Roman numeral VI is a tabulation of the wells within the area of review. It's a listing.

MR. NUTTER: Is that that?

MR. HALL: That's that, yes, sir. That includes the completion reports attached, in the back of it.

MR. NUTTER: Roman numeral VII.

MR. HALL: That, I referred you to Mr. Viney's report.

MR. NUTTER: Mr. Viney, you covered Item A. Is the system open or closed, Mr. Viney?

A. It will be a closed system, Mr. Nutter.

Q. Proposed average and maximum injection pressure, you stated you wouldn't probably go over 1000 pounds. That would be average and maximum, probably?

A. 1000 to 1200, that's the range we'll have to figure.

Q. That's the range?

A. Yes, sir.

Q. Source of the water is Double Eagle?

A. Yes, sir.

Q. Maximum refers to disposal purposes only.

Okay, Item 8, Joe, appropriate geological data on the injection zone, including appropriate lithological --

appropriate lithologic detail, geological name, thickness, and depth; geologic name and depth to bottom of all underground sources of drinking water; aguifers containing water with TDS concentrations 10,000 or less overlying the proposed injection zone, as well as any such source known to be immediately underlying the injection zone.

That's been covered to some extent, except we don't know the depth of the Artesian Group, and also in his letter Mr. Wright said the water would be highly mineralized but didn't give a statement as to whether highly mineralized means 9950 or over 10,000 or just what.

MR. HALL: I'll get that information for you when I get the depth of the --

MR. NUTTER: Describe the proposed stimulation program, if any, Mr. Viney?

A. Basically the stimulation has been acid in most cases and until we have some injectivity profiles with the water, we may have to stimulate the small fractures with some fracture treatments in the injection well.

Q. And of course you don't have any ideas as to what pressures would be used to do a thing like that at this time?

A. No, sir.

Q. You did mention that you thought if you

exceeded 1200 pounds on your injection pressure at surface you'd exceed the fracture pressure in the reservoir.

A. It would be approaching the fracture gradient, yes, sir.

Q. Do you have any idea what the fracture pressure is in the reservoir?

A. Approximately about 7000 pounds.

Q. I see.

MR. NUTTER: Item 10, Mr. Hall?

MR. HALL: That would be the -- that is on the stratigraphic cross section which was filed with the -- with the application.

MR. NUTTER: Okay. Now, a chemical analysis of fresh water from two or more wells, if available, and producing.

I presume there aren't any, is this correct.

MR. HALL: That is -- that's our position, yes, sir.

MR. NUTTER: And then the proof of notice business on the back here. You sent it to the --

MR. HALL: Yes, sir, that was --

MR. NUTTER: -- concerned parties?

MR. HALL: That was Applicant's Exhibit

Number Two.

MR. NUTTER: Right.

MR. HALL: With the mailing of this application to the BLM.

MR. NUTTER: Yeah, okay.

Are there any further questions of Mr. Viney? He may be excused.

Do you have anything further, Mr. Hall?

MR. HALL: No, sir, I do not.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7320?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7329 heard by me on 8/12 19 81.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

August 28, 1981

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. Thomas J. Hall III
Attorney
Harvey E. Yates Company
P. O. Box 1933
Roswell, New Mexico 88201

Re: CASE NO. 7320
ORDER NO. R-6765

Applicant:

Harvey E. Yates Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7320
Order No. R-6765

APPLICATION OF HARVEY E. YATES
COMPANY FOR A WATERFLOOD PROJECT,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Harvey E. Yates Company, seeks authority to institute a waterflood project on its Travis Deep Unit Area, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) That, considering their depth, the wells in the project area are approaching or are in an advanced state of depletion and should properly be classified as "stripper" wells.

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

(5) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations

or onto the surface from injection, production, or plugged and abandoned wells.

(6) That the injection well or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(7) That the subject application should be approved and the project should be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Harvey E. Yates Company, is hereby authorized to institute a waterflood project on its Travis Deep Unit Area, Travis-Upper Pennsylvanian Pool, by the injection of water into the Cisco-Canyon formation through one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(2) That injection into said well shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of the injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in the injection well, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) That the injection well herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 1200 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) That the subject waterflood project is hereby designated the Travis Deep Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

TRAVIS DEEP UNIT
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

PREPARED FOR:

HARVEY E. YATES COMPANY
OPERATOR OF TRAVIS DEEP UNIT
SUITE 300
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201

ATTENTION: MR. GEORGE YATES

RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

511 North Main Place
MIDLAND, TEXAS 79701
Telephone: 915-682-5346

November 11, 1980

Harvey E. Yates Company
Suite 300
Security National Bank Building
Roswell, New Mexico 88201

Attention: Mr. George Yates

Gentlemen:

Travis Deep Unit
Travis Upper Penn Pool
Eddy County, New Mexico

Pursuant to your request, an in-depth study of the Canyon producing interval in the captioned pool was conducted. The results of our study are summarized below:

Proved Developed Producing Reserves at September 1, 1980		
Lease and Well Number	Oil - Barrels (8/8)	Gas - MCF - 8/8)
Travis Deep Unit Well No. 2	123,989	1,443,701
Travis Deep Unit Well No. 3	88,128	1,320,913
State Com Well No. 1	97,532	1,048,441
Totals	309,649	3,813,055
Proved Developed Non-Producing Reserves		
North Travis 12 Deep Well No. 1	112,759	1,728,003
Travis 13 State Well No. 1	112,759	1,728,003
Totals	225,518	3,456,006
Proved Developed Producing and Non-Producing Reserves	535,167	7,269,061
Projected Recoverable Enhanced Reserves Travis Deep Unit - A Single Pattern Flood		
Travis Deep Unit No. 2, North Travis 12 Deep No. 1 and Travis 13 State No. 1; Injection of Fluids into Travis Deep Unit Well No. 3	1,153,239	5,071,971
Projected Recoverable Enhanced Reserves Travis Deep Unit - A Peripheral Flood		
Travis Deep Unit	2,450,589	9,629,971

The original in-place oil reserves of the Canyon Reservoir in the Travis Upper Penn Pool are projected at 14,231,000 barrels. This value is a statistical mean of estimates obtained using results from the Tarner Dispersed Gas Drive Method, Material Balance and volumetric estimates.

The Canyon Reservoir in the Travis Upper Penn Pool is a shallow water shelf edge bioherm. Seasonal or epochal tide actions acting as a re-occurring water level advances and retreats

coupled with possible periods of heavy fresh water contact (rains) and leaching actions could account for the potential high porosity and the apparent horizontal stratification of hydrocarbon bearing intervals within the overall Canyon-Penn section. The porosity within the stratified layers may or may not be interconnected beyond the well bores. Production performance tends to suggest possible separation of zones; however, pressure data as measured at wells throughout the field suggests excellent pressure transmissibility in a South-Southwest direction with some loss of pressure transmissibility and possibly a lower permeability in a North-Northeast direction from the Travis Deep Unit Well No. 3. The overall producing interval is approximately one hundred (100) to one hundred and twenty (120) feet thick. Empirical data developed from electric log surveys of the drilled wells and analysis of the production-pressure performance of the individual wells suggests the Canyon pay intervals exhibit different formation characteristics. In our opinion, the Canyon appears to exhibit three possible producing intervals throughout gross hydrocarbon bearing section.

The reservoir fluid characteristics were difficult to define. Only after numerous iterations of several laboratory fluid analyses of the recovered separator fluids was a recombination computer simulation obtained that compared favorably with actual well and field performance characteristics. Our best judgement as to the reason for the difficulty of readily obtaining a valid reservoir simulation was possibly the result of either the presence of free gas in the reservoir or difficulty in recognizing a severe permeability variation in the formation of the selected sample well.

The reservoir fluid is considered to be undersaturated and to have a bubble point pressure in a range from 1800 psig to 2200 psig. The statistical best fit indicates 2066 psig to be the saturation pressure with the oil containing 800 cubic feet of gas per barrel at bubble point pressure and reservoir temperature.

The fluid properties are presented in both graphic and tabular form together with laboratory analysis of sampled fluids.

Relative permeability data, developed empirically, and used in frontal-advance calculations of both gas and liquid displacement recovery methods supports the numerical and computer analysis of the production-pressure relationships observed in the producing field wells. The reservoir produces with an internal dispersed (solution gas) drive mechanism, and it is doubtful that the primary oil recovery should be expected to exceed 10.8% of the initial oil-in-place. When the free gas saturation in the reservoir exceeds the critical gas saturation, oil ahead of the gas will not move; or possibly only small amounts of oil will accompany the continuing free gas production.

This condition appears to be occuring rapidly in the Travis Deep Unit Well No. 3, and continued operation of this well will be accompanied with increasing gas rates and declining oil production. The reservoir voidage with high gas withdrawals and decreasing reservoir pressure in a well's drainage area can effectively reduce the volumes of reservoir hydrocarbons to be recovered by enhanced recovery methods.

The Travis Deep Unit Well No. 3 has displayed production characteristics different from either the Travis Deep Unit Well No. 2 or the State Com Well No. 1. An inspection of the completion intervals as reported and compared with the section on the electric logs suggests a definite possibility the Travis Deep Well No. 3 may be producing through only one set of the perforated intervals in the casing. The other two wells (TDU No. 2 and State Com No. 1) are possibly recovering reservoir fluids from thicker intervals which could result in a lower pressure drop in the reservoir and between the reservoir and well bores. Consideration might be given to conducting differential temperature surveys in one or all of the producing wells to verify if all perforations are contributing to production. An analysis of the overall performance of the reservoir pressure-production relationships and reservoir fluid characteristics suggests primary recovery performance should not be expected to exceed thirteen percent (13%) and will probably not exceed the ten percent (10%) estimate mentioned above.

To maximize hydrocarbon recovery from the Travis Deep Unit, enhanced fluid injection recovery techniques are suggested. In presenting enhanced hydrocarbon recoveries by fluid

injection, the Buckley-Leverett and Hutchinson, Dyes and Erickson methods were utilized. Three potential stratified fluid displaceable intervals were considered in the projection. As previously mentioned, it is our opinion that three hydrocarbon bearing intervals, possibly not interconnected, exist and exhibit varying porosities and permeabilities. The porosity and permeability information is included elsewhere in the report. No attempt was made to project potential recoveries using miscible fluid flood techniques nor was carbon dioxide (Co_2) considered. With additional development of the reservoir, which should provide additional depositional and structural information, the enhanced recovery estimates can be refined and fluid injection points can be advantageously located. Details of enhanced recovery estimates, values and costs are detailed in a section of the report.

The production forecast and reserve estimates presented are based on projections prepared utilizing all production-pressure information, reservoir fluid data as computed by a simulated recombination of fluids, pressure-volume-temperature relationships and empirical relative permeability data developed utilizing the formation characteristics developed empirically from the electric logs of the field wells.

Oil pricing is in accordance with existing Department of Energy guidelines and Windfall Excise tax schedules. Gas pricing is projected according to existing contracts. Operating costs including severance and ad valorem taxes are based on current expense history and taxing rates. Development costs and equipment additions are projected on current drilling historical costs and are itemized by category. The present worth values of the projected after operating and development costs income are discounted at twelve percent (12%) per annum and are included for guideline purposes only. All income projections are before depletion and depreciation expense allowances and Federal income taxes. All supporting information is presented under the respective sub-heading.

Gentlemen, you are cognizant that in the case of all projections, operating and economic conditions may change such that the information presented herewith must be accepted with the understanding that actual performance subsequent to the effective date of this report may necessitate a revision to increase or decrease the values presented. All statistical information and supporting data are on file and available for review and inspection.

RALPH H. VINEY & ASSOCIATES, INC.
Engineering Consultants

Ralph H. Viney

Saeed Afghahi

Job No. 022380

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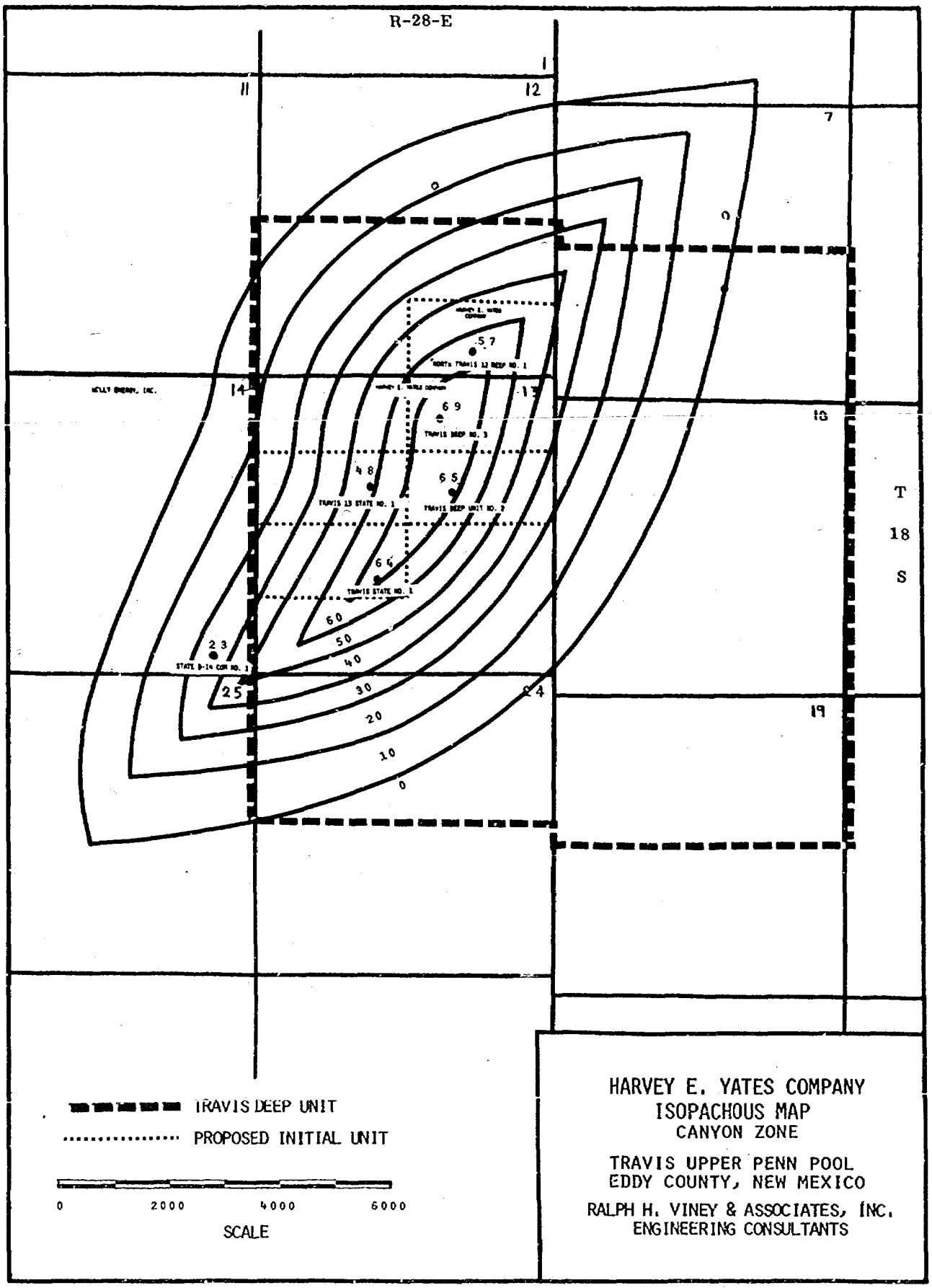

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TRAVIS DEEP UNIT
PROPOSED INITIAL UNIT
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SCALE
HARVEY E. YATES COMPANY
ISOPACHOUS MAP
CANYON ZONE
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 2

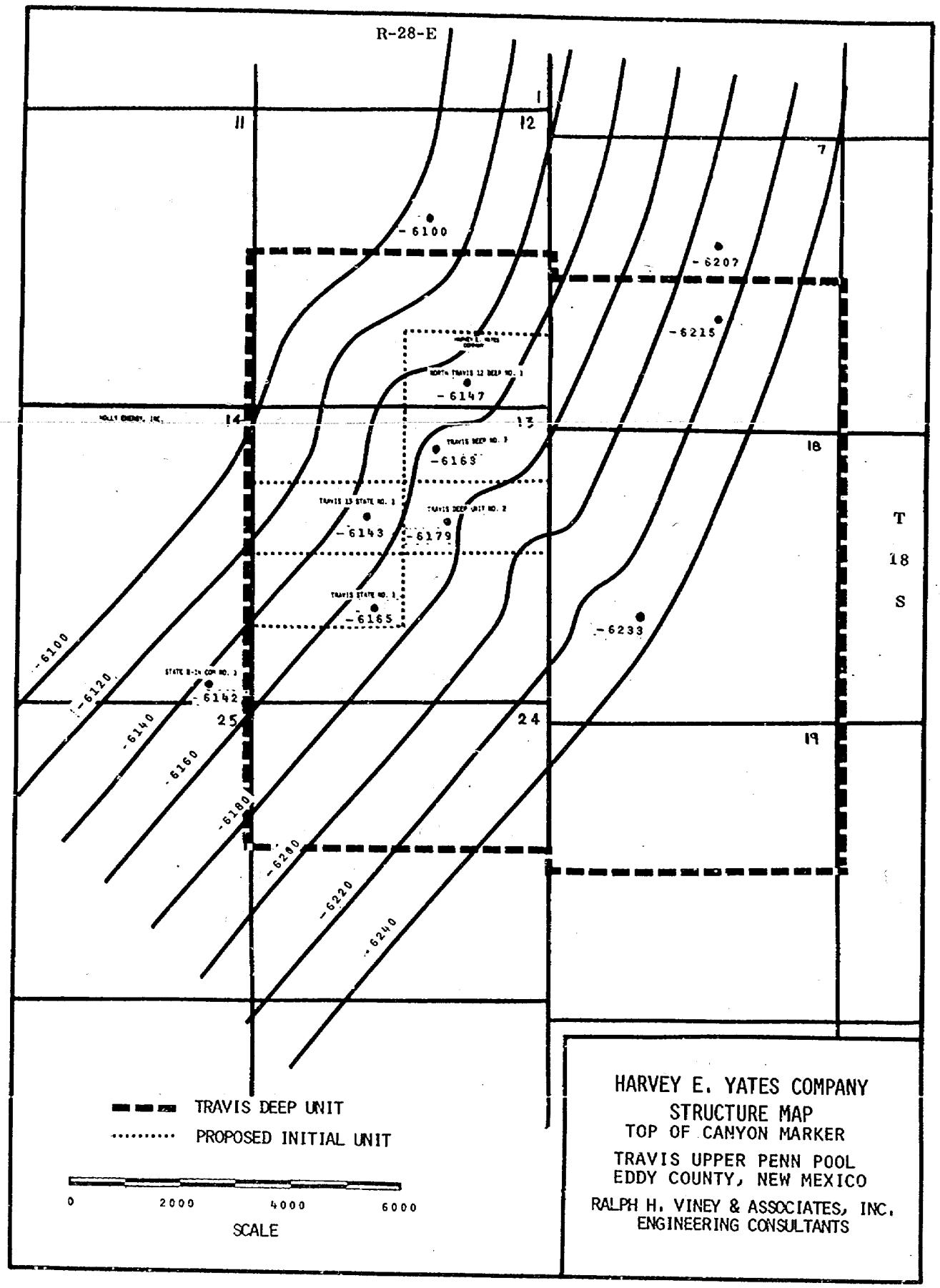
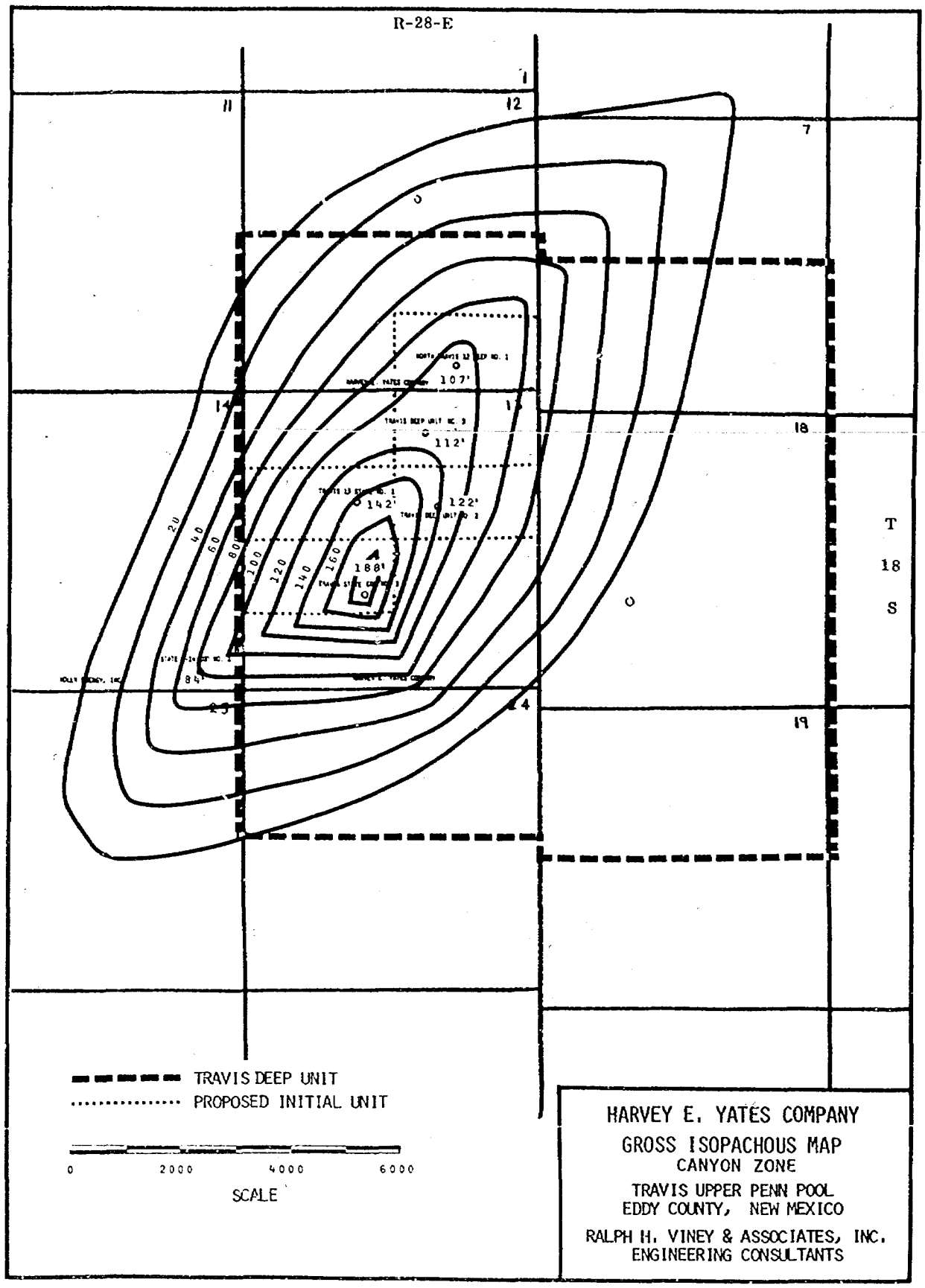

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-6220
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TRAVIS DEEP UNIT
PROPOSED INITIAL UNIT
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2000
4000
6000
SCALE
HARVEY E. YATES COMPANY
STRUCTURE MAP
TOP OF CANYON MARKER
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 1



HARVEY E. YATES COMPANY

GROSS ISOPACHOUS MAP
CANYON ZONE

TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

RALPH H. VINEY & ASSOCIATES, INC.
ENGINEERING CONSULTANTS

PLATE 3

SUMMARY TABLE 1
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED PRODUCING AND
PROVED DEVELOPED NON-PRODUCING
TRAVIS UPPER PENN POOL

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	33.290	107.080	26.819	86.268	575.594	206.517	782.111	14.400	28.672	43.072
1981	119.911	649.824	96.606	523.520	2419.717	1286.675	3706.392	57.600	135.889	193.489
1982	122.280	1159.107	98.512	933.816	2602.907	2473.911	5076.818	71.999	186.142	258.141
1983	85.594	1242.138	68.958	1000.709	1823.719	2842.775	4666.495	72.001	171.098	243.099
1984	55.832	1045.860	44.980	842.579	1189.597	2554.930	3744.527	72.000	137.294	209.294
1985	36.552	809.390	29.447	652.073	778.803	2102.143	2880.946	71.999	105.630	177.629
1986	24.125	596.136	19.435	480.268	514.149	1640.258	2154.407	72.000	78.992	150.992
1987	16.081	427.155	12.955	344.130	348.849	1241.211	1590.060	71.999	58.300	130.299
1988	11.267	314.956	9.077	253.739	260.155	963.782	1223.937	72.002	44.876	116.878
1989	8.363	242.920	6.737	195.704	207.270	780.826	988.097	71.999	36.228	108.227
S TOT	513.295	6594.566	413.526	5312.806	10720.762	16093.032	26813.794	648.000	983.120	1631.120
AFTER	21.872	674.495	17.622	543.397	583.610	2487.158	3070.776	535.046	112.589	647.635
REM.	535.167	7269.061	431.148	5856.203	11304.372	18580.190	29884.570	1183.047	1095.708	2278.755
CUM.	326.689	444.571								
ULT.	861.356	7713.632								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	-----UNDISCOUNTED----- NET CASHFLOW, M$ YEARLY	CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	M$
1980	739.039	0.000	0.000	739.039	739.039	722.073	3.	21.46	2.394	10.	18872.246
1981	3512.903	0.000	0.000	3512.903	4251.942	3850.947	4.	25.05	2.458	20.	13860.120
1982	4818.677	0.000	0.000	4818.677	9070.619	7582.516	5.	26.42	2.649	30.	10696.611
1983	4423.396	0.000	0.000	4423.396	13494.015	10560.768	5.	26.45	2.841	40.	8558.293
1984	3535.233	0.000	0.000	3535.233	17029.248	12630.267	5.	26.45	3.032	50.	7037.354
1985	2703.317	0.000	0.000	2703.317	19732.566	14006.164	5.	26.45	3.224	60.	5913.244
1986	2003.415	0.000	0.000	2003.415	21735.982	14892.711	5.	26.45	3.415	70.	5056.929
1987	1459.761	0.000	0.000	1459.761	23195.744	15454.346	5.	26.93	3.607	80.	4388.317
1988	1107.059	0.000	0.000	1107.059	24302.804	15824.673	5.	28.66	3.798	90.	3855.609
1989	879.870	0.000	0.000	879.870	25182.674	16080.575	5.	30.77	3.990	100.	3423.692
S TOT	25182.674	0.000	0.000	25182.674	25182.674	16080.575					
AFTER	2423.140	0.000	0.000	2423.140	27605.814	16561.797	PROJECT LIFE		17.6 YRS.		
TOTAL	27605.814	0.000	0.000	27605.814	27605.814	16561.797					

SUMMARY TABLE 2
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED PRODUCING
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

	---GROSS PRODUCTION---		----NET PRODUCTION-----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	33.290	107.080	26.819	86.268	575.594	206.517	782.111	14.100	28.672	43.072
1981	83.799	435.424	67.512	350.792	1608.347	862.155	2470.502	43.200	90.569	133.769
1982	62.132	594.571	50.056	479.006	1251.496	1269.006	2520.502	43.199	92.402	135.601
1983	42.536	612.860	34.268	493.741	856.289	1402.600	2258.889	43.200	82.811	126.011
1984	27.746	514.140	22.354	414.209	558.552	1255.995	1814.547	43.201	66.521	109.722
1985	18.164	397.176	14.633	319.979	365.658	1031.544	1397.202	43.200	51.221	94.421
1986	12.045	293.566	9.703	236.506	242.739	807.738	1050.477	43.200	38.510	81.710
1987	8.109	212.399	6.533	171.116	169.731	617.183	786.914	43.201	28.848	72.049
1988	5.751	158.902	4.633	128.017	132.115	486.250	618.365	43.201	22.669	65.870
1989	4.329	124.750	3.487	100.502	107.301	400.986	508.287	43.199	18.634	61.833
S TOT	297.901	3450.868	239.998	2780.136	5867.821	8339.975	14207.797	403.200	520.858	924.058
AFTER	11.748	362.187	9.466	291.791	313.513	1337.602	1651.117	315.229	60.530	375.759
REM.	309.649	3813.055	249.464	3071.927	6181.335	9677.577	15858.914	718.429	581.388	1299.817
CUM.	326.689	444.571								
ULT.	636.338	4257.626								

	NET OPERATING	FUTURE INVESTMENT, M$		-----UNDISCOUNTED----- NET CASHFLOW, M$		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	739.039	0.000	0.000	739.039	739.039	722.073	3.	21.46	2.394	10.	10175.981
1981	2336.733	0.000	0.000	2336.733	3075.772	2803.355	3.	23.82	2.458	20.	7662.478
1982	2384.901	0.000	0.000	2384.901	5460.673	4650.216	3.	25.00	2.649	30.	6068.675
1983	2132.878	0.000	0.000	2132.878	7593.551	6086.272	3.	24.99	2.841	40.	4982.217
1984	1704.825	0.000	0.000	1704.825	9298.376	7084.264	3.	24.99	3.032	50.	4200.887
1985	1302.781	0.000	0.000	1302.781	10601.157	7747.336	3.	24.99	3.224	60.	3616.050
1986	968.767	0.000	0.000	968.767	11569.924	8176.032	3.	25.02	3.415	70.	3164.374
1987	714.865	0.000	0.000	714.865	12284.789	8451.073	3.	25.98	3.607	80.	2806.589
1988	552.495	0.000	0.000	552.495	12837.284	8635.890	3.	28.52	3.798	90.	2517.278
1989	446.454	0.000	0.000	446.454	13283.738	8765.737	3.	30.77	3.990	100.	2279.163
S TOT	13283.738	0.000	0.000	13283.738	13283.738	8765.737					
AFTER	1275.358	0.000	0.000	1275.358	14559.096	9017.995	PROJECT LIFE		17.6 YRS.		
TOTAL	14559.096	0.000	0.000	14559.096	14559.096	9017.995					

TABLE 1
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS DEEP UNIT WELL NO. 2
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	GROSS PRODUCTION		NET PRODUCTION		NET REVENUE, M$			EXPENSE, M$		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	13.350	32.989	10.755	26.577	201.049	63.623	264.672	4.800	9.703	14.503
1981	33.181	144.590	26.732	116.487	588.038	286.294	874.332	14.400	32.053	46.453
1982	24.939	220.720	20.092	177.819	475.773	471.087	946.860	14.400	34.712	49.112
1983	17.531	245.729	14.123	197.968	334.445	562.380	896.825	14.399	32.878	47.277
1984	11.435	207.313	9.213	167.018	218.151	506.444	724.595	14.400	26.564	40.964
1985	7.486	160.558	6.031	129.351	142.814	417.000	559.814	14.400	20.523	34.923
1986	4.918	117.774	3.962	94.883	93.821	324.054	417.875	14.400	15.319	29.719
1987	3.246	83.558	2.615	67.317	61.926	242.800	304.726	14.400	11.171	25.571
1988	2.245	61.115	1.808	49.237	50.710	187.018	237.728	14.401	8.715	23.116
1989	1.642	46.821	1.323	37.720	40.694	150.497	191.191	14.400	7.009	21.409
8 TOT	119.973	1321.167	96.654	1064.377	2207.422	3211.196	5418.618	134.400	198.647	333.047
AFTER	4.016	122.534	3.236	98.718	107.124	448.731	555.855	99.954	20.378	120.332
REM.	123.989	1443.701	99.890	1163.095	2314.546	3659.927	5974.473	234.355	219.024	453.379
CUM.	179.068	206.068								
ULT.	303.057	1649.769								

	NET OPERATING	FUTURE INVESTMENT, M$		UNDISCOUNTED		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	NET CASHFLOW, M$ YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	250.169	0.000	0.000	250.169	250.169	244.426	1.	18.69	2.394	10.	3850.834
1981	827.879	0.000	0.000	827.879	1078.048	981.802	1.	22.00	2.458	20.	2881.074
1982	897.748	0.000	0.000	897.748	1975.796	1677.015	1.	23.68	2.649	30.	2264.105
1983	849.548	0.000	0.000	849.548	2825.344	2249.011	1.	23.68	2.841	40.	1844.247
1984	683.631	0.000	0.000	683.631	3508.975	2649.204	1.	23.68	3.032	50.	1543.585
1985	524.891	0.000	0.000	524.891	4033.866	2916.356	1.	23.68	3.224	60.	1319.757
1986	388.156	0.000	0.000	388.156	4422.022	3088.122	1.	23.68	3.415	70.	1147.913
1987	279.155	0.000	0.000	279.155	4701.177	3195.525	1.	23.68	3.607	80.	1012.605
1988	214.612	0.000	0.000	214.612	4915.789	3267.316	1.	28.05	3.798	90.	903.834
1989	169.782	0.000	0.000	169.782	5085.571	3316.695	1.	30.76	3.990	100.	814.814
8 TOT	5085.571	0.000	0.000	5085.571	5085.571	3316.695					
AFTER	435.523	0.000	0.000	435.523	5521.094	3404.882	PROJECT LIFE		16.3 YRS.		
TOTAL	5521.094	0.000	0.000	5521.094	5521.094	3404.882					

PROVED DEVELOPED PRODUCING

TABLE 2
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS DEEP UNIT WELL NO. 3
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	9.917	59.302	7.989	47.776	149.348	114.371	263.719	4.800	9.668	14.468
1981	24.649	210.337	19.859	169.454	436.835	416.473	853.308	14.400	31.282	45.682
1982	17.676	231.838	14.240	186.777	337.211	494.819	832.030	14.400	30.502	44.902
1983	11.789	207.426	9.498	167.109	224.905	474.717	699.622	14.401	25.648	40.049
1984	7.690	164.311	6.195	132.375	146.704	401.397	548.101	14.400	20.093	34.493
1985	5.034	122.122	4.055	98.386	96.035	317.175	413.210	14.400	15.148	29.548
1986	3.308	87.195	2.665	70.247	63.109	239.914	303.023	14.400	11.109	25.509
1987	2.183	60.773	1.759	48.961	47.591	176.593	224.184	14.400	8.219	22.619
1988	1.539	44.476	1.240	35.831	35.732	136.098	171.830	14.400	6.299	20.699
1989	1.171	34.778	0.943	28.018	29.027	111.787	140.814	14.400	5.162	19.562
S TOT	84.956	1222.558	68.443	984.934	1566.496	2883.345	4449.841	134.400	163.131	297.531
AFTER	3.172	98.355	2.556	79.238	84.648	361.164	445.812	96.948	16.343	113.291
REM.	88.128	1320.913	70.999	1064.172	1651.144	3244.509	4895.653	231.347	179.475	410.822
CUM.	112.035	207.036								
ULT.	200.163	1527.949								

	NET OPERATING	FUTURE INVESTMENT, M$		-----UNDISCOUNTED----- NET CASHFLOW, M$		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	249.251	0.000	0.000	249.251	249.251	243.529	1.	18.69	2.394	10.	3209.497
1981	807.626	0.000	0.000	807.626	1056.877	962.866	1.	22.00	2.458	20.	2458.067
1982	787.128	0.000	0.000	787.128	1844.005	1572.415	1.	23.68	2.649	30.	1971.525
1983	659.573	0.000	0.000	659.573	2503.578	2016.502	1.	23.68	2.841	40.	1634.312
1984	513.608	0.000	0.000	513.608	3017.186	2317.165	1.	23.68	3.032	50.	1388.497
1985	383.662	0.000	0.000	383.662	3400.848	2512.436	1.	23.68	3.224	60.	1202.408
1986	277.514	0.000	0.000	277.514	3678.362	2635.241	1.	23.68	3.415	70.	1057.303
1987	201.565	0.000	0.000	201.565	3879.927	2712.792	1.	27.06	3.607	80.	941.406
1988	151.131	0.000	0.000	151.131	4031.058	2763.347	1.	28.82	3.798	90.	847.018
1989	121.252	0.000	0.000	121.252	4152.310	2798.612	1.	30.78	3.990	100.	768.846
S TOT	4152.310	0.000	0.000	4152.310	4152.310	2798.612					
AFTER	332.521	0.000	0.000	332.521	4484.831	2865.463	PROJECT LIFE		16.1 YRS.		
TOTAL	4484.831	0.000	0.000	4484.831	4484.831	2865.463					

PROVED DEVELOPED PRODUCING

TABLE 3
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS STATE COM NO. 1-K
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	---GROSS PRODUCTION--- OIL MBBL	GAS MMCF	----NET PRODUCTION---- OIL MBBL	GAS MMCF	----------NET REVENUE, M$--------- OIL	GAS	TOTAL	----------EXPENSE, M$---------- OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	10.023	14.789	8.075	11.915	225.197	28.523	253.720	4.800	9.301	14.101
1981	25.969	80.497	20.921	64.851	583.475	159.387	742.862	14.401	27.233	41.634
1982	19.517	142.013	15.724	114.410	438.511	303.101	741.612	14.400	27.187	41.587
1983	13.216	159.705	10.647	128.664	296.938	365.504	662.442	14.400	24.285	38.685
1984	8.621	142.516	6.946	114.816	193.697	348.154	541.851	14.401	19.864	34.265
1985	5.644	114.496	4.547	92.242	126.810	297.368	424.178	14.400	15.550	29.950
1986	3.819	88.597	3.076	71.376	85.809	243.770	329.579	14.400	12.082	26.482
1987	2.680	68.068	2.159	54.838	60.214	197.790	258.004	14.401	9.458	23.859
1988	1.967	53.311	1.585	42.949	45.673	163.134	208.807	14.400	7.655	22.055
1989	1.516	43.151	1.221	34.764	37.579	138.703	176.282	14.400	6.462	20.862
S TOT	92.972	907.143	74.901	730.825	2093.903	2245.433	4339.337	134.400	159.080	293.480
AFTER	4.560	141.298	3.674	113.835	121.742	527.708	649.450	118.327	23.809	142.136
REM.	97.532	1048.441	78.575	844.660	2215.646	2773.141	4988.787	252.727	182.889	435.616
CUM.	35.586	31.467								
ULT.	133.118	1079.908								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	INTANGIBLE	-----UNDISCOUNTED----- NET CASHFLOW, M$ YEARLY	CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	M$
1980	239.619	0.000	0.000	239.619	239.619	234.118	1.	27.89	2.394	10.	3115.689
1981	701.228	0.000	0.000	701.228	940.847	858.698	1.	27.89	2.458	20.	2323.351
1982	700.025	0.000	0.000	700.025	1640.872	1400.785	1.	27.89	2.649	30.	1833.050
1983	623.757	0.000	0.000	623.757	2264.629	1820.758	1.	27.89	2.841	40.	1503.661
1984	507.586	0.000	0.000	507.586	2772.215	2117.895	1.	27.89	3.052	50.	1268.805
1985	394.228	0.000	0.000	394.228	3166.443	2318.544	1.	27.89	3.224	60.	1093.884
1986	303.097	0.000	0.000	303.097	3469.540	2452.670	1.	27.90	3.415	70.	959.158
1987	234.145	0.000	0.000	234.145	3703.685	2542.756	1.	27.89	3.607	80.	852.577
1988	186.752	0.000	0.000	186.752	3890.437	2605.227	1.	28.82	3.798	90.	766.426
1989	155.420	0.000	0.000	155.420	4045.857	2650.429	1.	30.78	3.990	100.	695.504
S TOT	4045.857	0.000	0.000	4045.857	4045.857	2650.429					
AFTER	507.314	0.000	0.000	507.314	4553.171	2747.680	PROJECT LIFE	17.6 YRS.			
TOTAL	4553.171	0.000	0.000	4553.171	4553.171	2747.680					

PROVED DEVELOPED PRODUCING

SUMMARY TABLE 3
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

SUMMARY
PROVED DEVELOPED NON-PRODUCING
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	36.112	214.400	29.094	172.728	811.370	424.520	1235.890	14.400	45.320	59.720
1982	60.148	564.536	48.456	454.810	1351.411	1204.905	2556.316	28.800	93.740	122.540
1983	43.058	629.278	34.690	506.968	967.431	1440.175	2407.606	28.801	88.287	117.088
1984	28.086	531.720	22.626	428.370	631.045	1298.935	1929.980	28.800	70.772	99.572
1985	18.388	412.214	14.814	332.094	413.144	1070.600	1483.744	28.799	54.409	83.208
1986	12.080	302.570	9.732	243.762	271.410	832.520	1103.930	28.801	40.481	69.282
1987	7.972	214.756	6.422	173.014	179.117	624.029	803.146	28.799	29.451	58.250
1988	5.516	156.054	4.444	125.722	128.039	477.533	605.572	28.802	22.206	51.008
1989	4.034	118.170	3.250	95.202	99.970	379.840	479.810	28.799	17.595	46.394
S TOT	215.394	3143.698	173.528	2532.670	4852.938	7753.056	12605.994	244.800	462.262	707.062
AFTER	10.124	312.308	8.156	251.606	270.096	1149.556	1419.654	219.817	52.059	271.876
REM.	225.518	3456.006	181.684	2784.276	5123.034	8902.613	14025.648	464.617	514.321	978.938
CUM.	0.000	0.000								
ULT.	225.518	3456.006								

	NET OPERATING	FUTURE INVESTMENT, M$		-----UNDISCOUNTED----- NET CASHFLOW, M$		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	8696.336
1981	1176.170	0.000	0.000	1176.170	1176.170	1047.592	1.	27.89	2.458	20.	6197.669
1982	2433.776	0.000	0.000	2433.776	3609.946	2932.301	2.	27.89	2.649	30.	4627.939
1983	2290.518	0.000	0.000	2290.518	5900.464	4474.495	2.	27.89	2.841	40.	3576.077
1984	1830.408	0.000	0.000	1830.408	7730.872	5546.002	2.	27.89	3.032	50.	2836.469
1985	1400.536	0.000	0.000	1400.536	9131.408	6258.828	2.	27.89	3.224	60.	2297.196
1986	1034.648	0.000	0.000	1034.648	10166.056	6716.678	2.	27.89	3.415	70.	1892.554
1987	744.896	0.000	0.000	744.896	10910.952	7003.272	2.	27.89	3.607	80.	1581.728
1988	554.564	0.000	0.000	554.564	11465.516	7188.782	2.	28.81	3.798	90.	1338.332
1989	433.416	0.000	0.000	433.416	11898.932	7314.837	2.	30.76	3.990	100.	1144.528
S TOT	11898.932	0.000	0.000	11898.932	11898.932	7314.837					
AFTER	1147.778	0.000	0.000	1147.778	13046.710	7543.849	PROJECT LIFE		17.0 YRS.		
TOTAL	13046.710	0.000	0.000	13046.710	13046.710	7543.849					

TABLE 4
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

NORTH TRAVIS 12-1-P
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

YEAR	GROSS PRODUCTION OIL MBBL	GROSS PRODUCTION GAS MMCF	NET PRODUCTION OIL MBBL	NET PRODUCTION GAS MMCF	NET REVENUE, M$ OIL	NET REVENUE, M$ GAS	NET REVENUE, M$ TOTAL	EXPENSE, M$ OPERATING EXPENSE	EXPENSE, M$ AD VALOREM TAX	EXPENSE, M$ TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	18.056	107.200	14.547	86.364	405.685	212.260	617.945	7.200	22.660	29.860
1982	30.074	282.268	24.228	227.405	675.705	602.453	1278.158	14.400	46.870	61.270
1983	21.529	314.639	17.345	253.484	483.715	720.088	1203.803	14.401	44.143	58.544
1984	14.043	265.860	11.313	214.185	315.522	649.467	964.990	14.400	35.386	49.786
1985	9.194	206.107	7.407	166.047	206.572	535.300	741.872	14.400	27.204	41.604
1986	6.040	151.285	4.866	121.881	135.705	416.260	551.965	14.400	20.241	34.641
1987	3.986	107.378	3.211	86.507	89.559	312.014	401.573	14.399	14.726	29.125
1988	2.758	78.027	2.222	62.861	64.020	238.766	302.786	14.401	11.103	25.504
1989	2.017	59.085	1.625	47.601	49.985	189.920	239.905	14.400	8.797	23.197
S TOT	107.697	1571.849	86.764	1266.335	2426.469	3876.528	6302.997	122.400	231.131	353.531
AFTER	5.062	156.154	4.078	125.803	135.048	574.778	709.827	109.909	26.029	135.938
REM.	112.759	1728.003	90.842	1392.138	2561.517	4451.306	7012.824	232.309	257.160	489.469
CUM.	0.000	0.000								
ULT.	112.759	1728.003								

YEAR	NET OPERATING INCOME, M$	FUTURE INVESTMENT, M$ TANGIBLE	FUTURE INVESTMENT, M$ INTANGIBLE	UNDISCOUNTED NET CASHFLOW, M$ YEARLY	UNDISCOUNTED NET CASHFLOW, M$ CUMULATIVE	CUMULATIVE DISCOUNTED CASHFLO M$	AVG NO OF WELLS	OIL PRICE $	GAS PRICE $	PRESENT WORTH PROFILE PCT	PRESENT WORTH PROFILE M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	4348.168
1981	588.085	0.000	0.000	588.085	588.085	523.796	0.	27.89	2.458	20.	3098.835
1982	1216.888	0.000	0.000	1216.888	1804.973	1466.150	1.	27.89	2.649	30.	2313.970
1983	1145.259	0.000	0.000	1145.259	2950.232	2237.248	1.	27.89	2.841	40.	1788.038
1984	915.204	0.000	0.000	915.204	3865.436	2773.001	1.	27.89	3.032	50.	1418.235
1985	700.268	0.000	0.000	700.268	4565.704	3129.414	1.	27.89	3.224	60.	1148.598
1986	517.324	0.000	0.000	517.324	5083.028	3358.339	1.	27.89	3.415	70.	946.277
1987	372.448	0.000	0.000	372.448	5455.476	3501.636	1.	27.89	3.607	80.	790.864
1988	277.282	0.000	0.000	277.282	5732.758	3594.391	1.	28.81	3.798	90.	669.166
1989	216.708	0.000	0.000	216.708	5949.466	3657.419	1.	30.76	3.990	100.	572.264
S TOT	5949.466	0.000	0.000	5949.466	5949.466	3657.419					
AFTER	573.889	0.000	0.000	573.889	6523.355	3771.924	PROJECT LIFE		17.0 YRS.		
TOTAL	6523.355	0.000	0.000	6523.355	6523.355	3771.924					

PROVED DEVELOPED NON-PRODUCING

TABLE 5
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

TRAVIS STATE 13-1F
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$----------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1981	18.056	107.200	14.547	86.364	405.685	212.260	617.945	7.200	22.660	29.860
1982	30.074	282.268	24.228	227.405	675.705	602.453	1278.158	14.400	46.870	61.270
1983	21.529	314.639	17.345	253.484	483.715	720.088	1203.803	14.401	44.143	58.544
1984	14.043	265.860	11.313	214.185	315.522	649.467	964.990	14.400	35.386	49.786
1985	9.194	206.107	7.407	166.047	206.572	535.300	741.872	14.400	27.204	41.604
1986	6.040	151.285	4.866	121.881	135.705	416.260	551.965	14.400	20.241	34.641
1987	3.986	107.378	3.211	86.507	89.559	312.014	401.573	14.399	14.726	29.125
1988	2.758	78.027	2.222	62.861	64.020	238.766	302.786	14.401	11.103	25.504
1989	2.017	59.085	1.625	47.601	49.985	189.920	239.905	14.400	8.797	23.197
S TOT	107.697	1571.849	86.764	1266.335	2426.469	3876.528	6302.997	122.400	231.131	353.531
AFTER	5.062	156.154	4.078	125.803	135.048	574.778	709.827	109.909	26.029	135.938
REM.	112.759	1728.003	90.842	1392.138	2561.517	4451.306	7012.824	232.309	257.160	489.469
CUM.	0.000	0.000								
ULT.	112.759	1728.003								

	NET			-----UNDISCOUNTED-----		CUMULATIVE	AVG	OIL	GAS	PRESENT WORTH PROFILE	
	OPERATING	FUTURE INVESTMENT, M$		NET CASHFLOW, M$		DISCOUNTED	NO OF	PRICE	PRICE		
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.	0.00	0.000	10.	4348.168
1981	588.085	0.000	0.000	588.085	588.085	523.796	0.	27.89	2.458	20.	3098.835
1982	1216.888	0.000	0.000	1216.888	1804.973	1466.150	1.	27.89	2.649	30.	2313.970
1983	1145.259	0.000	0.000	1145.259	2950.232	2237.248	1.	27.89	2.841	40.	1788.038
1984	915.204	0.000	0.000	915.204	3865.436	2773.001	1.	27.89	3.032	50.	1418.235
1985	700.268	0.000	0.000	700.268	4565.704	3129.414	1.	27.89	3.224	60.	1148.598
1986	517.324	0.000	0.000	517.324	5083.028	3358.339	1.	27.89	3.415	70.	946.277
1987	372.448	0.000	0.000	372.448	5455.476	3501.636	1.	27.89	3.607	80.	790.864
1988	277.282	0.000	0.000	277.282	5732.758	3594.391	1.	28.81	3.798	90.	669.166
1989	216.708	0.000	0.000	216.708	5949.466	3657.419	1.	30.76	3.990	100.	572.264
S TOT	5949.466	0.000	0.000	5949.466	5949.466	3657.419					
AFTER	573.889	0.000	0.000	573.889	6523.355	3771.924	PROJECT LIFE		17.0 YRS.		
TOTAL	6523.355	0.000	0.000	6523.355	6523.355	3771.924					

PROVED DEVELOPED NON-PRODUCING

RESERVOIR VOLUME, RESERVES AND MATERIAL BALANCE

SUMMARY TABLE 4
HARVEY E. YATES COMPANY
SUMMARY OF PRODUCTIVE AREA AND RESERVOIR VOLUMES
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Description	Area Acres	Average Thickness -Feet-	Reservoir Volume -Acre Feet-	Volumetric Estimate Of Stock Tank Oil-In-Place -Barrels-
Reservoir	2,253	22.60	50,912	13,033,470
Travis Deep Unit	1,505	27.75	41,774	10,694,100
Outside of Travis Deep Unit	748	12.22	9,138	2,339,370
Projected Floodable Area Within Travis Deep Unit Boundary	870	35.84	31,180	7,982,100
Proved Developed Tracts Within Travis Deep Unit Producing and Non-Producing				
S/2 SE/4 Section 12	80	60.65	4,852	1,242,110
N/2 NE/4 Section 13	80	54.65	4,372	1,119,230
S/2 NE/4 Section 13	80	48.63	3,890	995,840
S/2 NW/4 Section 13	80	38.36	3,069	785,660
N/2 SW/4 Section 13	80	54.44	4,355	1,114,880

Values shown above computed from isopachous map.

Volumetric estimate of oil-in-place - Barrels/Acre Foot

$$q = \frac{(0.0639)(1 - .24)\ 7758}{1.4725} = 256 \text{ Barrels/Acre Foot}$$

SUMMARY TABLE 5
HARVEY E. YATES COMPANY
SUMMARY OF RESERVOIR PAY BY WELLS
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Operator	Well Designation	Projected Reservoir Pay - Feet: Most Permeable	Less Permeable	Matrix	Total Pay Thickness	Remarks
Harvey E. Yates Company	Travis Deep Unit No. 2	20	14	31	65	
	Travis Deep Unit No. 3	11	13	45	69	
	State Comm No. 1	11	24	29	64	
	North Travic 12-1	10	28	21	59	
	State 13-1	16	5	27	48	
Holly Energy	State B-14 Com No. 1	-	15	10	25	Need additional information to further evaluate

Projected Formation Characteristics	Most Permeable	Less Permeable	Matrix	Probable Weighted Formation Characteristics for Reservoir
Porosity (Ø) % of Bulk Volume	10.90	7.20	4.00	6.37
Interstitial Water - % of P.V.	15.00	22.50	29.00	24.08
Permeability - Millidarcies	3.30	1.77	1.02	1.71

TABLE 6
HARVEY E. YATES COMPANY
INTERNAL GAS DRIVE
PRESSURE - PRODUCTION PERFORMANCE
DISPERSED DISPLACEMENT
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PRESSURE PSIG	RECOVERY FACTOR %	OIL PROD MSTB	CUM OIL MSTB	CUM GAS--MMSCF TOTAL	CUM GAS--MMSCF NET	GOR SCF/STB	GAS SAT % PV
3725.	0.000	0.00	0.0	0.0	0.0	800.	0.0
3600.	0.216	25.68	25.7	20.5	20.5	800.	0.0
3400.	0.565	41.57	67.3	53.8	53.8	800.	0.0
3200.	0.919	42.15	109.4	87.5	87.5	800.	0.0
3000.	1.278	42.73	152.1	121.7	121.7	800.	0.0
2800.	1.641	43.31	195.5	156.4	156.4	800.	0.0
2600.	2.010	43.88	239.3	191.5	191.5	800.	0.0
2400.	2.383	44.45	283.8	227.0	227.0	800.	0.0
2200.	2.761	45.01	328.8	263.0	263.0	800.	0.0
2066.	3.017	30.47	359.3	287.4	287.4	800.	0.0
2000.	4.873	221.10	580.4	480.3	480.3	873.	2.1
1900.	7.021	255.80	836.2	840.1	840.1	1406.	4.7
1800.	8.490	174.97	1011.1	1252.0	1252.0	2354.	6.8
1700.	9.862	163.32	1174.5	1819.7	1819.7	3476.	8.7
1600.	10.866	119.55	1294.0	2393.3	2393.3	4798.	10.3
1500.	11.677	96.63	1390.6	3035.5	3035.5	6646.	11.9
1400.	12.253	68.57	1459.2	3660.4	3660.4	9114.	13.2
1300.	12.789	63.89	1523.1	4402.5	4402.5	11615.	14.5
1200.	13.191	47.82	1570.9	5098.8	5098.8	14562.	15.6
1100.	13.550	42.74	1613.7	5871.9	5871.9	18087.	16.7
1000.	13.818	31.99	1645.7	6575.6	6575.6	21999.	17.7
900.	14.073	30.29	1675.9	7355.2	7355.2	25739.	18.7
800.	14.272	23.76	1699.7	8052.9	8052.9	29360.	19.7
700.	14.482	24.95	1724.7	8869.5	8869.5	32725.	20.6
600.	14.651	20.13	1744.8	9572.9	9572.9	34945.	21.6
500.	14.856	24.42	1769.2	10370.6	10370.6	32658.	22.5
400.	15.056	23.83	1793.0	11024.1	11024.1	27427.	23.5
300.	15.365	36.77	1829.8	11826.6	11826.6	21826.	24.5
200.	15.652	34.21	1864.0	12391.7	12391.7	16518.	25.5

INITIAL OIL-IN-PLACE (MB) = 11909.3
INITIAL GAS-IN-PLACE, MMF 9527.4

TABLE 7
HARVEY E. YATES COMPANY
RESERVOIR FLUIDS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PRESSURE PSIG----	DIFFERENTIAL DATA FVF V/B---	GAS SOL F/B-----	FLASH FVF V/B---	FLASH GAS SOL F/B----	GAS GRAVITY -------	Z FACTOR ------	GAS FVF B/MCF--
200.	1.0900	60.	1.0900	60.	0.000	0.9670	14.0772
400.	1.1300	125.	1.1300	125.	0.000	0.9300	7.0085
600.	1.1700	200.	1.1700	200.	0.000	0.9000	4.5755
800.	1.2100	280.	1.2100	280.	0.000	0.8600	3.2988
1000.	1.2500	360.	1.2500	360.	0.000	0.8300	2.5561
1200.	1.2900	440.	1.2900	440.	0.000	0.7950	2.0452
1400.	1.3300	525.	1.3300	525.	0.000	0.7700	1.7008
1600.	1.3750	610.	1.3750	610.	0.000	0.7550	1.4611
1800.	1.4180	695.	1.4180	695.	0.000	0.7400	1.2743
2066.	1.4800	800.	1.4800	800.	0.000	0.7300	1.0963

N - MSTB	0.000	SAT PSI	2066.
G/N RATIO - CF/B	000.000	SCW - PCT	29.00
G - MMCF	0.000	GAS CAP PSI	0.
BW - RVB/STB	1.0500	CW - V/MMV/PSI	3.192
SEP. GF/STB	40.	CO - V/MMV/PSI	7.000
RESVR TEMP - F	160.	CF - V/MMV/PSI	6.300
NITROGEN - PCT	1.24	CARB. DIOX. - PCT	0.34
HYD. SULF. - PCT	00.000		

Initial Oil Reserves Calculated Using Tarner Technique.
Other Pertinent Data Included on Fluid Characteristics
Data Charts (Included).

TABLE 8
MATERIAL BALANCE RESULTS AND RESERVOIR VOIDAGE CALCULATIONS
TRAVIS UPPER PENN POOL (CANYON ZONE)
EDDY COUNTY, NEW MEXICO
HARVEY E. YATES COMPANY
Ralph H. Viney & Associates, Inc.
Engineering Consultants

MATERIAL BALANCE

SURVEY DATE: 9/ 8/77

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	3725.	3.0	3.7	0.0	0.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			3.0	3.7	0.0	0.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 11/ 1/77

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	3538.	16.4	18.0	0.0	5802.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			16.4	18.0	0.0	5802.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 11/30/79

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2411.	272.8	351.9	0.0	16176.
CAP	0	0.	0.0	0.0	0.0	
TOTALS			272.8	351.9	0.0	16176.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 6/17/80

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2748.	319.2	402.0	0.0	24247.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			319.2	402.0	0.0	24247.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

SURVEY DATE: 8/13/80

AREA NO.	ORIG. PRES.	CURR. PRES.	CUMULATIVE PRODUCTION OIL MSTB	GAS MMCF	WATER MSTB	OIP ORIGINAL MSTB
3	3725.	2092.	322.9	406.4	0.0	15804.
CAP	0.	0.	0.0	0.0	0.0	
TOTALS			322.9	406.4	0.0	15804.

ORIG. GAS CAP VOL. = 0. MMSCF.
TOTAL WATER INFLUX VOL. = 0. MBBLS.

Results of Surveys 11/30/1979 and 8/13/1980
Considered to be representative with zero gas cap

MSTB - 1000 Stock Tank Barrels
MMCF - 1,000,000 Cubic Feet
Area No. - Is a Computer Code for Engineering Identification

RESERVOIR VOIDAGE

RESERVOIR VOLUME OF WITHDRAWALS, MRVB

SEGMENT	OIL	GAS	WATER	TOTAL
SURVEY DATE: 9/ 8/77				
3	4.338	0.803	0.000	5.141
S-TOTAL	4.338	0.803	0.000	5.141
CAP	0.000	0.000	0.000	0.000
TOTAL	4.338	0.803	0.000	5.141
SURVEY DATE: 11/ 1/77				
3	23.966	3.313	0.000	27.279
S-TOTAL	23.966	3.313	0.000	27.279
CAP	0.000	0.000	0.000	0.000
TOTAL	23.966	3.313	0.000	27.279
SURVEY DATE: 11/30/79				
3	402.808	133.545	0.000	536.354
S-TOTAL	402.808	133.545	0.000	536.354
CAP	0.000	0.000	0.000	0.000
TOTAL	402.806	133.545	0.000	536.354
SURVEY DATE: 6/17/80				
3	470.176	126.959	0.000	597.135
S-TOTAL	470.176	126.959	0.000	597.135
CAP	0.000	0.000	0.000	0.000
TOTAL	470.176	126.959	0.000	597.135
SURVEY DATE: 8/13/80				
3	477.839	174.071	0.000	651.910
S-TOTAL	477.839	174.071	0.000	651.910
CAP	0.000	0.000	0.000	0.000
TOTAL	477.839	174.071	0.000	651.910

MRVB = 1000's of Reservoir Volume Barrels

DISCUSSION

ENHANCED RECOVERY BY FLUID INJECTION

A pattern and a peripheral injection program have been prepared using developed data and are presented for comparative purposes. New development should provide additional geological control to more appropriately locate both future injection and producing wells and, hopefully, provide more definitive formation and fluid information. For the purpose of illustration the peripheral program projected a total of six (6) injection wells and eight (8) total producers. This should not be considered to be rigid but subject to re-evaluation.

To calculate fluid injection capacities of the injection wells, the projected net pay was delineated into three stratified layers with separate formation characteristics of porosity, interstitial water saturation and permeability. The pressure at the formation face of each injection well was projected at 5200 psig. After allowance for the hydrostatic fluid head pressure, a 1000 psig injection surface pressure at each injection well is required. Conventional engineering parameters were used to prepare the estimates. It must be recognized that fluid injection rates will probably decline during the recovery program due to possible changes in fluid mobility ratios, variation of permeabilities, which as of this writing cannot be finitely know. The initial oil saturation in each zone was considered to be identical at commencement of injection; consequently, actual performance may vary from the estimates presented.

The cost estimates used in the fluid injection proformas are based upon the use of two (2) Ajax T-150 pumps. These pumps are capable of handling a total of 7900 barrels of fluid per day which exceeds the fluid injection requirements projected for either a pattern or peripheral enhanced recovery fluid injection plan. The pumps can be resized resulting in additional savings. It is our opinion that electric motors be used rather than gas engines which will result in lower first costs and operating costs. As a comparison, electric motors will operate at approximately one-half the cost of a gas engine and will provide higher reliability and flexibility of operation.

The results of the injection programs are summarized below.

	Injection Pattern	Peripheral Injection Program
Number of Injection Wells	1	6
Number of Producers Affected	3	8
Projected Injection Pattern Flood Area		
Area - Acres	154	870
Average Thickness - Feet	60.25	35.84
Reservoir Volume - Acre Feet	9280	31,180
Projected Oil-In-Place at Initiation of Injection		
Barrels/Acre Foot	239	239
Barrels	2,218,000	10,133,400
Projected Recoverable Primary and Enhanced Reserves		
Projected Primary and Enhanced Barrels	826,550	2,123,900
Projected Enhanced Barrels	451,550	1,568,800
Projected Recoverable Gas - MCF	4,627,400	9,185,400
Projected Average Thickness at Injection Well - Feet	59	28
Projected Average Injection Rate		
Barrels Per Day Per Well	771	384
Barrels Per Day	771	2304
Projected Total Injection Fluid Requirements - Barrels	2,392,000	7,140,000
Projected Costs		
Water Plant and Distribution System	$ 365,000	$ 500,000
Well Conversions	40,000	-

DISCUSSION (Continued)

	Injection Pattern	Peripheral Injection Program
Development Drilling		
Producing Wells	-	$ 2,420,000
Injection Well Locations	-	3,250,000
Pump Jacks (640's) and Attendent Equipment	$ 330,000	892,000
Operating Expenses (Escalated @ 3% per Annum) Including Ad Valorem Taxes	1,280,500	3,071,400
Total Projected Costs	$ 1,995,500	$ 10,133,400

Enclosed are schematics illustrating a general proposed fluid distribution system, plant layout and equipment installations, typical field line connections and typical equipment inventory and cost projections. The system diagrams and equipment projections were prepared in conjunction with Mr. Gene Campbell of Mid-Continent Supply Company in Midland. The cost estimates are for plant equipment larger than would probably be required in the Travis Deep Unit operations; however, they serve to provide items to be considered.

Whenever injection is to be commenced, it is suggested, due to lead time required to obtain equipment delivery, that the decision be aware of a 180 to 200 day equipment delivery schedule.

Delays beyond a reasonable time to commence fluid injection will result in greater reservoir voidage and will be associated with attendant higher fluid requirements for displacement, higher overall enhanced recovery costs and lower ultimate hydrocarbon fluid recoveries. Maximum costs have been projected for fluid lift pumping equipment and are probably high.

It should be noted that conventional engineering techniques have been used in preparing the projections presented; however, much, if not all, has been prepared using best estimates of formation characteristics and fluid data, all of which was developed empirically.

TABLE 9
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

HARVEY E. YATES COMPANY
TRAVIS DEEP UPPER PENN FIELD
EDDY COUNTY, NEW MEXICO
PATTERN FLOOD

WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

	GROSS PRODUCTION		NET PRODUCTION		NET REVENUE, M$			EXPENSE, M$		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	24.300	93.600	19.577	75.407	549.507	180.517	730.024	6.400	0.000	6.400
1981	69.000	421.000	55.589	339.172	1560.328	830.889	2391.217	75.600	0.000	75.600
1982	69.350	680.000	55.870	547.831	1568.243	1433.855	3002.098	96.500	0.000	96.500
1983	142.350	2135.000	114.682	1720.029	3219.023	4790.115	8009.138	96.500	0.000	96.500
1984	142.350	712.000	114.682	573.612	3219.023	1693.576	4912.599	96.500	0.000	96.500
1985	122.300	257.000	98.529	207.048	2765.624	646.000	3411.624	99.000	0.000	99.000
1986	94.900	142.400	76.455	114.722	2146.017	377.163	2523.180	102.000	0.000	102.000
1987	62.000	79.400	49.949	63.967	1402.033	221.019	1623.052	105.000	0.000	105.000
1988	40.000	46.200	32.226	37.220	934.881	134.839	1069.720	108.000	0.000	108.000
1989	26.000	26.800	20.946	21.591	647.117	81.837	728.954	112.000	0.000	112.000
S TOT	792.550	4593.400	638.505	3700.599	18011.796	10389.810	28401.606	897.500	0.000	897.500
AFTER	34.000	34.000	27.392	27.392	904.440	111.628	1016.068	363.000	0.000	363.000
REM.	826.550	4627.400	665.897	3727.991	18916.236	10501.438	29417.674	1260.500	0.000	1260.500
CUM.	326.689	444.571								
ULT.	1153.239	5071.971								

	NET OPERATING	FUTURE INVESTMENT, M$		UNDISCOUNTED NET CASHFLOW, M$		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	723.624	0.000	0.000	723.624	723.624	709.414	2.	28.07	2.394	10.	19012.852
1981	2315.617	365.000	40.000	1910.617	2634.241	2440.318	4.	28.07	2.450	20.	13764.358
1982	2905.598	0.000	0.000	2905.598	5539.839	4776.052	4.	28.07	2.617	30.	10331.362
1983	7912.638	223.000	0.000	7689.638	13229.477	10261.916	4.	28.07	2.785	40.	7996.739
1984	4816.099	107.000	0.000	4709.099	17938.576	13243.308	4.	28.07	2.952	50.	6356.678
1985	3312.624	0.000	0.000	3312.624	21251.200	15104.499	4.	28.07	3.120	60.	5172.476
1986	2421.180	0.000	0.000	2421.180	23672.380	16311.727	4.	28.07	3.288	70.	4297.011
1987	1518.052	0.000	0.000	1518.052	25190.432	16983.452	4.	28.07	3.455	80.	3636.268
1988	961.720	0.000	0.000	961.720	26152.152	17361.110	4.	29.01	3.623	90.	3128.337
1989	616.954	0.000	0.000	616.954	26769.106	17576.114	4.	30.89	3.790	100.	2731.321
S TOT	27504.106	695.000	40.000	26769.106	26769.106	17576.114					
AFTER	653.068	0.000	0.000	653.068	27422.174	17766.356	PROJECT LIFE	12.3 YRS.			
TOTAL	28157.174	695.000	40.000	27422.174	27422.174	17766.356					

PROJECTED PERFORMANCE
A PATTERN FLOOD

ENHANCED RECOVERY
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

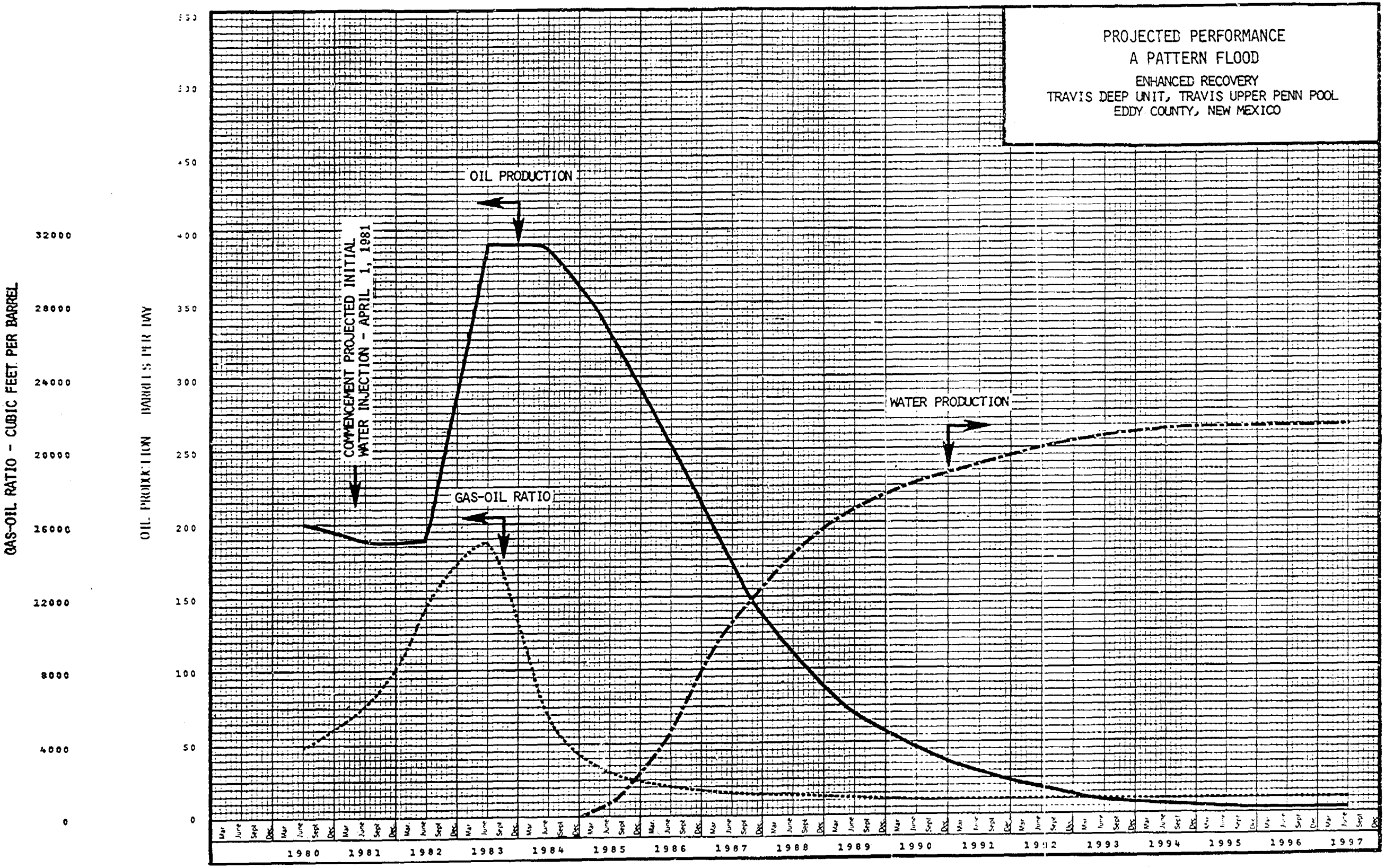


TABLE 10
RESERVES AND ECONOMICS AS OF 9/ 1/1980
BEFORE FEDERAL INCOME TAX

PREPARED FOR: HARVEY E. YATES COMPANY

BY: RALPH VINEY & ASSOCIATES, INC - MIDLAND, TEXAS

HARVEY E. YATES COMPANY
TRAVIS UPPER PENN FIELD
EDDY COUNTY, NEW MEXICO
PERIPHERAL FLOOD

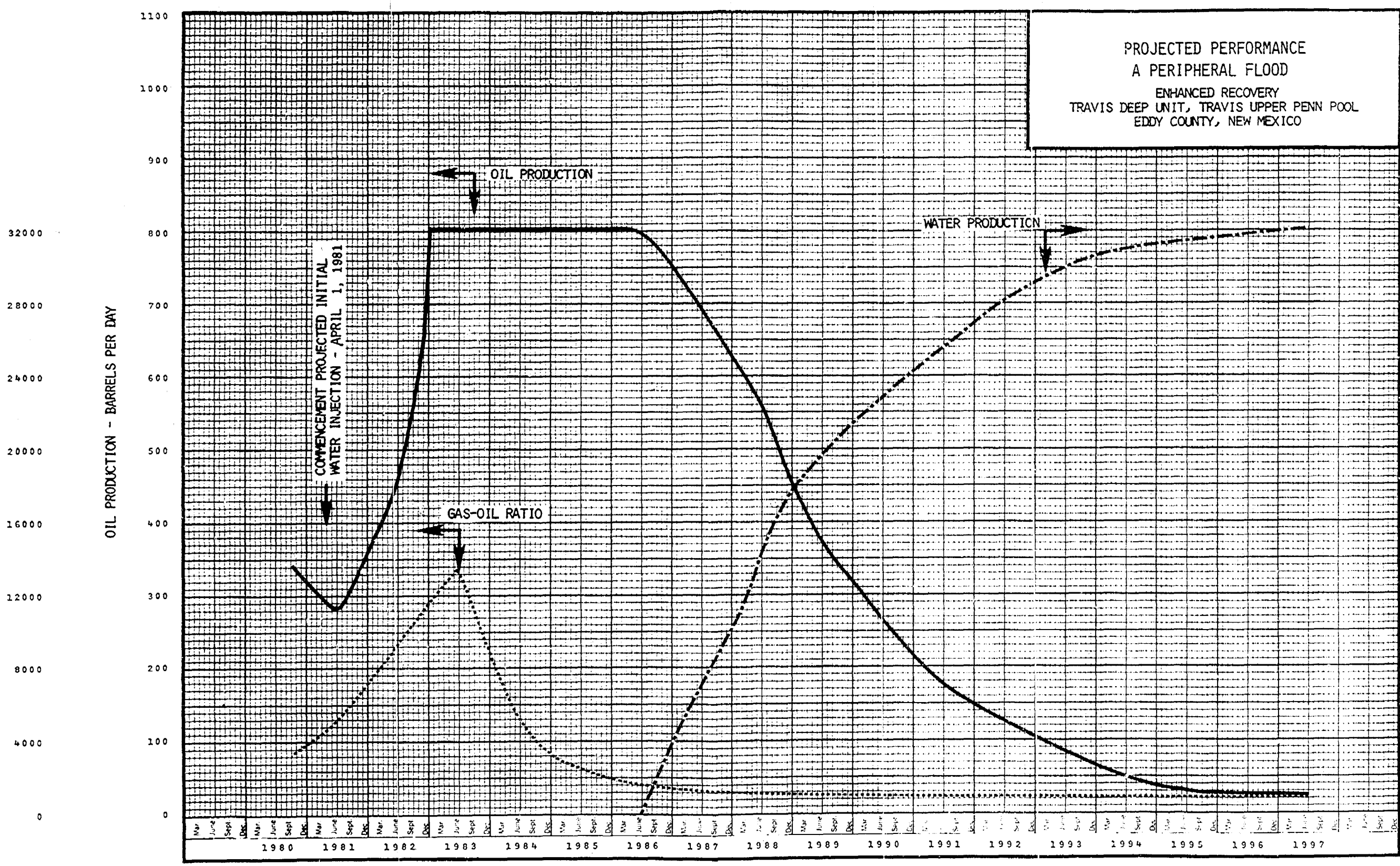
WORKING INTEREST 1.000000
REVENUE INTEREST 0.805634

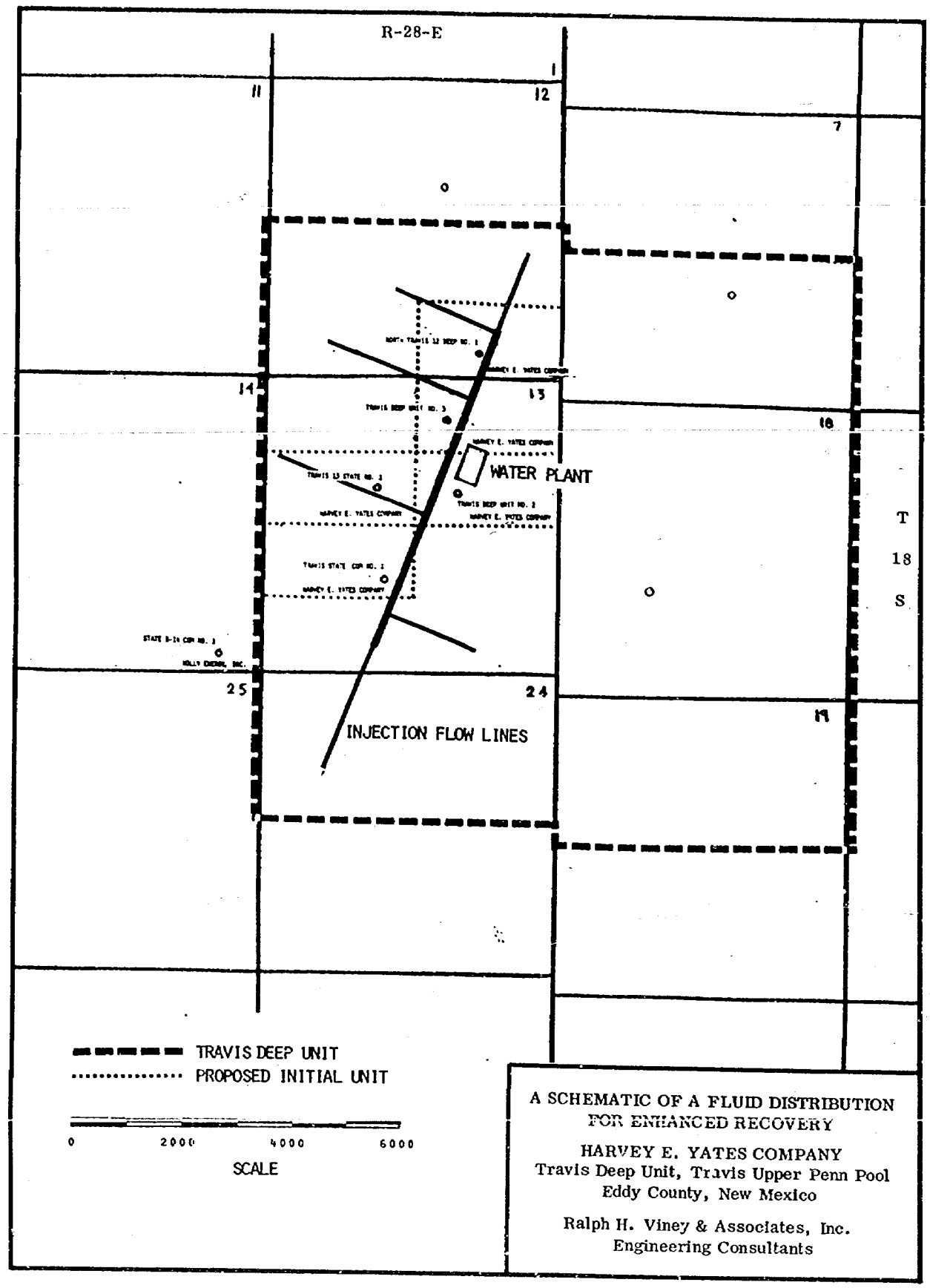
	---GROSS PRODUCTION---		----NET PRODUCTION----		----------NET REVENUE, M$---------			----------EXPENSE, M$----------		
YEAR	OIL MBBL	GAS MMCF	OIL MBBL	GAS MMCF	OIL	GAS	TOTAL	OPERATING EXPENSE	AD VALOREM TAX	TOTAL
1980	42.000	138.600	33.837	111.661	949.765	267.305	1217.070	6.400	0.000	6.400
1981	102.000	555.800	82.174	447.771	2306.573	1096.930	3403.503	78.000	0.000	78.000
1982	164.000	1541.600	132.124	1241.966	3709.603	3250.635	6959.239	155.000	0.000	155.000
1983	294.000	3969.000	236.857	3197.561	6648.355	8904.900	15553.255	194.000	0.000	194.000
1984	294.000	1470.000	236.856	1184.282	6648.352	3496.565	10144.917	201.000	0.000	201.000
1985	294.000	499.800	236.857	402.656	6648.353	1256.307	7904.660	208.000	0.000	208.000
1986	274.000	328.800	220.743	264.893	6196.083	870.868	7066.952	215.000	0.000	215.000
1987	219.000	240.900	176.434	194.077	4952.346	670.574	5622.920	223.000	0.000	223.000
1988	153.000	153.000	123.262	123.262	3575.914	446.550	4022.464	230.000	0.000	230.000
1989	110.000	110.000	88.620	88.619	2737.804	335.896	3073.700	238.000	0.000	238.000
S TOT	1946.000	9007.500	1567.764	7256.748	44372.152	20596.530	64968.680	1748.400	0.000	1748.400
AFTER	177.900	177.900	143.322	143.323	4739.168	594.070	5333.240	1323.000	0.000	1323.000
REM.	2123.900	9185.400	1711.086	7400.071	49111.320	21190.600	70301.920	3071.400	0.000	3071.400
CUM.	326.689	444.571								
ULT.	2450.589	9629.971								

	NET OPERATING	FUTURE INVESTMENT, M$		-----UNDISCOUNTED----- NET CASHFLOW, M$		CUMULATIVE DISCOUNTED	AVG NO OF	OIL PRICE	GAS PRICE	PRESENT WORTH PROFILE	
YEAR	INCOME, M$	TANGIBLE	INTANGIBLE	YEARLY	CUMULATIVE	CASHFLO M$	WELLS	$	$	PCT	M$
1980	1210.670	0.000	0.000	1210.670	1210.670	1186.896	5.	28.07	2.394	10.	37904.100
1981	3325.503	3900.000	300.000	-874.497	336.173	397.032	11.	28.07	2.450	20.	25225.332
1982	6804.239	750.000	600.000	5454.239	5790.412	4732.201	12.	28.07	2.617	30.	17547.664
1983	15359.255	320.000	300.000	14739.255	20529.668	15297.413	14.	28.07	2.785	40.	12657.357
1984	9943.917	446.000	0.000	9497.917	30027.586	21310.754	14.	28.07	2.952	50.	9412.513
1985	7696.660	446.000	0.000	7250.660	37278.248	25384.672	14.	28.07	3.120	60.	7187.455
1986	6851.952	0.000	0.000	6851.952	44130.200	28801.134	14.	28.07	3.238	70.	5620.568
1987	5399.920	0.000	0.000	5399.920	49530.120	31190.558	14.	28.07	3.455	80.	4492.900
1988	3792.464	0.000	0.000	3792.464	53322.584	32679.822	14.	29.01	3.623	90.	3666.602
1989	2835.700	0.000	0.000	2835.700	56158.284	33668.040	14.	30.89	3.790	100.	3051.845
S TOT	63220.280	5862.000	1200.000	56158.284	56158.284	33668.040					
AFTER	4010.240	0.000	0.000	4010.240	60168.524	34799.496	PROJECT LIFE		14.3 YRS.		
TOTAL	67230.520	5862.000	1200.000	60168.524	60168.524	34799.496					

PROJECTED PERFORMANCE
A PERIPHERAL FLOOD

ENHANCED RECOVERY
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO



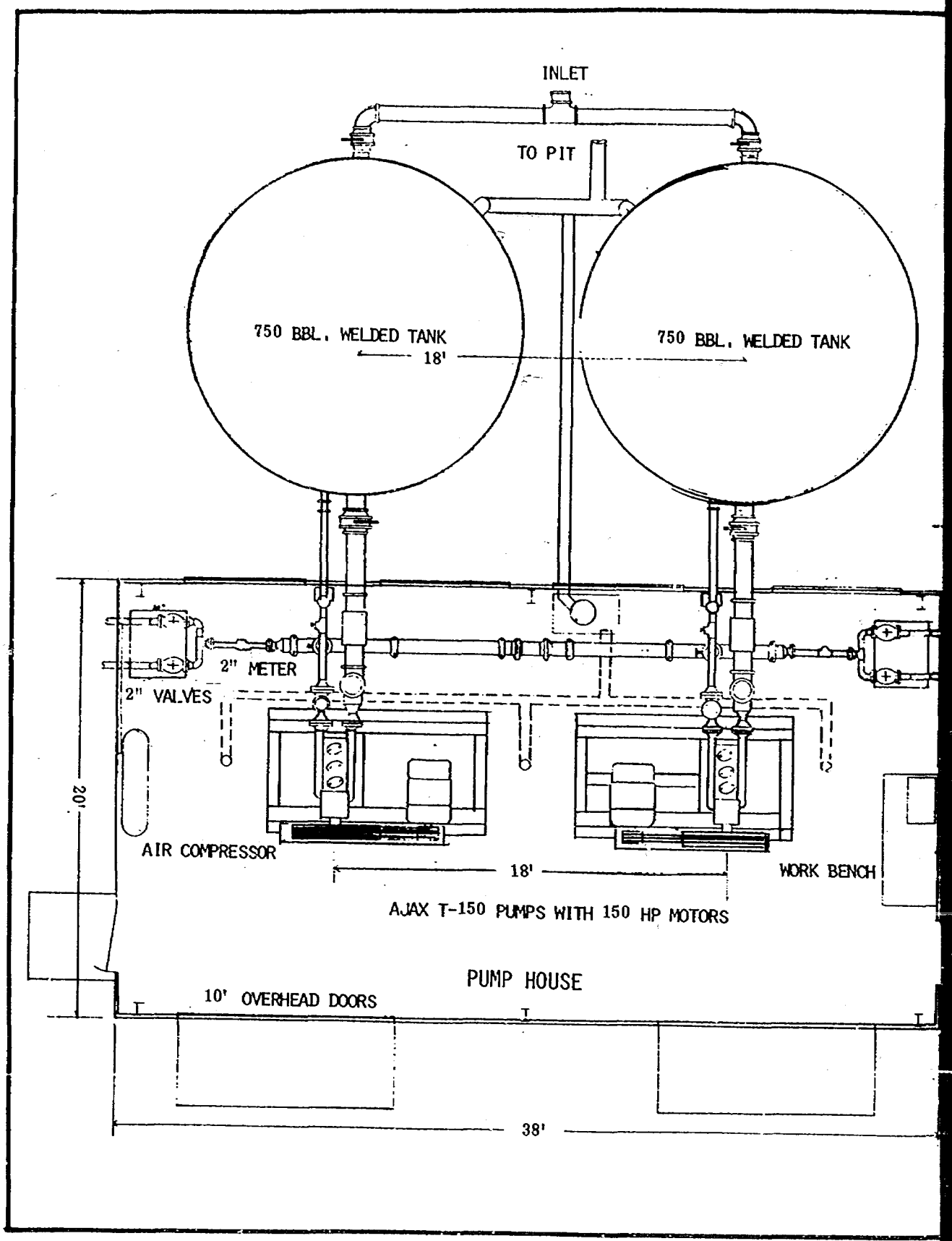


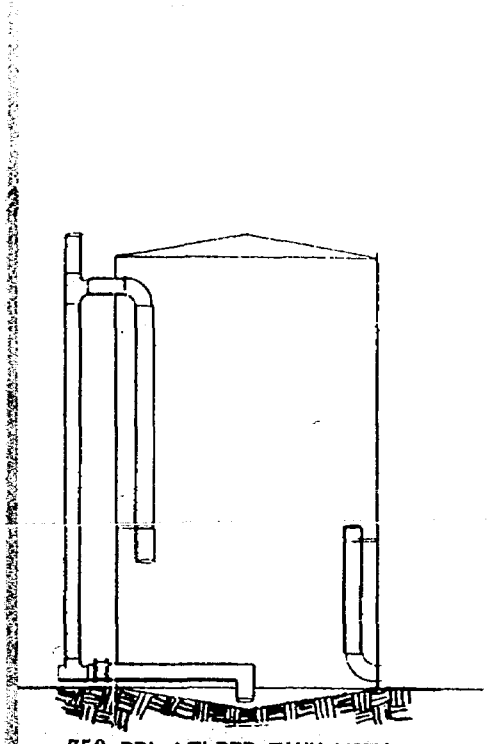
A SCHEMATIC OF A FLUID DISTRIBUTION FOR ENHANCED RECOVERY

HARVEY E. YATES COMPANY
Travis Deep Unit, Travis Upper Penn Pool
Eddy County, New Mexico

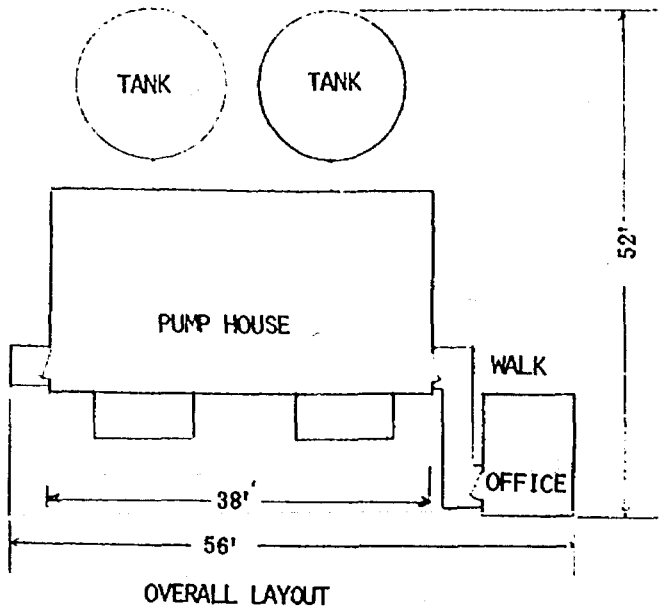
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PLATE 7

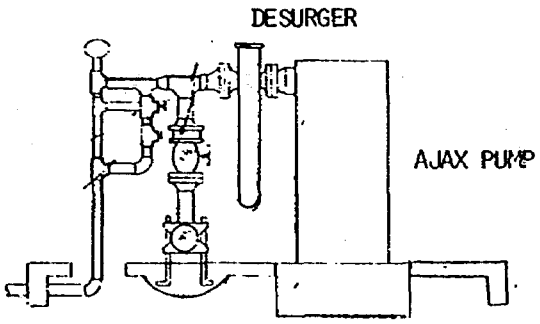

INLET
TO PIT
750 BBL. WELDED TANK
18'
750 BBL. WELDED TANK
2" METER
2" VALVES
20'
AIR COMPRESSOR
18'
WORK BENCH
AJAX T-150 PUMPS WITH 150 HP MOTORS
PUMP HOUSE
10' OVERHEAD DOORS
38'

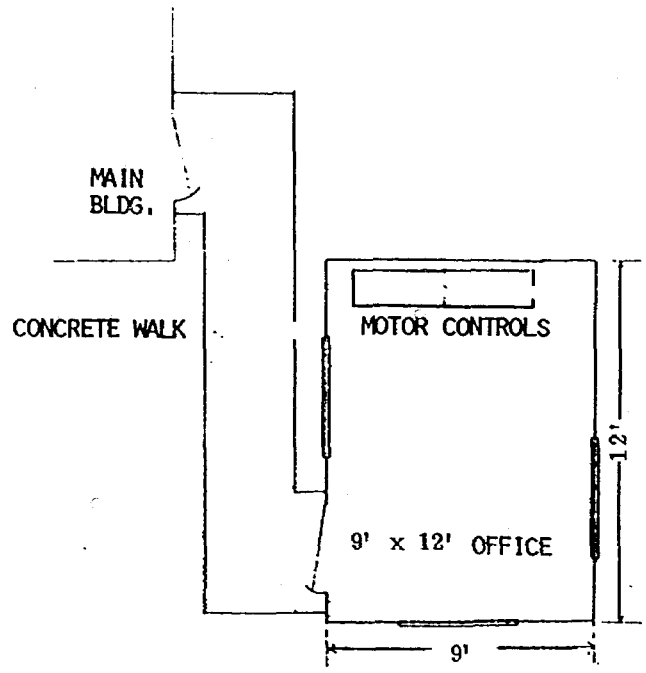


750 BBL WELDED TANK WITH
CONE BOTTOM ON PEA GRAVEL



OVERALL LAYOUT



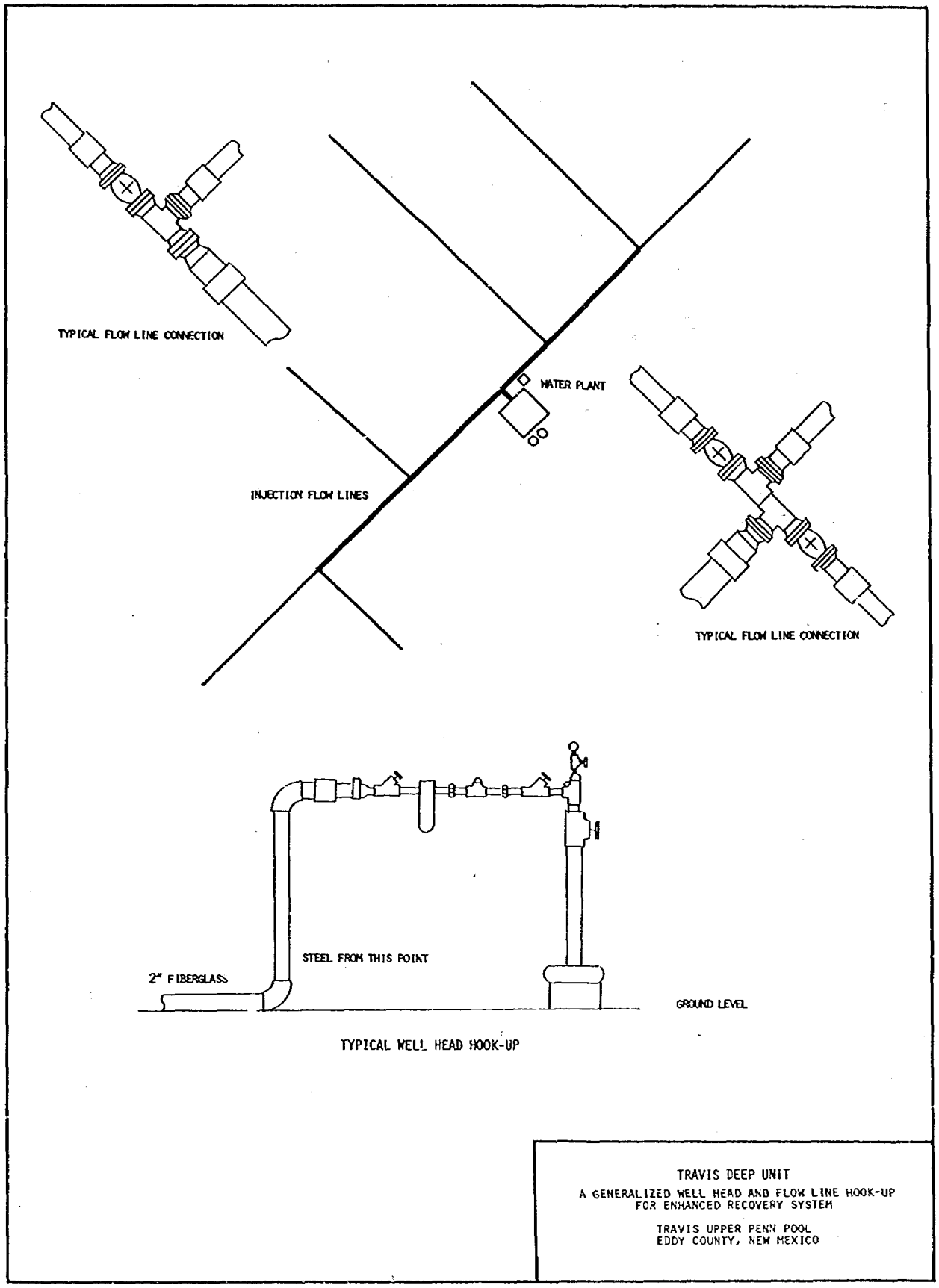


SCHEMATIC PLAN FOR
ENHANCED RECOVERY PUMP STATION

HARVEY E. YATES COMPANY
Travis Deep Unit, Travis Upper Penn Pool
Eddy County, New Mexico

Ralph H. Viney & Associates, Inc.
Engineering Consultants

PLATE 8



TYPICAL WELL HEAD HOOK-UP

TRAVIS DEEP UNIT

A GENERALIZED WELL HEAD AND FLOW LINE HOOK-UP
FOR ENHANCED RECOVERY SYSTEM

TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

PLATE 9

TABLE 11
COST ESTIMATES
ENHANCED RECOVERY STATION EQUIPMENT AND INSTALLATION
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

QUANTITY	DESCRIPTION	PROJECTED PRICE
2	Ajax T-150 triplex water injection pumps unitized with 150 HP electric motors mounted on oil field type skids. Each unit will deliver 3930 BPD at 2015 PSI based on 100% volumetric efficiency.	$ 70,982.00
2	8" suctions to pumps, each to include a section of hose and suction dampener.	5,600.00
1	Discharge system from each pump including shut off valves, discharge dampener and two outlets at each end of building.	14,514.00
2	Relief and bypass system with return water going back into suction tanks. This to include an air operated bypass with air compressor.	5,625.00
1	20' X 38' X 10' high steel building with two walk-in doors, two 10' overhead doors and a 2-ton bridge crane.	18,760.00
1	9' X 12' office and control building.	8,586.00
1	Lot of electrical equipment to include: 2 - Motor control panels for 150 HP motors with safety shut down and control devices; 1 - Master switch mounted on the incoming power pole. Also included is all wiring, lights and switches.	21,620.00
2	H1-750 BBL Welded steel tanks including sand blasting and coal tar epoxy lined after all welding has been completed. Inlet valves and fittings.	31,624.00
	Total approximate cost for the complete injection plant material.	$ 177,311.00
	Labor charges to construct plant, including the installation of electrical equipment	34,852.00
	Total for plant material and construction.	$ 212,163.00
	Well head hookups including meters, tubing valves, filter, throttle valves and fittings. Price Each	2,024.00
1	Lot of valves and fittings for injection line in field.	4,500.00
	2 3/8" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	3.75 per ft.
	2 7/8" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	4.35 per ft.

COST ESTIMATES (Continued)

QUANTITY	DESCRIPTION	PROJECTED PRICE
	3 1/2" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	$ 5.90 per ft.
	4 1/2" OD 2000# W.P. Star Fiber Glass Threaded Injection Surface Line Pipe. FOB Big Spring	9.35 per ft.
	To cut right-of-way ditch to 18" of cover, install, test to 2000# and backfill.	
	2" and 2½" Threaded Fiber Glass Pipe.	1.47 per ft.
	3" and 4" Threaded Fiber Glass Pipe.	1.57 per ft.
	To pad pipe with dirt of R.O.W.	.36 per ft.

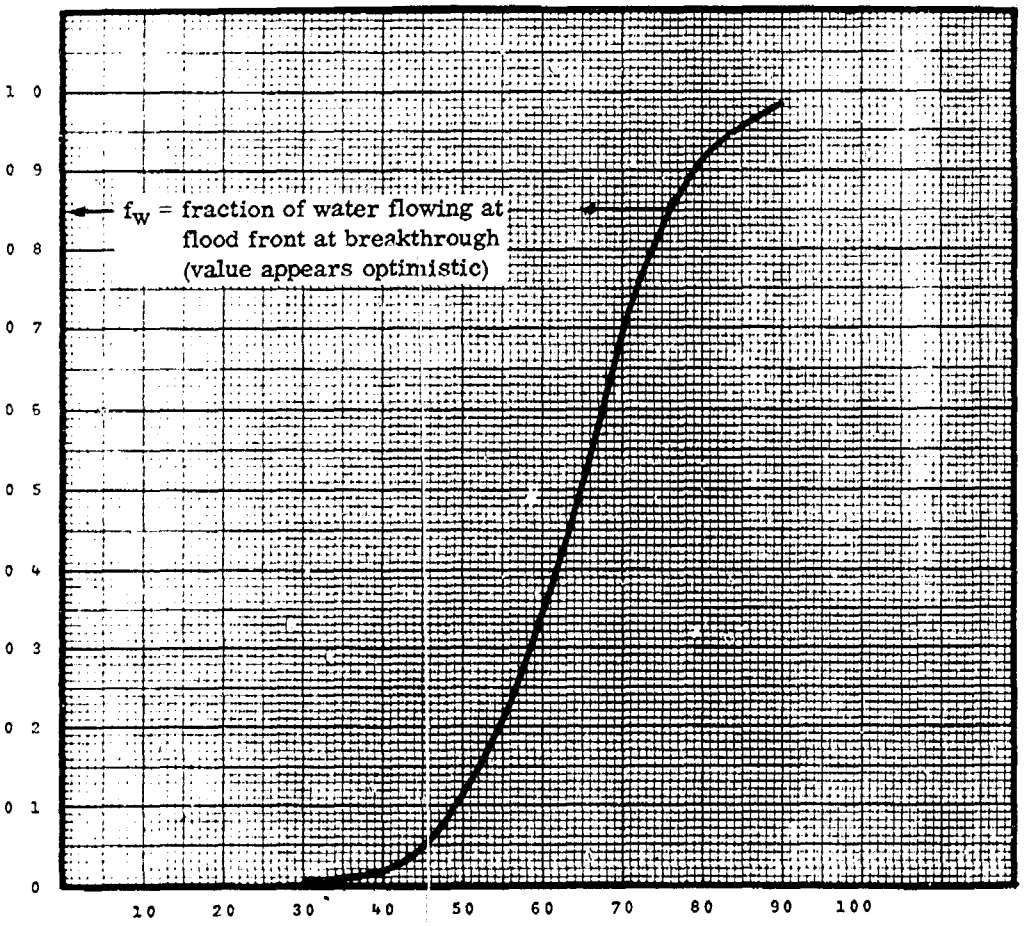
TABLE 11

HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

FRACTIONAL FLOW FORMULA
BUCKLEY - LEVETT METHOD

S_w	$\frac{K_{ro}}{K_{rw}}$	$\frac{U_w}{U_o}$	f_w
30	680.000	0.88	0.001668
40	60.000	0.88	0.018587
50	9.000	0.88	0.112108
60	2.100	0.88	0.351124
70	0.475	0.88	0.705219
80	0.110	0.88	0.911743
90	0.020	0.88	0.982704

$$f_w = \frac{1}{1 + \frac{K_{ro}}{K_{rw}} \cdot \frac{U_w}{U_o}}$$

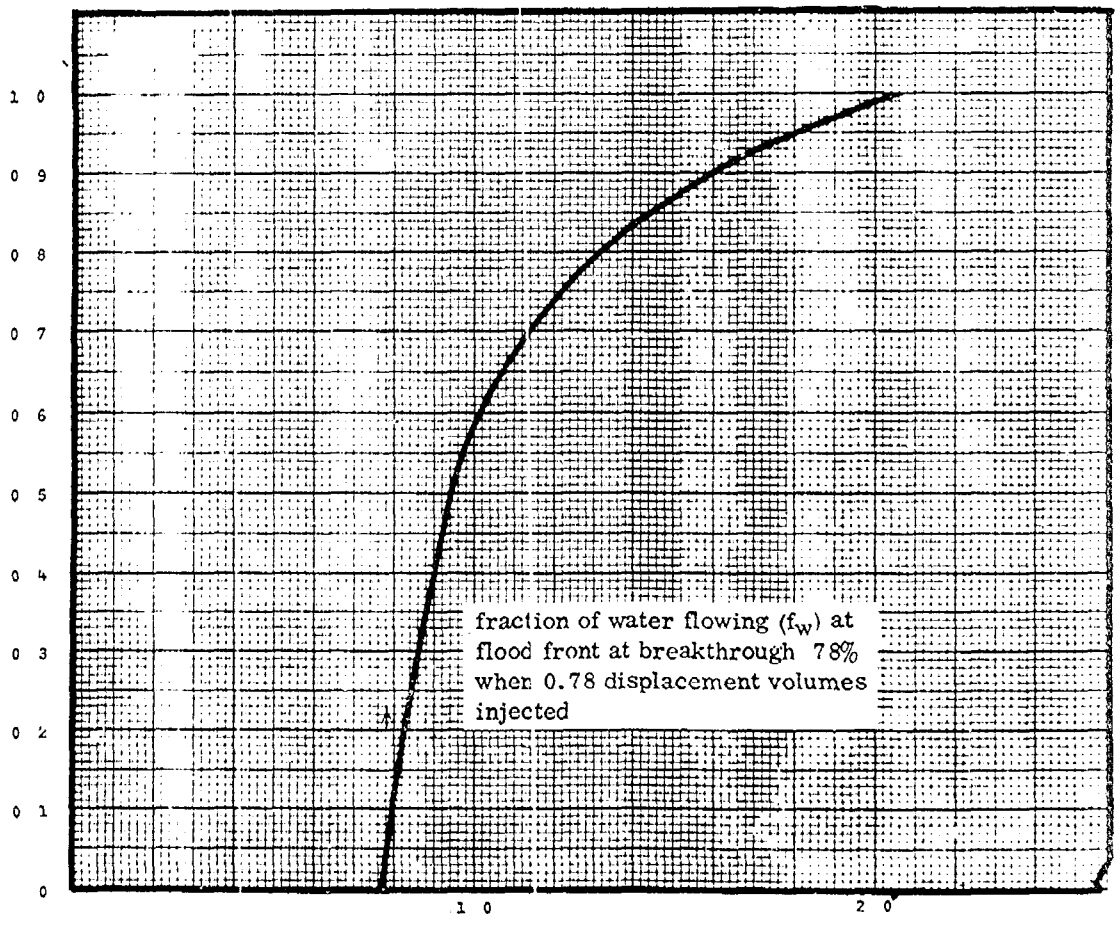


FRACTIONAL FLOW AND DISPLACEMENT
CAUDLE, DYERS AND ERICKSON METHOD

$$\text{Mobility Ratio } (M) = \frac{\frac{K_{rw}}{U_o}}{\frac{K_{ro}}{U_o}}$$

Where: $S_{oi} = 0.67$: $K_{ro} = 0.600$
$S_{of} = 0.26$: $K_{rw} = 0.245$
$U_w = 0.35$ cp : $U_o = 0.400$ cp

$M = 0.47$: $\frac{1}{M} = 2.14$



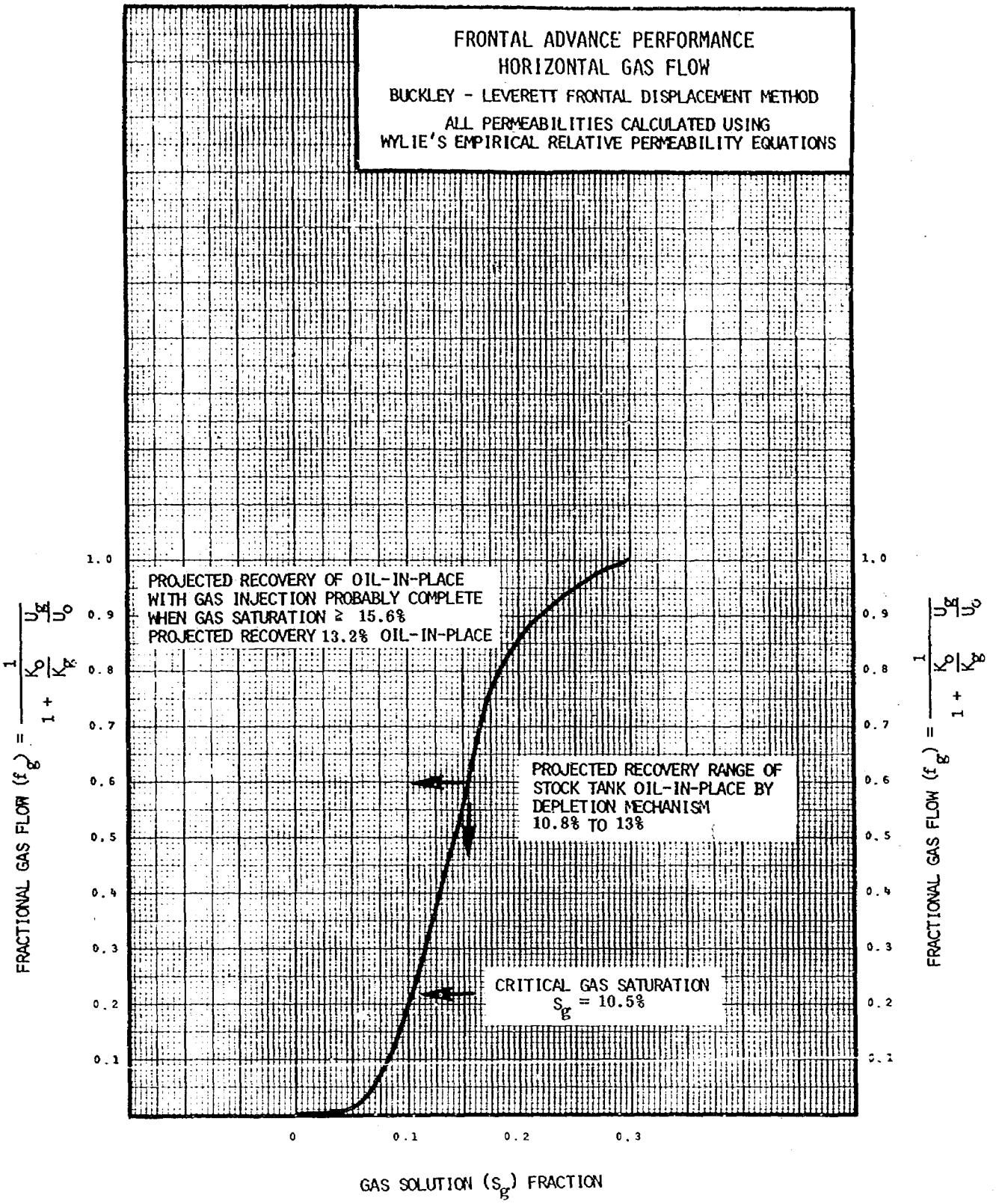

FRONTAL ADVANCE PERFORMANCE
HORIZONTAL GAS FLOW
BUCKLEY - LEVERETT FRONTAL DISPLACEMENT METHOD
ALL PERMEABILITIES CALCULATED USING
WYLIE'S EMPIRICAL RELATIVE PERMEABILITY EQUATIONS
PROJECTED RECOVERY OF OIL-IN-PLACE
WITH GAS INJECTION PROBABLY COMPLETE
WHEN GAS SATURATION ≥ 15.6%
PROJECTED RECOVERY 13.2% OIL-IN-PLACE
PROJECTED RECOVERY RANGE OF
STOCK TANK OIL-IN-PLACE BY
DEPLETION MECHANISM
10.8% TO 13%
CRITICAL GAS SATURATION
S_g = 10.5%
FRACTIONAL GAS FLOW (f_g) = $\frac{1}{1 + \frac{K_o}{K_g}\frac{U_g}{U_o}}$
FRACTIONAL GAS FLOW (f_g) = $\frac{1}{1 + \frac{K_o}{K_g}\frac{U_g}{U_o}}$
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.1
0.2
0.3
GAS SOLUTION (S_g) FRACTION

PLATE 11

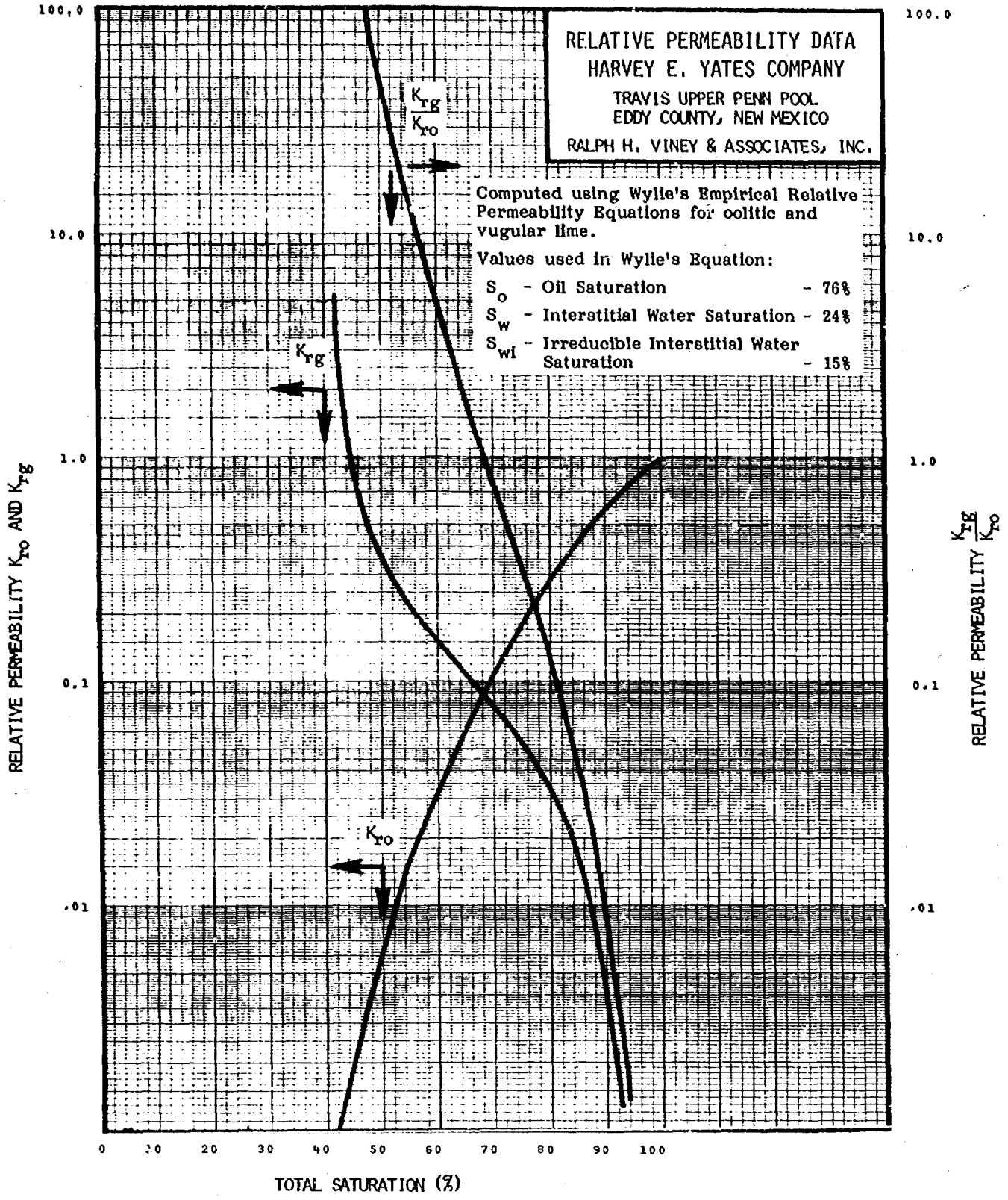

RELATIVE PERMEABILITY DATA
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
Computed using Wylie's Empirical Relative Permeability Equations for oolitic and vugular lime.
Values used in Wylie's Equation:
S_o - Oil Saturation - 76%
S_w - Interstitial Water Saturation - 24%
S_{wi} - Irreducible Interstitial Water Saturation - 15%
K_{rg}
K_{ro}
$\frac{K_{rg}}{K_{ro}}$
100.0
10.0
1.0
0.1
.01
RELATIVE PERMEABILITY K_{ro} AND K_{rg}
RELATIVE PERMEABILITY $\frac{K_{rg}}{K_{ro}}$
0 10 20 30 40 50 60 70 80 90 100
TOTAL SATURATION (%)

PLATE 12

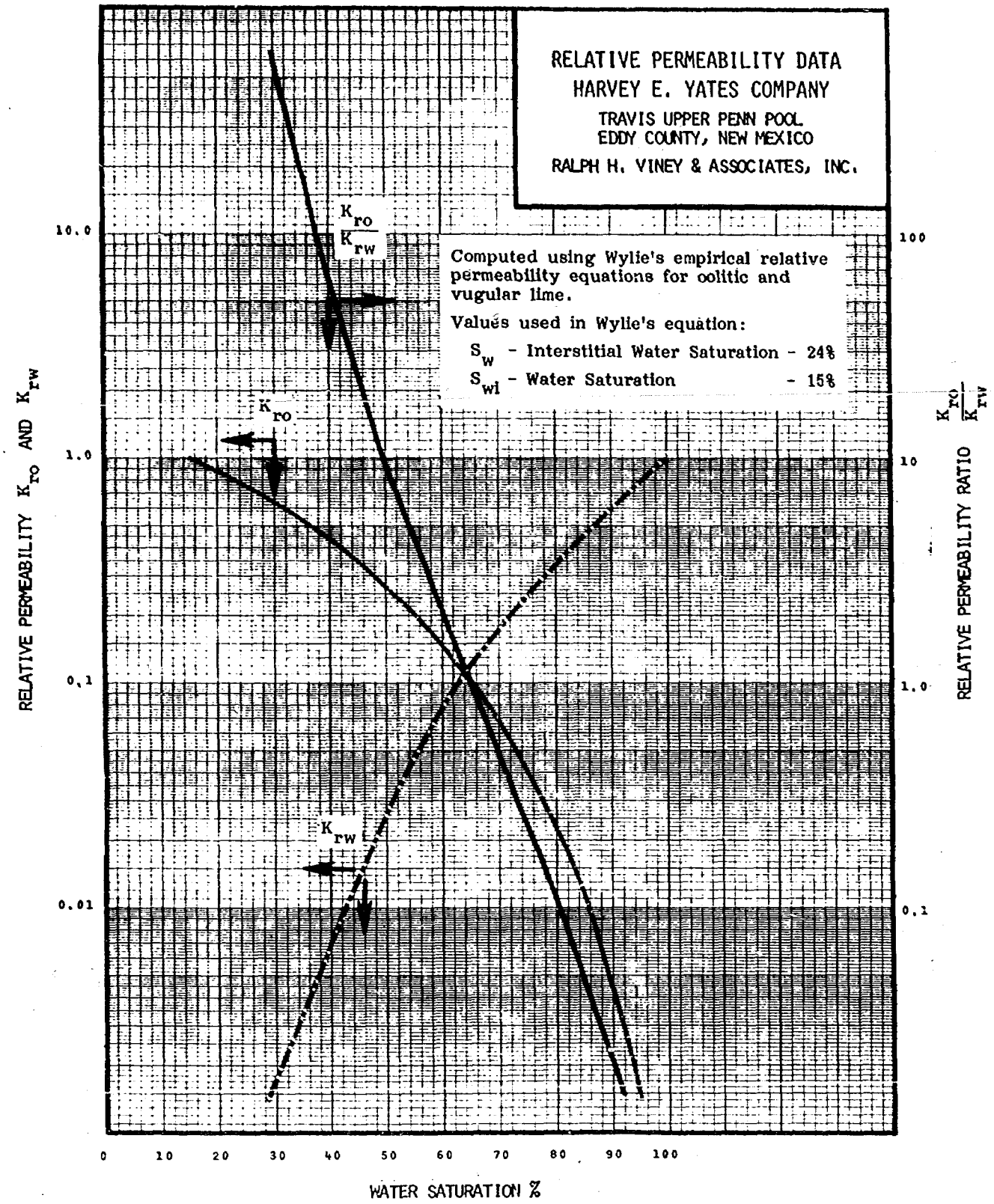

RELATIVE PERMEABILITY DATA
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
Computed using Wylie's empirical relative permeability equations for oolitic and vugular lime.
Values used in Wylie's equation:
S_w - Interstitial Water Saturation - 24%
S_{wi} - Water Saturation - 15%
$\frac{K_{ro}}{K_{rw}}$
K_{ro}
K_{rw}
RELATIVE PERMEABILITY K_{ro} AND K_{rw}
RELATIVE PERMEABILITY RATIO $\frac{K_{ro}}{K_{rw}}$
10.0
1.0
0.1
0.01
100
10
1.0
0.1
0
10
20
30
40
50
60
70
80
90
100
WATER SATURATION %

PLATE 13

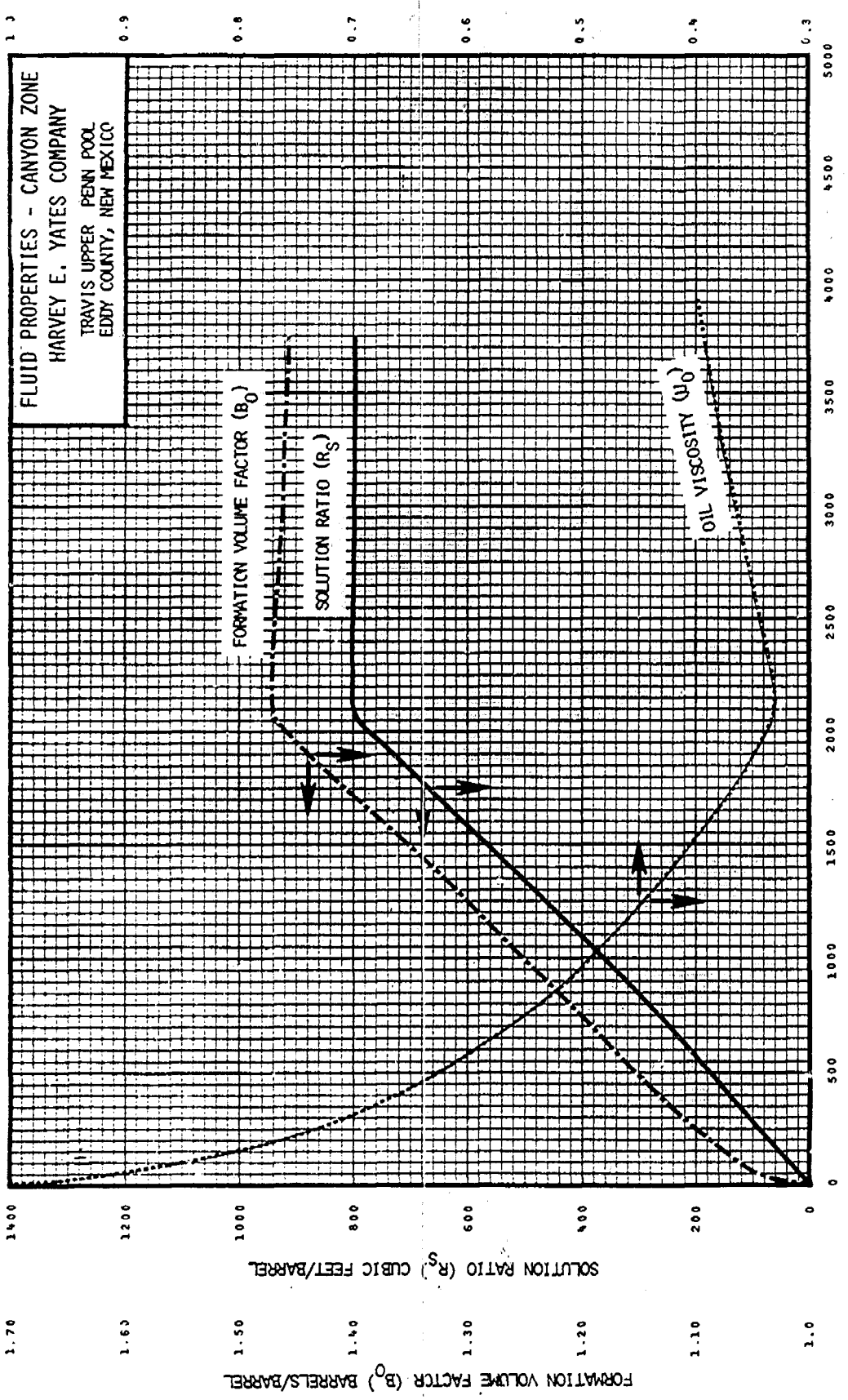

FLUID PROPERTIES - CANYON ZONE
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
FORMATION VOLUME FACTOR (B_O)
SOLUTION RATIO (R_S)
OIL VISCOSITY (μ_O)
PRESSURE - PSIG
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
SOLUTION RATIO (R_S) CUBIC FEET/BARREL
0
200
400
600
800
1000
1200
1400
FORMATION VOLUME FACTOR (B_O) BARRELS/BARREL
1.0
1.10
1.20
1.30
1.40
1.50
1.60
1.70
OIL VISCOSITY (μ_O) CENTIPOISES
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

PLATE 14

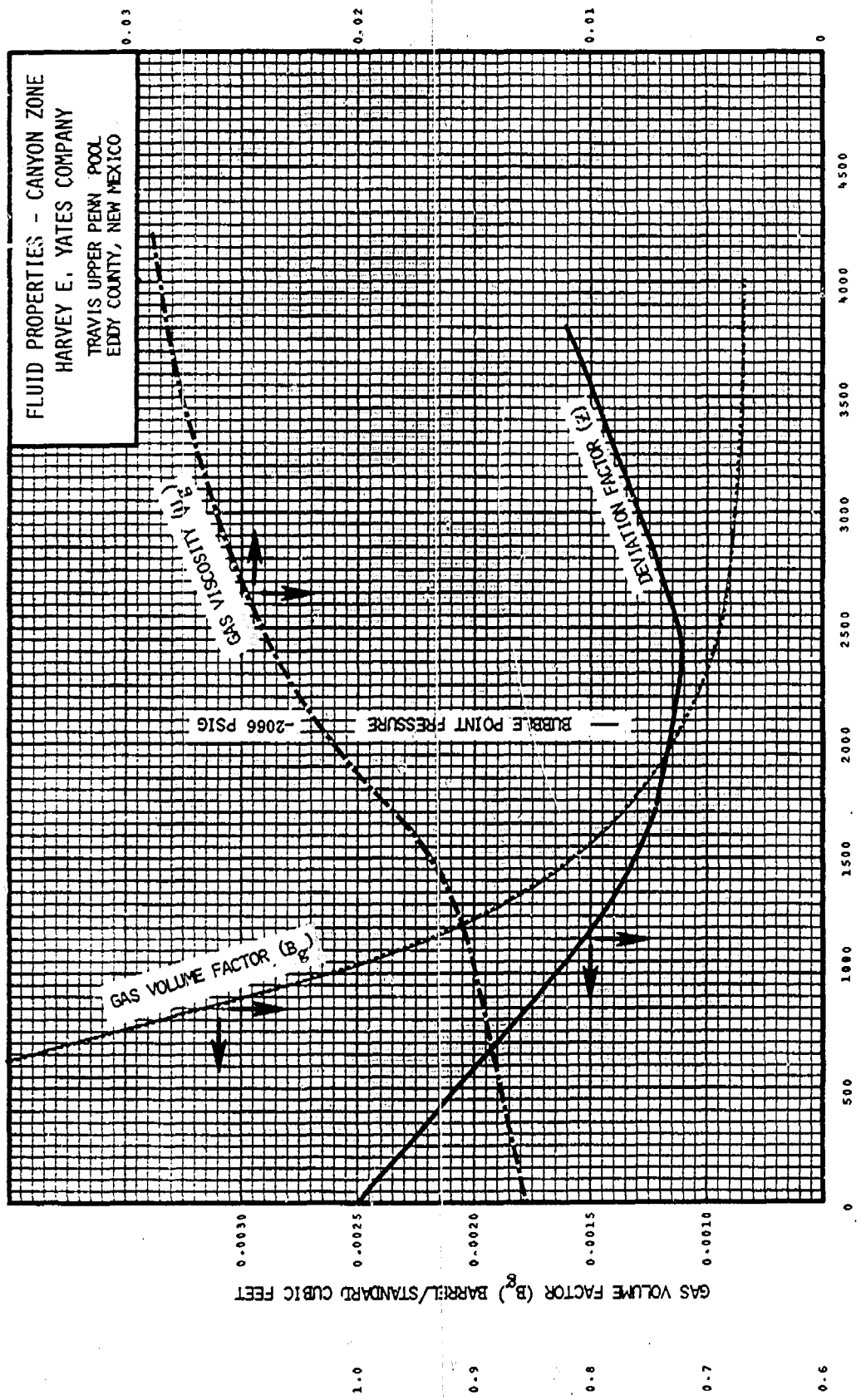

FLUID PROPERTIES - CANYON ZONE
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
BUBBLE POINT PRESSURE — 2066 PSIG
GAS VISCOSITY (μ_g)
DEVIATION FACTOR (Z)
GAS VOLUME FACTOR (B_g)
PRESSURE - PSIG
GAS VISCOSITY (μ_g) CENTIPOISES
GAS VOLUME FACTOR (B_g) BARREL/STANDARD CUBIC FEET
DEVIATION FACTOR (Z) DIMENSIONLESS

PLATE 15

TABLE 12
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY

R E C O M B I N A T I O N

O F

S E P A R A T O R F L U I D S A M P L E S

INPUT DATA:

	STAGE 1	STAGE 2
PRESSURE,(PSIG)	44.0	0.
TEMPERATURE,(DEG.F.)	79.0	74.0
GAS RATE,(MSCF/D)	49.6	

PRESSURE BASE = 14.000 PSIA. TEMPERATURE BASE = 74.0 DEG. F.

LIQUID AND GAS SAMPLE FROM STAGE 1

STAGE 1 GAS / STAGE 1 LIQUID RATIO IS 770 SCF/BBL
OR 1298.7 BBL/MMSCF

BASIS FOR RECOMBINATION:

(1) SEPARATOR GOR = INPUT GOR / SHRINKAGE
= 770 / 1.000 = 770

(2) MOLES OF OIL = DENSITY / M.W.
= 263.9 / 140.3 = 1.882

(3) MOLES OF GAS = SEP. GOR / SCF PER MOLE
= 770 / 409.11 = 1.882

(4) OIL FRACTION = .4999 ; GAS FRACTION = .5001

TABLE 12
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY

S E P A R A T O R R E C O M B I N A T I O N

PAGE 2

COMPONENT NAME	SEPARATOR LIQ. MOL	SEPARATOR GAS MOL	SEPARATOR GAS GPM	WELL STREAM MOL	WELL STREAM GPM
NITROGEN	.10	1.01	0.	.55	0.
CARBON DIOXIDE	.10	.15	0.	.12	0.
HYDROGEN SULFIDE	0.	0.	0.	0.	0.
METHANE	1.61	66.65	0.	34.13	0.
ETHANE	2.28	17.30	0.	9.79	0.
PROPANE	4.08	9.05	2.30	6.56	1.67
ISO-BUTANE	1.28	1.15	.35	1.22	.37
N-BUTANE	4.39	2.74	.80	3.57	1.04
ISO-PENTANE	2.19	.55	.19	1.37	.46
N-PENTANE	2.99	.60	.20	1.80	.60
HEXANE	6.61	.41	.16	3.51	1.34
HEPTANE	13.77	.26	.11	7.02	2.99
OCTANE	16.29	.10	.05	8.20	3.88
NONANE	9.44	.02	.01	4.73	2.46
HEAVY ENDS*	34.87	.01	.01	17.44	13.21
	100.00	100.00	4.17	100.00	28.04
PROPERTIES OF THE HEAVY ENDS					
SPECIFIC GRAV.	.890	.831		.890	
MOLECULAR WT.	230.0	142.0		230.0	

CALCULATED SEPARATOR GAS GRAVITY (AIR=1.00) = .832
CALCULATED GROSS HEATING VALUE FOR SEPARATOR GAS = 1433.5 BTU
PER CUBIC FOOT OF DRY GAS AT 14.000 PSIA AND 74 DEG.

FLASH OF RECOMBINED FLUID GIVES:
STAGE 1 GAS TO STAGE 1 OIL RATIO = 764 SCF/BBL
STAGE 1 OIL GRAVITY = 48.0 DEGREES API.

* THE HEAVY END IS DECANES+

TABLE 13
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.25.

F L U I D A N A L Y S I S

B Y

S I M U L A T I O N T E C H N I Q U E

D A T A

COMPONENT	MOL PER CENT
NITROGEN	.55
CARBON DIOXIDE	.12
HYDROGEN SULFIDE	0.
METHANE	34.13
ETHANE	9.79
PROPANE	6.56
ISO-BUTANE	1.22
N-BUTANE	3.57
ISO-PENTANE	1.37
N-PENTANE	1.80
HEXANE	3.51
HEPTANE	7.02
OCTANE	8.20
NONANE	4.73
HEAVY ENDS	17.44
	100.00

PRESSURE BASE = 14.00 PSI/ATM
TEMP. BASE = 74.0 DEG. F.

SEPARATION CONDITIONS:

PRESSURE	44	0
TEMP.	79	74

THE HEAVY ENDS ARE DECANES +

HEAVY ENDS MOLECULAR WEIGHT	:	230	
SPECIFIC GRAVITY	:	.8900	
CRITICAL PRESSURE	:	298	PSIG
CRITICAL TEMP.	:	1317	DEG. F.
NORM. BOILING PT.	:	580	DEG. F.

TABLE 14
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.41.

O I L P V T P R O P E R T I E S

SIMULATION TECHNIQUE

DIFFERENTIAL LIBERATION

PRESSURE PSIG	FVF-D RVB/RDB	RS-D SCF/RDB	FVF-F RVB/STB	RS-F SCF/STB	VISO-D CF	FVFD-TOTAL RVB/RDB
7000	1.468	1033	1.361	868	.623	1.4683
4600	1.505	1033	1.395	868	.539	1.5049
2200	1.571	1033	1.456	868	.454	1.5710
2000	1.579	1033	1.464	868	.447	1.5793
1800	1.535	926	1.421	766	.483	1.6754
1600	1.497	832	1.384	676	.519	1.7973
1400	1.463	747	1.350	594	.554	1.9581
1200	1.431	667	1.319	518	.589	2.1816
1000	1.400	590	1.289	444	.626	2.5070
800	1.370	515	1.260	372	.665	3.0148
700	1.356	477	1.245	336	.685	3.3846
600	1.341	440	1.231	301	.705	3.8835
500	1.326	402	1.217	265	.726	4.5893
400	1.310	363	1.202	228	.748	5.6581
300	1.293	321	1.187	190	.770	7.4554
200	1.273	272	1.169	146	.793	11.0602
100	1.243	205	1.145	89	.822	21.4499
50	1.437	150	1.323	36	.227	40.2914

BUBBLE-POINT PRESSURE : 2000 PSIG AT 160 DEG. F.
STOCK-TANK VAPOR: 41 SCF/STB
OIL + GAS COMP. : 254.1 B/MMB/PSI
DENSITY : 40.1 LB./CU. FT.

THERMAL EXPANSION AT 2000 PSIG, (V AT 160 DEG)/(V AT 60 DEG) : 1.0913
COMPRESSIBILITY OF SATURATED OIL AT RESERVOIR TEMPERATURE:
FROM 7000 TO 6800 = 8.53 X 10-6 B/B/PSI
FROM 4800 TO 4400 = 12.98 X 10-6 B/B/PSI
FROM 2200 TO 2000 = 28.15 X 10-6 B/B/PSI

RESIDUAL DIFFERENTIAL OIL GRAVITY = 45.3 DEG. API

TABLE 15
TRAVIS STATE NO. 1
TRAVIS UPPER PENN. FIELD
EDDY COUNTY, NEW MEXICO
HARVEY E YATES COMPANY
07/21/80. 09.09.42.

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

SIMULATION TECHNIQUE

DIFFERENTIAL LIBERATION

PRESSURE PSIG	LIBERATED GAS Z-FACTOR	VISCOSITY CP	F-V-F RVB/MSCF	CG B/MMB/PSI	-PRIMARY SEP. GAS- GRAVITY AIR=1.0	TOTAL GPM*
2000	.8103	.01713	1.1963	539.0	.8423	7.044
1800	.8229	.01633	1.3489	630.3	.8534	7.358
1600	.8349	.01557	1.5381	697.9	.8653	7.694
1400	.8473	.01486	1.7817	793.8	.8781	8.061
1200	.8619	.01416	2.1109	918.1	.8924	8.477
1000	.8765	.01347	2.5702	1088.1	.9088	8.963
800	.8927	.01277	3.2609	1343.5	.9283	9.547
700	.9013	.01241	3.7534	1524.6	.9396	9.894
600	.9100	.01203	4.4069	1763.6	.9522	10.284
500	.9190	.01161	5.3159	2099.3	.9662	10.727
400	.9283	.01113	6.6669	2606.8	.9820	11.235
300	.9388	.01054	8.8897	3457.8	.9995	11.811
200	.9517	.00972	13.2224	5121.3	1.0161	12.384
100	.9619	.00842	25.0876	10171.5	1.0024	12.000
50	.9733	.00725	45.2162	20117.0	.6506	8.792

BUBBLE-POINT PRESSURE : 2000 PSIG AT 160 DEG. F.
DENSITY : 7.96 LBS/CF

*- TOTAL GPM REFERS TO PROPANES+

7501 STEMMONS FREEWAY BOX 47547 DALLAS, TEXAS 75247 · 214/631-8270

TABLE 16
July 21, 1980

CORE LABORATORIES, INC.
Reservoir Fluid Analysis

Travis Upper Penn Pool
Eddy County, New Mexico

Subject: Hydrocarbon Analyses
Harvey E. Yates
Travis State No. 1 Well
Our File Number: RFL 80474

Gentlemen:

Samples of separator gas and liquid were collected from the subject well by a representative of Tefteller, Inc. on June 28, 1980. These samples were submitted to our Dallas laboratory for hydrocarbon analyses, the results of which are presented in the following report.

The hydrocarbon composition of the seperator gas was measured through pentanes by routine gas chromatography. The hexanes plus portion of the gas was then subjected to temperature programmed chromatographic analysis, in order to obtain the overall hydrocarbon composition of the separator gas through decanes plus. The results of these analyses may be found on page one.

The hydrocarbon composition of the separator liquid was measured through hexanes by low temperature fractional distillation. The heptanes plus fraction of the sample was then subjected to temperature programmed chromatographic analysis. The overall hydrocarbon composition of the separator liquid through decanes plus may be found on page two.

A portion of the separator liquid was then subjected to a separator test at atmospheric pressure and laboratory temperature. The results of this test, including gas-oil ratio, stock tank liquid gravity, shrinkage factor and specific gravity of the flashed gas, may be found on page three.

Thank you for the opportunity to perform these measurements. Should you have any questions or if we may be of further service in any manner, please feel free to call upon us.

Yours very truly,

CORE LABORATORIES, INC.

P. L. Moses, Manager
Reservoir Fluid Analysis

PLM:JF:cs
1 cc: Addressee
1 cc: Harvey E. Yates
Security National Bldg.
Suite 300
Roswell, NM 88201
Attn: Mr. Fred Yates

TABLE 16

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75247

Page 1 of 3

File RFL 80474

Company Ralph Viney Harvey E. Yates Formation

Well Travis State No. 1 County

Field State

HYDROCARBON ANALYSIS OF Separator GAS SAMPLE

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide	0.00	
Carbon Dioxide	0.15	
Nitrogen	1.01	
Methane	66.65	
Ethane	17.30	4.600
Propane	9.05	2.476
iso-Butane	1.15	0.374
n-Butane	2.74	0.859
iso-Pentane	0.55	0.200
n-Pentane	0.60	0.216
Hexanes	0.41	0.166
Heptanes	0.26	0.119
Octanes	0.10	0.051
Nonanes	0.02	0.011
Decanes	0.01	0.006
Undecanes plus	100.00	9.078

Calculated gas gravity (air = 1.000) = 0.831

Calculated gross heating value = 1418 BTU per cubic foot of dry gas at 14.65 psia and 60°F.

Collected at 44 psig and 79 °F. on June 28, 1980.

TABLE 16 (Page 2)

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

TABLE 16
CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75247

Page 2 of 3

File RFL 80474

Company Ralph Viney Harvey E. Yates Formation

Well Travis State No. 1 County

Field State

HYDROCARBON ANALYSIS OF Separator Liquid SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	DENSITY @ 60°F. GRAMS PER CUBIC CENTIMETER	°API @ 60°F.	MOLECULAR WEIGHT
Hydrogen Sulfide	0.00	0.00			
Carbon Dioxide	0.01	Trace			
Nitrogen	0.01	Trace			
Methane	1.61	0.20			
Ethane	2.28	0.52			
Propane	4.08	1.37			
iso-Butane	1.28	0.57			
n-Butane	4.39	1.95			
iso-Pentane	2.19	1.21			
n-Pentane	2.99	1.65			
Hexanes	6.61	4.32			
Heptanes	13.77	10.52			
Octanes	16.29	14.19			
Nonanes	9.44	9.23			
Decanes plus	35.05	54.27	0.8660	31.7	203
	100.00	100.00			

Collected at 44 psig and 79°F. on June 28, 1980.

TABLE 16 (Page 3)

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TABLE 16
CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75247

Page 3 of 3

File RFL 80474

Well Travis State No. 1

SEPARATOR TESTS OF Separator Liquid SAMPLE

eparator ressure, SI Gauge	Separator Temperature °F.	Separator Gas/Oil Ratio(1)	Stock Tank Gas/Oil Ratio(1)	Stock Tank Gravity °API @ 60°F.	Shrinkage Factor, Vr/Vsat(2)	Formation Volume Factor Vsat/Vr(3)	Specific Gravity of Flashed Gas
0	74	39		45.9	0.9619	1.040	1.236

(1) Separator and Stock Tank Gas/Oil Ratio in cubic feet of gas @ 60°F. and 14.65 PSI absolute per barrel of stock tank oil @ 60°F.
(2) Shrinkage Factor: Vr/Vsat is barrels of stock tank oil @ 60°F. per barrel of saturated oil @ 44 PSI gauge and 79 °F.
(3) Formation Volume Factor: Vsat/Vr is barrels of saturated oil @ 44 PSI gauge and 79 °F. per barrel of stock tank oil @ 60°F.

TABLE 16 (Page 4)

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TABLE 17

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 6-30-80

SAMPLE MARKED Travis State No. 1
Separator Liquid, 44 psi @ 79° F.

FILE NO. C-1950-G

LAB. NO. 44313

SAMPLE FROM Harvey E. Yates

DATE SECURED 6-26-80

DATE OF RUN 7-3-80

SECURED BY Tefteller, Inc.

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen			
Carbon Dioxide			
Methane	1.25		0.36
Ethane	2.29		0.98
Propane	4.35		2.03
I-Butane	1.32		0.73
N-Butane	4.74		2.53
I-Pentane	2.29		1.42
N-Pentane	3.11		1.91
Hexanes plus	80.65		90.04
Heptanes & Heavier			
Hydrogen Sulfide			
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00		100.00

CONDENSATE VALUES, G.P.M.

Propane
Butane
Gasoline

HEATING VALVE, B.T.U. Per Cu. Ft.*

Calculated from % Composition
Calculated water saturated

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide
Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition

*14.696 lbs./sq. in., 60° F

REMARKS Molecular weight of hexanes plus ---------- 169.40

Specific gravity of hexanes plus---------- 0.8148

COPIES: 3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland, Texas 7-15-80 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1, Separator Liquid, 6-28-80, 44 psi @ 79° F., Flashed at Atmos.

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	94
5	158
10	192
20	246
30	314
40	400
50	488
60	580
70	___
80	___
90	___
95	___
	614 (End Point)

Percent Recovery ------- 68.0
Percent Residue ------- 26.0
Percent Loss ---------- 6.0
Gravity --------------- 45.7 ° A.P.I. @ 60° F.
Color ----------------- Orange

Bar. Press. ----688 mm Hg

3cc Harvey E. Yates
1cc R. Viney
1cc Teftueller

Lab. No. 44313

SOUTHWESTERN LABORATORIES
Jack H Barton

Our letters and reports are for the exclusive use of the clients to whom they are addressed. The use of our names must receive our prior written approval. Our letters and reports apply only to the samples tested and are not necessarily indicative of the qualities of identical or similar products.

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT-TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-16-80 File No. C-1950-G

Report of tests on Liquid

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1

DISTRIBUTION OF HEXANES PLUS FRACTION

	Liq. Vol. %
C_6	5.34
Benzene	2.98
C_7	8.27
Toluene	2.08
C_8	12.27
C_9	9.54
C_{10}	8.06
C_{11}	6.11
C_{12}	5.08
C_{13}	5.20
C_{14}	4.99
C_{15}	4.51
C_{16}	3.54
C_{17}	2.76
C_{18}	3.54
C_{19}	5.01
C_{20} plus	10.72
	100.00

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 44313

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TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-15-80 File No. C-1950-G

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State, No. 1, Separator Liquid

Press. & Temp.	Total Vol. ml.	Gas Vol. Cu. ft. C t	Residue Vol. ml
44 PSI @ 79° F.	488.0	0.103 @ 79° F.	478.5

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

Lab. No. 44313

SOUTHWESTERN LABORATORIES

Jack H Barton

Our letters and reports are for the exclusive use of the clients to whom they are addressed. The use of our names must receive our prior written approval. Our letters and reports apply only to the samples tested and are not necessarily indicative of the qualities of identical or similar products.

TABLE 17

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 7-16-80 File No. C-1950-W

Report of tests on Water

To Harvey E. Yates Date Rec'd. 6-30-80

Received from

Identification Marks Travis State No. 1, Separator Water, 6-28-80
Sampled by Tefteller.

	mg/L
Calcium	7200
Magnesium	1846
Sodium (Calc.)	36224
Iron	High, Greater than 25
Carbonate	None
Bicarbonate	None
Sulfate	1685
Chloride	72759
Total Dissolved Solids (Calc.)	119714
Total Hardness (as $CaCO_3$)	25600
Resistivity	0.073 @ 84° F.
pH	2.83

3cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 31636

Our letters and reports are for the exclusive use of the clients to whom they are addressed. The use of our names must receive our prior written approval. Our letters and reports apply only to the samples tested and are not necessarily indicative of the qualities of identical or similar products.

TABLE 18

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT-TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Page 14 of 18

File 3-10149-FT&BU

Midland Texas 11-19-79 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 11-13-79

Received from

Identification Marks State Comm. No. 1, Separator Liquid, 52 psig @ 54° F., 10:00 AM 11-12-79, Sampled by Tefteller

Cylinder Capacity	436.0 ml
Fluid Recovery	411.5 ml
Water Recovery	-0- ml
Flash Gas Recovery	0.131 Cu. ft. @ 66° F.

Bar Press-----694 mm Hg

3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney
Lab. No. 43590

SOUTHWESTERN LABORATORIES
Jack H Burton

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TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 15 of 18

FRACTIONAL ANALYSIS REPORT

File 3-10149-FT&BU

DATE RECEIVED 11-13-79

SAMPLE MARKED State Cam. No. 1 Separator Gas

61 psig @ 36° F.

FILE NO. C-1950-C

LAB. NO. 43584

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-14-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	1.07		
Carbon Dioxide	0.48		
Methane	66.38		
Ethane	17.51	4.668	
Propane	9.05	2.483	
I-Butane	1.13	0.368	
N-Butane	2.65	0.833	
I-Pentane	0.55	0.201	
N-Pentane	0.61	0.220	
Hexanes	0.32	0.132	
Heptanes & Heavier	0.25	0.115	
Hydrogen Sulfide	*None Det.		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	9.020	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Composition 1406

Calculated water saturated 1382

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.623

*14,696 lbs./sq. in., 60° F

REMARKS

*Determined on laboratory sample.

Propane + GPM — 4.352

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 18 (Page 2)

TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 16 of 18

File 3-10149-FT&BU

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1

Separator Liquid, Flash Gas

FILE NO. C-1950-G

LAB. NO. 43590

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-15-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	None Det.		
Carbon Dioxide	0.23		
Methane	23.66		
Ethane	30.44	8.115	
Propane	28.31	7.768	
I-Butane	4.33	1.412	
N-Butane	9.43	2.964	
I-Pentane	1.63	0.595	
N-Pentane	1.24	0.448	
Hexanes	0.31	0.127	
Heptanes & Heavier	0.22	0.101	
Hydrogen Sulfide	——		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	21.530	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Compo 2082

Calculated water saturated 2046

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 1.247

*14,696 lbs./sq. in., 60° F

REMARKS Propane + GPM — 13.415

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Baulon

TABLE 18

SOUTHWESTERN LABORATORIES

FORT WORTH · DALLAS · HOUSTON · MIDLAND · BEAUMONT · TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Page 17 of 18

File 3-10149-FT&BU

Midland Texas 11-19-79 File No. C-1950-GD

Report of tests on Liquid

To Harvey E. Yates Date Rec'd. 11-13-79

Received from

Identification Marks State Comm. A 1, Separator Liquid, 52 psig @ 54° F., Liquid after flashing to Atmospheric pressure

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F
I.B.P.	98
5	160
10	195
20	253
30	322
40	416
50	505
60	594
70	661
80	---
90	---
95	---
	664 (End Point)

Percent Recovery-------73.0
Percent Residue -------21.5
Percent Loss ---------- 5.5
Gravity ---------------45.7 ° A.P.I. @ 60° F
Color-----------------Bronze-Brown

Bar. Press. ---- 694 mm Hg

3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Barton

Lab. No. 43590

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TABLE 18

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

Page 18 of 18

File 3-10149-FT&BU

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 11-13-79

SAMPLE MARKED State Comm. No. 1

Separator Liquid, 52 psig @ 54° F., 10:00 AM

FILE NO. C-1950-GD

LAB. NO. 43590

SAMPLE FROM Harvey E. Yates

DATE SECURED 11-12-79

DATE OF RUN 11-15-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen			
Carbon Dioxide			
Methane			0.37
Ethane			1.28
Propane			2.62
I-Butane			0.90
N-Butane			3.04
I-Pentane			1.55
N-Pentane			1.97
Hexanes	plus		88.27
Heptanes & Heavier			
Hydrogen Sulfide			
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS			100.00

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALUE B.T.U. Per Cu. Ft.*

Calculated from % Comp.

Calculated water saturated

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition

*14,696 lbs./sq. in., 60° F

REMARKS

COPIES: 3cc Harvey Yates
1cc Tefteller
1cc Ralph Viney

SOUTHWESTERN LABORATORIES
Jack H Burton

TABLE 19

SOUTHWESTERN LABORATORIES
1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 12-4-79

SAMPLE MARKED Travis Deep, Meter Run, 220 psig @ 54° F.

FILE NO. C-1950-G

LAB. NO. 43639

SAMPLE FROM Harvey E. Yates

DATE SECURED 12-3-79

DATE OF RUN 12-6-79

SECURED BY Tefteller

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
Oxygen			
Nitrogen	1.39		
Carbon Dioxide	0.20		
Methane	75.60		
Ethane	14.62	3.898	
Propane	5.79	1.589	
I-Butane	0.58	0.189	
N-Butane	1.24	0.390	
I-Pentane	0.21	0.077	
N-Pentane	0.23	0.083	
Hexanes	0.06	0.025	
Heptanes & Heavier	0.08	0.037	
Hydrogen Sulfide	*None Det.		
Helium			
Hydrogen			
Carbon Monoxide			
TOTALS	100.00	6.288	

CONDENSATE VALUES, G.P.M.

Propane

Butane

Gasoline

HEATING VALVE, B.T.U. Per Cu. Ft.*

Calculated from % Composition 1252

Calculated water saturated 1230

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.727

*14,696 lbs./sq. in., 60° F

REMARKS *Determined on laboratory sample

Propane + GPM — 2.390

COPIES: 2cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

SOUTHWESTERN LABORATORIES
Jack H Barton

TABLE 19

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-7-79 File No. C-1950-GD

Report of tests on Fluid

To Harvey E. Yates Date Rec'd. 12-4-79

Received from

Identification Mark Travis Deep No. 1, Stock tank, Oil, 12-3-79, Sampled by Tefteller

DISTILLATION, ASTM D-86

Percent Distilled	Observed Temperature° F	
I.B.P.	94	
5	140	
10	182	
20	240	
30	298	
40	376	
50	478	
60	554	
70	—	
80	—	
90	—	
95	—	
	578	(End Point)

Percent Recovery ------- 63.5
Percent Residue ------- 30.5
Percent Loss ---------- 6.0
Gravity ---------- 46.9 ° A.P.I. @ 60° F
Color ---------- Bronze

Bar. Press. ----- 686 mm Hg

2cc Harvey E. Yates
1cc R. Viney
1cc Tefteller

Lab. No. 43688

SOUTHWESTERN LABORATORIES
Jack H Barton

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FORM NO. 130-B

TABLE 20
HARVEY E. YATES COMPANY
POROSITY AND PERMEABILITY DETERMINATION
USING DARCY'S STEADY STATE RADIAL OIL FLOW EQUATION
BASED ON PRODUCTION TESTS AND RESERVOIR PRESSURE SURVEYS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Lease and Well No.	Travis Deep Unit No. 2			Travis Deep Unit No. 2			Travis State No. 1			Travis Deep Unit No. 3			North Travis Unit 12-1			Travis State 13-1		
Date	September 8, 1977			November 1, 1977			November 12, 1979			November 30, 1979			June 17, 1980			August 13, 1980		
q - Stock Tank Oil Production Barrels/Day	430			285			175			199			44			37		
B_o - Reservoir Oil Formation Volume Factor Bbl/Bbl	1.46			1.462			1.41			1.402			1.36			1.29		
q_{RVB} - Reservoir Barrels/Day	628			417			247			279			60			481		
Boundary Pressure (P_e) psig	3125			3538			1339			2411			2730			2079		
Flowing Pressure (P_{wf}) psig	3065			3147			2209			1039			335			335		
Oil Viscosity U_o Centipoises	0.381			0.376			0.365			0.37			0.400			0.455		
Permeability - Feet at Various Radii of Drainage	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'	350'	700'	1400'
Darcy Feet	0.3490	0.3840	0.4190	0.3870	0.4260	0.4660	0.1000	0.1100	0.1200	0.0730	0.0800	0.0875	0.0097	0.0107	0.0116	0.0121	0.0133	0.0145
Permeability - Millidarcies (k) Where: Pay Section (h) Feet (k)																		
10'	34.900	38.400	41.900	38.700	42.600	46.600	10.000	11.000	12.000	7.3000	8.0000	8.7500	0.9700	1.0700	1.1600	1.2100	1.3300	1.4500
30'	11.600	12.800	13.970	12.900	14.200	15.530	3.300	3.670	4.000	2.4300	2.6700	2.9200	0.3200	0.3600	0.3900	0.4030	0.4400	0.4800
60'	5.800	6.400	6.990	6.450	7.100	7.770	1.650	1.840	2.000	1.2150	1.3400	1.4600	0.1600	0.1780	0.1930	0.2020	0.2200	0.2400
120'	2.900	3.200	3.500	3.225	3.550	3.880	0.825	0.917	1.000							0.1000	0.1100	0.1200
180'							0.550	0.610	0.670									
Empirical Porosity Calculation When (h) 10'	0.0950	0.0965	0.0979	0.0966	0.0982	0.0997	0.0771	0.0783	0.0795	0.0732	0.0743	0.0754	0.0523	0.0531	0.0539	0.0542	0.0551	0.0559
30'	0.0790	0.0804	0.0815	0.0805	0.0818	0.0830	0.0641	0.0652	0.0662	0.0609	0.0619	0.0628	0.0434	0.0443	0.0449	0.0452	0.0458	0.0465
60'	0.0704	0.0716	0.0726	0.0717	0.0728	0.0739	0.0571	0.0582	0.0590	0.0543	0.0552	0.0560	0.0387	0.0394	0.0399	0.0402	0.0408	0.0414
120'	0.0627	0.0638	0.0647	0.0639	0.0649	0.0659	0.0509	0.0518	0.0525							0.0358	0.0364	0.0369
180'							0.0476	0.0484	0.0491									
													Drill Stem Test Formation not Stimulated			Drill Stem Test Formation not Stimulated		

Formulation Used:

$$q_{RVB} = \frac{7.08\ Kh\ (P_e - P_{wf})}{u\ \left(\ln \frac{re}{rw}\right)}$$ Steady State Liquid Radial Flow Equation

$$\phi^3 = \frac{(k)^{\frac{1}{2}}\ (S_w)}{C}$$

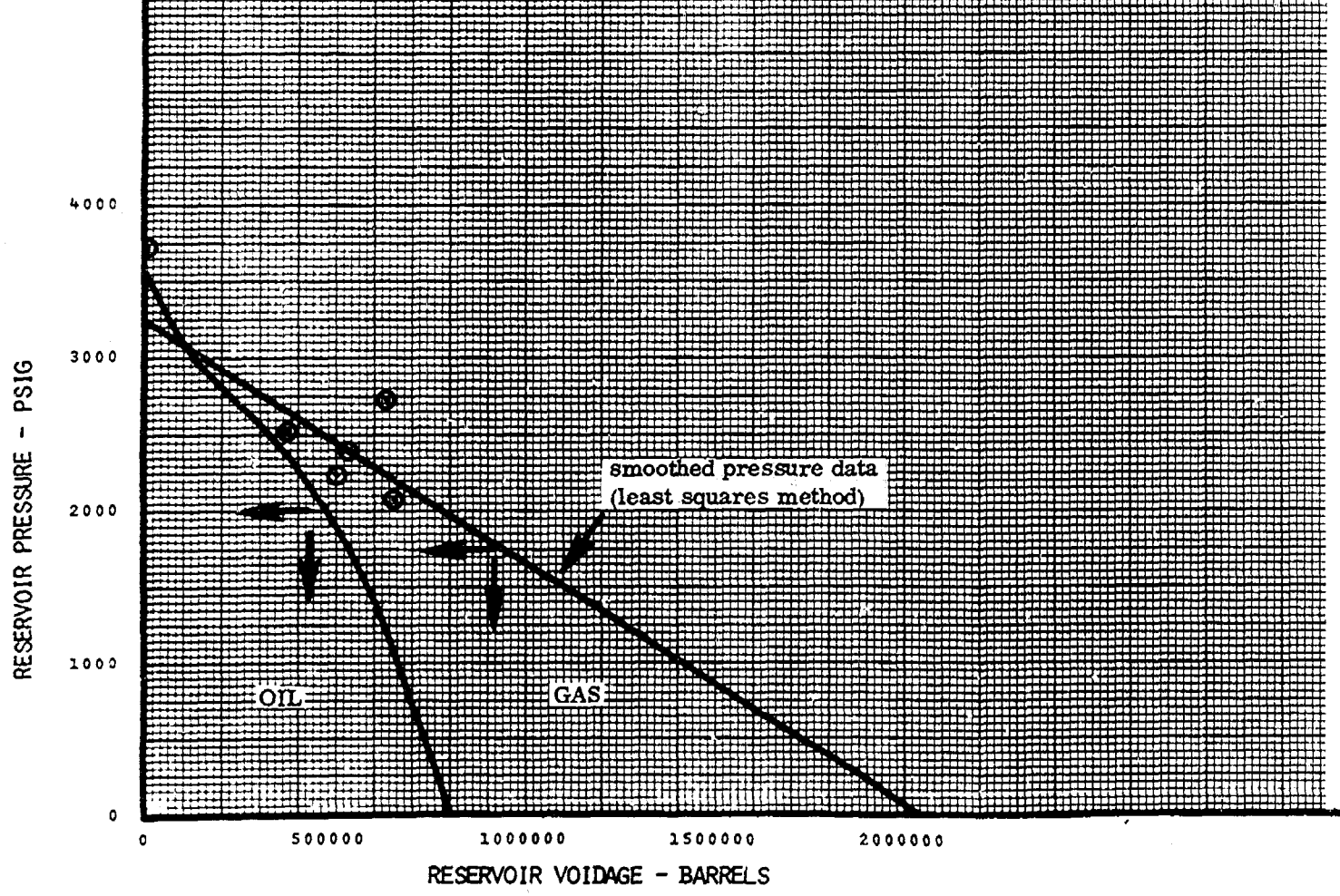
Where ϕ = Porosity
k = Permeability - Darcy's
S_w = Interstitial Water Saturation = 0.29
C = Wylie Constant = 200 - Oil

The Porosity Values Computed Using Methods of A. Timur, Wyllie and Rose.

HARVEY E. YATES COMPANY
PROJECTED PERFORMANCE
TRAVIS DEEP UNIT WELLS NO. 2 AND 3; STATE COMM WELL NO. 1

NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES
OF PRODUCTION AND PRESSURE DATA
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

Date	Well Name and No.	Reservoir Pressure psig	Cumulative Production		Reservoir Voidage - Barrels		
			Oil-Barrels	Gas-MCF	Oil	Gas	Total
9- 8-77	TDU 2	3729	-	-	-	-	-
11- 1-77	TDU 2	3538	16,361	18,017	23,966	3,313	27,279
4-17-79	State Com 1	2513	194,090	254,722	285,000	85,000	370,000
11-12-79	TDU 3	2209	261,370	360,986	380,000	120,000	500,000
11-30-79	State Com 1	2421	272,826	378,812	402,800	133,550	535,340
6-17-80	North Travis 12-1	2730	319,786	430,055	470,600	155,000	625,200
8-13-80	Travis 13 State 1	2079	326,689	444,571	477,839	174,071	651,900



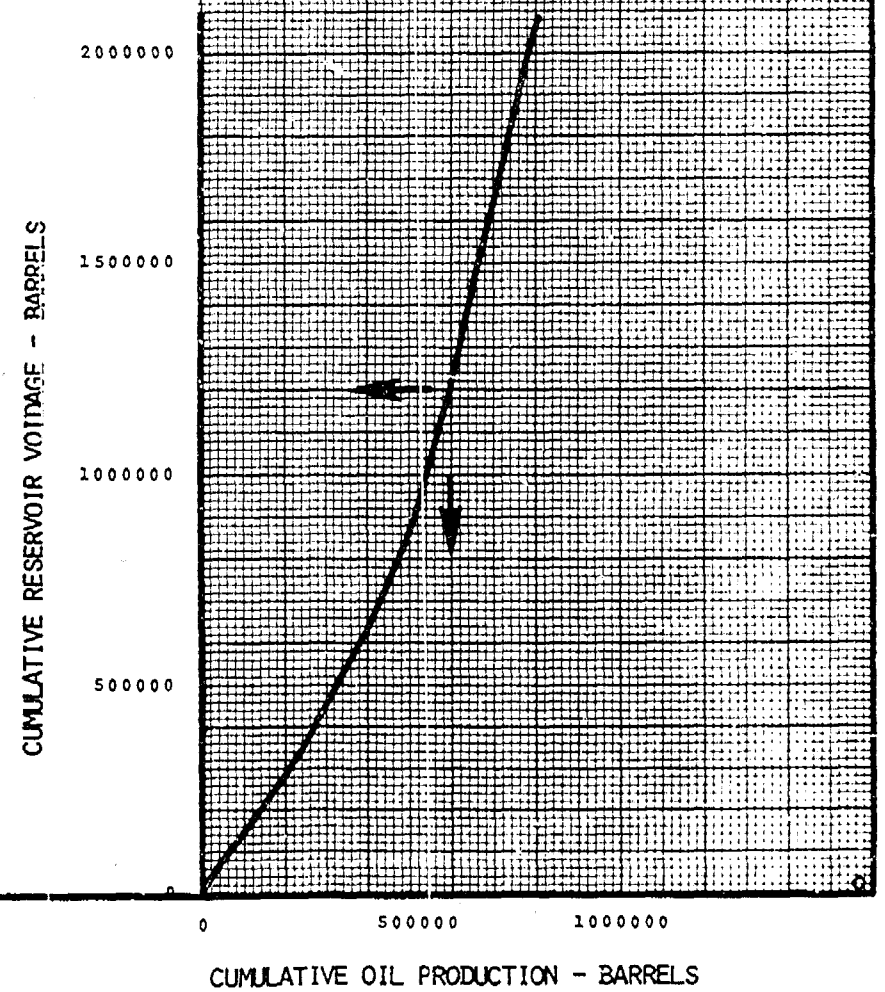


PLATE 16

TABLE 21
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 2
TRAVIS UPPER PENN POOL
TEST DATA SEPTEMBER 8, 1977
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FEL.T, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL.. EFF., %	SIBHP PSIG	AVG. P PSIG
1-12	67.	285.2	1.84	0.42	166.0	3526.	4087.
12-21	225.	101.3	5.18	0.65	97.7	3614.	3728.
21-35	793.	64.6	8.13	0.70	69.5	3660.	3678.
35-39	865.	195.1	2.69	0.65	179.5	3672.	3729.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	3175.	3175.	0.10	1655.884	1655.780
2	3244.	3244.	0.20	828.442	828.454
3	3297.	3297.	0.30	552.628	552.622
4	3337.	3337.	0.40	414.721	414.727
5	3367.	3367.	0.50	331.977	331.976
6	3393.	3393.	0.60	276.814	276.811
7	3415.	3415.	0.70	237.412	237.413
8	3431.	3431.	0.80	207.860	207.860
9	3447.	3447.	0.90	184.876	184.877
10	3462.	3462.	1.00	166.488	166.488
11	3501.	3501.	1.50	111.326	111.326
12	3526.	3526.	2.00	83.744	83.744
13	3550.	3550.	3.00	56.163	56.163
14	3565.	3565.	4.00	42.372	42.372
15	3576.	3576.	5.00	34.098	34.098
16	3584.	3584.	6.00	28.581	28.581
17	3591.	3591.	7.00	24.641	24.641
18	3595.	3595.	8.00	21.686	21.686
19	3602.	3602.	10.00	17.549	17.549
20	3607.	3607.	12.00	14.791	14.791
21	3614.	3614.	16.00	11.343	11.343
22	3617.	3617.	20.00	9.274	9.274
23	3620.	3620.	24.00	7.895	7.895
24	3622.	3622.	28.00	6.910	6.910
25	3626.	3626.	36.00	5.597	5.597
26	3632.	3632.	48.00	4.448	4.448
27	3637.	3637.	60.00	3.758	3.758
28	3639.	3639.	66.00	3.507	3.507
29	3643.	3643.	78.00	3.122	3.122
30	3647.	3647.	90.00	2.839	2.839
31	3649.	3649.	96.00	2.724	2.724
32	3651.	3651.	100.00	2.655	2.655
33	3654.	3654.	110.00	2.504	2.504
34	3657.	3657.	120.00	2.379	2.379
35	3660.	3660.	130.00	2.273	2.273
36	3663.	3663.	140.00	2.182	2.182
37	3666.	3666.	150.00	2 103	2.103
38	3669.	3669.	160.00	2.034	2.034
39	3672.	3672.	170.00	1.973	1.973

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 22
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 2
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 1, 1977
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1--14	111.	95.1	3.66	0.56	131.9	3408.	3660.
14--39	1735.	51.9	6.71	0.73	97.8	3522.	3538.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	3248.	3248.	0.10	13759.316	13762.673
2	3294.	3294.	0.20	6880.158	6881.823
3	3316.	3316.	0.30	4587.106	4586.353
4	3328.	3328.	0.40	3440.579	3440.366
5	3338.	3338.	0.50	2752.663	2752.661
6	3346.	3346.	0.60	2294.053	2294.144
7	3352.	3352.	0.70	1966.474	1966.610
8	3356.	3356.	0.80	1720.790	1720.681
9	3360.	3360.	0.90	1529.702	1529.660
10	3364.	3364.	1.00	1376.832	1376.832
11	3378.	3378.	1.50	918.221	918.220
12	3388.	3388.	2.00	688.916	688.915
13	3400.	3400.	3.00	459.611	459.610
14	3408.	3408.	4.00	344.958	344.958
15	3416.	3416.	6.00	230.305	230.305
16	3424.	3424.	8.00	172.979	172.979
17	3428.	3428.	10.00	138.583	138.583
18	3432.	3432.	12.00	115.653	115.653
19	3438.	3438.	16.00	86.989	86.989
20	3442.	3442.	20.00	69.792	69.792
21	3446.	3446.	24.00	58.326	58.326
22	3451.	3451.	30.00	46.861	46.861
23	3455.	3455.	36.00	39.218	39.218
24	3462.	3462.	48.00	29.663	29.663
25	3466.	3466.	60.00	23.931	23.931
26	3468.	3468.	71.00	20.378	20.378
27	3472.	3472.	78.00	18.639	18.639
28	3474.	3474.	90.00	16.287	16.287
29	3476.	3476.	100.00	14.758	14.758
30	3478.	3478.	110.00	13.508	13.508
31	3480.	3480.	120.00	12.465	12.465
32	3482.	3482.	130.00	11.583	11.583
33	3484.	3484.	140.00	10.827	10.827
34	3486.	3486.	150.00	10.172	10.172
35	3487.	3487.	160.00	9.599	9.599
36	3488.	3488.	170.00	9.093	9.093
37	3489.	3489.	180.00	8.644	8.644
38	3491.	3491.	192.00	8.166	8.166
39	3522.	3522.	718.50	2.915	2.915

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 23
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
STATE COM NO. 1
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 12, 1979
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS EFFLT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	192.	34.3	8.26	1.47	238.9	1338.	1458.
2- 5	386.	85.7	3.31	0.59	226.4	1428.	1638.
5- 7	549.	162.6	1.74	0.36	257.2	1512.	1820.
7-21	2168.	324.8	0.87	0.22	298.1	1999.	2136.
21-22	2193.	534.5	0.53	0.20	436.5	2004.	2209.
22-39	2485.	534.5	0.53	0.20	436.5	1986.	2209.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1314.	1314.	0.10	15836.887	15840.741
2	1338.	1338.	0.50	3168.177	3168.171
3	1362.	1362.	1.00	1584.589	1584.587
4	1408.	1408.	3.00	528.863	528.863
5	1428.	1428.	6.00	264.931	264.931
6	1460.	1460.	10.00	159.359	159.359
7	1512.	1512.	20.00	80.179	80.179
8	1646.	1646.	50.00	32.672	32.672
9	1733.	1733.	100.00	16.836	16.836
10	1825.	1825.	200.00	8.918	8.918
11	1884.	1884.	300.00	6.279	6.279
12	1923.	1923.	400.00	4.959	4.959
13	1952.	1952.	500.00	4.167	4.167
14	1964.	1964.	600.00	3.639	3.639
15	1974.	1974.	700.00	3.262	3.262
16	1982.	1982.	800.00	2.979	2.979
17	1990.	1990.	920.00	2.721	2.721
18	1995.	1995.	1000.00	2.584	2.584
19	1997.	1997.	1040.00	2.523	2.523
20	1998.	1998.	1060.00	2.494	2.494
21	1999.	1999.	1080.00	2.466	2.466
22	2004.	2004.	1120.00	2.414	2.414
23	2003.	2003.	1180.00	2.342	2.342
24	2002.	2002.	1300.00	2.218	2.218
25	2001.	2001.	1320.00	2.200	2.200
26	2000.	2000.	1340.00	2.182	2.182
27	1999.	1999.	1360.00	2.164	2.164
28	1998.	1998.	1380.00	2.148	2.148
29	1997.	1997.	1400.00	2.131	2.131
30	1996.	1996.	1420.00	2.115	2.115
31	1995.	1995.	1440.00	2.100	2.100
32	1994.	1994.	1460.00	2.085	2.085
33	1993.	1993.	1480.00	2.070	2.070
34	1992.	1992.	1500.00	2.056	2.056
35	1991.	1991.	1520.00	2.042	2.042
36	1990.	1990.	1540.00	2.028	2.028
37	1989.	1989.	1560.00	2.015	2.015
38	1988.	1988.	1580.00	2.002	2.002
39	1986.	1986.	1599.00	1.990	1.990

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 24
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS DEEP UNIT NO. 3
TRAVIS UPPER PENN FIELD
TEST DATE NOVEMBER 30, 1979
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 8	23.	92.9	1.59	0.21	130.2	1200.	1566.
8- 9	27.	142.1	1.00	0.15	142.6	1229.	1764.
9-17	125.	231.0	0.59	0.10	156.3	1594.	2090.
17-34	302.	373.6	0.34	0.08	183.4	1921.	2411.
34-39	346.	373.6	0.34	0.08	183.4	1912.	2411.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1065.	1065.	0.10	231221.4	232127.9
2	1096.	1096.	0.20	115611.2	116064.5
3	1117.	1117.	0.30	77074.461	76874.062
4	1135.	1135.	0.50	46245.070	46244.957
5	1146.	1146.	0.70	33032.477	33069.336
6	1158.	1158.	1.00	23123.035	23123.014
7	1177.	1177.	1.60	14452.272	14455.780
8	1200.	1200.	2.50	9249.814	9249.804
9	1229.	1229.	4.00	5781.509	5781.506
10	1309.	1309.	10.00	2313.204	2313.202
11	1378.	1378.	20.00	1157.102	1157.101
12	1438.	1438.	36.00	643.279	643.278
13	1478.	1478.	52.00	445.655	445.654
14	1496.	1496.	64.00	362.282	362.281
15	1516.	1516.	80.00	290.025	290.025
16	1545.	1545.	100.00	232.220	232.220
17	1594.	1594.	150.00	155.147	155.147
18	1634.	1634.	200.00	116.610	116.610
19	1699.	1699.	300.00	78.073	78.073
20	1747.	1747.	400.00	58.805	58.805
21	1771.	1771.	450.00	52.382	52.382
22	1792.	1792.	500.00	47.244	47.244
23	1810.	1810.	560.00	42.289	42.289
24	1821.	1821.	600.00	39.537	39.537
25	1832.	1832.	660.00	36.033	36.033
26	1839.	1839.	700.00	34.031	34.031
27	1854.	1854.	760.00	31.424	31.424
28	1863.	1863.	800.00	29.903	29.903
29	1873.	1873.	860.00	27.886	27.886
30	1886.	1886.	920.00	26.133	26.133
31	1894.	1894.	1000.00	24.122	24.122
32	1906.	1906.	1100.00	22.020	22.020
33	1918.	1918.	1200.00	20.268	20.268
34	1921.	1921.	1240.00	19.647	19.647
35	1920.	1920.	1340.00	18.255	18.255
36	1919.	1919.	1400.00	17.516	17.516
37	1918.	1918.	1500.00	16.415	16.415
38	1915.	1915.	1600.00	15.451	15.451
39	1912.	1912.	1674.50	14.808	14.808

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 25
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
NORTH TRAVIS DEEP NO. 12-1
TRAVIS UPPER PENN POOL
TEST DATE JUNE 17, 1980
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	10.	2051.0	0.04	0.01	200.3	1506.	3883.
2- 3	11.	4580.5	0.02	0.01	220.2	2244.	6815.
3- 4	12.	3365.9	0.02	0.01	207.6	2617.	5603.
4- 5	14.	620.0	0.13	0.02	87.2	2668.	3167.
5- 7	20.	170.0	0.47	0.02	31.2	2688.	2806.
7-15	144.	61.4	1.31	0.02	12.7	2717.	2730.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	920.	920.	0.15	27.867	27.867
2	1506.	1506.	0.30	14.433	14.433
3	2244.	2244.	0.45	9.956	9.956
4	2617.	2617.	0.60	7.717	7.717
5	2668.	2668.	0.75	6.373	6.373
6	2682.	2682.	0.90	5.478	5.478
7	2688.	2688.	1.05	4.838	4.838
8	2690.	2690.	1.20	4.358	4.358
9	2693.	2693.	1.35	3.985	3.985
10	2695.	2695.	1.50	3.687	3.687
11	2708.	2708.	2.77	2.455	2.455
12	2713.	2713.	4.03	1.999	1.999
13	2717.	2717.	5.30	1.760	1.760
14	2715.	2715.	6.57	1.613	1.613
15	2717.	2717.	7.85	1.513	1.513

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

TABLE 26
HARVEY E. YATES COMPANY
PRESSURE BUILD-UP ANALYSIS
TRAVIS STATE NO. 13-1
TRAVIS UPPER PENN POOL
TEST DATA AUGUST 13, 1980
Ralph H. Viney & Associates, Inc.
Engineering Consultants

POINTS USED	RADIUS FELT, FT	SLOPE PSI/CYC	K (MDS)	P. I. B/D/PSI	COMPL. EFF., %	SIBHP PSIG	AVG. P PSIG
1- 2	14.	1600.6	0.05	0.01	196.8	1971.	3059.
2-15	70.	153.9	0.52	0.02	38.4	2051.	2079.

POINT	PRESSURE	CORRECTED PRESSURE@	DT (HOURS)	(T+DT)/DT	CORRECTED (T+DT)/DT@@
1	1566.	1566.	0.27	8.564	8.564
2	1971.	1971.	0.53	4.781	4.781
3	2000.	2000.	0.80	3.521	3.521
4	2009.	2009.	1.07	2.891	2.891
5	2016.	2016.	1.33	2.512	2.512
6	2022.	2022.	1.60	2.260	2.260
7	2028.	2028.	1.87	2.080	2.080
8	2035.	2035.	2.13	1.945	1.945
9	2035.	2035.	2.40	1.840	1.840
10	2041.	2041.	2.67	1.756	1.756
11	2044.	2044.	2.93	1.688	1.688
12	2047.	2047.	3.20	1.630	1.630
13	2051.	2051.	3.47	1.582	1.582
14	2051.	2051.	3.73	1.540	1.540
15	2051.	2051.	4.00	1.504	1.504

@ CORRECTED FOR AFTERFLOW
@@ CORRECTED FOR SUPERPOSITION

CASE 7321: ENSERCH EXPLORATION, INC.
FOR SPECIAL POOL RULES, ROOSEVELT
COUNTY, NEW MEXICO

Case No.

7321

Application

Transcripts.

Small Exhibits

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
2 February 1983

EXAMINER HEARING

IN THE MATTER OF:

Case 7321 being reopened pursuant to the provisions of Order No. R-6764, Roosevelt County, New Mexico.

CASE 7321

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:

W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

MR. STOGNER: Call next Case Number 7321.

MR. PEARCE: That case is in the matter of Case 7321 being reopened pursuant to the provisions of Order No. R-6764, which order promulgated temporary special rules and regulations for the South Humble City-Strawn Pool in Lea County, New Mexico.

MR. CARR: Mr. Examiner.

MR. PEARCE: Mr. Carr, I'm sorry, may I try that again?

6764, which order promulgated temporary special rules and regulations for the Peterson-Mississippian Pool in Roosevelt County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, appearing on behalf of Enserch Exploration, Inc.

Enserch was the applicant in the original case and desires that the pool rules revert back to 40-acre spacing.

The other case that you called, Inexco is the applicant and requests that that case be continued to the hearing scheduled for February 16th, if you called the other case.

MR. PEARCE: That's an interesting question.

MR. STOGNER: Does anyone have anything to come before Case Number 7321?

This case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7321, heard by me on February 2 19 83.

Michael E. Stogner, Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
2 February 1983

EXAMINER HEARING

IN THE MATTER OF:

Case 7321 being reopened pursuant to the provisions of Order No. R-6764, Roosevelt County, New Mexico.

CASE 7321

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

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MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, appearing on behalf of Enserch Exploration, Inc.

Enserch was the applicant in the original case and desires that the pool rules revert back to 40-acre spacing.

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MR. PEARCE: That's an interesting question.

MR. STOGNER: Does anyone have anything to come before Case Number 7321?

This case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7321, heard by me on February 2, 1983.

Michael E. Stogner, Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

February 8, 1983

Mr. William F. Carr
Campbell, Byrd & Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico 87501

Re: CASE NO. 7321
ORDER NO. R-6764-A

Applicant:

Enserch Exploration, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7321
Order No. R-6764-A

IN THE MATTER OF CASE 7321 BEING
REOPENED PURSUANT TO THE PROVISIONS OF
ORDER NO. R-6764, WHICH ORDER PROMULGATED
TEMPORARY SPECIAL RULES AND REGULATIONS FOR THE
PETERSON-MISSISSIPPIAN POOL, ROOSEVELT COUNTY,
NEW MEXICO, INCLUDING A PROVISION FOR 80-ACRE
PRORATION UNITS.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 2, 1983, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 8th day of February, 1983, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-6764, dated August 26, 1981, temporary Special Rules and Regulations were promulgated for the Peterson-Mississippian Pool, Roosevelt County, New Mexico, establishing temporary 80-acre spacing units.

(3) That pursuant to the provisions of Order No. R-6764, this case was reopened to allow the operators in the subject pool to appear and show cause why the Peterson-Mississippian Pool should not be developed on 40-acre spacing units.

(4) That no operator in the subject pool appeared to show cause why the Peterson-Mississippian Pool should not be developed on 40-acre spacing units.

(5) That it is not known at this time whether additional wells will be completed in the subject pool.

(6) That the operators in the subject pool have not established that one well can efficiently and economically drain and develop 80 acres.

(7) That the Special Rules and Regulations promulgated by Order No. R-6764 should be rescinded.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Peterson-Mississippian Pool, Roosevelt County, New Mexico, promulgated by Order No. R-6764, are hereby rescinded.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY,
Director

S E A L

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

August 27, 1981

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. William F. Carr
Campbell, Byrd & Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico

Re: CASE NO. 7321
ORDER NO. R-6764

Applicant:

Enserch Exploration, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

CASE 7789: Application of Amoco Production Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Blinebry, Drinkard, Wantz-Abo and Wantz-Granite Wash production in the wellbore of its State "C" Tract 13 Well No. 10, located 990 feet from the North line and 1980 feet from the West line of Section 36, Township 21 South, Range 36 East.

CASE 7776: (Continued from January 19, 1983, Examiner Hearing)

Application of TXO Production Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox Pennsylvanian gas well location 990 feet from the South line and 660 feet from the East line of Section 7, Township 21 South, Range 26 East, the S/2 of said Section 7 to be dedicated to the well.

CASE 7721: (Continued and Readvertised)

Application of C. C. Maloney and John C. Ryan for compulsory pooling or a non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the W/2 of Section 11, Township 19 South, Range 30 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. In the alternative, applicant seeks approval of a 280-acre non-standard proration unit comprising the NW/4, N/2 SW/4 and SE/4 SW/4 of said Section 11.

CASE 7790: Application of Dugan Production Corp. for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Undesignated Gallup and Basin-Dakota production in the wellbore of its April Surprise Well No. 4 located 1710 feet from the South line and 830 feet from the West line of Section 19, Township 24 North, Range 9 West.

CASE 7791: Application of R. E. Lauritsen for an unorthodox well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox well location 1190 feet from the North line and 1850 feet from the West line of Section 11, Township 29 North, Range 15 West, Cha-cha Gallup Pool, the E/2 NW/4 of said Section 11 to be dedicated to the well.

CASE 7765: (Continued from January 19, 1983, Examiner Hearing)

Application of Enserch Exploration for an unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox oil well location 1100 feet from the South line and 100 feet from the West line of Section 25, Township 7 South, Range 28 East, South Elkins-Fusselman Pool, the SW/4 SW/4 of said Section 25 to be dedicated to the well.

CASE 7321: (Reopened)

In the matter of Case 7321 being reopened pursuant to the provisions of Order No. R-6764 which order promulgated temporary special rules and regulations for the Peterson-Mississippian Pool in Roosevelt County, New Mexico, including a provision for 80-acre spacing units. Operators in said pool may appear and show cause why the pool should not be developed on 40-acre spacing units.

CASE 7473: (Reopened)

In the matter of Case 7473 being reopened pursuant to the provisions of Order No. R-6913 which order promulgated temporary special rules and regulations for the South Humble City-Strawn Pool in Lea County, New Mexico, including a provision for 80-acre spacing units. Operators in said pool may appear and show cause why pool should not be developed on 40-acre spacing units.

CASE 7774: (Continued from January 19, 1983, Examiner Hearing)

Application of McClellan Oil Corp. for an increase in injection pressure, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to inject water into its Sulimar Queen Unit Waterflood Project at a wellhead pressure of approximately 1000 psi, said pressure yielding a bottom-hole hydrostatic pressure in excess of the indicated formation fracture pressure for the Sulimar-Queen Pool.

CASE 7772: (Continued from January 19, 1983, Examiner Hearing)

Application of Texaco Inc. for an unorthodox location, Lea County, New Mexico.
Applicant, in the above-styled cause, seeks approval of an unorthodox injection well located 180 feet from the North line and 40 feet from the East line of Section 3, Township 18 South, Range 34 East, Vacuum Grayburg-San Andres Pool, the NE/4 NE/4 of said Section 3 to be dedicated to the well.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7321
Order No. R-6764

APPLICATION OF ENSERCH EXPLORATION,
INC. FOR SPECIAL POOL RULES,
ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Enserch Exploration, Inc., seeks the promulgation of special pool rules governing the Peterson-Mississippian Pool in Roosevelt County, New Mexico, including provision for 80-acre spacing and proration units and well locations.

(3) That the evidence presently available indicates that the drainage radius of wells in the subject reservoir should be in excess of 40 acres.

(4) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the Peterson-Mississippian Pool.

(5) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(6) That the temporary special rules and regulations should be established for an 18-month period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(7) That this case should be reopened at an examiner hearing in February, 1983, at which time the operators in the subject pool should be prepared to appear and show cause why the Peterson-Mississippian Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

(1) That temporary Special Rules and Regulations for the Peterson-Mississippian Pool, Roosevelt County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
PETERSON-MISSISSIPPIAN POOL

RULE 1. Each well completed or recompleted in the Peterson-Mississippian Pool or in the Mississippian formation within one mile thereof, and not nearer to or within the limits of another designated Mississippian oil pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit, containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section; provided however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Division Director may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail,

and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

RULE 6. Top unit allowable for a standard proration unit (79 through 81 acres) shall be based on a depth bracket allowable of 310 barrels per day, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Peterson-Mississippian Pool or in the Mississippian formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Division in writing of the name and location of the well on or before September 15, 1981.

(2) That, pursuant to Paragraph A. of Section 70-2-18, NMSA 1978, existing wells in the Peterson-Mississippian Pool shall have dedicated thereto 80 acres in accordance with the

foregoing pool rules; or, pursuant to Paragraph C. of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 80 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the Peterson-Mississippian Pool or in the Mississippian formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in February, 1983, at which time the operators in the subject pool should be prepared to appear and show cause why the Peterson-Mississippian Pool should not be developed on 40-acre spacing units.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Enserch Exploration, Inc., for special pool rules, Roosevelt County, New Mexico. CASE 7321

BEFORE: Daniel C. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: William F. Carr, Esq.
CAMPBELL, BYRD, & BLACK P. A.
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MR. NUTTER: Call next Case 7321.

MR. PADILLA: Application of Enserch Exploration, Inc., for special pool rules, Roosevelt County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., of Santa Fe, New Mexico, appearing on behalf of the applicant.

I have two witnesses.

(Witnesses sworn.)

THOMAS E. BROWN

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. Thomas E. Brown, Midland, Texas.

Q. Mr. Brown, by whom are you employed and in what capacity?

A. I'm employed by Enserch Exploration,

Incorporated, as an area staff geologist.

Q. Have you previously testified before this Commission, had your credentials accepted and made a matter of record?

A. Yes, I have.

Q. Are you familiar with the application of Enserch in this case?

A. Yes.

Q. Are you familiar with the subject acreage?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: They are.

Q. Mr. Brown, will you briefly state what Enserch seeks with this application?

A. Enserch is seeking special pool rules for the Peterson Mississippian Pool.

Q. Will you please refer to what has been marked for identification as your Exhibit Number One and explain to Mr. Nutter what this is and what it shows?

A. Exhibit Number One is a structure map contoured on the top of the Mississippian lime. The dark shading in there represents the Enserch leases in the area. The scale is one inch to 2000 feet. The contour interval is

100 foot.

On the legend of production, the producing wells in here have all been color coded according to the formations they produce from.

The blue wells on here are productive in the Pennsylvanian formation. The purple wells on here are productive in the Mississippian, and one of the wells in this green color is productive in the Fusselman.

Q. The subject pool is outlined in red?

A. Yes. The red outline in there is the outline of the proposed pool. At present there are four wells producing in there, the four purple dots on here, the Enserch No. 1 Finley in Section 6; the Enserch No. 1 Terry in Section 5; the Enserch No. 1 Radcliffe in Section 32; and the Enserch Collier "A" in Section 28.

Q. Are there other pools in the immediate area?

A. Yes, there are. North of the proposed pool is the Peterson North Penn Field, which is the six blue wells at the north part of the map.

In the south part of the area, this doesn't really show all the wells. Some of the wells are south of the actual map, but the wells you see down there are productive in the Peterson Penn Field or Peterson Fusselman.

Q. And the trace on this is the trace for your Exhibit Two, which is your cross section, is that correct?

A. That's correct. The line of section is shown on here by a dashed line.

Q. Is there anything further you'd like to testify to from Exhibit One?

A. No.

Q. Will you now refer to Exhibit Two and review this for Mr. Nutter?

A. Exhibit Two is a structural cross section from north to south, with north being on the right and south being on the left. The cross section extends from Peterson Penn Field north through an undesignated Penn well, through Peterson Mississippian Field, and on to the discovery well for Peterson Penn North Field.

All the wells on here are producers. The middle three, as you see on here, the Enserch Exploration No. 1 Finley, the Enserch Exploration No. 1 Radcliffe, and the Enserch Exploration Collier "A" 1 are the ones which are productive in the Mississippian.

The vertical scale on here is one inch to 100 feet. It's hung structurally on a -3000 subsea datum.

One thing to note on here, we have a pre-Penn unconformity, which is the wiggly line you see going

across the middle part.

Within this field there is Mississippian lime present here and the perforations are all marked on those three Mississippian wells. Their initial production potentials are at the top next to the well symbol. You will note that the Mississippian is absent in the Peterson Penn Field. And the main purpose of the exhibit is to establish that these wells are indeed productive in the Mississippian formation.

Q. Will Enserch call another witness to testify as to engineering considerations?

A. Yes.

Q. Do you have anything further to add to your testimony?

A. No.

Q. Were Exhibits One and Two prepared by you?

A. Yes.

MR. CARR: At this time, Mr. Nutter, we would offer into evidence Applicant's Exhibits One and Two.

MR. NUTTER: Exhibits One and Two will be admitted in evidence.

MR. CARR: I have nothing further of Mr. Brown on direct.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Now, Mr. Brown, apparently several of these wells that are completed in the Mississippian, or at least two of them, well, the second well is productive in the Lower Pennsylvanian but it is non-productive in the Upper Mississippian, is that it?

A. Which --

Q. That would be this Annie Harvey No. 1. They made a well in the Lower Cisco, apparently.

A. Yes.

Q. But it was non-productive in the Mississippian. Then --

A. That was a production decision. They decided that it was a better well in the Cisco than it was in the MIssissippian and they will return to that Mississippian production at some later date.

Q. You think you can make a small Mississippian --

A. Yes, we do.

Q. -- well in there. And then the next --

A. We chose not to dual the well.

Q. I see. And then the next well here

would be Finley No. 1, and there was no production in the Pennsylvanian on that well but the Mississippian was completed, is that it?

A. That's correct. We -- we attempted a completion in the Cisco but it was swabbed dry. There's no oil or gas.

Q. Then the next well, being the Radcliffe, is productive from the Pennsylvanian -- Mississippian, but no production tests shown here in the Pennsylvanian.

A. None to date.

Q. And the same applies to the next well on the exhibit, whatever it is.

A. Yes. Some of those wells may have production at a later date higher in the section.

Q. All right. Do you have plans for further drilling in the area?

A. Yes.

Q. Well now, according to your structure map here, you have two -- two highs, the Enserch Collier is on one and these other wells down here are on another. Do you think this is possibly two pools separated by a saddle through here?

A. Well, I think anything between them would be productive. I just -- just feel there's enough

difference in the two to -- to draw two separate circles but they could be connected very easily.

Q. Now I see a location in Section 29 called the Enserch Ivey No. 1. Is that well drilling by any chance?

A. Hopefully it will be drilling within the week.

Q. I see. So you do plan some infill drilling between these two -- between the Radcliffe and the Collier "A"?

A. Yes, both this year and next year.

MR. NUTTER: Are there any further questions of Mr. Brown?

He may be excused.

DANIEL C. RENOULT

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. My name is Daniel C. Renoult and I am residing in Midland, Texas.

Q. Mr. Renoult, by whom are you employed and in what capacity?

A. I'm employed by Enserch Exploration, Inc., as a District Petroleum Engineer.

Q. Have you previously testified before this Commission, had your credentials accepted and made a matter of record?

A. Yes, sir, I have.

Q. And you were qualified as what? Petroleum Engineer?

A. District Petroleum Engineer.

Q. Are you familiar with the application of Enserch in this case?

A. Yes, sir, I am.

Q. Are you familiar with the subject lands?

A. Yes, sir, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q. Mr. Renoult, have you prepared certain exhibits for introduction in this case?

A. Yes, sir, I have.

Q. Will you please refer to what has been marked as Enserch Exploration Exhibit Number Three, identify

this and explain what it shows?

A. Exhibit Number Three pertains to the Enserch Exploration, Inc., Finley Well No. 1. This well is a discovery well for the Peterson Mississippian Oil Pool in Roosevelt County, New Mexico.

No oil production from the Mississippian formation was reported in Roosevelt County prior to the completion of the Finley Well No. 1. Nearest oil production from the Mississippian formation was reported from only six wells in Lea County.

Mississippian oil production is present in one well in the Bar U Field 25 miles southwest from the proposed location; from one well in the Caprock Field 46 miles south; from one well in the Gladiola Field 57 miles southeast; and from three wells in the Bronco Field 57 miles southeast. The three wells in the Bronco Field are abandoned and Mississippian oil production has reached approximately 140,000 barrels of oil per well in that field.

The Enserch Exploration Finley Well No. 1 was perforated from 8250 feet through 8302 feet through three porosity stringers. The Mississippian formation was acidized with 15,000 gallons of MOD 202 acid. The well, which was potentialed at a rate of 116 barrels oil per day with a gas/oil ratio of 1827-to-1 is currently shut-in awaiting on

connection to low pressure gas gathering system.

Production history on open hole logs, consisting of a Formation Density Compensated Neutron Log, Dual Laterlog,Microspherically Focused Log, and Sonic Log, through the Mississippian zone are included.

29 feet with an average porosity of 17 percent and an average water saturation of 48 percent were perforated in this well.

Q. Will you now refer to Enserch Exhibit Number Four?

A. Exhibit Number Four pertains to the Enserch Exploration, Inc., Radcliffe Well No. 1. This well is located in Section 32, approximately 3000 feet from the Enserch Finley Well No. 1.

The Enserch Exploration Radcliffe Well No. 1 was perforated through two porosity stringers from 8173 feet to 8212 feet. The well was acidized with 44,000 gallons of MOD 202 acid.

The well, which was potentialed at a rate of 20 barrels oil per day with a gas/oil ratio 1000-to-1 is currently shut-in awaiting on connection to a low pressure gas gathering system.

Production history on open hole logs, consisting of a Formation Density Compensated Neutron Log, a

Dual Laterolog, Microspherically Focused Log, through the Mississippian zone are included in this exhibit.

16 feet with an average porosity of 20 percent and an average water saturation of 40 percent were perforated in this well.

Q. Mr. Renoult, in regard to the stimulation treatment on this well, the well was acidized with how many gallons?

MR. NUTTER: 44,000.

A. 44,000 gallons of MOD 202.

Q. Will you now refer to Enserch Exhibit Number Four -- Number Five?

A. Exhibit Number Five pertains to Enserch Exploration, Inc., Collier "A" Well No. 1. This well is located in Section 28, approximately 10,000 feet northeast of the discovery Finley Well No. 1.

The Enserch Exploration Collier "A" Well No. 1 was perforated through one porosity interval from 7986 feet to 8001 feet.

The well was acidized with 5500 gallons of 15 percent nonemulsifying hydrochloric acid.

The well, which was potentialed flowing at a rate of 101 barrels oil per day with a gas/oil ratio of 1188-to-1, is currently shut-in awaiting on connection to

a low pressure gas gathering system.

Production history and open hole logs consisting of a Formation Density Compensated Neutron Log, Dual Laterolog, Microspherically Focused Log, and Sonic Log, are included in this exhibit.

Cycle skipping indicated on the Sonic Log shows a zone from 7986 feet to 8001 feet is the evidence of secondary porosity and fractures through the Mississippian pay interval in this well.

15 feet with an average porosity of 8 percent and an average water saturation of 76 percent were perforated in this well.

Q. Will you now review Exhibit Number Six?

A. Exhibit Number Six pertains to the Enserch Exploration, Inc., Harvey Well No. 1. This well is located in Section 6, approximately 3000 feet southwest of the Enserch Finley Well No. 1.

The Enserch Exploration Harvey Well No. was perforated through two porosity stringers from 8244 feet to 8256 feet. The well was acidized with 5000 gallons of 15 percent non-emulsifying hydrochloric acid.

The well was tested at an estimated rate of 55 barrels of oil per day with a good show of gas. The well was eventually recompleted up-hole through the most pro-

lific Penn detrital sand, which was potentialed at a rate of 243 barrels oil per day.

The well is currently shut-in awaiting connection to a low pressure gas gathering system.

Open hole logs, consisting of a Dual Laterolog, Microspherically Focused Log, Formation Density Compensated Neutron Log, Sonic Log, and a wave train display are included in this exhibit.

Separation and breaking of the sheer wave arrivals (sic) through the pay zone from 8244 feet to 8256 feet is the evidence of secondary porosity and fractures through the Mississippian pay interval.

8 feet, with an average porosity of 40 percent and an average water saturation of 50 percent were tested through the Mississippian formation in this well.

Q. Will you please review Exhibit Number Seven?

A. Exhibit Number Seven pertains to Enserch Exploration, Inc., Terry Well No. 1. This well is located in Section 5, approximately 1420 feet east from the discovery Finley Well No. 1.

The Enserch Exploration Terry Well No. 1 was selectively perforated from 8186 feet to 8231 feet. The fracture acidizing treatment to provide deeper penetration of

the acid and allow for better production increases was conducted. This fracture acidizing and stimulation treatment consisted of 40,000 gallons of 15 percent non-emulsifying iron sequestrine hydrochloric acid, 24,400 pounds of 100-mesh sand, and 34,000 pounds of 20/40 mesh sand. The total cost for the fracture acidizing stimulation treatment run amounted to $73,000.

The well was potentialed at the rate of 58 barrels oil per day with a gas/oil ratio of 1207-to-1.

The well is currently shut-in awaiting a connection to low pressure gas gathering system.

Production history and open hole logs, consisting of Formation Density Compensated Neutron Log, and Dual Laterolog, through the Mississippian pay zone are included in this exhibit.

25 feet with an average porosity of 9 percent and a water saturation of 45 percent were perforated through the Mississippian formation in this well.

Q. Will you now review Exhibit Number Eight?

A. Exhibit Number Eight pertains to Enserch Exploration, Inc., Collier Well No. 1. This well is located in Section 29, approximately 11,000 feet northeast of the discovery Finley Well No. 1.

The Collier Well No. 1 was selectively

perforated through two porosity stringers from 8074 feet to 8096 feet.

The Collier Well No. 1 was acidized with 5500 gallons of MOD 101 acid. The well was tested at an approximate rate of 45 barrels of oil per day with a good show of gas.

Open hole logs, consisting of a Formation Density Compensated Neutron Log and Dual Laterolog, Spherically Focused Log, are attached with this exhibit.

12 feet of Mississippian pay with an average porosity of 18 percent and an average water saturation of 30 percent were perforated in this well.

Enserch Exploration, Inc., is currently testing the Penn detrital sand in this well.

Q. Now, Mr. Renoult, you've provided well completion data on each of the six Mississippian oil wells in the area, is that correct?

A. Yes, sir.

Q. Will you now refer to your well data sheet, which is marked Exhibit Nine, and review this for Mr. Nutter?

A. Exhibit Number Nine is a tabulation and summary of the reservoir characteristics of the Mississippian pay present in the Peterson Pool in Roosevelt County, New

Mexico.

To date six wells were tested or are completed through the Mississippian formation in the subject field. An average Mississippian pay of 16 feet with an average 14 percent porosity and 41 percent water saturation is present in the subject pool.

The average initial production rate of these six wells is equal to 66 barrels oil per day.

The four wells which are currently completed through the Mississippian zone were potentialed at an average rate of 74 barrels oil per day per well. The oil produced has an API gravity of 41.4. The average gas/oil ratio is equal to 1305-to-1.

The average royalty and override burden under the Enserch acreage is equal to 17 percent.

Q. Will you now refer to your volumetric calculations, being Enserch Exhibit Number Ten, and review this for Mr. Nutter?

A. Exhibit Number Ten gives some volumetric calculations to compute the original oil in place and the oil recoverable from under an 80-acre lease.

The average reservoir characteristics of the first six Mississippian oil wells drilled by Enserch Exploration in the Peterson Pool were used in this exhibit.

An average pay thickness of 16 feet with an average porosity of 14 percent and an average water saturation of 41 percent indicated that 506,500 barrels of oil are originally in place under an 80-acre lease.

A recovery factor of 15 percent indicated that 76,000 barrels of oil could be recovered and produced from under an 80-acre lease in the subject pool.

Q. Will you now review your Exhibit Number Eleven?

A. Exhibit Number Eleven gives the production history and forecast anticipated for the average Mississippian oil well in the Peterson Pool, Roosevelt County.

Oil production from the Mississippian formation was inexistent in Roosevelt County, New Mexico, until Enserch Exploration drilled its Finley Well No. 1. Based on the oil production history of the few Mississippian oil wells drilled in Lea County, a 20 percent yearly decline rate was used over a 10-year life. An initial average rate of 66 barrels of oil per day was experienced by the six Enserch Exploration wells drilled in the Peterson Mississippian Pool.

Based on this rate of 66 barrels oil per day and following a 20 percent decline rate, recoverable oil reserves from an average Mississippian well in the subject

pool will amount to 85,000 barrels of oil.

The previous exhibit indicated that 76,000 barrels of oil could be recovered and produced from under an 80-acre lease. This exhibit indicates that the average well will drain more than 80 acres. In fact, over a 10-year life the average well in the subject pool will drain 9000 barrels of oil from offset leases.

Page two of Exhibit Number Eleven is a tabulation of the yearly production anticipated for the average Mississippian oil well drilled by Enserch Exploration, Inc., in the Peterson Pool. After a 10-year production life the average well will recover 85,000 barrels of oil and 110,900 Mcf of casinghead gas.

Q. Will you now refer to Exhibit Twelve, identify this, and explain what it shows?

A. Exhibit Twelve gives the drainage area based on the anticipated production schedule provided in the previous exhibit for an average Mississippian oil well in the subject pool.

As indicated on page two of this exhibit, it will take less than 2-1/2 years for the average well to drain 40 acres. Complete drainage of the entire 80 acres will occur after less than seven years of production.

After a 10-year life the average Missis-

sippian oil well in the subject pool would have drained 9000 barrels of oil from offset leases. After 10 years production the average well will have drained 90 acres.

Q. Will you now refer to Exhibit Thirteen, identify this, and explain what it shows?

A. Exhibit Number Thirteen gives the length of fracture created during the fracture acidizing, stimulation treatment conducted by Dowell Company on the Enserch Exploration Terry Well No. 1.

At this time this is the only well where this type of stimulation treatment has been performed. The treatment consisted of 40,000 gallons of 15 percent non-emulsifying iron sequestrine hydrochloric acid, 24,400 pounds of 100-mesh sand, and 34,000 pounds of 20/40-mesh sand.

The results of this stimulation treatment is listed on page two of this exhibit.

The acid concentration along the length of fractures on page one of this exhibit the total fracture length is equal to 1430 feet. This would correspond to 148 acres. The acid is effective from the wellbore to 1100 feet from the wellbore. This acid -- this would correspond to 87 acres.

Dowell Company indicated that this treatment was designed to generate a 6.74 increase in initial

oil production.

The total cost of this fracture acidizing and stimulation treatment amounted to $73,000.

Q. Mr. Renoult, will you now review Exhibit Fourteen for Mr. Nutter?

A. Exhibit Number Fourteen gives the results of a drill stem test conducted through the Mississippian zone in the Enserch Exploration, Inc., Radcliffe Well No. 1.

A strong gas blow with gas to surface in five minutes were observed during the test.

Approximately 200 feet of oil and 420 feet of mud were recovered during this test.

An analysis of the final shut-in period of the drill stem test indicated a formation permeability of 1.14 millidarcy and a reservoir pressure of 2950 psi.

Q. Is this the only reliable drill stem test on any of the wells, Mississippian wells in the area?

A. Yes, sir.

Q. Will you now refer to Exhibit Number Fifteen and review this for Mr. Nutter?

A. Exhibit Number Fifteen is a comparative economic evaluation based on one well per 80-acre or two wells per 80-acre are presented in this exhibit.

The average well cost to drill and com-

plete an 8300-foot Mississippian oil well in the Peterson Pool is equal to $863,800. This cost doesn't include the cost to conduct large fracturing acid treatment, as performed on the Enserch Exploration Terry Well No. 1.

Total production was assumed to be 85,000 barrels of oil. This production implies that some drainage from offset leases would happen.

Based on a current oil price of $35.00 per barrel, one well per 80-acre lease will generate a net present worth, or net profit to Enserch, of $188,000. This profit corresponds to a present worth index of 1.26. This means that for each dollar invested Enserch will get in return $1.26.

If two wells were drilled on an 80-acre lease, Enserch Exploration will make a net loss of $325,000. A present worth index of .77 was generated indicating that for each dollar invested Enserch would get in return only 77 cents.

This would result in a net loss of 23 cents for each dollar invested.

The computer input and output for each case are attached on page two and three of Exhibit Number Fifteen.

Q. Mr. Renoult, do you have a recommendation

to make to the Examiner concerning the spacing of wells in the Peterson Mississippian Pool?

A. It is requested that the Oil Conservation Division of New Mexico approve the application of Enserch Exploration, Inc., to adopt temporary special pool rules allocating 80 acres per well drilled in the Peterson Mississippian Pool, Roosevelt County.

Q. And on each of these 80-acre spacing units where should the wells be located?

A. The wells should be located within 150 feet from the center of a quarter quarter governmental section.

Q. Are the wells that are currently drilled in this pool spaced so as to conform with this spacing recommendation?

A. Yes, sir, they are.

Q. In your opinion would granting this application avoid the drilling of unnecessary wells?

A. Yes, sir, it will.

Q. Will granting the application reduce the risk that would result from drilling an excessive number of wells in the pool?

A. Yes, sir, it will.

Q. I believe you indicated that all the wells in the pool are currently shut-in, is that correct?

A. Yes, sir, the wells are shut-in. Enserch Exploration, Inc., got a shut-in order from the Oil Conservation Division of New Mexico and we are in the process of building a low pressure gas gathering system in this field.

Q. For what period of time are you requesting temporary pool rules?

A. We requested that Enserch Exploration's application be approved by the Oil Conservation Division and granted for a period of 18 months.

Q. Would this 18 months run from the date of the order or from the date of first sale?

A. From the date of the order.

Q. In that period of time how many wells do you anticipate Enserch will drill in this area?

A. At this point we have drilled six wells in the Peterson Mississippian oil pool. We are currently completing the Enserch Wilson Well No. 1 in Section 6. We are currently drilling the Enserch LaGrone Well No. 1 in Section 29.

MR. NUTTER: Which one?

A. LaGrone.

MR. NUTTER: Oh, yeah, okay.

A. Well No. 1 in Section 29.

We are planning to move our rig in the

next few weeks to the Ivey Well No. 1 and we have more than 20 wells budgeted for 1982 in the Peterson Mississippian Oil Pool.

MR. NUTTER: Now you're currently completing the Collier No. 1, too, aren't you?

A. We are testing the Collier No. 1 in the Penn detrital at this time.

MR. NUTTER: Do you think it's going to be completed in the Penn or in the Mississippian?

A. I don't know. I don't have a result of the Penn yet.

We are going to complete this well in the best zone first and then we'll recomplete the well in a --

MR. NUTTER: I think you had some data on the Mississippian for that well, though, didn't you?

A. Yes, sir, I did.

MR. NUTTER: One of these exhibits covered that. Don't bother, you did cover it?

A. Yes, sir.

MR. NUTTER: You did test the Mississippian already and now you're testing the Penn.

A. Yes, sir.

MR. NUTTER: Okay.

Q. Mr. Renoult, in your opinion will granting

this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir, it will.

Q. Were Exhibits Three through Fifteen prepared by you or under your direction and supervision?

A. Yes, sir, they were.

MR. CARR: Mr. Nutter, at this time we would offer into evidence Enserch Exhibits Three through Fifteen.

MR. NUTTER: Enserch Exhibits Three through Fifteen will be admitted in evidence.

MR. CARR: I have nothing further of Mr. Renoult on direct.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Renoult, you made your calculations of recoverable reserves in two different methods. First of all, you had your Exhibit Number Ten, which used the parameters off of Exhibit Number Nine, and you made a volumetric calculation showing 76,000 barrels per 80 acres of recoverable oil, correct?

A. Yes, sir.

Q. And then you went to Exhibit Number --

whatever --

A. Eleven, I suspect.

Q. To Exhibit Number Eleven and what did you do here, now? You took this production decline curve for the Bronco Mississippian Field and established that it had a 20 percent per year decline rate?

A. Yes, sir.

Q. And then you took your average --

A. Initial rate.

Q. -- production from your Mississippian wells at 66 barrels a day.

A. Yes, sir.

Q. And you declined that production at the same rate that the Bronco Mississippian had declined.

A. Yes, sir.

Q. Or 20 percent per year?

A. Yes, sir.

Q. And then you came up with your recoverable reserves of 85,000.

A. Yes, sir.

Q. So the similarity between 76,000 and 85,000 indicates that you probably would have a decline rate in the neighborhood of 20 percent, similar to --

A. Yes, sir.

Q. -- the other Mississippian Pool.

Now what has the other Mississippian Pool recovered? Early in your testimony you mentioned that three wells were now abandoned in that, and what were their total recoveries?

A. The total average recovery from the Bronco Field is equal to approximately 140,000 barrels of oil per well.

We have three more wells in Lea County which are still producing from the Mississippian zone, but I don't know what will be their ultimate reserves since they are still producing.

In Roosevelt County when these three wells were completed in the Mississippian and have been abandoned, they are all located in the Bronco Field.

Q. Well now, if these wells had a 20 percent decline and recovered an average of 147,000 barrels, they must have started off with a higher initial potential, then.

A. Yes, sir.

Q. Than your wells are.

A. Yes, sir. I just have the production from one well of this field. On Exhibit Number Eleven, that's the production from the Amerada Petroleum Corporation LW Wood Well No. 1. The average initial production of this well was

equal to approximately 2800 barrels of oil per month, whereas the average initial oil production for the Enserch wells is equal to approximately 2000 barrels oil per month.

That's why they recovered more oil than we anticipate to recover.

Q. Is that -- is that curve there --

A. Yes, sir.

Q. -- a 20 percent decline curve?

A. Yes, sir.

Q. And that's one well in the pool.

A. Yes, sir. And we have two more wells in this pool.

Q. You didn't -- you didn't have the curves for those wells.

A. No, I don't have them, yet.

Q. But they had similar declines?

A. Yes, sir.

Q. And the average was 20 percent per year.

A. Yes, sir.

Q. Okay. Now on your Exhibit Number Fifteen, Mr. Renoult, you, in making this comparison of production, you figured that one well on 80 acres would recover 85,000 barrels.

A. Yes, sir.

Q. And you figured that each well on 40 acres would also recover 85,000 barrels, Didn't you?

A. No, sir.

Q. Sure you did.

A. I -- in the first I estimate one well will recover 85,000 barrels. In the second case, I assume that two wells will -- will recover the same amount of oil.

Q. Okay, so the 85,000 on page two of Exhibit Fifteen, the 85,000 is divided between the two wells. This is not the per well production, because you still have the same 85,000 barrels that's going to be recovered.

A. On page three I have --

Q. Or page three, I'm sorry.

A. -- I have 85,000 barrels for two wells, yes, sir.

Q. So each well would make -- assuming each well made half of it, it would be 42,000 barrels each well would make.

A. Yes, sir.

MR. NUTTER: Are there any further questions of the witness?

MR. CARR: No further questions.

MR. NUTTER: He may be excused. Do you have anything further, Mr. Carr?

MR. CARR: Nothing further, Mr. Nutter.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7321?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7321, heard by me on 8/12 1981.

_____, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Enserch Exploration, Inc., for special pool rules, Roosevelt County, New Mexico. CASE **7321**

BEFORE: Daniel C. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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Legal Counsel to the Division
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MR. NUTTER: Call next Case 7321.

MR. PADILLA: Application of Enserch Exploration, Inc., for special pool rules, Roosevelt County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., of Santa Fe, New Mexico, appearing on behalf of the applicant.

I have two witnesses.

(Witnesses sworn.)

THOMAS E. BROWN

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. Thomas E. Brown, Midland, Texas.

Q. Mr. Brown, by whom are you employed and in what capacity?

A. I'm employed by Enserch Exploration,

Incorporated, as an area staff geologist.

Q. Have you previously testified before this Commission, had your credentials accepted and made a matter of record?

A. Yes, I have.

Q. Are you familiar with the application of Enserch in this case?

A. Yes.

Q. Are you familiar with the subject acreage?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: They are.

Q. Mr. Brown, will you briefly state what Enserch seeks with this application?

A. Enserch is seeking special pool rules for the Peterson Mississippian Pool.

Q. Will you please refer to what has been marked for identification as your Exhibit Number One and explain to Mr. Nutter what this is and what it shows?

A. Exhibit Number One is a structure map contoured on the top of the Mississippian lime. The dark shading in there represents the Enserch leases in the area. The scale is one inch to 2000 feet. The contour interval is

100 foot.

On the legend of production, the producing wells in here have all been color coded according to the formations they produce from.

The blue wells on here are productive in the Pennsylvanian formation. The purple wells on here are productive in the Mississippian, and one of the wells in this green color is productive in the Fusselman.

Q. The subject pool is outlined in red?

A. Yes. The red outline in there is the outline of the proposed pool. At present there are four wells producing in there, the four purple dots on here, the Enserch No. 1 Finley in Section 6; the Enserch No. 1 Terry in Section 5; the Enserch No. 1 Radcliffe in Section 32; and the Enserch Collier "A" in Section 28.

Q. Are there other pools in the immediate area?

A. Yes, there are. North of the proposed pool is the Peterson North Penn Field, which is the six blue wells at the north part of the map.

In the south part of the area, this doesn't really show all the wells. Some of the wells are south of the actual map, but the wells you see down there are productive in the Peterson Penn Field or Peterson Fusselman.

Q And the trace on this is the trace for your Exhibit Two, which is your cross section, is that correct?

A That's correct. The line of section is shown on here by a dashed line.

Q Is there anything further you'd like to testify to from Exhibit One?

A No.

Q Will you now refer to Exhibit Two and review this for Mr. Nutter?

A Exhibit Two is a structural cross section from north to south, with north being on the right and south being on the left. The cross section extends from Peterson Penn Field north through an undesignated Penn well, through Peterson Mississippian Field, and on to the discovery well for Peterson Penn North Field.

All the wells on here are producers. The middle three, as you see on here, the Enserch Exploration No. 1 Finley, the Enserch Exploration No. 1 Radcliffe, and the Enserch Exploration Collier "A" 1 are the ones which are productive in the Mississippian.

The vertical scale on here is one inch to 100 feet. It's hung structurally on a -3000 subsea datum.

One thing to note on here, we have a pre-Penn unconformity, which is the wiggly line you see going

across the middle part.

Within this field there is Mississippian lime present here and the perforations are all marked on those three Mississippian wells. Their initial production potentials are at the top next to the well symbol. You will note that the Mississippian is absent in the Peterson Penn Field. And the main purpose of the exhibit is to establish that these wells are indeed productive in the Mississippian formation.

Q. Will Enserch call another witness to testify as to engineering considerations?

A. Yes.

Q. Do you have anything further to add to your testimony?

A. No.

Q. Were Exhibits One and Two prepared by you?

A. Yes.

MR. CARR: At this time, Mr. Nutter, we would offer into evidence Applicant's Exhibits One and Two.

MR. NUTTER: Exhibits One and Two will be admitted in evidence.

MR. CARR: I have nothing further of Mr. Brown on direct.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Now, Mr. Brown, apparently several of these wells that are completed in the Mississippian, or at least two of them, well, the second well is productive in the Lower Pennsylvanian but it is non-productive in the Upper Mississippian, is that it?

A. Which --

Q. That would be this Annie Harvey No. 1. They made a well in the Lower Cisco, apparently.

A. Yes.

Q. But it was non-productive in the Mississippian. Then --

A. That was a production decision. They decided that it was a better well in the Cisco than it was in the MIssissippian and they will return to that Mississippian production at some later date.

Q. You think you can make a small Mississippian --

A. Yes, we do.

Q. -- well in there. And then the next --

A. We chose not to dual the well.

Q. I see. And then the next well here

would be Finley No. 1, and there was no production in the Pennsylvanian on that well but the Mississippian was completed, is that it?

A. That's correct. We -- we attempted a completion in the Cisco but it was swabbed dry. There's no oil or gas.

Q. Then the next well, being the Radcliffe, is productive from the Pennsylvanian -- Mississippian, but no production tests shown here in the Pennsylvanian.

A. None to date.

Q. And the same applies to the next well on the exhibit, whatever it is.

A. Yes. Some of those wells may have production at a later date higher in the section.

Q. All right. Do you have plans for further drilling in the area?

A. Yes.

Q. Well now, according to your structure map here, you have two -- two highs, the Enserch Collier is on one and these other wells down here are on another. Do you think this is possibly two pools separated by a saddle through here?

A. Well, I think anything between them would be productive. I just -- just feel there's enough

difference in the two to -- to draw two separate circles but they could be connected very easily.

Q. Now I see a location in Section 29 called the Enserch Ivey No. 1. Is that well drilling by any chance?

A. Hopefully it will be drilling within the week.

Q. I see. So you do plan some infill drilling between these two -- between the Radcliffe and the Collier "A"?

A. Yes, both this year and next year.

MR. NUTTER: Are there any further questions of Mr. Brown?

He may be excused.

DANIEL C. RENOULT

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. My name is Daniel C. Renoult and I am residing in Midland, Texas.

Q. Mr. Renoult, by whom are you employed and in what capacity?

A. I'm employed by Enserch Exploration, Inc., as a District Petroleum Engineer.

Q. Have you previously testified before this Commission, had your credentials accepted and made a matter of record?

A. Yes, sir, I have.

Q. And you were qualified as what? Petroleum Engineer?

A. District Petroleum Engineer.

Q. Are you familiar with the application of Enserch in this case?

A. Yes, sir, I am.

Q. Are you familiar with the subject lands?

A. Yes, sir, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q. Mr. Renoult, have you prepared certain exhibits for introduction in this case?

A. Yes, sir, I have.

Q. Will you please refer to what has been marked as Enserch Exploration Exhibit Number Three, identify

this and explain what it shows?

A. Exhibit Number Three pertains to the Enserch Exploration, Inc., Finley Well No. 1. This well is a discovery well for the Peterson Mississippian Oil Pool in Roosevelt County, New Mexico.

No oil production from the Mississippian formation was reported in Roosevelt County prior to the completion of the Finley Well No. 1. Nearest oil production from the Mississippian formation was reported from only six wells in Lea County.

Mississippian oil production is present in one well in the Bar U Field 25 miles southwest from the proposed location; from one well in the Caprock Field 46 miles south; from one well in the Gladiola Field 57 miles southeast; and from three wells in the Bronco Field 57 miles southeast. The three wells in the Bronco Field are abandoned and Mississippian oil production has reached approximately 140,000 barrels of oil per well in that field.

The Enserch Exploration Finley Well No. 1 was perforated from 8250 feet through 8302 feet through three porosity stringers. The Mississippian formation was acidized with 15,000 gallons of MOD 202 acid. The well, which was potentialed at a rate of 116 barrels oil per day with a gas/oil ratio of 1827-to-1 is currently shut-in awaiting on

connection to low pressure gas gathering system.

Production history on open hole logs, consisting of a Formation Density Compensated Neutron Log, Dual Laterlog,Microspherically Focused Log, and Sonic Log, through the Mississippian zone are included.

29 feet with an average porosity of 17 percent and an average water saturation of 48 percent were perforated in this well.

Q. Will you now refer to Enserch Exhibit Number Four?

A. Exhibit Number Four pertains to the Enserch Exploration, Inc., Radcliffe Well No. 1. This well is located in Section 32, approximately 3000 feet from the Enserch Finley Well No. 1.

The Enserch Exploration Radcliffe Well No. 1 was perforated through two porosity stringers from 8173 feet to 8212 feet. The well was acidized with 44,000 gallons of MOD 202 acid.

The well, which was potentialed at a rate of 20 barrels oil per day with a gas/oil ratio 1000-to-1 is currently shut-in awaiting on connection to a low pressure gas gathering system.

Production history on open hole logs, consisting of a Formation Density Compensated Neutron Log, a

Dual Laterolog, Microspherically Focused Log, through the Mississippian zone are included in this exhibit.

16 feet with an average porosity of 20 percent and an average water saturation of 40 percent were perforated in this well.

Q. Mr. Renoult, in regard to the stimulation treatment on this well, the well was acidized with how many gallons?

MR. NUTTER: 44,000.

A. 44,000 gallons of MOD 202.

Q. Will you now refer to Enserch Exhibit Number Four -- Number Five?

A. Exhibit Number Five pertains to Enserch Exploration, Inc., Collier "A" Well No. 1. This well is located in Section 28, approximately 10,000 feet northeast of the discovery Finley Well No. 1.

The Enserch Exploration Collier "A" Well No. 1 was perforated through one porosity interval from 7986 feet to 8001 feet.

The well was acidized with 5500 gallons of 15 percent nonemulsifying hydrochloric acid.

The well, which was potentialed flowing at a rate of 101 barrels oil per day with a gas/oil ratio of 1188-to-1, is currently shut-in awaiting on connection to

a low pressure gas gathering system.

Production history and open hole logs consisting of a Formation Density Compensated Neutron Log, Dual Laterolog, Microspherically Focused Log, and Sonic Log, are included in this exhibit.

Cycle skipping indicated on the Sonic Log shows a zone from 7986 feet to 8001 feet is the evidence of secondary porosity and fractures through the Mississippian pay interval in this well.

15 feet with an average porosity of 8 percent and an average water saturation of 76 percent were perforated in this well.

Q. Will you now review Exhibit Number Six?

A. Exhibit Number Six pertains to the Enserch Exploration, Inc., Harvey Well No. 1. This well is located in Section 6, approximately 3000 feet southwest of the Enserch Finley Well No. 1.

The Enserch Exploration Harvey Well No. 1 was perforated through two porosity stringers from 8244 feet to 8256 feet. The well was acidized with 5000 gallons of 15 percent non-emulsifying hydrochloric acid.

The well was tested at an estimated rate of 55 barrels of oil per day with a good show of gas. The well was eventually recompleted up-hole through the most pro-

lific Penn detrital sand, which was potentialed at a rate of 243 barrels oil per day.

The well is currently shut-in awaiting connection to a low pressure gas gathering system.

Open hole logs, consisting of a Dual Laterolog, Microspherically Focused Log, Formation Density Compensated Neutron Log, Sonic Log, and a wave train display are included in this exhibit.

Separation and breaking of the sheer wave arrivals (sic) through the pay zone from 8244 feet to 8256 feet is the evidence of secondary porosity and fractures through the Mississippian pay interval.

8 feet, with an average porosity of 40 percent and an average water saturation of 50 percent were tested through the Mississippian formation in this well.

Q Will you please review Exhibit Number Seven?

A. Exhibit Number Seven pertains to Enserch Exploration, Inc., Terry Well No. 1. This well is located in Section 5, approximately 1420 feet east from the discovery Finley Well No. 1.

The Enserch Exploration Terry Well No. 1 was selectively perforated from 8186 feet to 8231 feet. The fracture acidizing treatment to provide deeper penetration of

the acid and allow for better production increases was conducted. This fracture acidizing and stimulation treatment consisted of 40,000 gallons of 15 percent non-emulsifying iron sequestrine hydrochloric acid, 24,400 pounds of 100-mesh sand, and 34,000 pounds of 20/40 mesh sand. The total cost for the fracture acidizing stimulation treatment run amounted to $73,000.

The well was potentialed at the rate of 58 barrels oil per day with a gas/oil ratio of 1207-to-1.

The well is currently shut-in awaiting a connection to low pressure gas gathering system.

Production history and open hole logs, consisting of Formation Density Compensated Neutron Log, and Dual Laterolog, through the Mississippian pay zone are included in this exhibit.

25 feet with an average porosity of 9 percent and a water saturation of 45 percent were perforated through the Mississippian formation in this well.

Q. Will you now review Exhibit Number Eight?

A. Exhibit Number Eight pertains to Enserch Exploration, Inc., Collier Well No. 1. This well is located in Section 29, approximately 11,000 feet northeast of the discovery Finley Well No. 1.

The Collier Well No. 1 was selectively

perforated through two porosity stringers from 8074 feet to 8096 feet.

The Collier Well No. 1 was acidized with 5500 gallons of MOD 101 acid. The well was tested at an approximate rate of 45 barrels of oil per day with a good show of gas.

Open hole logs, consisting of a Formation Density Compensated Neutron Log and Dual Laterolog, Spherically Focused Log, are attached with this exhibit.

12 feet of Mississippian pay with an average porosity of 18 percent and an average water saturation of 30 percent were perforated in this well.

Enserch Exploration, Inc., is currently testing the Penn detrital sand in this well.

Q. Now, Mr. Renoult, you've provided well completion data on each of the six Mississippian oil wells in the area, is that correct?

A. Yes, sir.

Q. Will you now refer to your well data sheet, which is marked Exhibit Nine, and review this for Mr. Nutter?

A. Exhibit Number Nine is a tabulation and summary of the reservoir characteristics of the Mississippian pay present in the Peterson Pool in Roosevelt County, New

Mexico.

To date six wells were tested or are completed through the Mississippian formation in the subject field. An average Mississippian pay of 16 feet with an average 14 percent porosity and 41 percent water saturation is present in the subject pool.

The average initial production rate of these six wells is equal to 66 barrels oil per day.

The four wells which are currently completed through the Mississippian zone were potentialed at an average rate of 74 barrels oil per day per well. The oil produced has an API gravity of 41.4. The average gas/oil ratio is equal to 1305-to-1.

The average royalty and override burden under the Enserch acreage is equal to 17 percent.

Q. Will you now refer to your volumetric calculations, being Enserch Exhibit Number Ten, and review this for Mr. Nutter?

A. Exhibit Number Ten gives some volumetric calculations to compute the original oil in place and the oil recoverable from under an 80-acre lease.

The average reservoir characteristics of the first six Mississippian oil wells drilled by Enserch Exploration in the Peterson Pool were used in this exhibit.

An average pay thickness of 16 feet with an average porosity of 14 percent and an average water saturation of 41 percent indicated that 506,500 barrels of oil are originally in place under an 80-acre lease.

A recovery factor of 15 percent indicated that 76,000 barrels of oil could be recovered and produced from under an 80-acre lease in the subject pool.

Q. Will you now review your Exhibit Number Eleven?

A. Exhibit Number Eleven gives the production history and forecast anticipated for the average Mississippian oil well in the Peterson Pool, Roosevelt County.

Oil production from the Mississippian formation was inexistent in Roosevelt County, New Mexico, until Enserch Exploration drilled its Finley Well No. 1. Based on the oil production history of the few Mississippian oil wells drilled in Lea County, a 20 percent yearly decline rate was used over a 10-year life. An initial average rate of 66 barrels of oil per day was experienced by the six Enserch Exploration wells drilled in the Peterson Mississippian Pool.

Based on this rate of 66 barrels oil per day and following a 20 percent decline rate, recoverable oil reserves from an average Mississippian well in the subject

pool will amount to 85,000 barrels of oil.

The previous exhibit indicated that 76,000 barrels of oil could be recovered and produced from under an 80-acre lease. This exhibit indicates that the average well will drain more than 80 acres. In fact, over a 10-year life the average well in the subject pool will drain 9000 barrels of oil from offset leases.

Page two of Exhibit Number Eleven is a tabulation of the yearly production anticipated for the average Mississippian oil well drilled by Enserch Exploration, Inc., in the Peterson Pool. After a 10-year production life the average well will recover 85,000 barrels of oil and 110,900 Mcf of casinghead gas.

Q. Will you now refer to Exhibit Twelve, identify this, and explain what it shows?

A. Exhibit Twelve gives the drainage area based on the anticipated production schedule provided in the previous exhibit for an average Mississippian oil well in the subject pool.

As indicated on page two of this exhibit, it will take less than 2-1/2 years for the average well to drain 40 acres. Complete drainage of the entire 80 acres will occur after less than seven years of production.

After a 10-year life the average Missis-

sippian oil well in the subject pool would have drained 9000 barrels of oil from offset leases. After 10 years production the average well will have drained 90 acres.

Q Will you now refer to Exhibit Thirteen, identify this, and explain what it shows?

A Exhibit Number Thirteen gives the length of fracture created during the fracture acidizing, stimulation treatment conducted by Dowell ; Company on the Enserch Exploration Terry Well No. 1.

At this time this is the only well where this type of stimulation treatment has been performed. The treatment consisted of 40,000 gallons of 15 percent non-emulsifying iron sequestrine hydrochloric acid, 24,400 pounds of 100-mesh sand, and 34,000 pounds of 20/40-mesh sand.

The results of this stimulation treatment is listed on page two of this exhibit.

The acid concentration along the length of fractures on page one of this exhibit the total fracture length is equal to 1430 feet. This would correspond to 148 acres. The acid is effective from the wellbore to 1100 feet from the wellbore. This acid -- this would correspond to 87 acres.

Dowell Company indicated that this treatment was designed to generate a 6.74 increase in initial

oil production.

The total cost of this fracture acidizing and stimulation treatment amounted to $73,000.

Q. Mr. Renoult, will you now review Exhibit Fourteen for Mr. Nutter?

A. Exhibit Number Fourteen gives the results of a drill stem test conducted through the Mississippian zone in the Enserch Exploration, Inc., Radcliffe Well No. 1.

A strong gas blow with gas to surface in five minutes were observed during the test.

Approximately 200 feet of oil and 420 feet of mud were recovered during this test.

An analysis of the final shut-in period of the drill stem test indicated a formation permeability of 1.14 millidarcy and a reservoir pressure of 2950 psi.

Q. Is this the only reliable drill stem test on any of the wells, Mississippian wells in the area?

A. Yes, sir.

Q. Will you now refer to Exhibit Number Fifteen and review this for Mr. Nutter?

A. Exhibit Number Fifteen is a comparative economic evaluation based on one well per 80-acre or two wells per 80-acre are presented in this exhibit.

The average well cost to drill and com-

plete an 8300-foot Mississippian oil well in the Peterson Pool is equal to $863,800. This cost doesn't include the cost to conduct large fracturing acid treatment, as performed on the Enserch Exploration Terry Well No. 1.

Total production was assumed to be 85,000 barrels of oil. This production implies that some drainage from offset leases would happen.

Based on a current oil price of $35.00 per barrel, one well per 80-acre lease will generate a net present worth, or net profit to Enserch, of $188,000. This profit corresponds to a present worth index of 1.26. This means that for each dollar invested Enserch will get in return $1.26.

If two wells were drilled on an 80-acre lease, Enserch Exploration will make a net loss of $325,000. A present worth index of .77 was generated indicating that for each dollar invested Enserch would get in return only 77 cents.

This would result in a net loss of 23 cents for each dollar invested.

The computer input and output for each case are attached on page two and three of Exhibit Number Fifteen.

Q. Mr. Renoult, do you have a recommendation

to make to the Examiner concerning the spacing of wells in the Peterson Mississippian Pool?

A. It is requested that the Oil Conservation Division of New Mexico approve the application of Enserch Exploration, Inc., to adopt temporary special pool rules allocating 80 acres per well drilled in the Peterson Mississippian Pool, Roosevelt County.

Q. And on each of these 80-acre spacing units where should the wells be located?

A. The wells should be located within 150 feet from the center of a quarter quarter governmental section.

Q. Are the wells that are currently drilled in this pool spaced so as to conform with this spacing recommendation?

A. Yes, sir, they are.

Q. In your opinion would granting this application avoid the drilling of unnecessary wells?

A. Yes, sir, it will.

Q. Will granting the application reduce the risk that would result from drilling an excessive number of wells in the pool?

A. Yes, sir, it will.

Q. I believe you indicated that all the wells in the pool are currently shut-in, is that correct?

A. Yes, sir, the wells are shut-in. Enserch Exploration, Inc., got a shut-in order from the Oil Conservation Division of New Mexico and we are in the process of building a low pressure gas gathering system in this field.

Q. For what period of time are you requesting temporary pool rules?

A. We requested that Enserch Exploration's application be approved by the Oil Conservation Division and granted for a period of 18 months.

Q. Would this 18 months run from the date of the order or from the date of first sale?

A. From the date of the order.

Q. In that period of time how many wells do you anticipate Enserch will drill in this area?

A. At this point we have drilled six wells in the Peterson Mississippian oil pcol. We are currently completing the Enserch Wilson Well No. 1 in Section 6. We are currently drilling the Enserch LaGrone Well No. 1 in Section 29.

MR. NUTTER: Which one?

A. LaGrone.

MR. NUTTER: Oh, yeah, okay.

A. Well No. 1 in Section 29.

We are planning to move our rig in the

next few weeks to the Ivey Well No. 1 and we have more than 20 wells budgeted for 1982 in the Peterson Mississippian Oil Pool.

MR. NUTTER: Now you're currently completing the Collier No. 1, too, aren't you?

A. We are testing the Collier No. 1 in the Penn detrital at this time.

MR. NUTTER: Do you think it's going to be completed in the Penn or in the Mississippian?

A. I don't know. I don't have a result of the Penn yet.

We are going to complete this well in the best zone first and then we'll recomplete the well in a --

MR. NUTTER: I think you had some data on the Mississippian for that well, though, didn't you?

A. Yes, sir, I did.

MR. NUTTER: One of these exhibits covered that. Don't bother, you did cover it?

A. Yes, sir.

MR. NUTTER: You did test the Mississippian already and now you're testing the Penn.

A. Yes, sir.

MR. NUTTER: Okay.

Q. Mr. Renoult, in your opinion will granting

this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir, it will.

Q. Were Exhibits Three through Fifteen prepared by you or under your direction and supervision?

A. Yes, sir, they were.

MR. CARR: Mr. Nutter, at this time we would offer into evidence Enserch Exhibits Three through Fifteen.

MR. NUTTER: Enserch Exhibits Three through Fifteen will be admitted in evidence.

MR. CARR: I have nothing further of Mr. Renoult on direct.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Renoult, you made your calculations of recoverable reserves in two different methods. First of all, you had your Exhibit Number Ten, which used the parameters off of Exhibit Number Nine, and you made a volumetric calculation showing 76,000 barrels per 80 acres of recoverable oil, correct?

A. Yes, sir.

Q. And then you went to Exhibit Number --

whatever --

A. Eleven, I suspect.

Q. To Exhibit Number Eleven and what did you do here, now? You took this production decline curve for the Bronco Mississippian Field and established that it had a 20 percent per year decline rate?

A. Yes, sir.

Q. And then you took your average --

A. Initial rate.

Q. -- production from your Mississippian wells at 66 barrels a day.

A. Yes, sir.

Q. And you declined that production at the same rate that the Bronco Mississippian had declined.

A. Yes, sir.

Q. Or 20 percent per year?

A. Yes, sir.

Q. And then you came up with your recoverable reserves of 85,000.

A. Yes, sir.

Q. So the similarity between 76,000 and 85,000 indicates that you probably would have a decline rate in the neighborhood of 20 percent, similar to --

A. Yes, sir.

Q -- the other Mississippian Pool.

Now what has the other Mississippian Pool recovered? Early in your testimony you mentioned that three wells were now abandoned in that, and what were their total recoveries?

A. The total average recovery from the Bronco Field is equal to approximately 140,000 barrels of oil per well.

We have three more wells in Lea County which are still producing from the Mississippian zone, but I don't know what will be their ultimate reserves since they are still producing.

In Roosevelt County when these three wells were completed in the Mississippian and have been abandoned, they are all located in the Bronco Field.

Q. Well now, if these wells had a 20 percent decline and recovered an average of 147,000 barrels, they must have started off with a higher initial potential, then.

A. Yes, sir.

Q. Than your wells are.

A. Yes, sir. I just have the production from one well of this field. On Exhibit Number Eleven, that's the production from the Amerada Petroleum Corporation LW Wood Well No. 1. The average initial production of this well was

equal to approximately 2800 barrels of oil per month, whereas the average initial oil production for the Enserch wells is equal to approximately 2000 barrels oil per month.

That's why they recovered more oil than we anticipate to recover.

Q. Is that -- is that curve there --

A. Yes, sir.

Q. -- a 20 percent decline curve?

A. Yes, sir.

Q. And that's one well in the pool.

A. Yes, sir. And we have two more wells in this pool.

Q. You didn't -- you didn't have the curves for those wells.

A. No, I don't have them, yet.

Q. But they had similar declines?

A. Yes, sir.

Q. And the average was 20 percent per year.

A. Yes, sir.

Q. Okay. Now on your Exhibit Number Fifteen, Mr. Renoult, you, in making this comparison of production, you figured that one well on 80 acres would recover 85,000 barrels.

A. Yes, sir.

Q. And you figured that each well on 40 acres would also recover 85,000 barrels, Didn't you?

A. No, sir.

Q. Sure you did.

A. I -- in the first I estimate one well will recover 85,000 barrels. In the second case, I assume that two wells will -- will recover the same amount of oil.

Q. Okay, so the 85,000 on page two of Exhibit Fifteen, the 85,000 is divided between the two wells. This is not the per well production, because you still have the same 85,000 barrels that's going to be recovered.

A. On page three I have --

Q. Or page three, I'm sorry.

A. -- I have 85,000 barrels for two wells, yes, sir.

Q. So each well would make -- assuming each well made half of it, it would be 42,000 barrels each well would make.

A. Yes, sir.

MR. NUTTER: Are there any further questions of the witness?

MR. CARR: No further questions.

MR. NUTTER: He may be excused. Do you have anything further, Mr. Carr?

MR. CARR: Nothing further, Mr. Nutter.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7321?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7921, heard by me on 8/12 19 81.

, Examiner
Oil Conservation Division

WELL COMPLETION FORM

ENSERCH EXPLORATION, INC. - FINLEY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8236' (-3720') KB = 4516'

Perforated Production Interval: 8250'-8254' (1 JSPF)
8265'-8269' (1 JSPF)
8281'-8302' (1 JSPF)

Stimulation Treatment: Spotted 100 gallons of 15% MCA acid
Acidized with 5000 gallons MOD 202 acid (2-1-81)
Dropped 20 RCN ball sealers
Flushed with 35 gallons 2% KCl water
Re-acidized with 10,000 gallons MOD 202 acid (2-6-81)
Flushed with 38 gallons 2% KCl water

Initial Potential Test:

Date of Test: 4-19-81 (Pumping)

116 BOPD + 23 BWPD + 212 MCFPD

GOR = 1827:1

Current Status: Shut-in awaiting gas line connection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 3
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 3
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Finley Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981	9	1563	2023	355	1294	18
05/1981	31	1252	5411	90	4321	7
06/1981	Well shut-in awaiting gas line connection					
07/1981	Well shut-in awaiting gas line connection					
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	40	2815	7434	445	2641	14

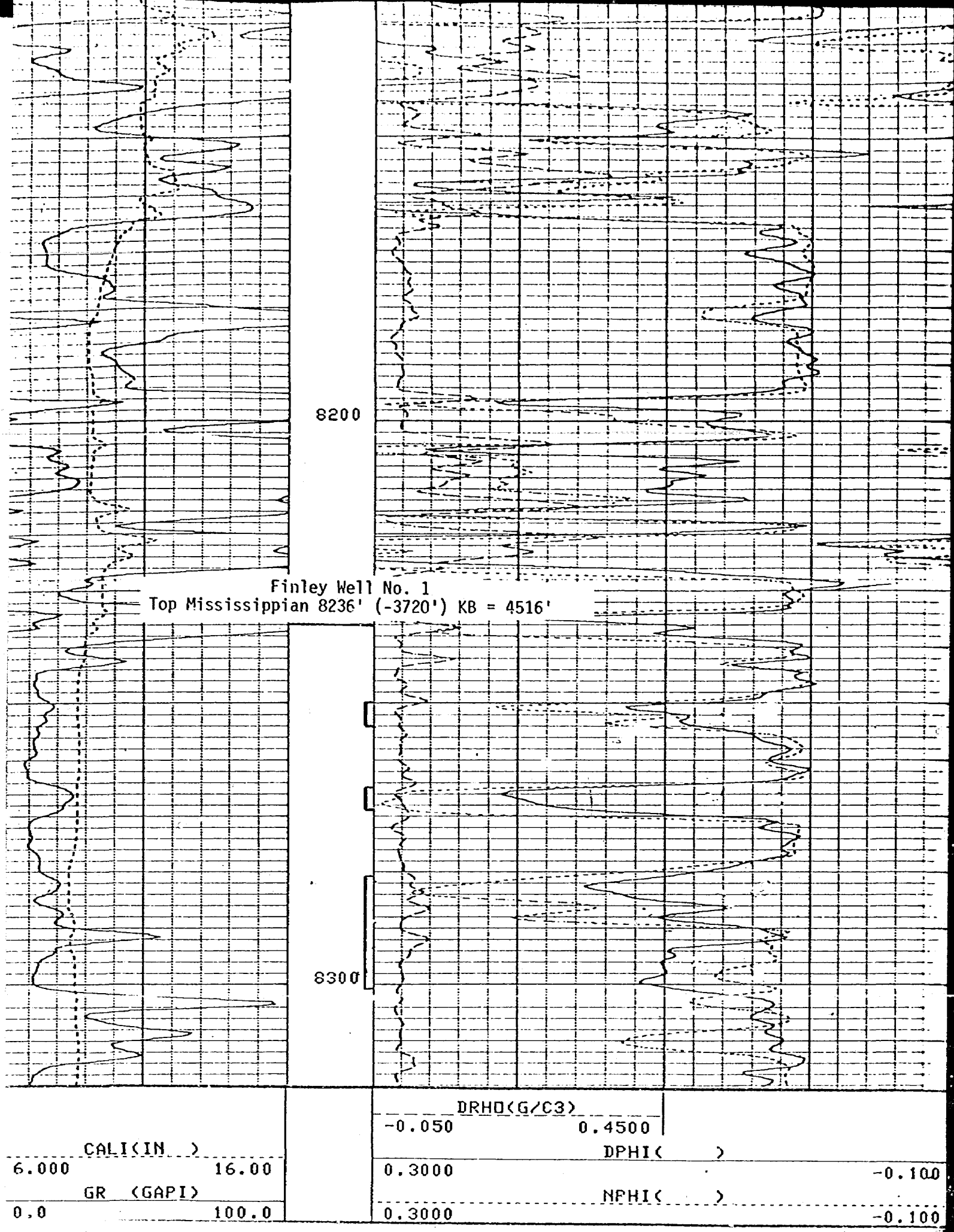
PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
FINLEY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

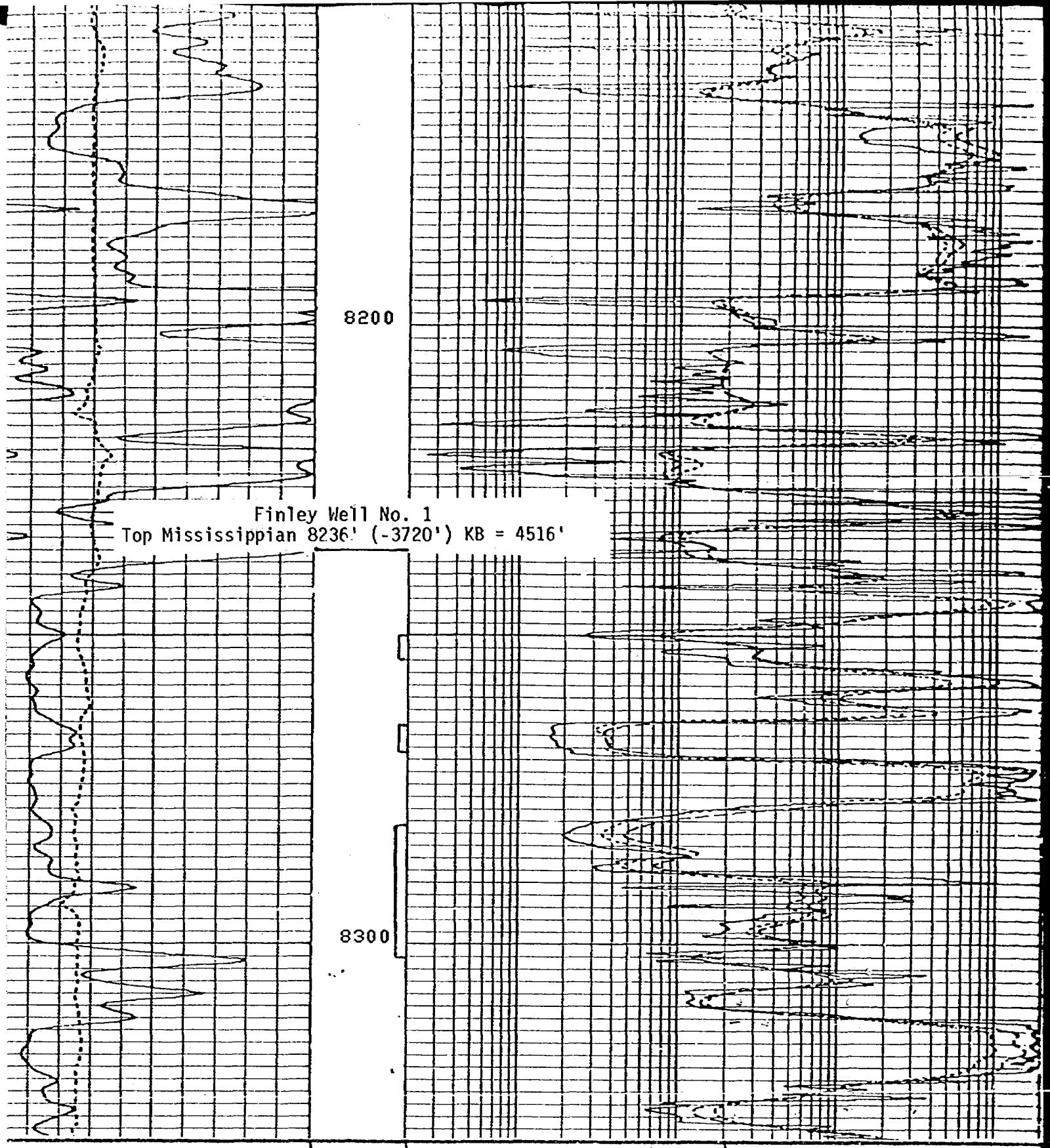
Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2 10^3 9 8 7 6 5 4 3 2 10^2 9 8 7 6 5 4 3 2 10

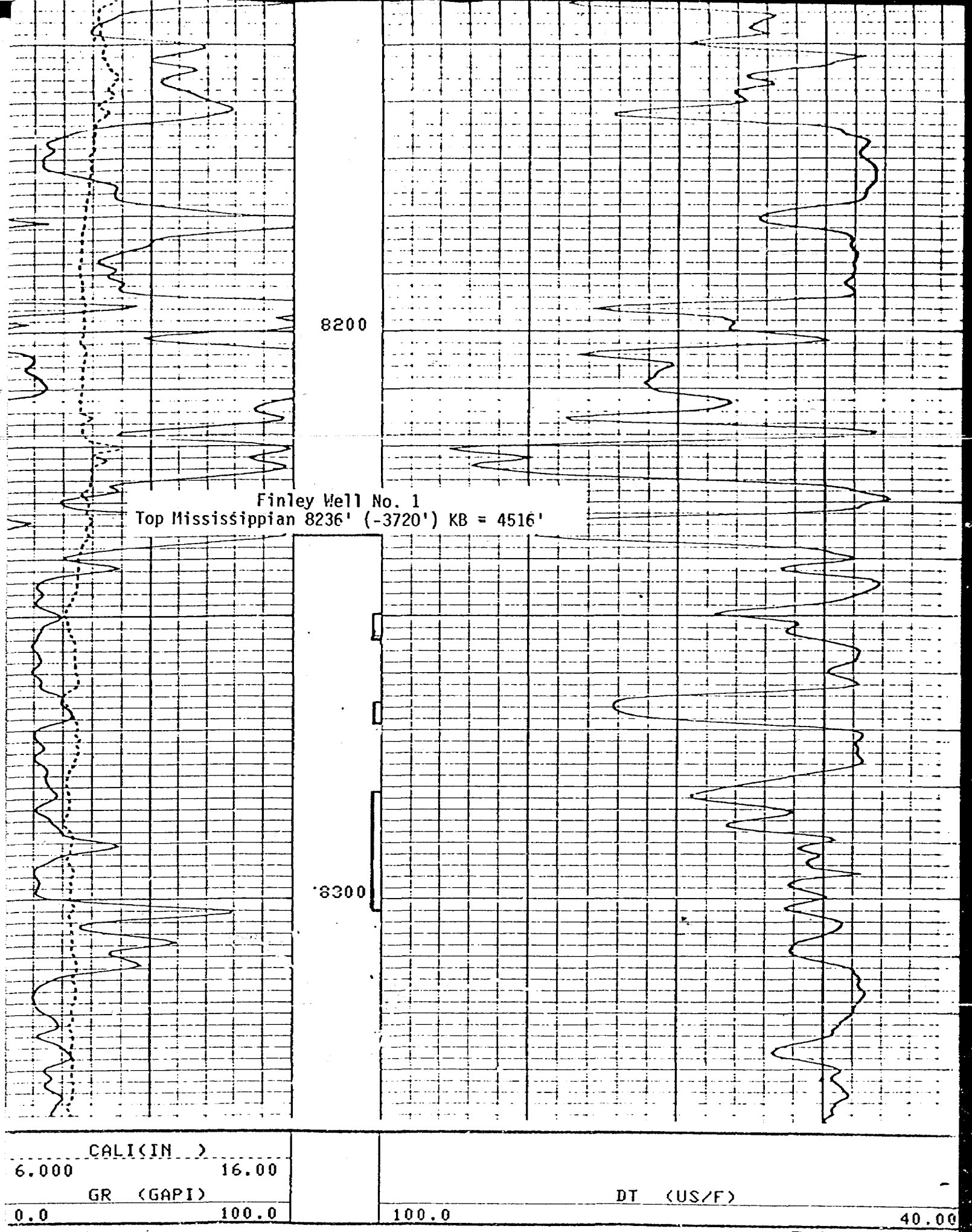
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

19 81 | 19 82 | 19 83 | 19 84 | 19 85


8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
DRHO(G/C3)
-0.050
0.4500
DPHI( )
0.3000
-0.100
NPHI( )
0.3000
-0.100
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0



		LLD (OHMM)
		2000. 200000
		MSFL(OHMM)
		0.2000 2000.
CALI(IN)		LLS (OHMM)
6.000 16.00		0.2000 2000.
GR (GAPI)		LLD (OHMM)
0.0 100.0		0.2000 2000.


8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DT (US/F)
100.0
40.00

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - RADCLIFF WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8146' (-3700') KB = 4446'

Perforated Production Interval: 8173'-8181' (2 JSPF)
8204'-8212' (2 JSPF)

Stimulation Treatment: Acidized with 4000 gallons MOD 202 acid (3-27-81)
Dropped 14 RCN ball sealers
Re-acidized with 10,000 gallons MOD 202 acid (4-2-81)
Dropped 24 RCN ball sealers
Re-acidized with 30,000 gallons 70 Quality MOD 202 acid (4-14-81)
Dropped 25 RCN ball sealers

Initial Potential Test:

Date of Test: 5-6-81 (pumping)

20 BOPD + 26 BWPD + 20 MCFPD

GOR = 1000:1

Current Status: Shut-in awaiting gas line connection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 4
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 4
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Radcliff Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981	8	146	140	130	958	47
06/1981	8	129	124	89	961	41
07/1981	Well shut-in awaiting gas line connection					
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	16	275	264	219	960	44

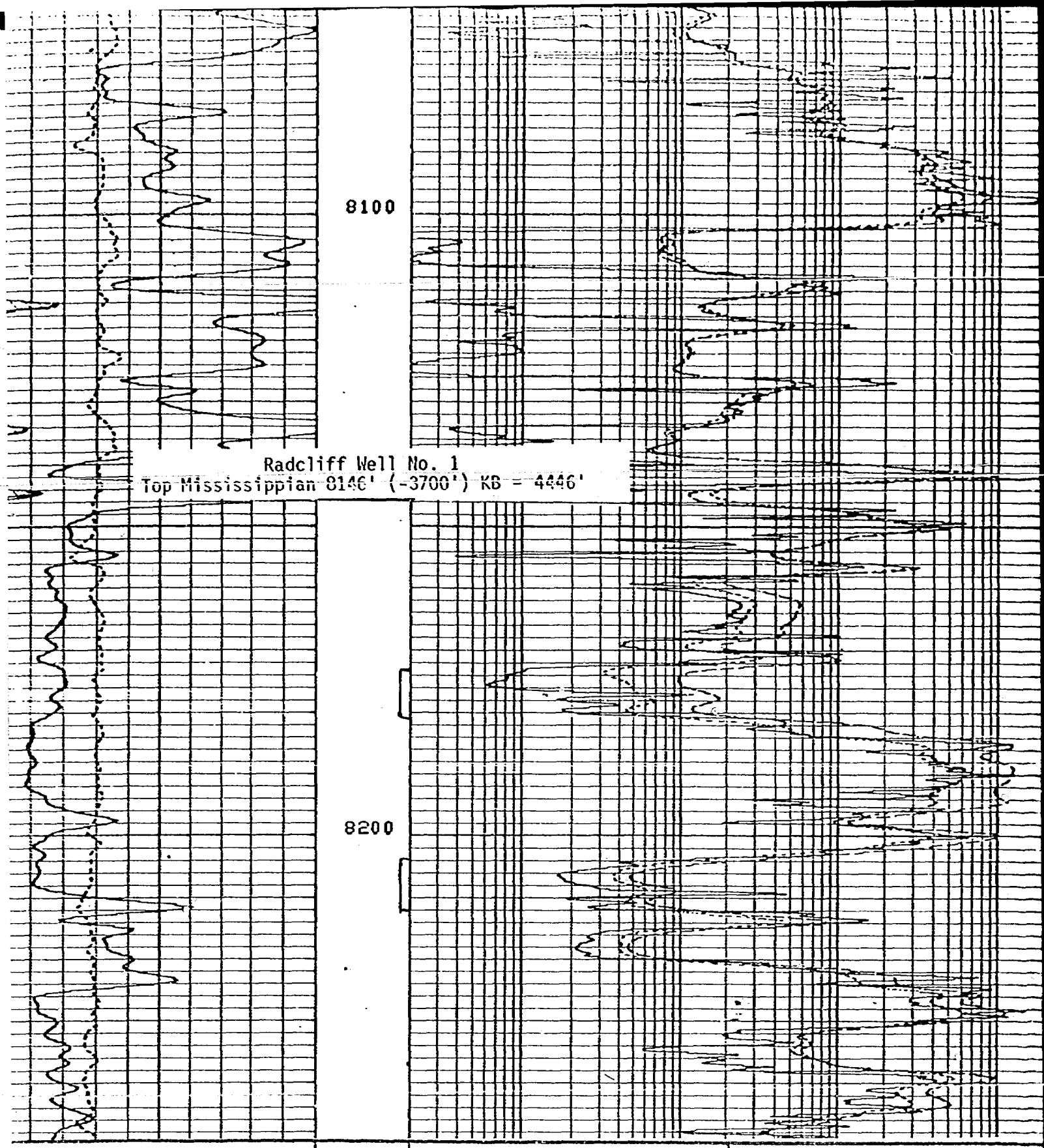
PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
RADCLIFF WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

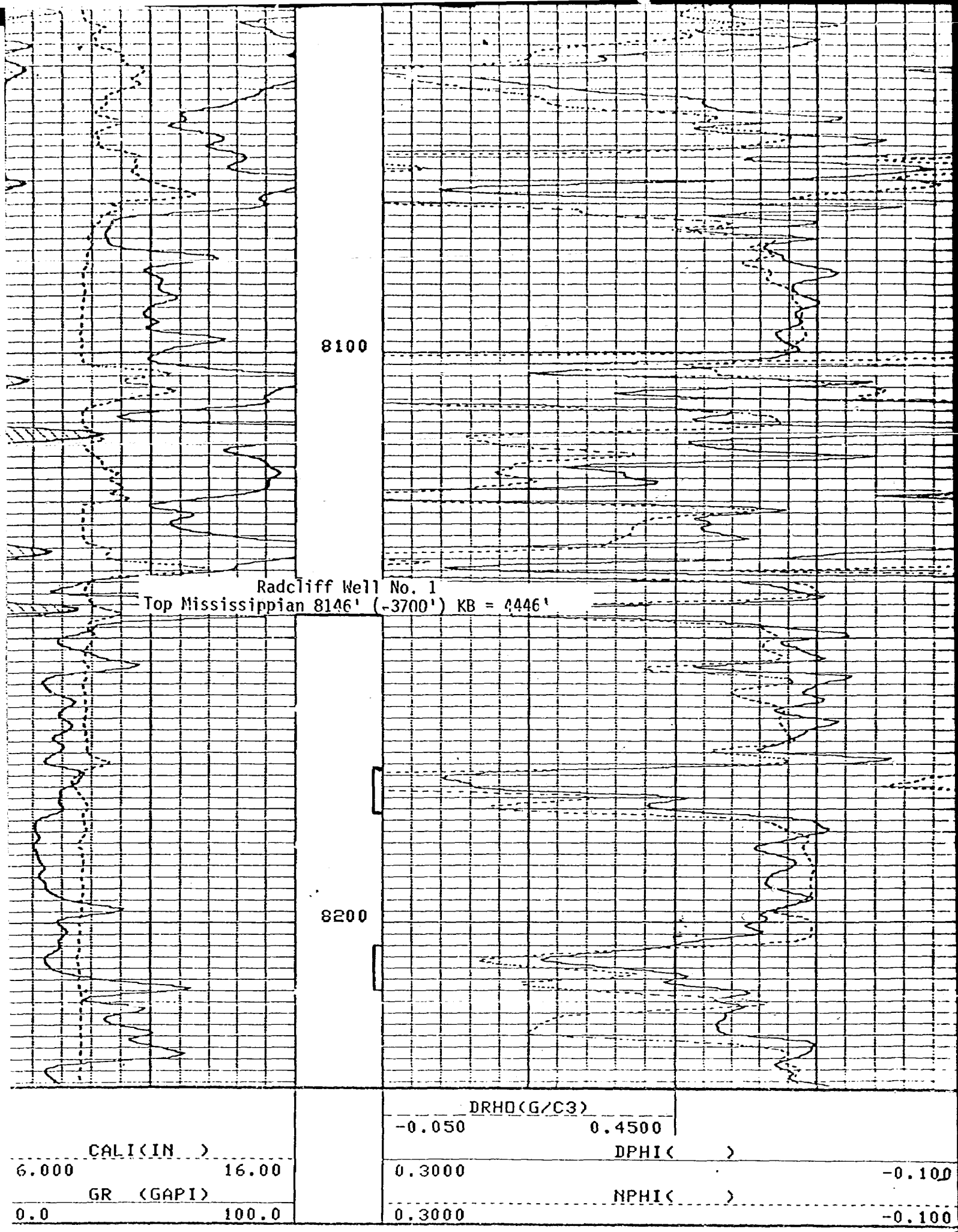
Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2 10^3 9 8 7 6 5 4 3 2 10^2 9 8 7 6 5 4 3 2 1

Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.

1981 | 1982 | 1983 | 1984 | 1985


8100
Radcliff Well No. 1
Top Mississippian 8146' (-3700') KB = 4446'
8200
LLD (OHMM)
2000.
200000
MSFL(OHMM)
0.2000
2000.
CALI(IN)
6.000
16.00
LLS (OHMM)
0.2000
2000
GR (GAPI)
0.0
100.0
LLD (OHMM)
0.2000
2000.


8100
8200
Radcliff Well No. 1
Top Mississippian 8146' (-3700') KB = 4446'
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DRHO(G/C3)
-0.050
0.4500
DPHI( )
0.3000
-0.100
NPHI( )
0.3000
-0.100

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - COLLIER "A" WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 7972' (-3619') KB = 4353'

Perforated Production Interval: 7986'-8001' (2 JSPF)

Stimulation Treatment: Spotted 150 gallons 15% MCA acid (5-2-81)
Acidized with 5500 gallons 15% NE FE HCl acid
Dropped 22 RCN ball sealers

Initial Potential Test:

Date of Test: 6-5-81 (Flowing)

101 BOPD + 7 BWPD + 120 MCFPD

GOR = 1188:1

Current Status: Shut-in awaiting gas line connection.

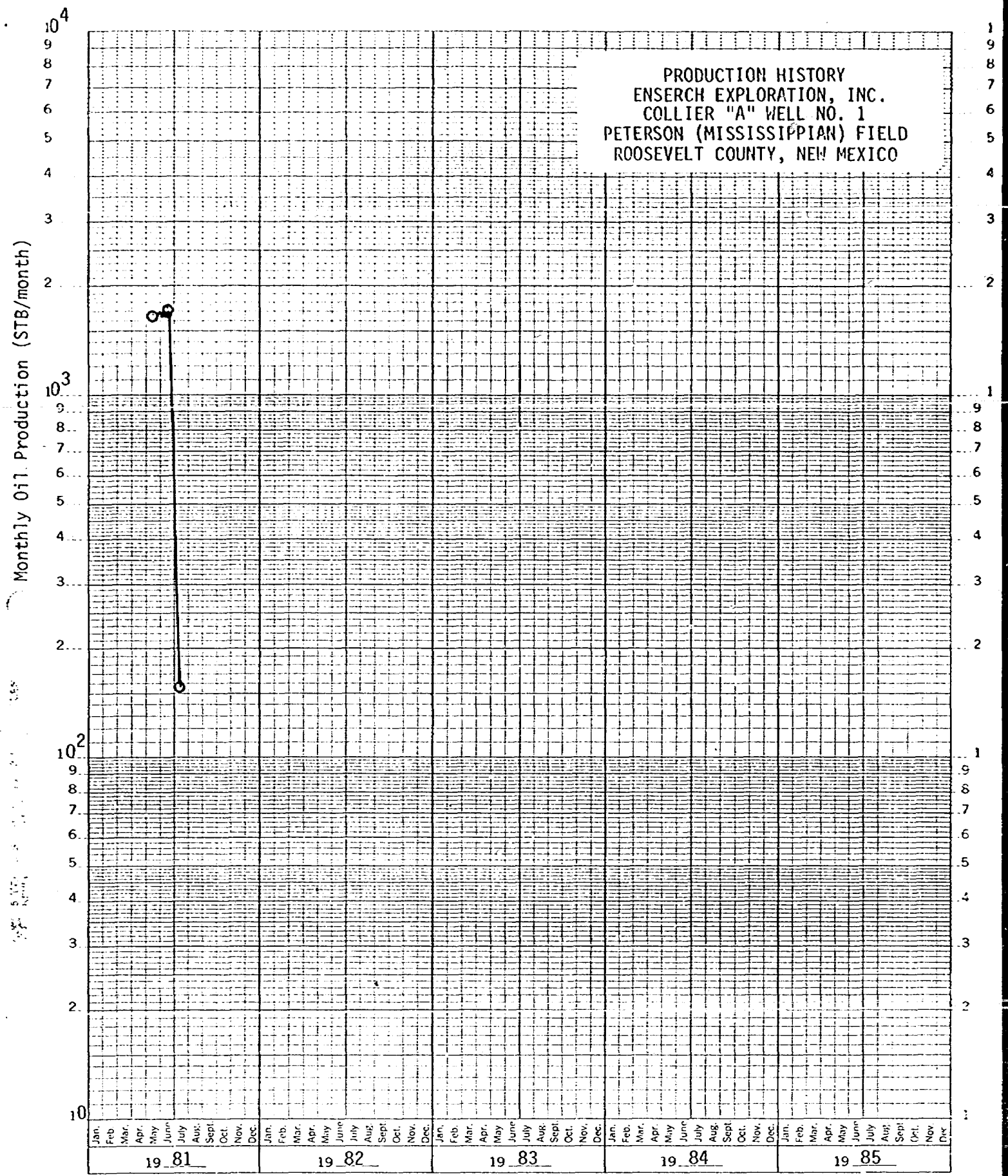
BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 5
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 5
Date August 12, 1981

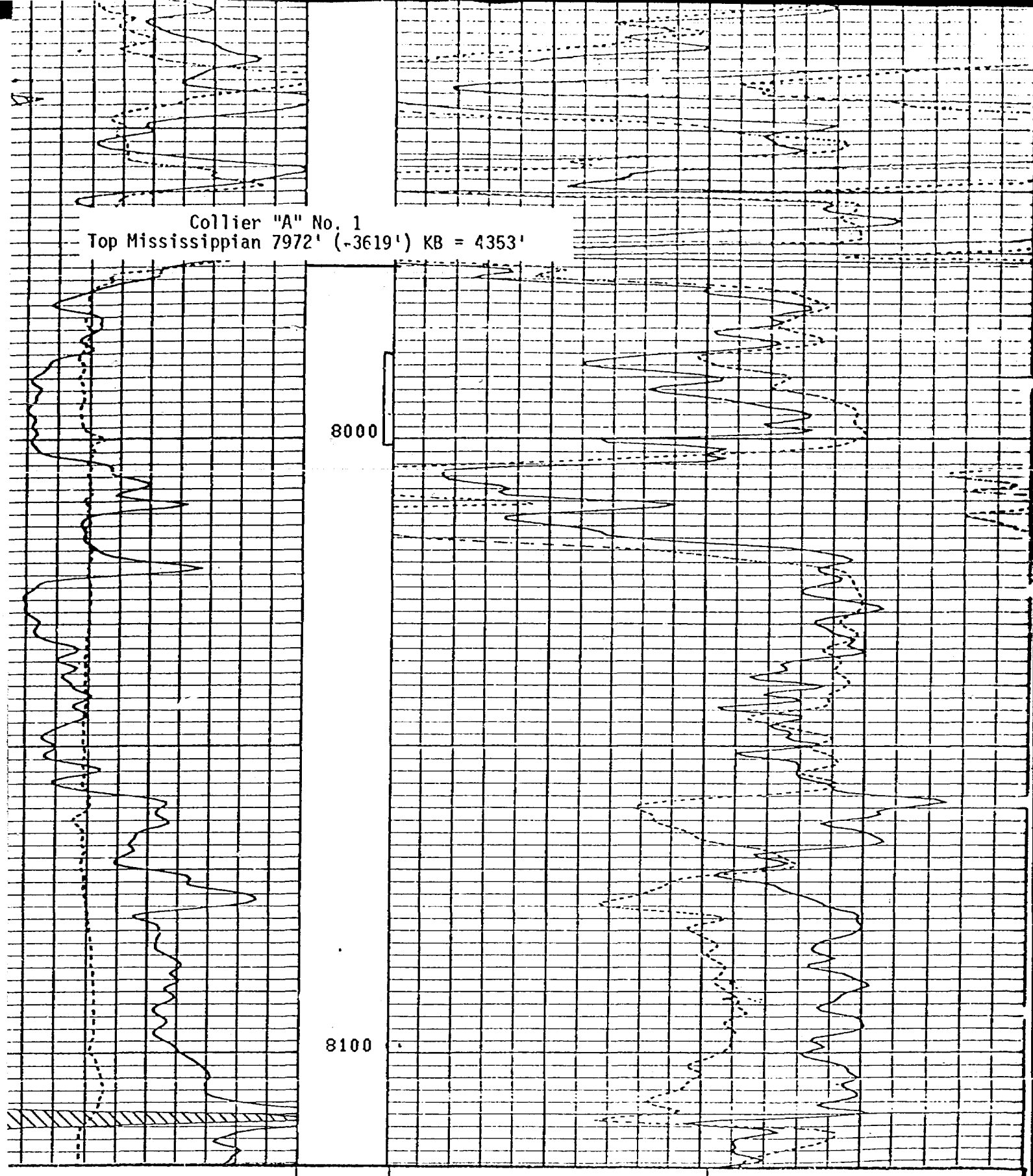
PRODUCTION HISTORY
Enserch Exploration, Inc.
Collier "A" Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981	23	1695	3476	9	1460	0
06/1981	30	1726	2513	27	1456	0
07/1981	3	157	322	0	2051	0
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	56	3078	6311	36	2050	0

07/1981: Production runs

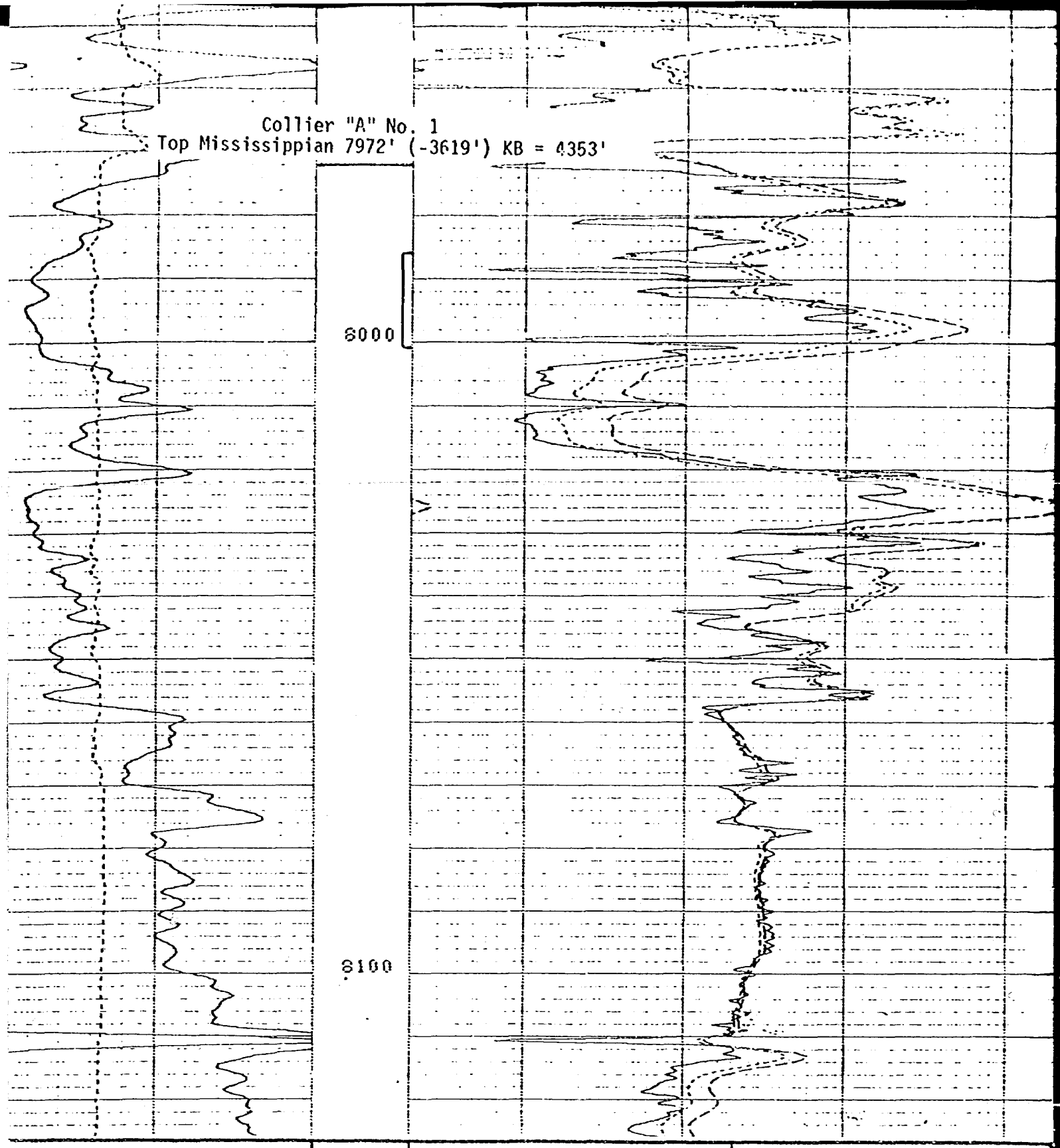

PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
COLLIER "A" WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
Monthly Oil Production (STB/month)
10^4
10^3
10^2
10
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
19 81
19 82
19 83
19 84
19 85

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'



CALI(IN)		DRHO(G/C3)	
.000	16.00	-0.050	0.4500
GR (GAPI)		DPHI( )	
.0	100.0	0.3000	-0.100
		NPHI( )	
		0.3000	-0.100

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'



		LLD (OHMM)
		2000. 200000
		MSFL(OHMM)
		0.2000 2000.
CALI(IN)		LLS (OHMM)
6.000 16.00		0.2000 2000.
GR (GAPI)		LLD (OHMM)
0.0 100.0		0.2000 2000.

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'

8000

8100

GR (GAPI)		
100.0		200.0
CALI(IN)		
6.000		16.00
GR (GAPI)		
0.0		100.0

DT (US/F)	
100.0	40.00

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - A. HARVEY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8226' (-3703') KB = 4523'

Perforated Production Interval: 8244'-8248' (1 JSPF)
8252'-8256' (1 JSPF)

Stimulation Treatment: Acidized with 5000 gallons of 15% NE FE HCl acid
(7-14-81)
Dropped 8 ball sealers

Initial Potential Test:

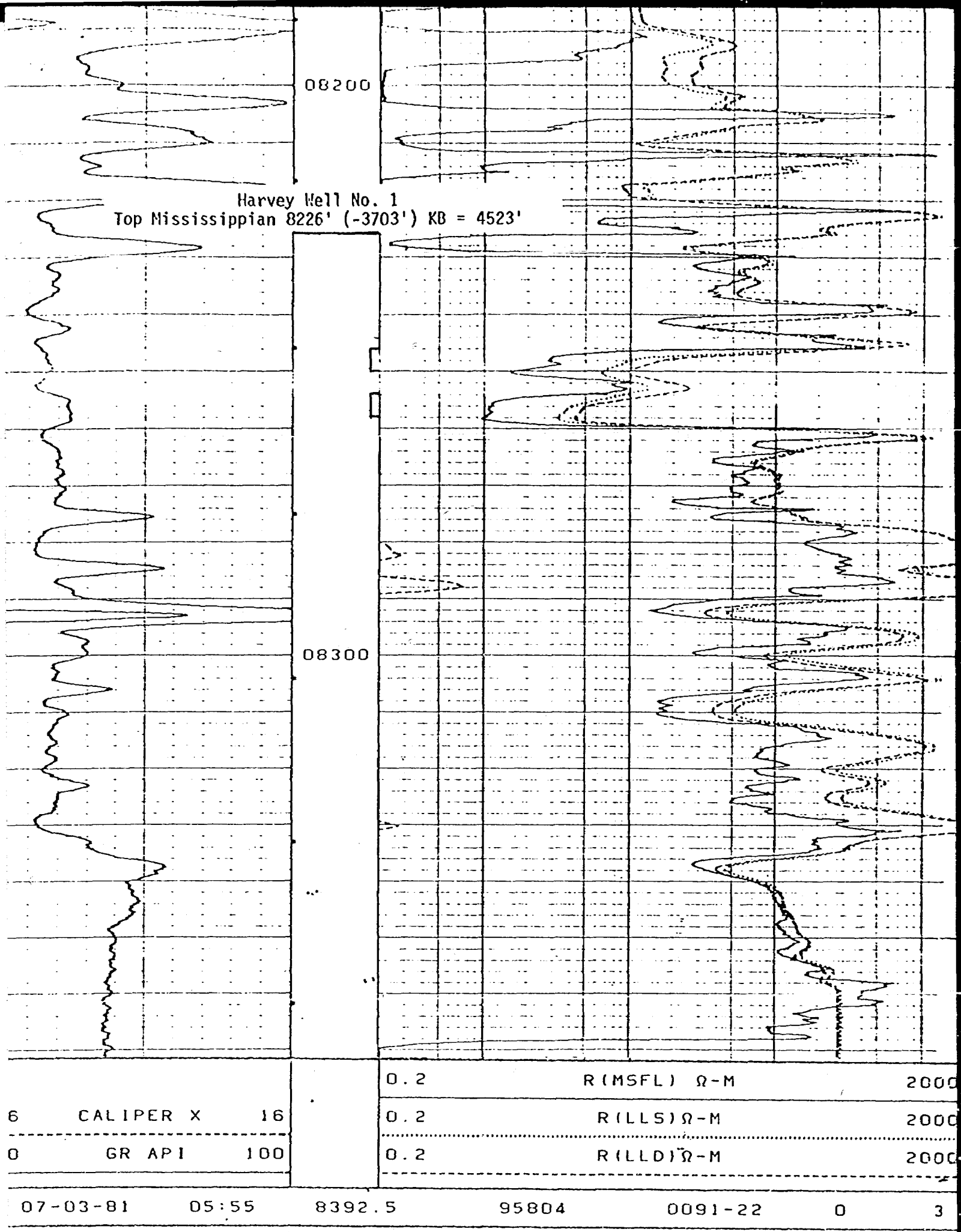
Date: 7-16-81 (Swabbed 7 hours)

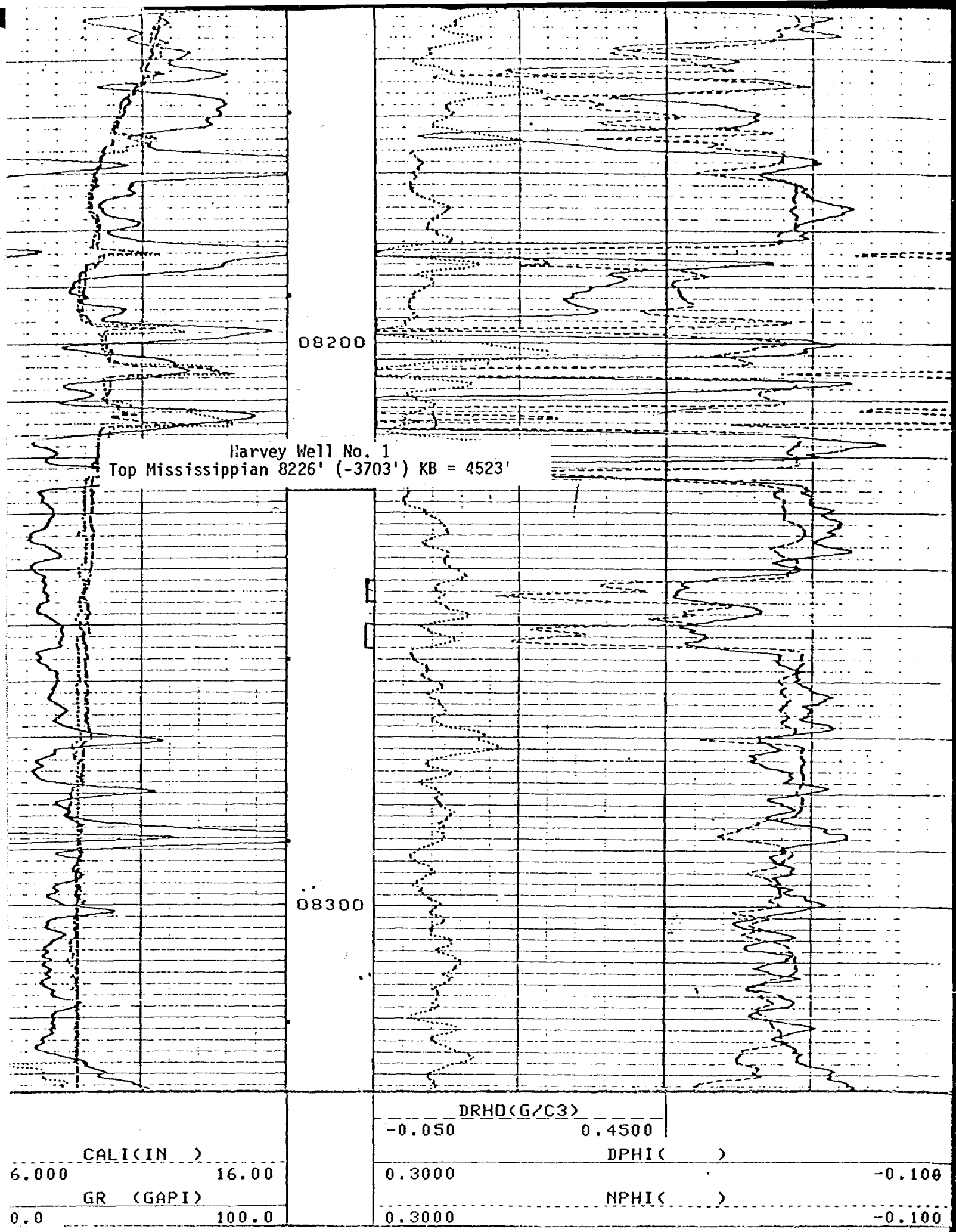
55 BOPD + 86 bbls spend acid water + good show of gas

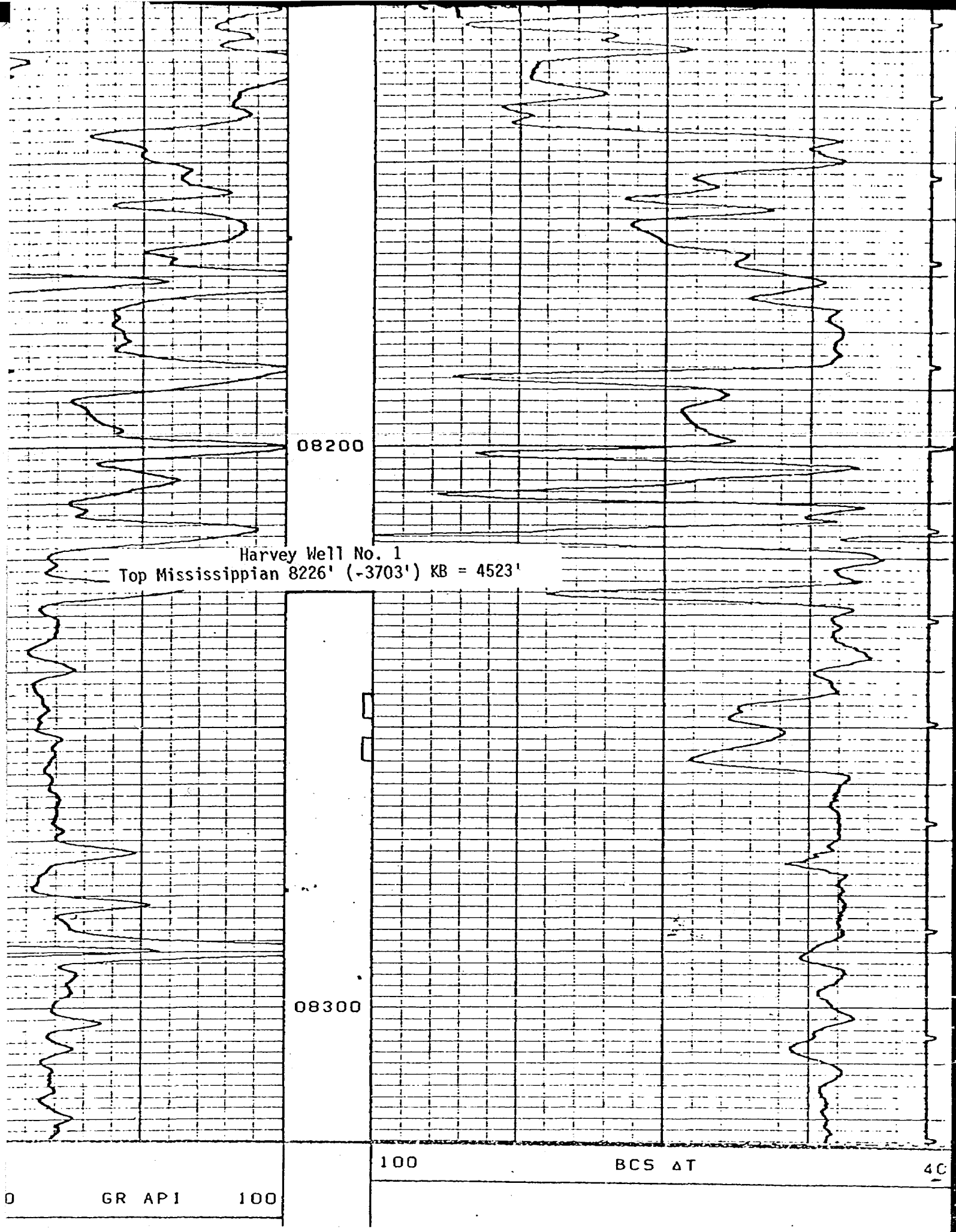
Current Status: Well completed through Pennsylvanian zone.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 6
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 6
Date August 12, 1981


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
6 CALIPER X 16
0 GR API 100
0.2 R(MSFL) Ω-M 2000
0.2 R(LLS)Ω-M 2000
0.2 R(LLD)Ω-M 2000
07-03-81 05:55 8392.5 95804 0091-22 0 3


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
0
GR API
100
100
BCS ΔT
40

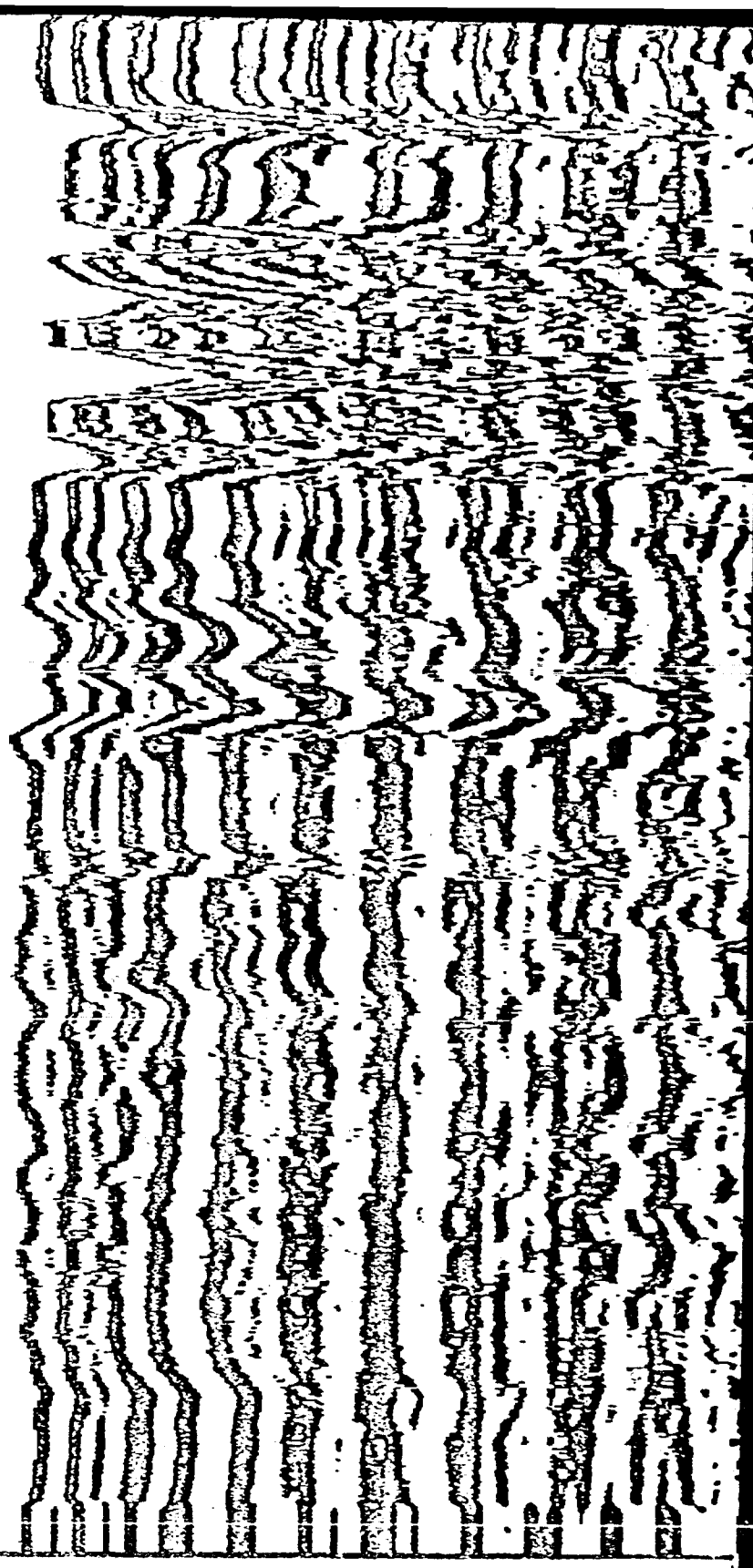
08200

Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'

08300

GR

ΔT



100 SEIS SPECT 1100

GR API 100

00 BCS ΔT 40

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - TERRY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8183' (-3693') KB = 4490'

Perforated Production Interval:

8208'-8210' (2 JSPF)	
8212'-8218' (2 JSPF)	First stage
8224'-8231' (2 JSPF)	
8186'-8188' (2 JSPF)	
8194'-8202' (2 JSPF)	Second stage

Stimulation Treatment:

First Stage Acid Job:
Spotted 150 gallons 15% MCA acid (6-17-81)
Pumped 500 gallons NE FE acid
Dropped 24 RCN ball sealers

Second Stage Acid Job:
Spotted 150 gallons 15% MCA acid (6-21-81)
Pumped 3500 gallons 15% NE FE acid
Dropped 16 RCN ball sealers

Fracturing:
36,000 gallons 15% NCl NE FE acid (6-26-81)
23,000 gallons WF 40 gel
19,000 gallons WF 60 gel
24,400 pounds 100 mesh sand
34,000 pounds 20/40 mesh sand
944,000 SCF nitrogen

Initial Potential Test:

Date of Test: 7-21-81 (Pumping)

58 BOPD + 27 BWPD + 70 MCFPD

GOR = 1207:1

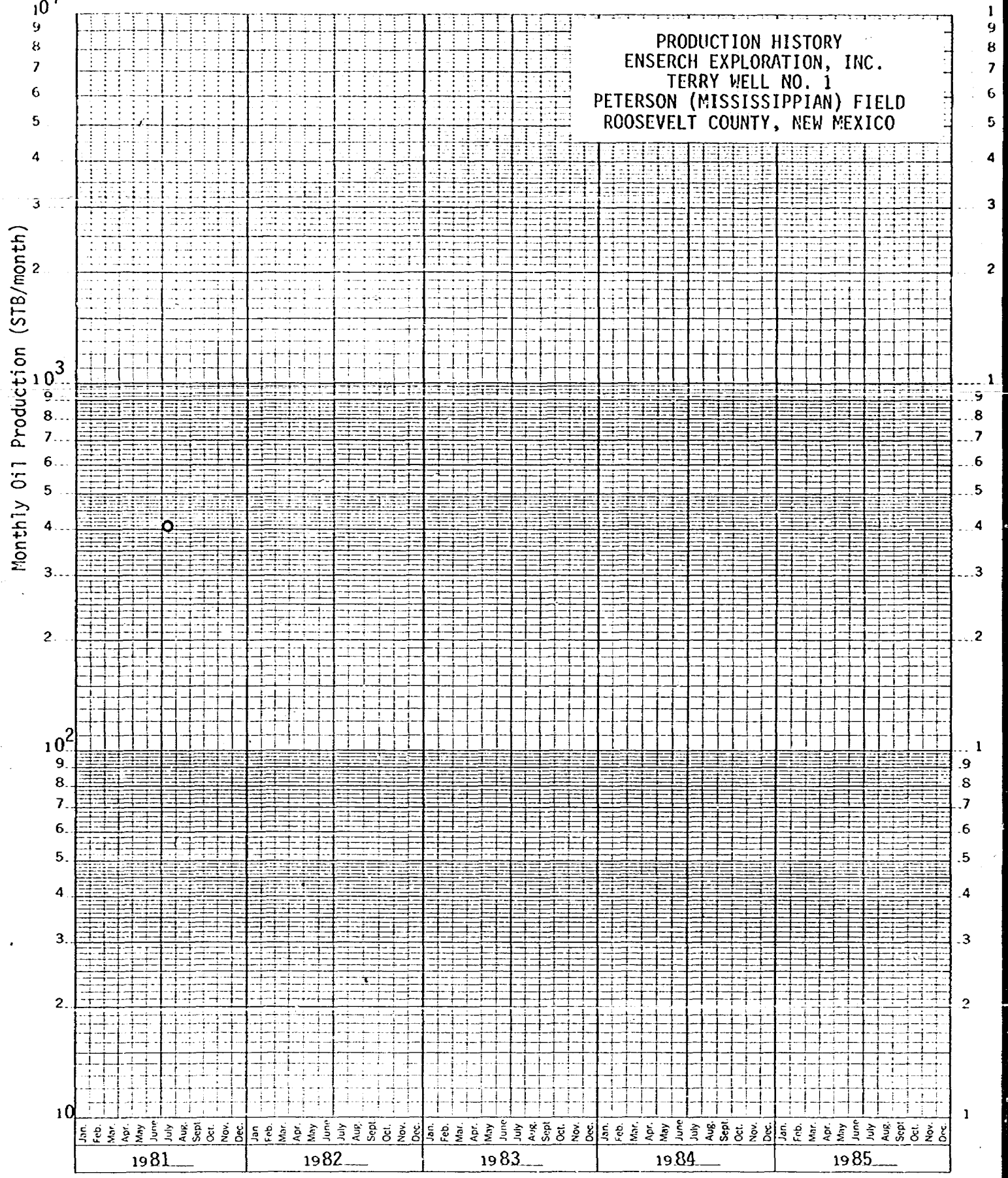
Current Status: Shut-in awaiting gas line connection.

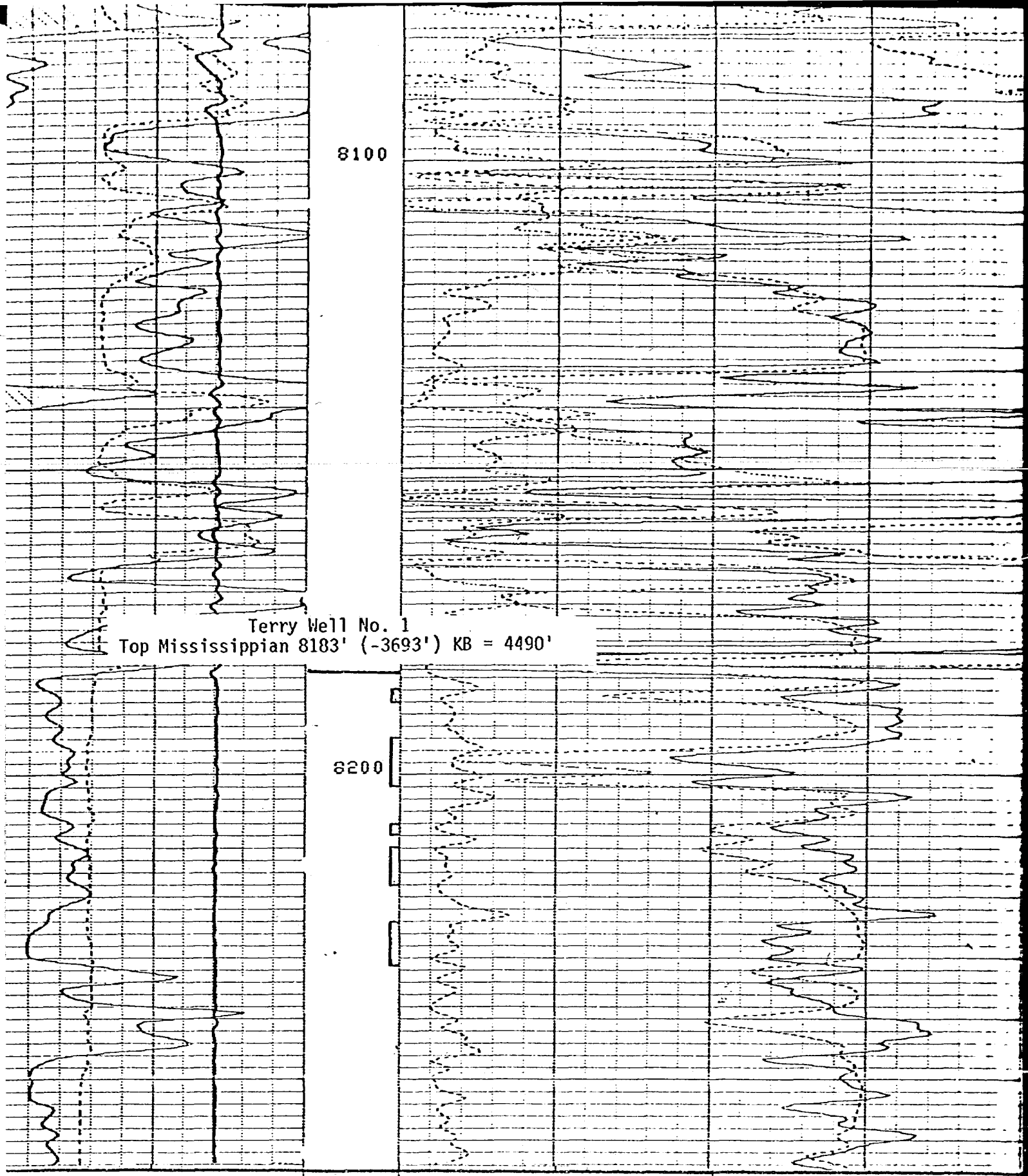
BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 7
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 7
Date August 12, 1981

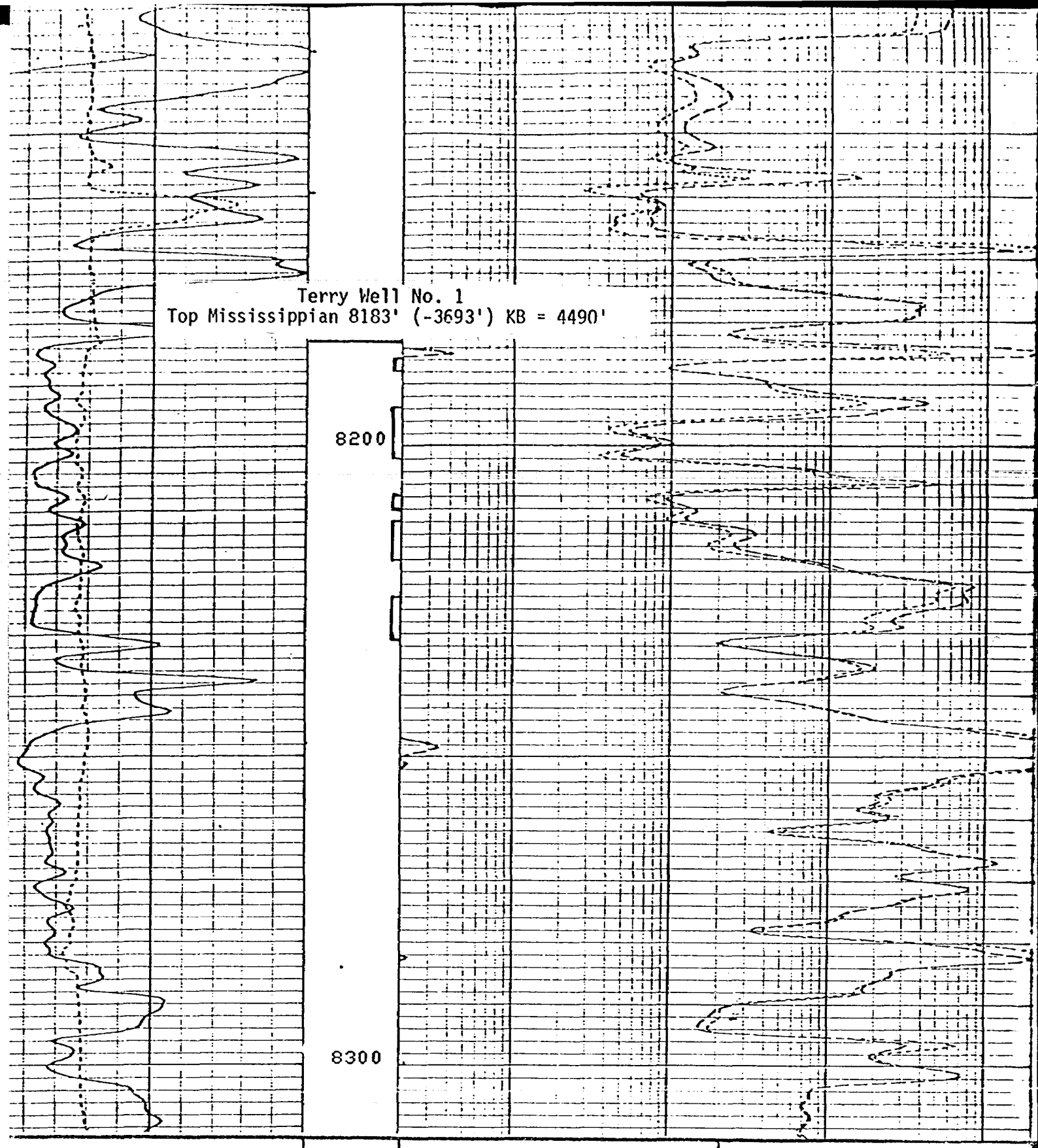
PRODUCTION HISTORY
Enserch Exploration, Inc.
Terry Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981						
06/1981						
07/1981	21	406	640	0	1576	0
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	21	406	640	0	1576	0


PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
TERRY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
Monthly Oil Production (STB/month)
10^4
10^3
10^2
10
1
Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.
1981
1982
1983
1984
1985


8100
Terry Well No. 1
Top Mississippian 8183' (-3693') KB = 4490'
8200
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100

Terry Well No. 1
Top Mississippian 8183' (-3693') KB = 4490'



CALI(IN)
5.000 16.00
GR (GAPI)
1.0 100.0

LLD (OHMM)
2000. 200000
MSFL(OHMM)
0.2000 2000.
LLS (OHMM)
0.2000 2000.
LLD (OHMM)
0.2000 2000.

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - COLLIER WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8046' (-3678') KB = 4368'

Perforated Production Interval: 8074'-8080' (2 JSPF)
8090'-8096' (2 JSPF)

Stimulation Treatment: Acidized with 5500 gallons MOD 101 acid (8-4-81)
Dropped 18 RCN ball sealers
Flushed with 32 bbls 2% KCl water

Initial Potential Test:

Date of Test: 8-5-81 (Swabbed 8-1/2 hours)

Recovered 16 bls oil, 41 bbls spent acid water, good show of gas

Current Status: Testing Pennsylvanian zone.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 8
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 8
Date August 12, 1981

8000

Collier Well No. 1
Top Mississippian 8046' (-3678') KB = 4368'

8100

Caliper

GR

F.R. (GR)

F.R. (CALIPER)

ϕ_{FDC}

ϕ_{CNL}

F.R. (CNL)

F.R. (FDC)

Tension Device Pick-up

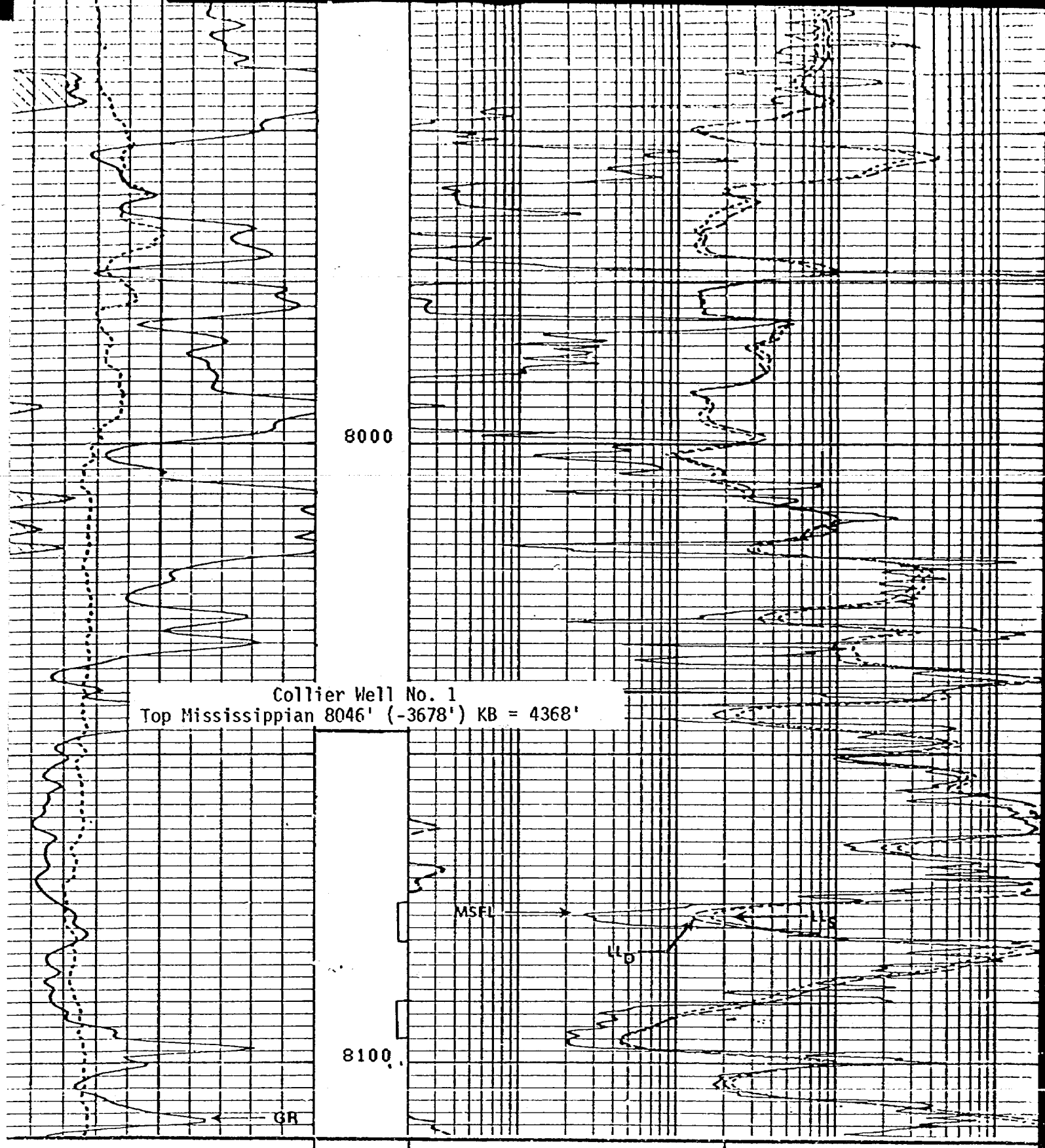
DRHO(G/C3)
-0.050 0.4500

CALI(IN)
6.000 16.00

DPHI( )
0.3000 -0.100

GR (GAPI)
0.0 100.0

NPHI( )
0.3000 -0.100



Collier Well No. 1
Top Mississippian 8046' (-3678') KB = 4368'

CALI(IN) 6.000 – 16.00		LLD (OHMM) 2000. – 200000
		MSFL(OHMM) 0.2000 – 2000.
		LLS (OHMM) 0.2000 – 2000.
GR (GAPI) 0.0 – 100.0		LLD (OHMM) 0.2000 – 2000.

WELL DATA SHEET
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Well Name	Finley No. 1	Collier No. 1	Collier "A" No. 1	Radcliff No. 1	Terry No. 1	Harvey No. 1	Average Parameters
Perforated Interval (overall)	8250'-8302'	8074'-8096'	7986'-8001'	8173'-8212'	8186'-8231'	8244'-8248'	
Estimated Pay Thickness	29'	12'	15'	16'	25'	8'	16'
Porosity (%)	17	18	8	20	9	14	14
Water Saturation (%)	48	30	36	40	45	50	41
Initial Potential Test (bopd)	116	45 (est.)	101	20	58	55 (est.)	66
GOR (SCF/STB)	1827:1	Not Available	1188:1	1000:1	1207:1	Not Available	1305:1
Oil Gravity ^{0}API	40.8	Not Available	40	42.3	42.5	Not Available	41.4
Royalty & Overrride (%)	25	12.5	14.6	12.5	12.5	25	17

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 9
Date August 12, 1981

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 9
CASE NO. 7321

VOLUMETRIC CALCULATIONS
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Average Formation Characteristics:

Pay Thickness: 16'
Porosity: 14%
Water Saturation: 41%

Average Formation Fluid Characteristics:

Average Initial Potential Test: 66 BOPD
GOR: 1305:1
Oil Gravity: 41.4°API
Formation Volume Factor: 1.62 bbl/STB
Formation Temperature: 150°F

Original Oil In Place Under an 80-Acre Lease:

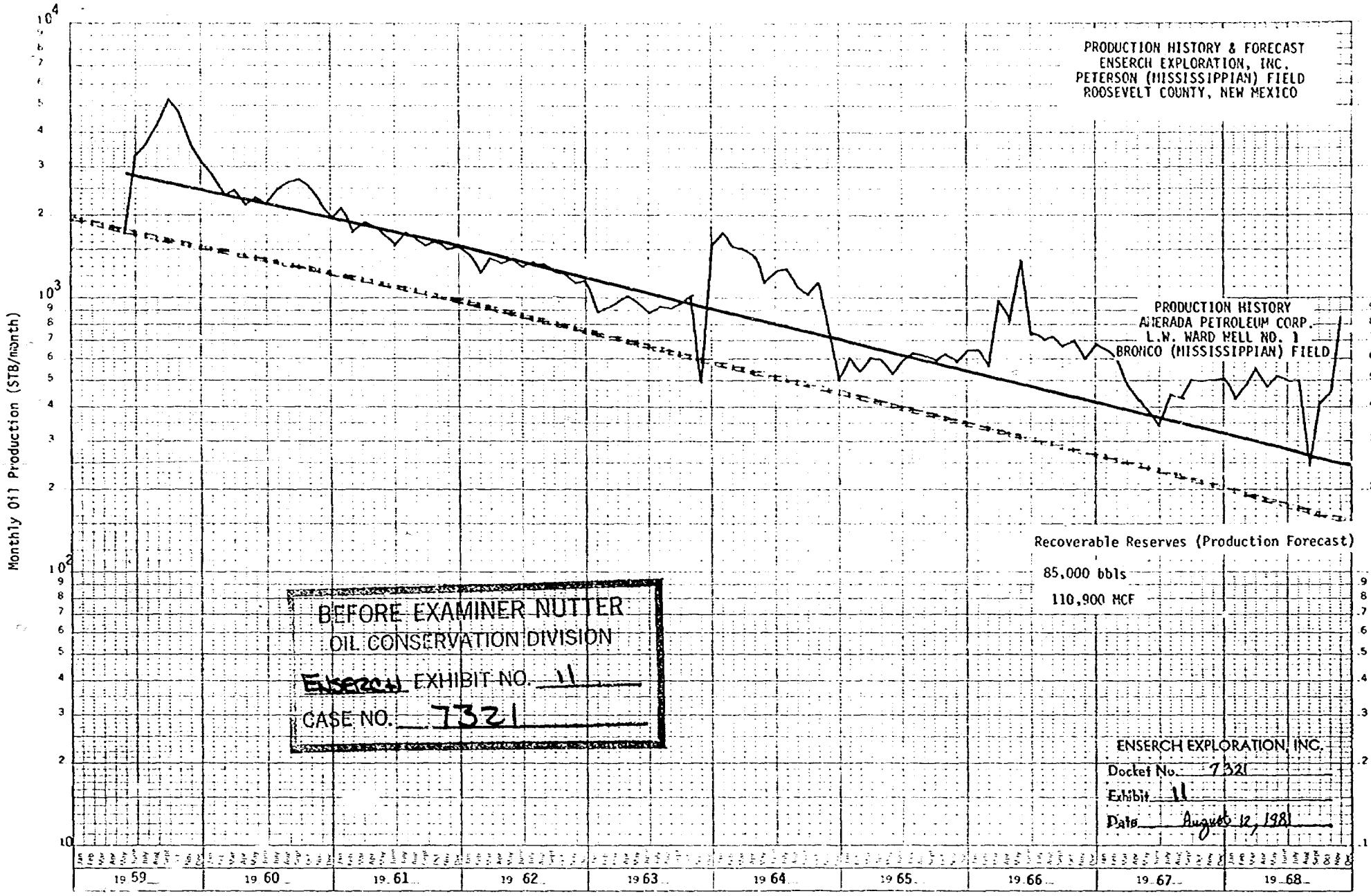
$$OOIP = 7758 \times A \times h \times \phi \times (1-S_w)/B_o$$
$$= 7758 \times 80 \times 16 \times 0.14 \times (1-0.41)/1.62$$
$$= 395 \text{ STB/acre-ft}$$
$$= 506,500 \text{ bbls}$$

Recoverable Oil Under an 80-Acre Lease:

$$N_p = OOIP \times R.F.$$
$$= 506,500 \times 0.15$$
$$= 76,000 \text{ bbls}$$

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 10
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 10
Date August 12, 1981


PRODUCTION HISTORY & FORECAST
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
PRODUCTION HISTORY
AMERADA PETROLEUM CORP.
L.W. WARD WELL NO. 1
BRONCO (MISSISSIPPIAN) FIELD
Monthly Oil Production (STB/month)
Recoverable Reserves (Production Forecast)
85,000 bbls
110,900 MCF
BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 11
CASE NO. 7321
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 11
Date August 12, 1981
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968

PRODUCTION FORECAST
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Year	Oil Production STB	Gas Production MCF
1	19,000	24,800
2	16,000	20,900
3	13,000	16,950
4	10,000	13,050
5	8,000	10,450
6	6,000	7,850
7	4,500	5,850
8	3,500	4,550
9	3,000	3,900
10	2,000	2,600
Cumulative Production	85,000	110,900

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 12
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 12
Date August 12, 1981

DRAINAGE vs TIME
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Effective Drainage / 80-Acre Spacing x 100%

Effective drainage = 20 acres
Effective drainage = 39 acres
Effective drainage = 50 acres
Effective drainage = 61 acres
Effective drainage = 70 acres
Effective drainage = 76 acres
Effective drainage = 81 acres
Effective drainage = 84 acres
Effective drainage = 87 acres
Effective drainage = 90 acres

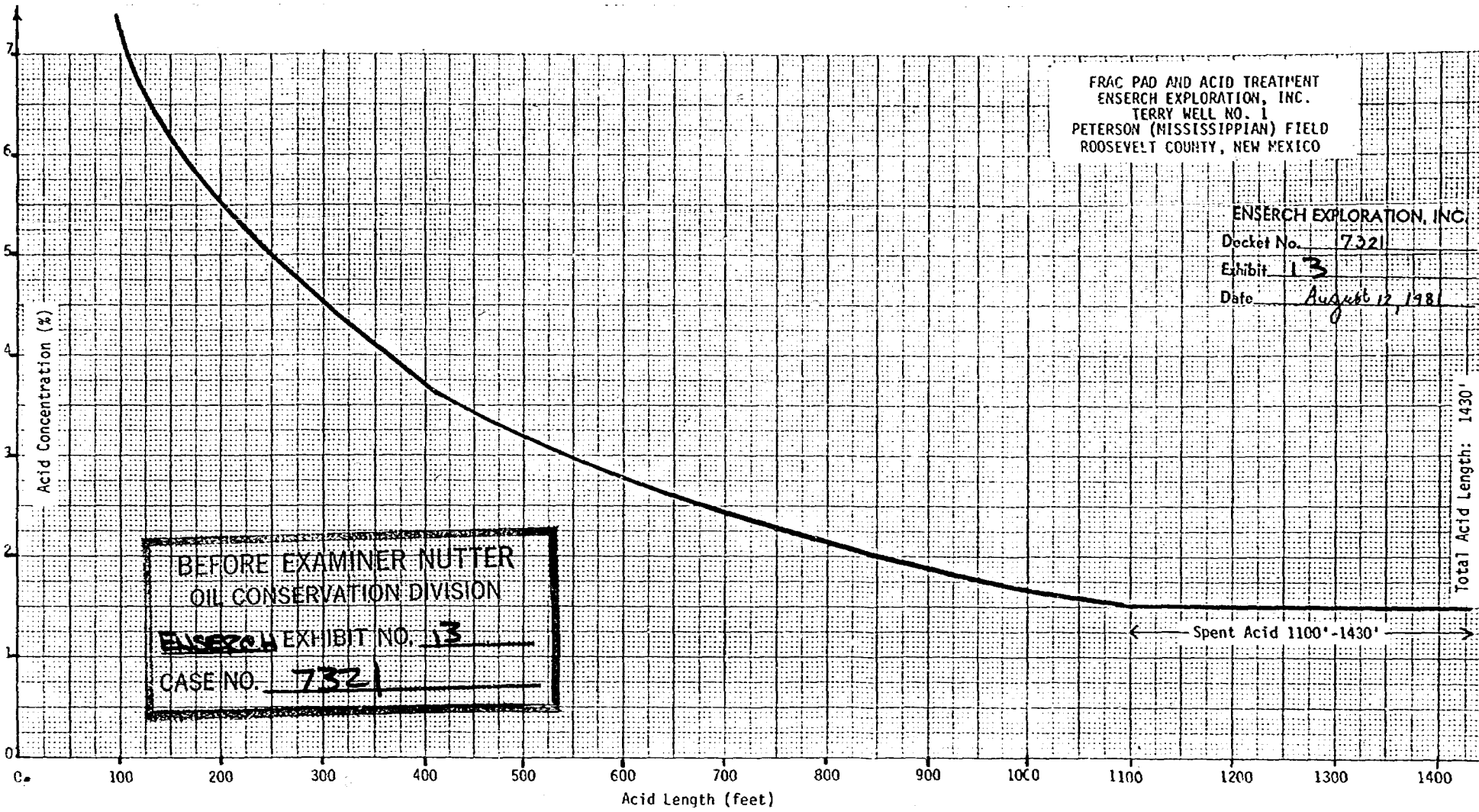
01 02 03 04 05 06 07 08 09 10

DRAINAGE CALCULATIONS
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Year	Oil Production (STB)	Cumulative Oil Production (STB)	Area Drained at Year End (Acres)	$\frac{\text{Area Drained}}{\text{80 Acre Spacing}} \times 100\%$ (%)
1	19,000	19,000	20	25%
2	16,000	35,000	37	46%
3	13,000	48,000	50	62%
4	10,000	58,000	61	76%
5	8,000	66,000	70	87%
6	6,000	72,000	76	95%
7	4,500	76,500	81	101%
8	3,500	80,000	84	105%
9	3,000	83,000	87	109%
10	2,000	85,000	90	112%
Cumulative Production	85,000	85,000	--	--

FRAC PAD AND ACID TREATMENT
ENSERCH EXPLORATION, INC.
TERRY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 13
Date August 12, 1981



BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 13
CASE NO. 7321

DOWELL DIVISION OF THE DOW CHEMICAL COMPANY
PROJECT: STAD SYSTEM RUN RUN # 1
DATE: THU, JUL 16, 1981 (197) PAGE # 1

COMPANY:ENSEARCH WELL :TERRY1
COUNTY :ROOSEVELT STATE :NEWMEXICO
FIELD :N.PETERSON FORMTN:MISSISSIPPIAN

DOWELL ACID GUIDE II

FRAC PAD AND ACID TREATMENT

FRAC PAD: WF40 18000. GALLONS AT 9.0 BPM.

ACIDIZING AT 9.0 BPM WITH 15% HCL

ACID VOLUME	ACID LENGTH	CONC. AT ACID TIP	IN PLACE SPENDING ETCH WIDTH	FOLDS
990.	100.	7.5	0.665E-02	2.5
1565.	150.	6.4	0.704E-02	3.2
2193.	200.	5.6	0.750E-02	3.8
2872.	250.	5.0	0.799E-02	4.4
3602.	300.	4.5	0.852E-02	4.9
4383.	350.	4.0	0.907E-02	5.4
5212.	400.	3.7	0.963E-02	5.8
6089.	450.	3.4	0.102E-01	6.0
7014.	500.	3.1	0.108E-01	6.3
7986.	550.	2.9	0.114E-01	6.5
9003.	600.	2.7	0.120E-01	6.6
10066.	650.	2.5	0.126E-01	6.7
11173.	700.	2.4	0.132E-01	6.7
12322.	750.	2.2	0.138E-01	6.7
13514.	800.	2.1	0.144E-01	6.7
14748.	850.	2.0	0.150E-01	6.7
16022.	900.	1.9	0.157E-01	6.7
17335.	950.	1.8	0.163E-01	6.7
18687.	1000.	1.7	0.169E-01	6.7
20076.	1050.	1.6	0.176E-01	6.7
21502.	1100.	1.5	0.182E-01	6.7
21792.	1110.	1.5	0.183E-01	6.7

OVERFLUSHING AT 9.0 BPM WITH WF60
SPEARHEAD DEPLETED AT 1243. FEET.

RESUME:
PAD : 18000. GALLONS OF WF40
ACID : 21792. GALLONS OF 15% HCL
FLUSH: 3836. GALLONS OF WF60

TOTAL ACID PENETRATION =1302. FEET.
AVERAGE ETCH WIDTH = 0.213E-01 INCHES.
THEORETICAL FOLDS = 8.02
CONDUCTIVITY RATIO = 1.47 DARCY-FT/MD

PRESSURE BUILDUP ANALYSIS (DST)
HORNER PLOT - FINAL SHUT IN
ENSERCH EXPLORATION, INC.
RADCLIFF WELL NO. 1
PETERSON (MISSISSIPPINA) FIELD
ROOSEVELT COUNTY, NEW MEXICO

$m = 2950-2730$
$m = 220$ psi/cycle

FSIP = 2950 psi

3000
2000
1000
0

Pressure (psi)

ENSERCH EXPLORATION, INC.
Docket No. 7921
Exhibit 14
Date August 12, 1981

Interval Tested: 8168'-8204'
Date of Test: 3/16/81
Strong Gas Blow
Gas to Surface in 5 min.
Permeability: 1.14 md
Reservoir pressure: 2950 psi

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 14
CASE NO. 7921

100 90 80 70 60 50 40 30 20 10 9 8 7 6 5 4 3 2 1

$(T + \Delta T)/\Delta T$

ECONOMIC EVALUATION
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

INPUT DATA

Well Cost:

Tangibles:	$248,600	
Intangibles:	$615,200	Total Well Cost: $863,800
Dry Hole Cost:	$540,700	

Oil Price:

$35/Bbl + Escalation $2/year

Gas Price:

$2.36/MCF + Esclation $0.12/year

Hydrocarbon Reserves:

85,000 bbls
110,900 MMCF (GOR = 1305:1)
Life: 10 years

OUTPUT DATA

·First Case: One well per 80 acres

Total Net Present Worth: $188,200
Present Worth Index: 1.26

·Second Case: Two wells per 80 acres

Total Net Present Worth: $-325,200
Present Worth Index: 0.77

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
ENSERCH EXHIBIT NO. 15
CASE NO. 7321

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 15
Date August 12, 1981

1	PROJECT & DESCRIPTION		ONE WELL PER 80 ACRE			
2	LIFE		10			
3	INIT EXP INV		615.20			
4	INIT CAP INV		248.60			
10	OIL PRICE INIT,ESC,MAX		35.00	2.00	53.00	
12	GAS PRICE INIT,ESC,MAX		236.00	6.00	296.00	
16	CONSTANT OPRTG EXP		15.00			
18	DIRECT TAX OIL		9.49			
19	DIRECT TAX GAS		3.00			
21	ANNUAL OIL PROD		19.00	16.00	13.00	10.00
	8.00	6.00	4.50	3.50	3.00	2.00
24	GAS CF/BBL		1305.00			
27	INIT WORKNG INTEREST		100.00			
28	INIT R & OR LIQUIDS		17.00			
29	INIT R & OR GAS		17.00			
39	PROBABILITY OF SUCCESS		75.00			
40	COST OF FAILURE		540.70			

PRODUCTION

YEAR	GROSS LIQUIDS MBBLS	GROSS GAS MMCF	NET LIQUIDS MBBLS	NET GAS MMCF
1	19.0	24.8	15.8	20.6
2	16.0	20.9	13.3	17.3
3	13.0	17.0	10.8	14.1
4	10.0	13.0	8.3	10.8
5	8.0	10.4	6.6	8.7
6	6.0	7.8	5.0	6.5
7	4.5	5.9	3.7	4.9
8	3.5	4.6	2.9	3.8
9	3.0	3.9	2.5	3.2
10	2.0	2.6	1.7	2.2
TOTALS	85.0	110.9	70.5	92.1

MEASURES OF PROFITABILITY

RISK ADJUSTED RESULTS

SUCCESS FACTOR = 75.00 %

100 % GROSS COST OF FAILURE = 540.70 $M

EXPECTED TOTAL PROJECT N.P.V. AT 14. % (M$)	***	188.2 ***
EXPECTED TOTAL PROJECT PRESENT WORTH INDEX	***	1.26 ***

1	PROJECT & DESCRIPTION	TWO WELLS PER 80 ACRE			
2	LIFE	10			
3	INIT EXP INV	1230.40			
4	INIT CAP INV	497.20			
10	OIL PRICE INIT,ESC,MAX	35.00	2.00	53.00	
12	GAS PRICE INIT,ESC,MAX	236.00	6.00	296.00	
14	CONSTANT OPRTG EXP	30.00			
18	DIRECT TAX OIL	9.49			
19	DIRECT TAX GAS	3.00			
21	ANNUAL OIL PROD	19.00	16.00	13.00	10.00
	8.00 6.00	4.50	3.50	3.00	2.00
24	GAS CF/BBL	1305.00			
27	INIT WORKNG INTEREST	100.00			
28	INIT R & ORR LIQUIDS	17.00			
29	INIT R & ORR GAS	17.00			
39	PROBABILITY OF SUCCESS	75.00			
***					
40	COST OF FAILURE	1081.40			

PRODUCTION

YEAR	GROSS LIQUIDS MBBLS	GROSS GAS MMCF	NET LIQUIDS MBBLS	NET GAS MMCF
1	19.0	24.8	15.8	20.6
2	16.0	20.9	13.3	17.3
3	13.0	17.0	10.8	14.1
4	10.0	13.0	8.3	10.8
5	8.0	10.4	6.6	8.7
6	6.0	7.8	5.0	6.5
7	4.5	5.9	3.7	4.9
8	3.5	4.6	2.9	3.8
9	3.0	3.9	2.5	3.2
10	2.0	2.6	1.7	2.2
TOTALS	85.0	110.9	70.5	92.1

MEASURES OF PROFITABILITY

RISK ADJUSTED RESULTS

SUCCESS FACTOR = 75.00 %

100 % GROSS COST OF FAILURE = 1081.40 $M

EXPECTED TOTAL PROJECT N.P.W. AT 14. % (M$)	***	-325.2 ***
EXPECTED TOTAL PROJECT PRESENT WORTH INDEX	***	0.77 ***

WELL COMPLETION FORM

ENSERCH EXPLORATION, INC. - FINLEY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8236' (-3720') KB = 4516'

Perforated Production Interval: 8250'-8254' (1 JSPF)
8265'-8269' (1 JSPF)
8281'-8302' (1 JSPF)

Stimulation Treatment: Spotted 100 gallons of 15% MCA acid
Acidized with 5000 gallons MOD 202 acid (2-1-81)
Dropped 20 RCN ball sealers
Flushed with 35 gallons 2% KCl water
Re-acidized with 10,000 gallons MOD 202 acid (2-6-81)
Flushed with 38 gallons 2% KCl water

Initial Potential Test:

Date of Test: 4-19-81 (Pumping)

116 BOPD + 23 BWPD + 212 MCFPD

GOR = 1827:1

Current Status: Shut-in awaiting gas line connection.

29' @ 17% per wl set #8

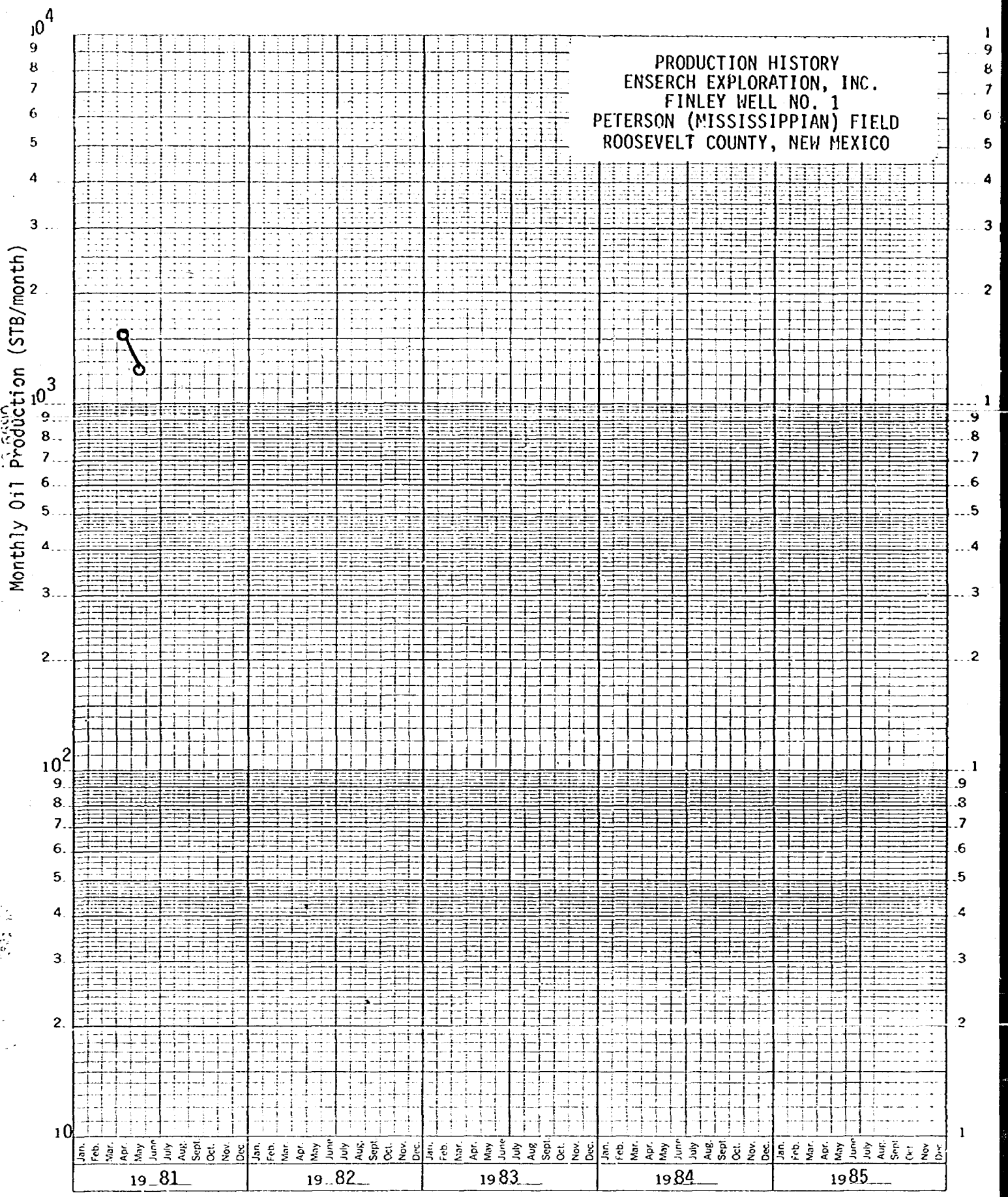
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 3
Date August 12, 1981

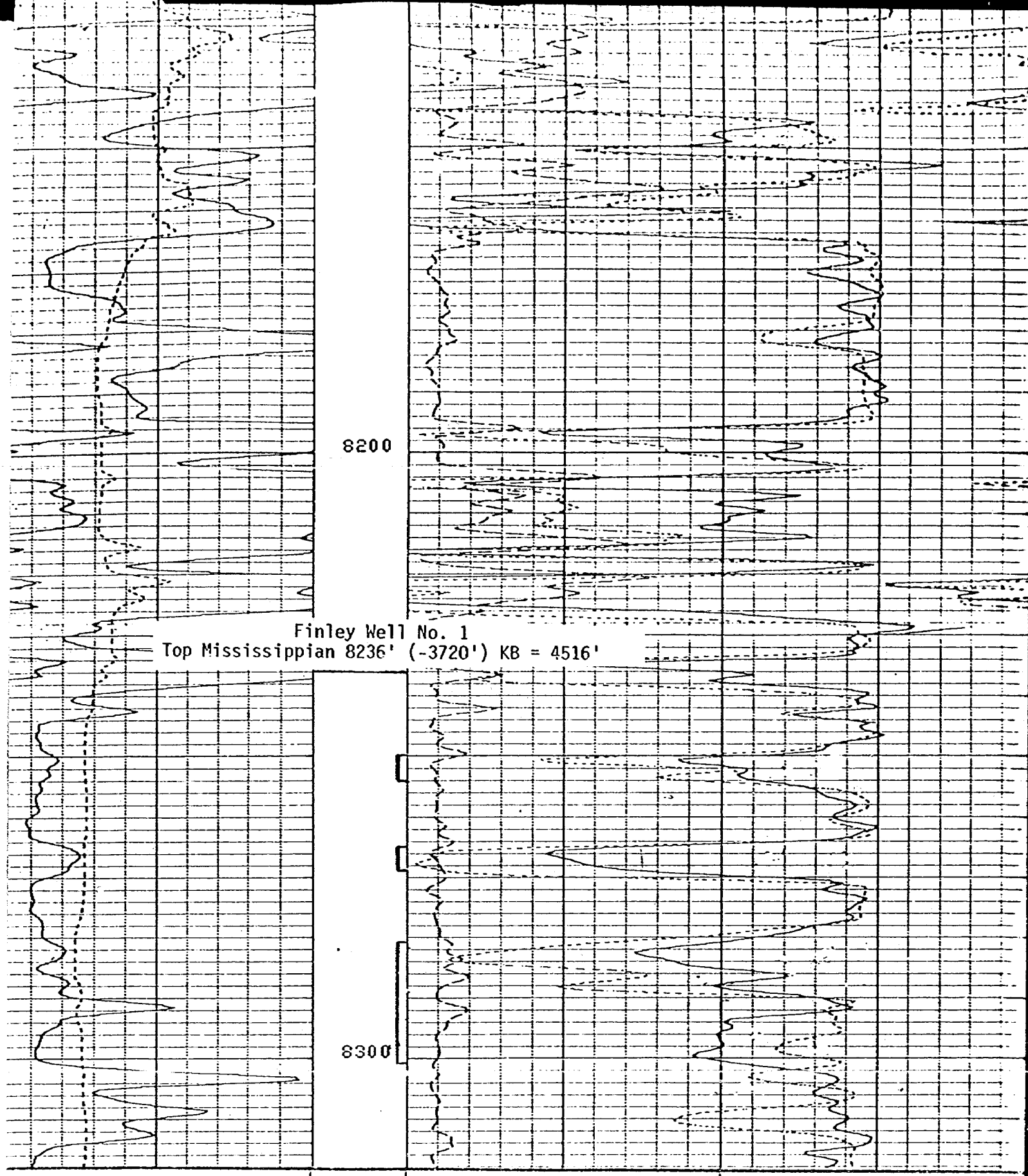
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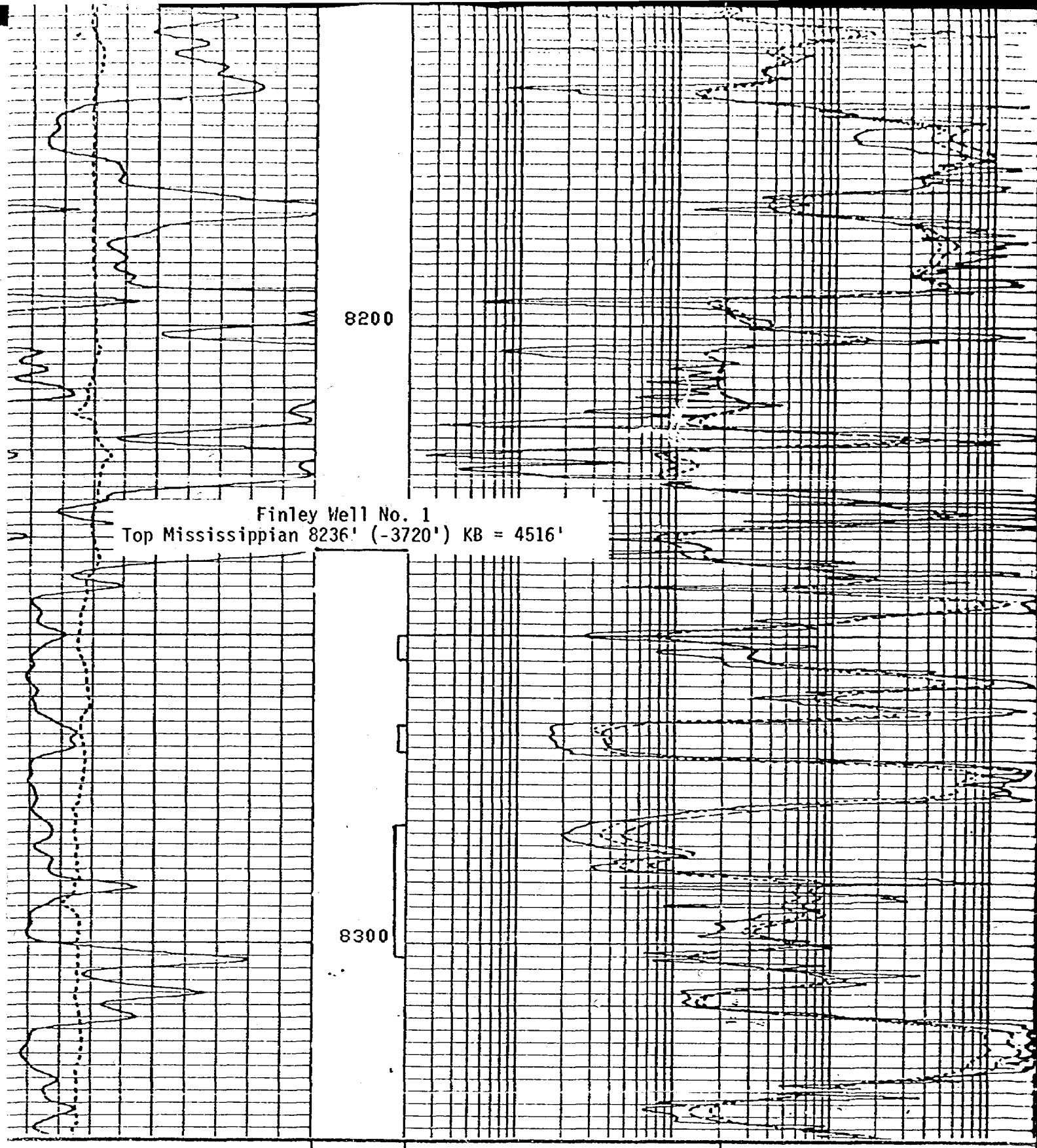
PRODUCTION HISTORY
Enserch Exploration, Inc.
Finley Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

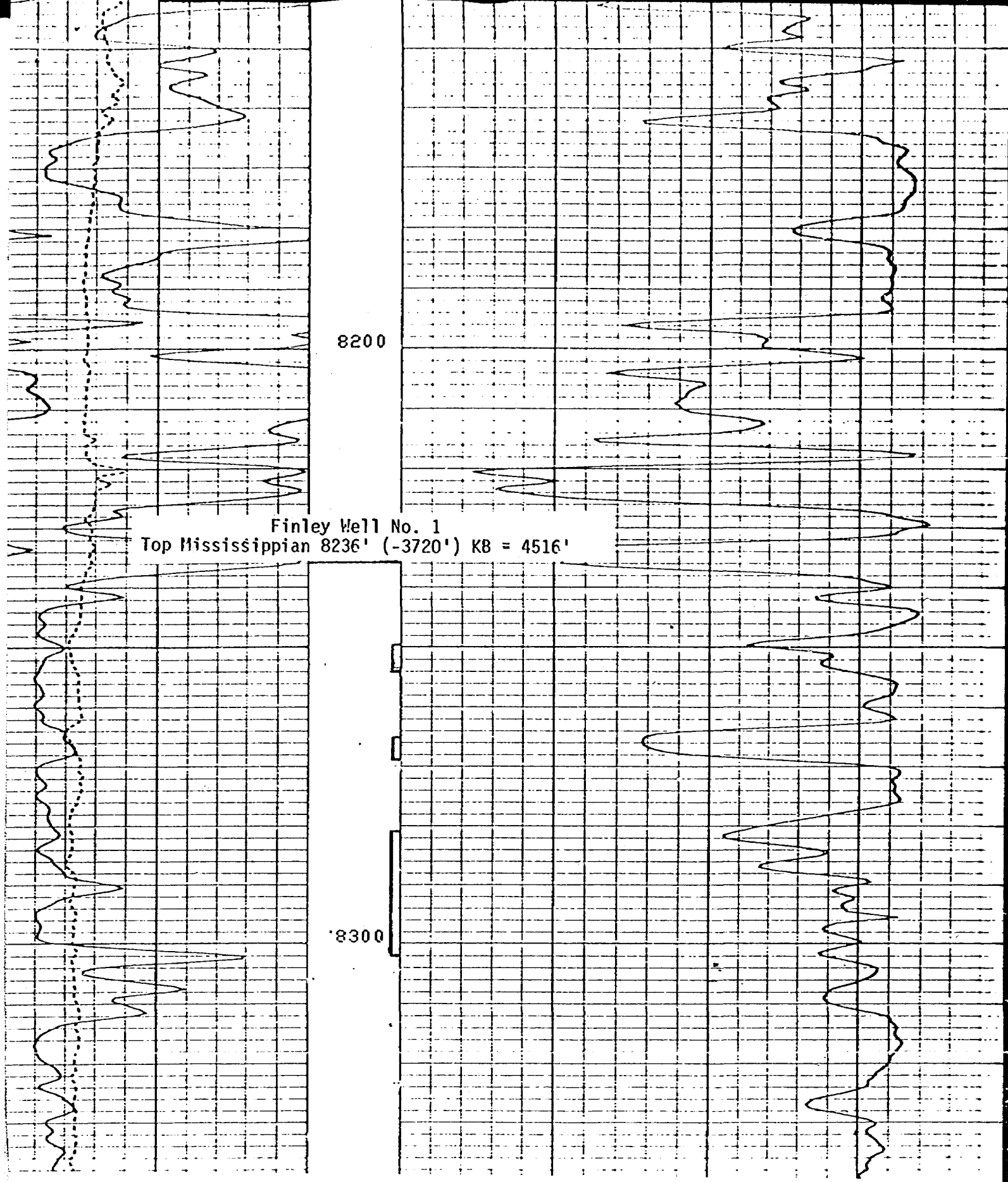
Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981	9	1563	2023	355	1294	18
05/1981	31	1252	5411	90	4321	7
06/1981	Well shut-in awaiting gas line connection					
07/1981	Well shut-in awaiting gas line connection					
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	40	2815	7434	445	2641	14

PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
FINLEY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO




8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100


8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
LLD (OHMM)
2000.
200000
MSFL(OHMM)
0.2000
2000.
LLS (OHMM)
0.2000
2000.
LLD (OHMM)
0.2000
2000.
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0


8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DT (US/F)
100.0
40.00

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - RADCLIFF WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8146' (-3700') KB = 4446'

Perforated Production Interval: 8173'-8181' (2 JSPF)
8204'-8212' (2 JSPF)

Stimulation Treatment: Acidized with 4000 gallons MOD 202 acid (3-27-81)
Dropped 14 RCN ball sealers
Re-acidized with 10,000 gallons MOD 202 acid (4-2-81)
Dropped 24 RCN ball sealers
Re-acidized with 30,000 gallons 70 Quality MOD 202 acid (4-14-81)
Dropped 25 RCN ball sealers

Initial Potential Test:

Date of Test: 5-6-81 (pumping)

20 BOPD + 26 BWPD + 20 MCFPD

GOR = 1000:1

Current Status: Shut-in awaiting gas line connection.

16/20 70 per
40 % wt sak

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 4
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Radcliff Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981	8	146	140	130	958	47
06/1981	8	129	124	89	961	41
07/1981	Well shut-in awaiting gas line connection					
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	16	275	264	219	960	44

PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
RADCLIFF WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

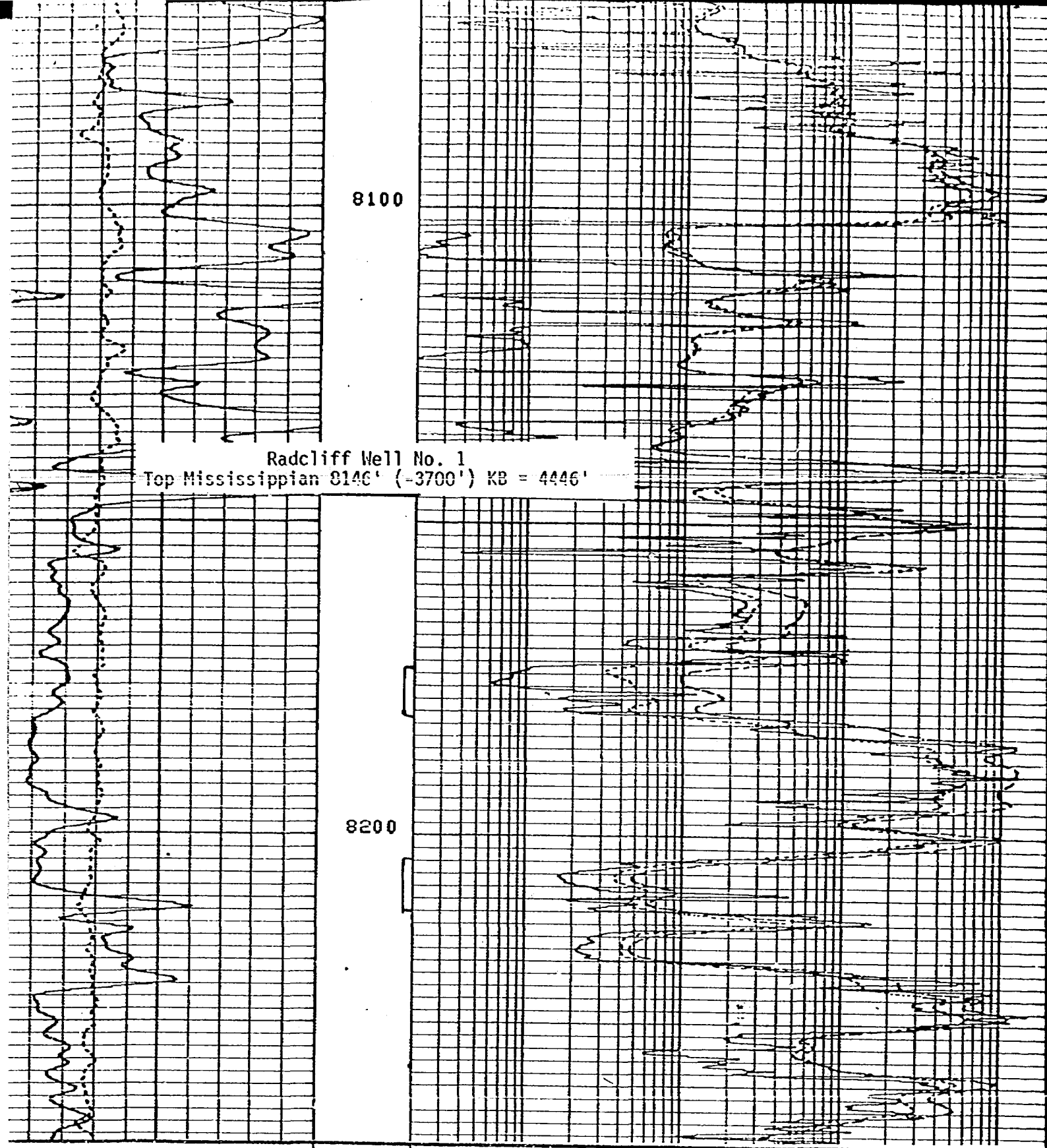
Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2

10^3 9 8 7 6 5 4 3 2

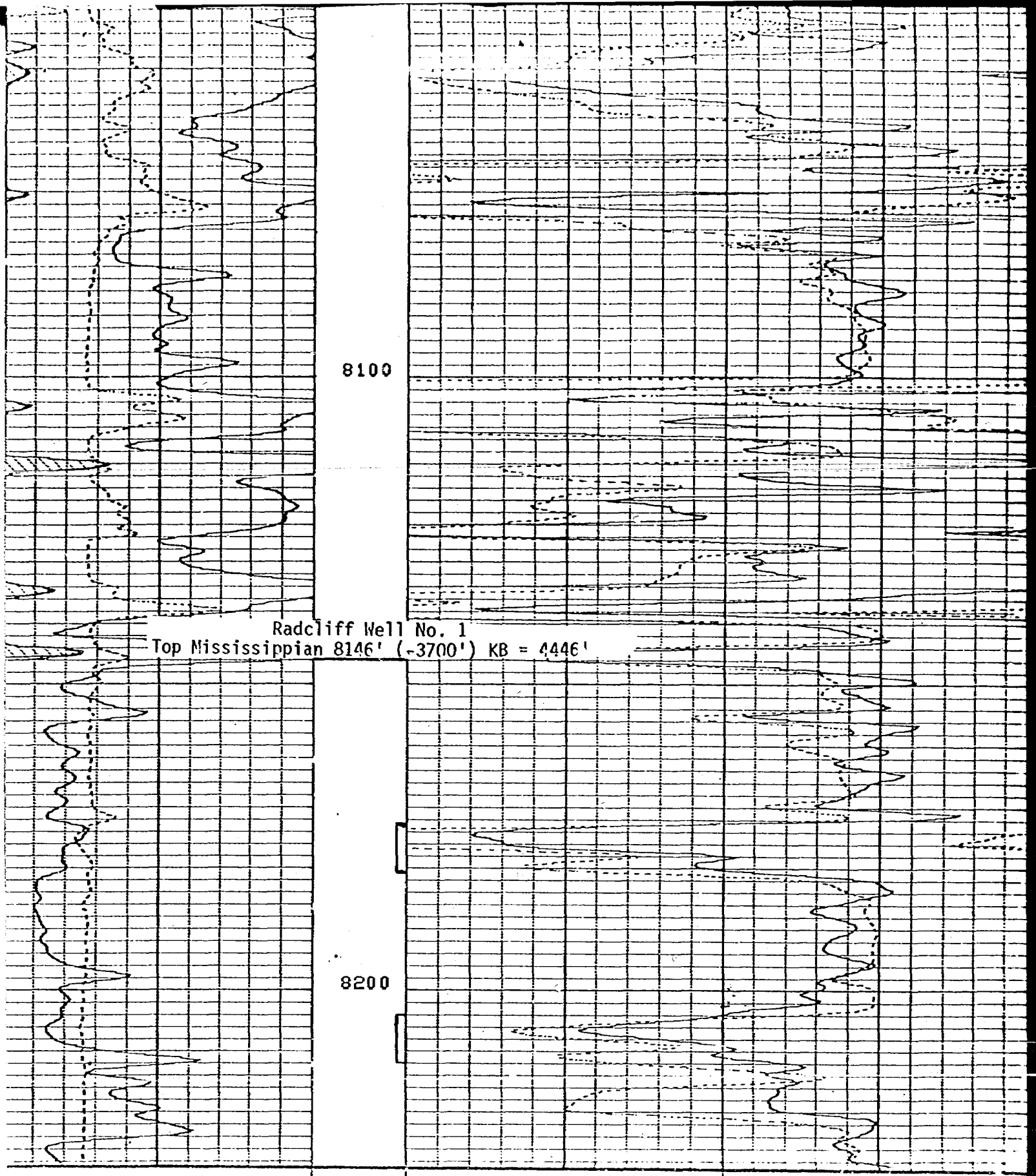
10^2 9 8 7 6 5 4 3 2 1

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981											
1982											
1983											
1984											
1985											



Radcliff Well No. 1
Top Mississippian 8146' (-3700') KB = 4446'

CALI(IN)		LLD (OHMM)	
6.000	16.00	2000.	200000
GR (GAPI)		MSFL(OHMM)	
0.0	100.0	0.2000	2000.
		LLS (OHMM)	
		0.2000	2000.
		LLD (OHMM)	
		0.2000	2000.


8100
Radcliff Well No. 1
Top Mississippian 8146' (-3700') KB = 4446'
8200
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DRHO(G/C3)
-0.050
0.4500
DPHI( )
0.3000
-0.100
NPHI( )
0.3000
-0.100

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - COLLIER "A" WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 7972' (-3619') KB = 4353'

Perforated Production Interval: 7986'-8001' (2 JSPF)

Stimulation Treatment: Spotted 150 gallons 15% MCA acid (5-2-81)
Acidized with 5500 gallons 15% NE FE HCl acid
Dropped 22 RCN ball sealers

Initial Potential Test:

Date of Test: 6-5-81 (Flowing)

101 BOPD + 7 BWPD + 120 MCFPD

GOR = 1188:1

Current Status: Shut-in awaiting gas line connection.

15% 8% 36% wtr sat
per c

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 5
Date August 12, 1981

1

PRODUCTION HISTORY
Enserch Exploration, Inc.
Collier "A" Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981	23	1695	3476	9	1460	0
06/1981	30	1726	2513	27	1456	0
07/1981	3	157	322	0	2051	0
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	56	3078	6311	36	2050	0

07/1981: Production runs

PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
COLLIER "A" WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

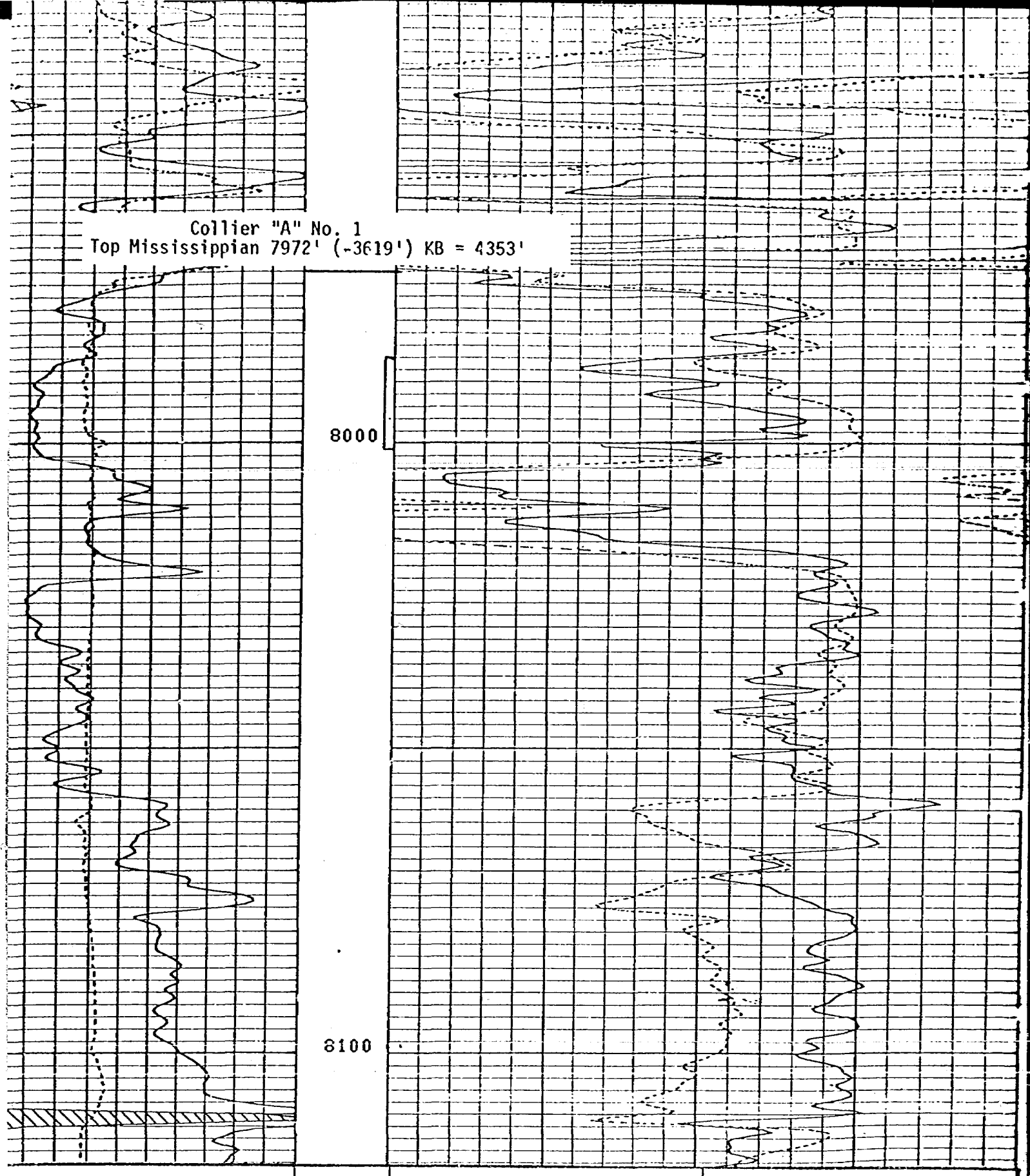
Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2 10^3 9 8 7 6 5 4 3 2 10^2 9 8 7 6 5 4 3 2 10

Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.

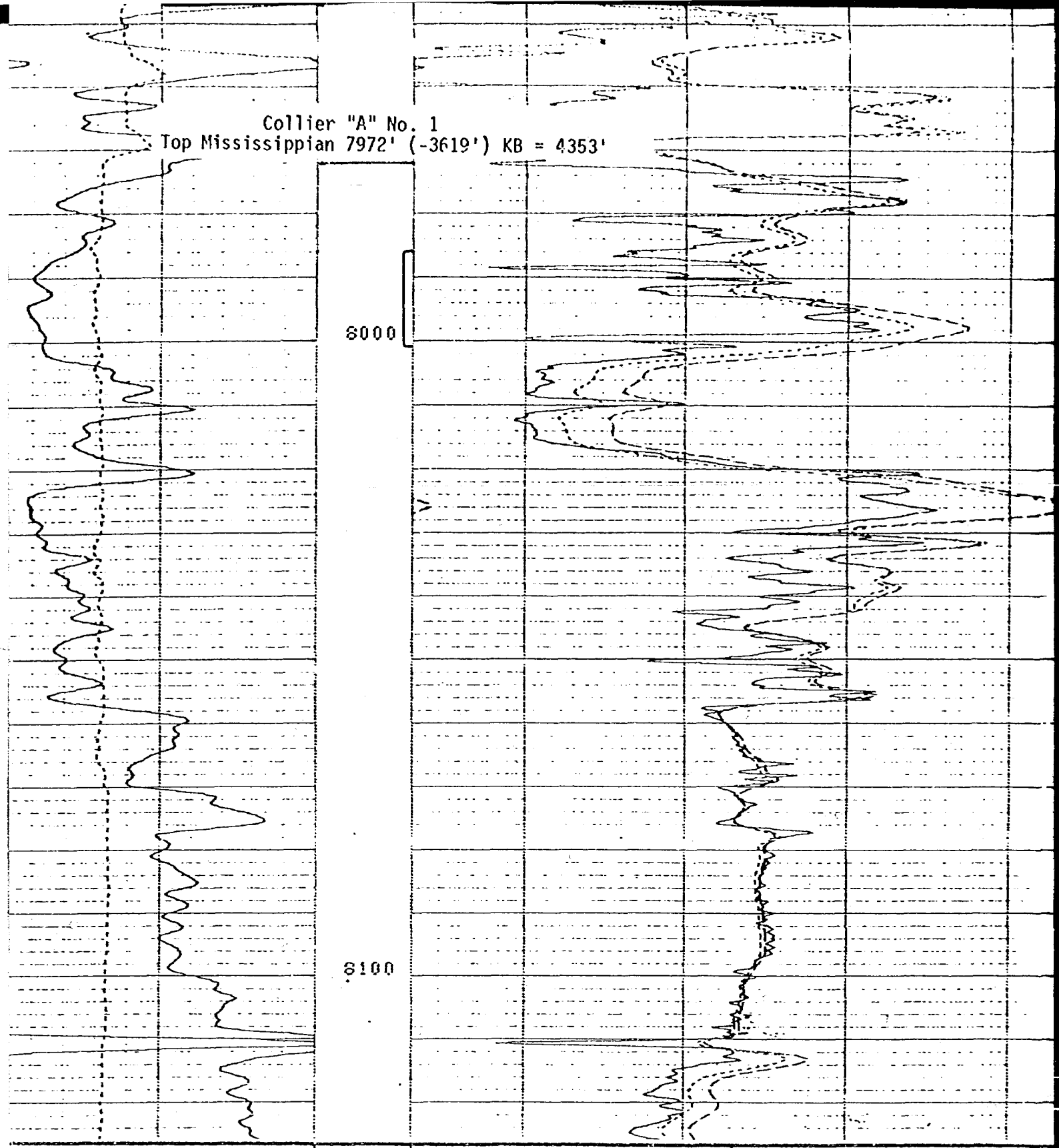
19 81 | 19 82 | 19 83 | 19 84 | 19 85

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'



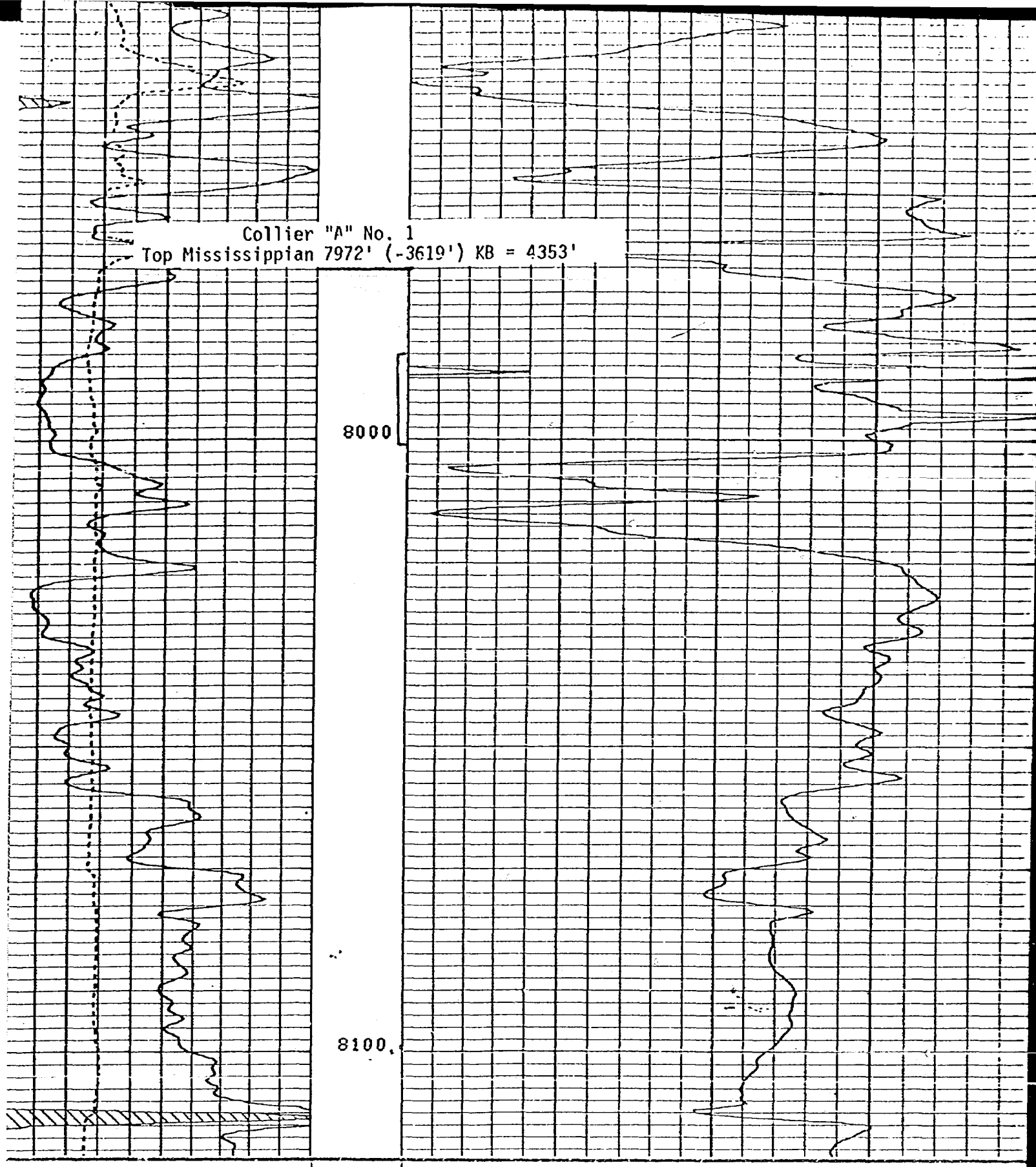
CALI(IN)		DRHO(G/C3)	
.000	16.00	-0.050	0.4500
GR (GAPI)		DPHI( )	
.0	100.0	0.3000	-0.100
		NPHI( )	
		0.3000	-0.100

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'



		LLD (OHMM)
		2000. 200000
		MSFL (OHMM)
		0.2000 2000.
CALI (IN)		LLS (OHMM)
6.000 16.00		0.2000 2000.
GR (GAPI)		LLD (OHMM)
0.0 100.0		0.2000 2000.

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'



GR (GAPI)		DT (US/F)
100.0	200.0	100.0
CALI(IN)		
6.000	16.00	
GR (GAPI)		
0.0	100.0	40.00

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - A. HARVEY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8226' (-3703') KB = 4523'

Perforated Production Interval: 8244'-8248' (1 JSPF)
8252'-8256' (1 JSPF)

Stimulation Treatment: Acidized with 5000 gallons of 15% NE FE HCl acid (7-14-81)
Dropped 8 ball sealers

Initial Potential Test:

Date: 7-16-81 (Swabbed 7 hours)

55 BOPD + 86 bbls spend acid water + good show of gas

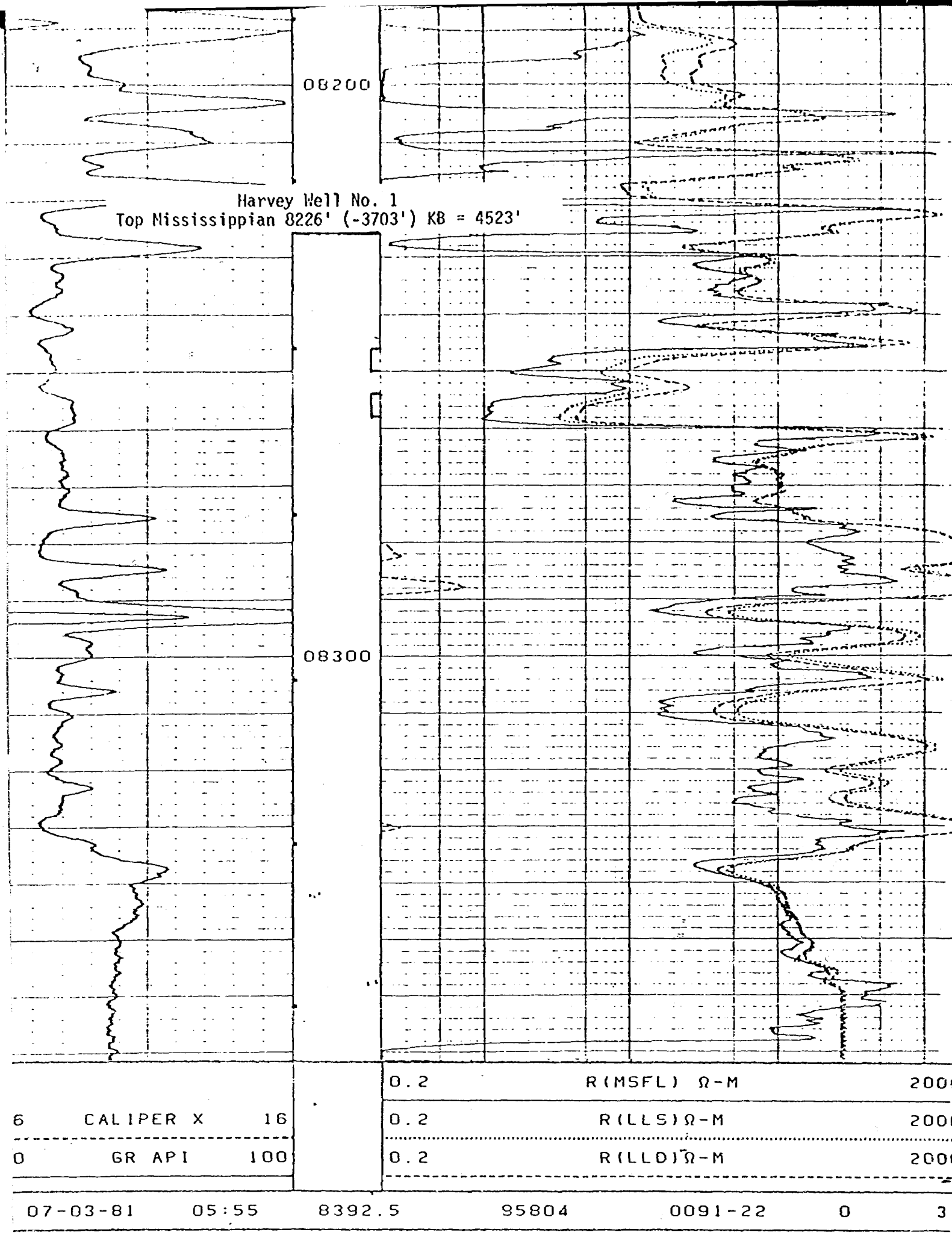
Current Status: Well completed through Pennsylvanian zone.

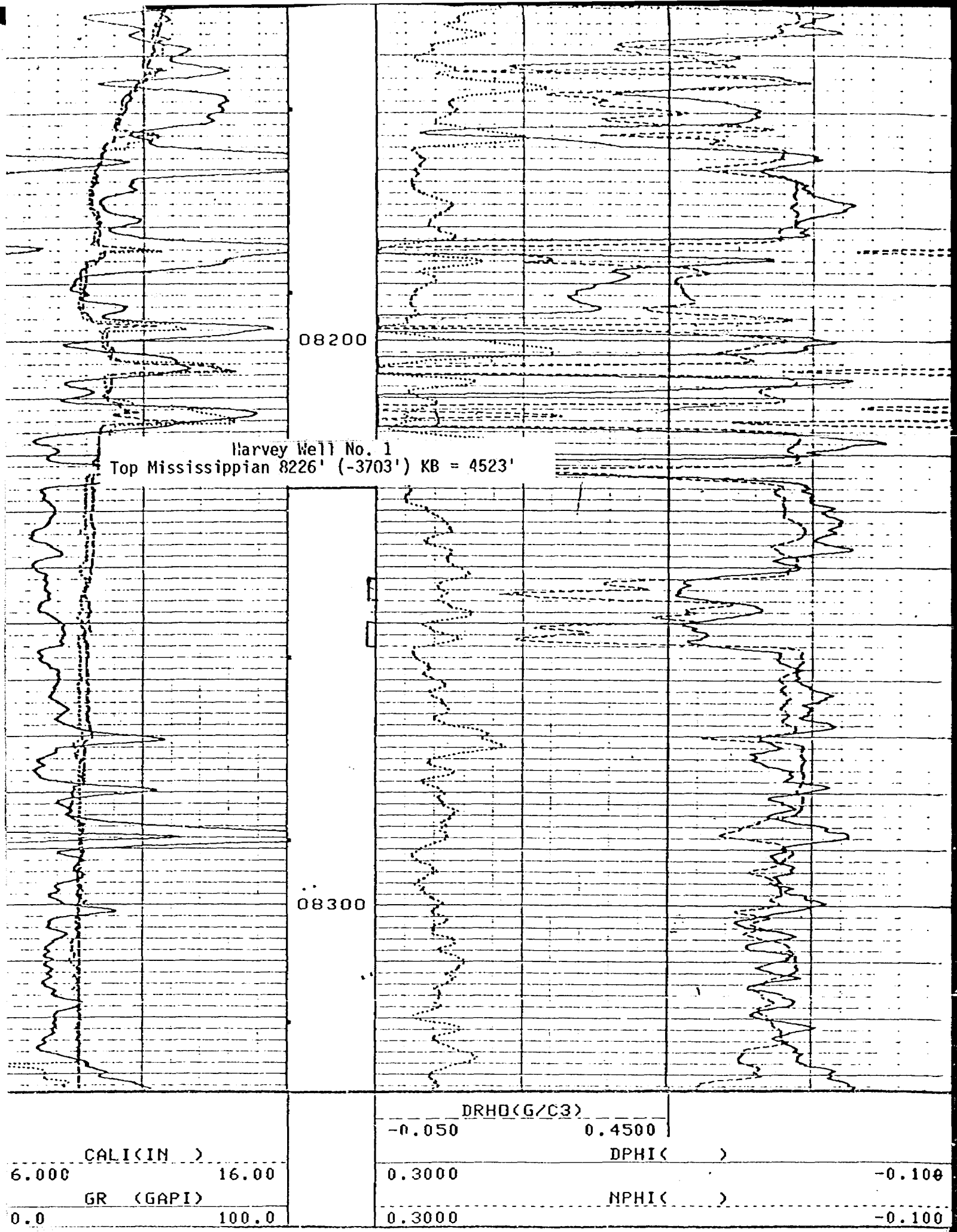
243 BOPD in Penn

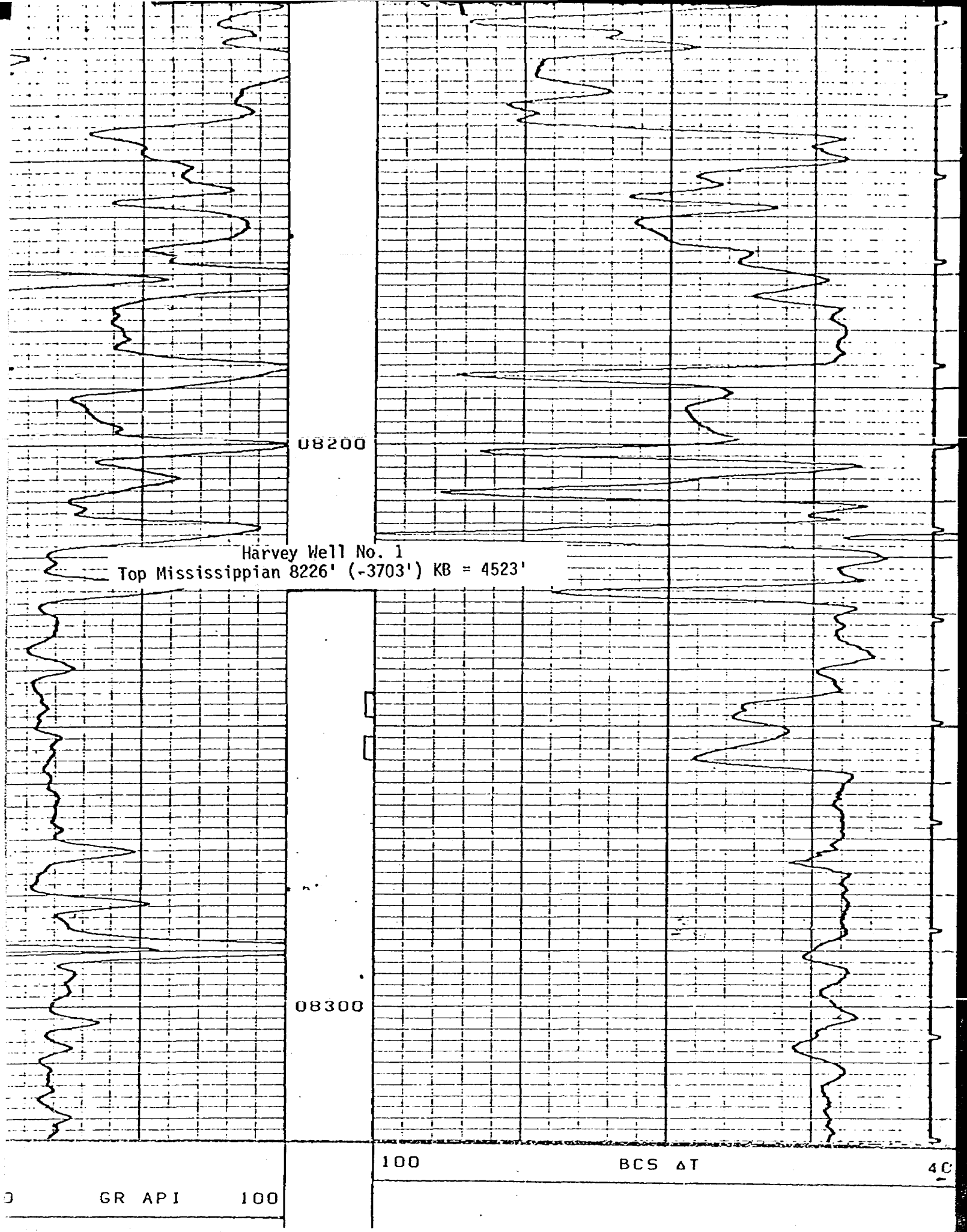
miss perf = 8' 14%

50% mtl sat

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 6
Date August 12, 1981


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
6 CALIPER X 16
0 GR API 100
0.2 R(MSFL) Ω-M 200
0.2 R(LLS)Ω-M 200
0.2 R(LLD)Ω-M 200
07-03-81 05:55 8392.5 95804 0091-22 0 3


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
100
BCS ΔT
GR API
100

08200

Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'

08300

GR

AT

) GR API 100

00 BCS ΔT 40

100 SEIS SPECT 1100

1

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - TERRY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8183' (-3693') KB = 4490'

Perforated Production Interval:
8208'-8210' (2 JSPF)
8212'-8218' (2 JSPF) First stage
8224'-8231' (2 JSPF) 8186-8231
8186'-8188' (2 JSPF)
8194'-8202' (2 JSPF) Second stage

Stimulation Treatment:

First Stage Acid Job:
Spotted 150 gallons 15% MCA acid (6-17-81)
Pumped 500 gallons NE FE acid
Dropped 24 RCN ball sealers

Second Stage Acid Job:
Spotted 150 gallons 15% MCA acid (6-21-81)
Pumped 3500 gallons 15% NE FE acid
Dropped 16 RCN ball sealers

Fracturing:
36,000 gallons 15% NCl NE FE acid (6-26-81)
23,000 gallons WF 40 gel
19,000 gallons WF 60 gel
24,400 pounds 100 mesh sand
34,000 pounds 20/40 mesh sand
944,000 SCF nitrogen

Initial Potential Test:

Date of Test: 7-21-81 (Pumping)

58 BOPD + 27 BWPD + 70 MCFPD

GOR = 1207:1

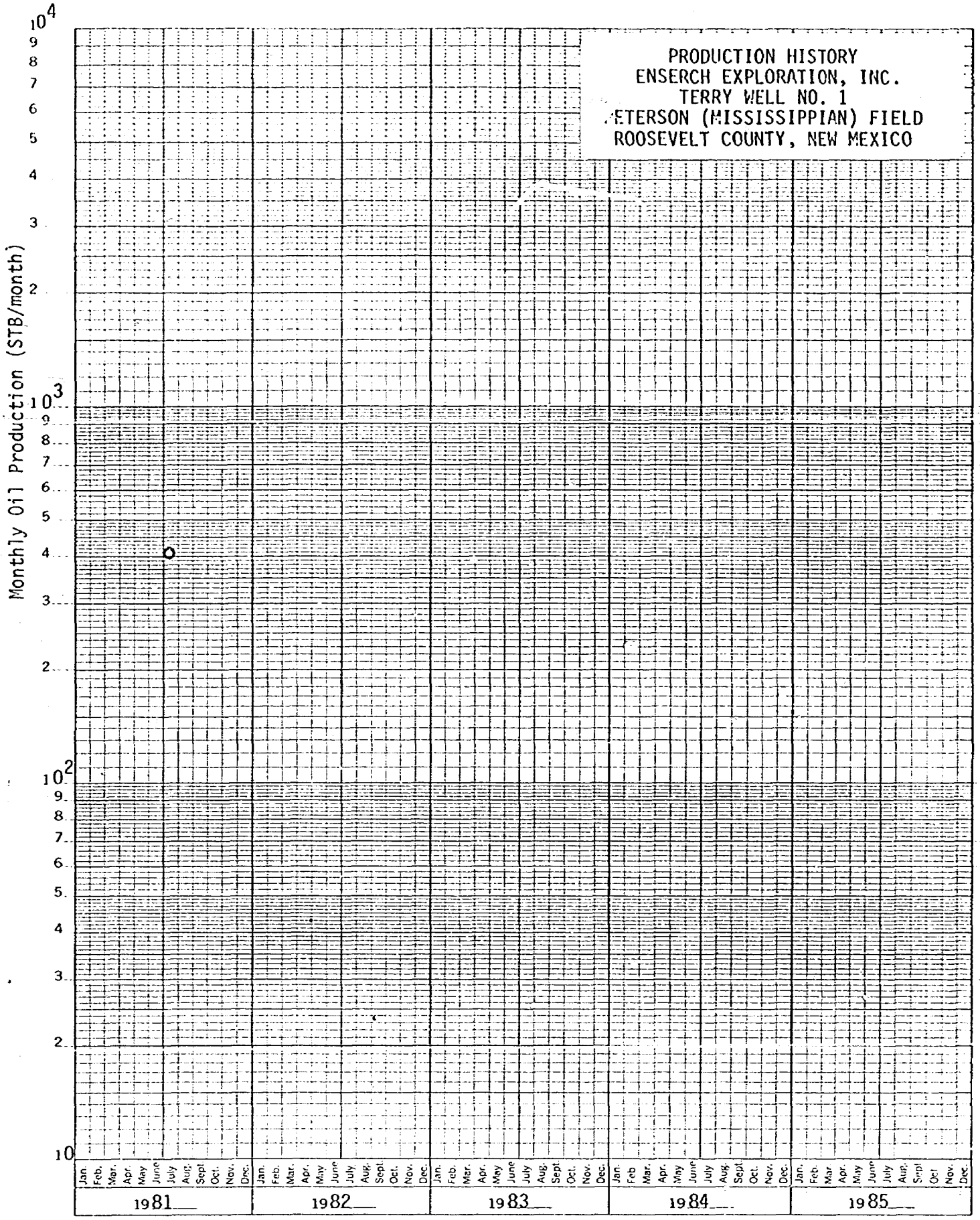
Current Status: Shut-in awaiting gas line connection.

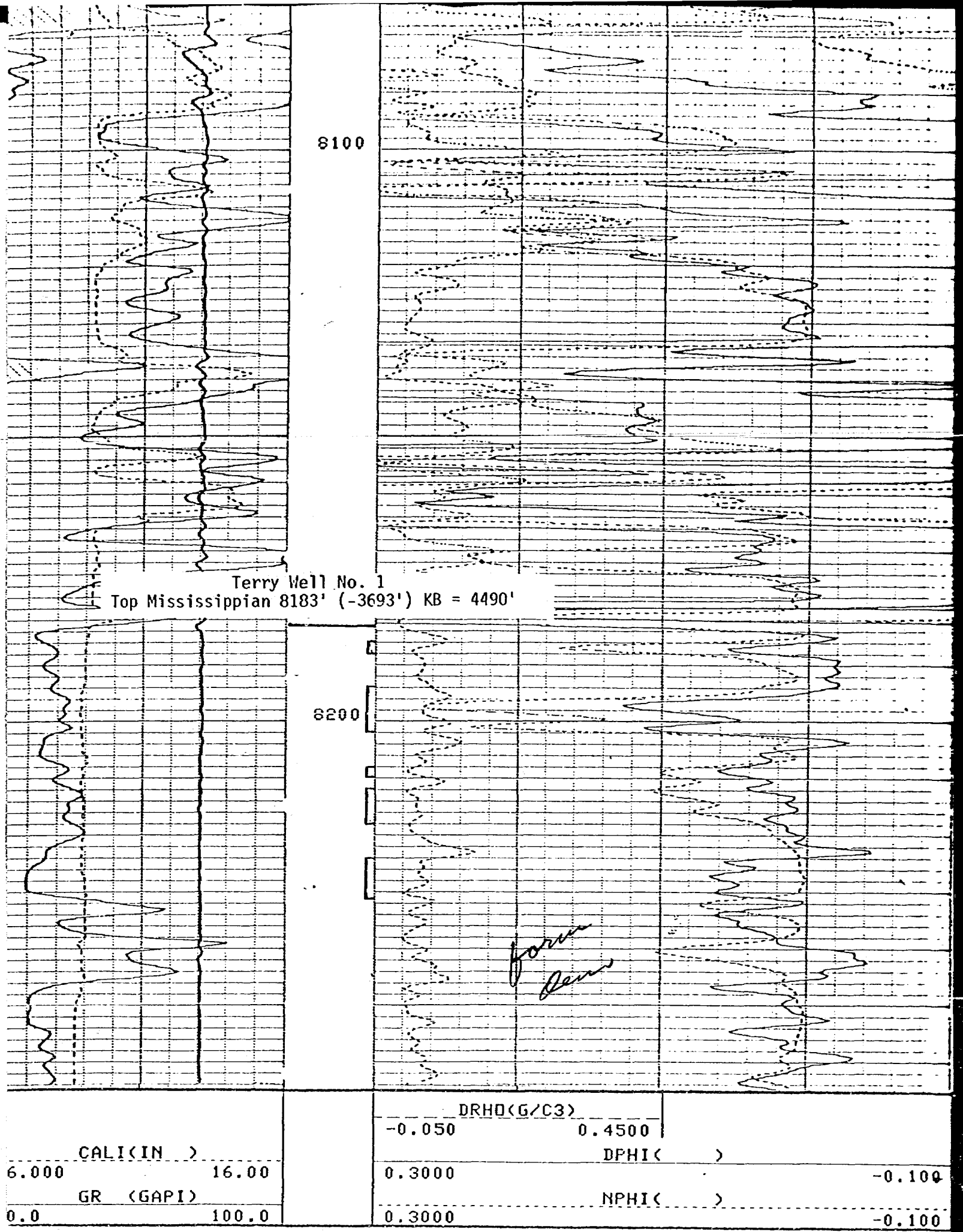
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 7
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Terry Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

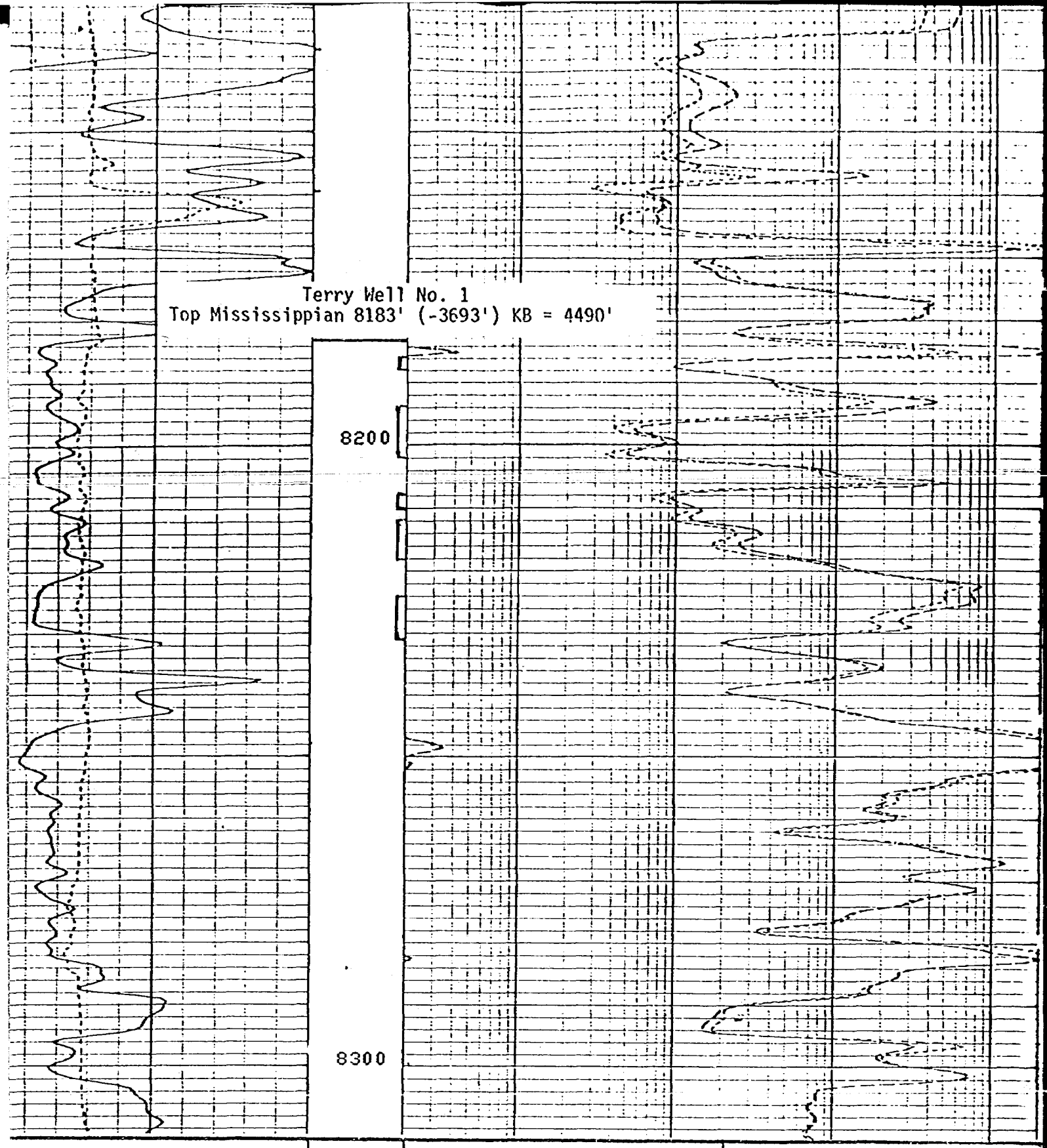
Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981						
06/1981						
07/1981	21	406	640	0	1576	0
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	21	406	640	0	1576	0

PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
TERRY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO




8100
Terry Well No. 1
Top Mississippian 8183' (-3693') KB = 4490'
8200
form
dens
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DRHO(G/C3)
-0.050
0.4500
DPHI( )
0.3000
-0.100
NPHI( )
0.3000
-0.100

Terry Well No. 1
Top Mississippian 8183' (-3693') KB = 4490'



CALI(IN)		LLD (OHMM)
5.000 16.00		2000. 200000
GR (GAPI)		MSFL(OHMM)
1.0 100.0		0.2000 2000.
		LLS (OHMM)
		0.2000 2000.
		LLD (OHMM)
		0.2000 2000.

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - COLLIER WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8046' (-3678') KB = 4368'

Perforated Production Interval: 8074'-8080' (2 JSPF)
8090'-8096' (2 JSPF)

Stimulation Treatment: Acidized with 5500 gallons MOD 101 acid (8-4-81)
Dropped 18 RCN ball sealers
Flushed with 32 bbls 2% KCl water

Initial Potential Test:

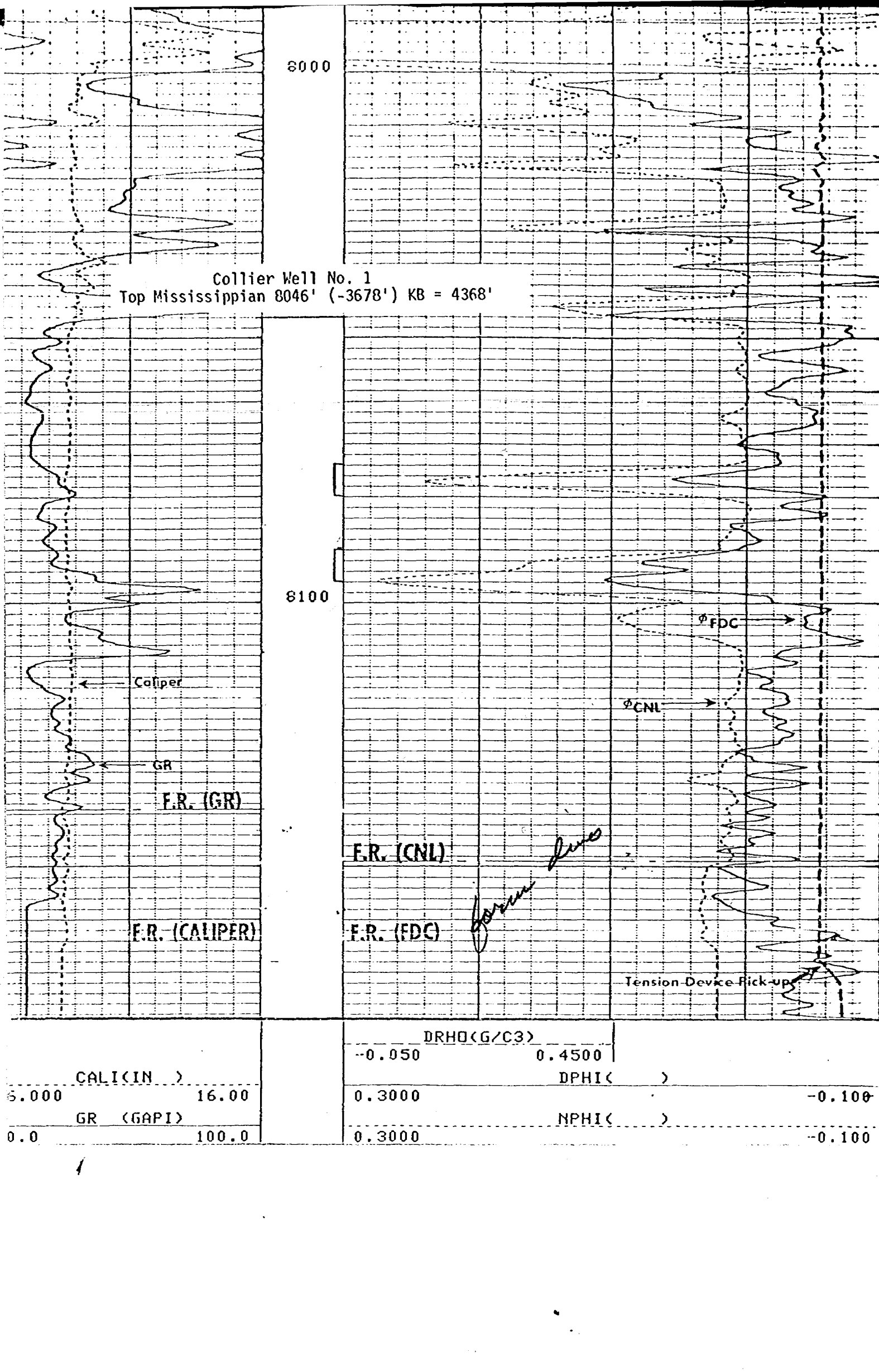
Date of Test: 8-5-81 (Swabbed 8-1/2 hours)

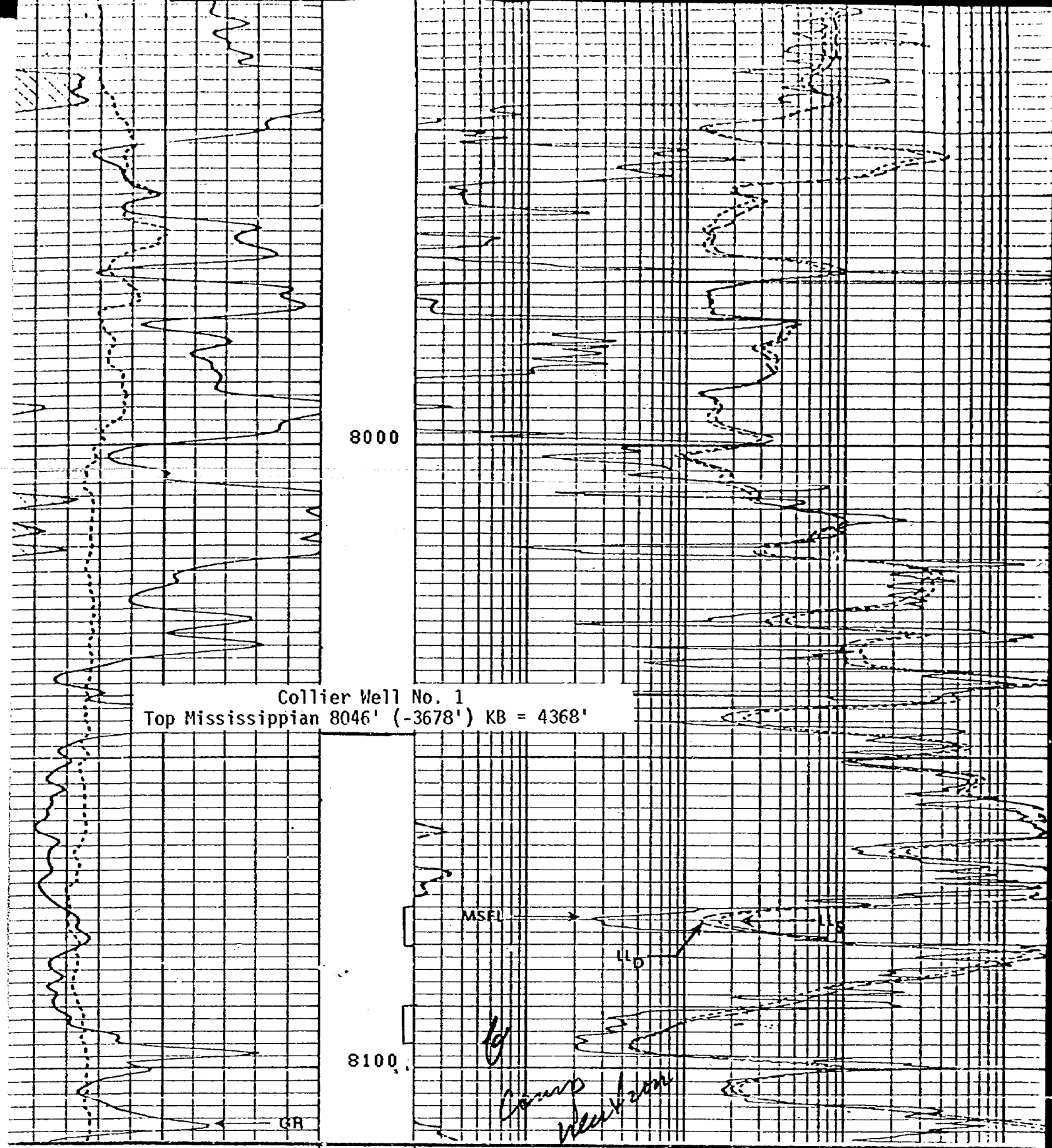
Recovered 16 bls oil, 41 bbls spent acid water, good show of gas

Current Status: Testing Pennsylvanian zone.

per 12' & 18 %
30 % wtr

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 8
Date August 12, 1981


8000
Collier Well No. 1
Top Mississippian 8046' (-3678') KB = 4368'
8100
Caliper
GR
F.R. (GR)
F.R. (CALIPER)
F.R. (CNL)
F.R. (FDC)
ϕ_{FDC}
ϕ_{CNL}
Tension Device Pick-up
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100



Collier Well No. 1
Top Mississippian 8046' (-3678') KB = 4368'

CALI(IN) 6.000 16.00		LLD (OHMM) 2000. 200000
		MSFL(OHMM) 0.2000 2000.
		LLS (OHMM) 0.2000 2000.
GR (GAPI) 0.0 100.0		LLD (OHMM) 0.2000 2000.

WELL DATA SHEET
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Well Name	Finley No. 1	Collier No. 1	Collier "A" No. 1	Radcliff No. 1	Terry No. 1	Harvey No. 1	Average Parameters
Perforated Interval (overall)	8250'-8302'	8074'-8096'	7986'-8001'	8173'-8212'	8186'-8231'	8244'-8248'	
Estimated Pay Thickness	29'	12'	15'	16'	25'	8'	16'
Porosity (%)	17	18	8	20	9	14	14
Water Saturation (%)	48	30	36	40	45	50	41
Initial Potential Test (bopd)	116	45 (est.)	101	20	58	55 (est.)	66
GOR (SCF/STB)	1827:1	Not Available	1188:1	1000:1	1207:1	Not Available	1305:1
Oil Gravity ^{O}API	40.8	Not Available	40	42.3	42.5	Not Available	41.4
Royalty & Override (%)	25	12.5	14.6	12.5	12.5	25	17

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 9
Date August 12, 1981

VOLUMETRIC CALCULATIONS
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Average Formation Characteristics:

Pay Thickness: 16'
Porosity: 14%
Water Saturation: 41%

Average Formation Fluid Characteristics:

Average Initial Potential Test: 66 BOPD
GOR: 1305:1
Oil Gravity: 41.4°API
Formation Volume Factor: 1.62 bbl/STB
Formation Temperature: 150°F

Original Oil In Place Under an 80-Acre Lease:

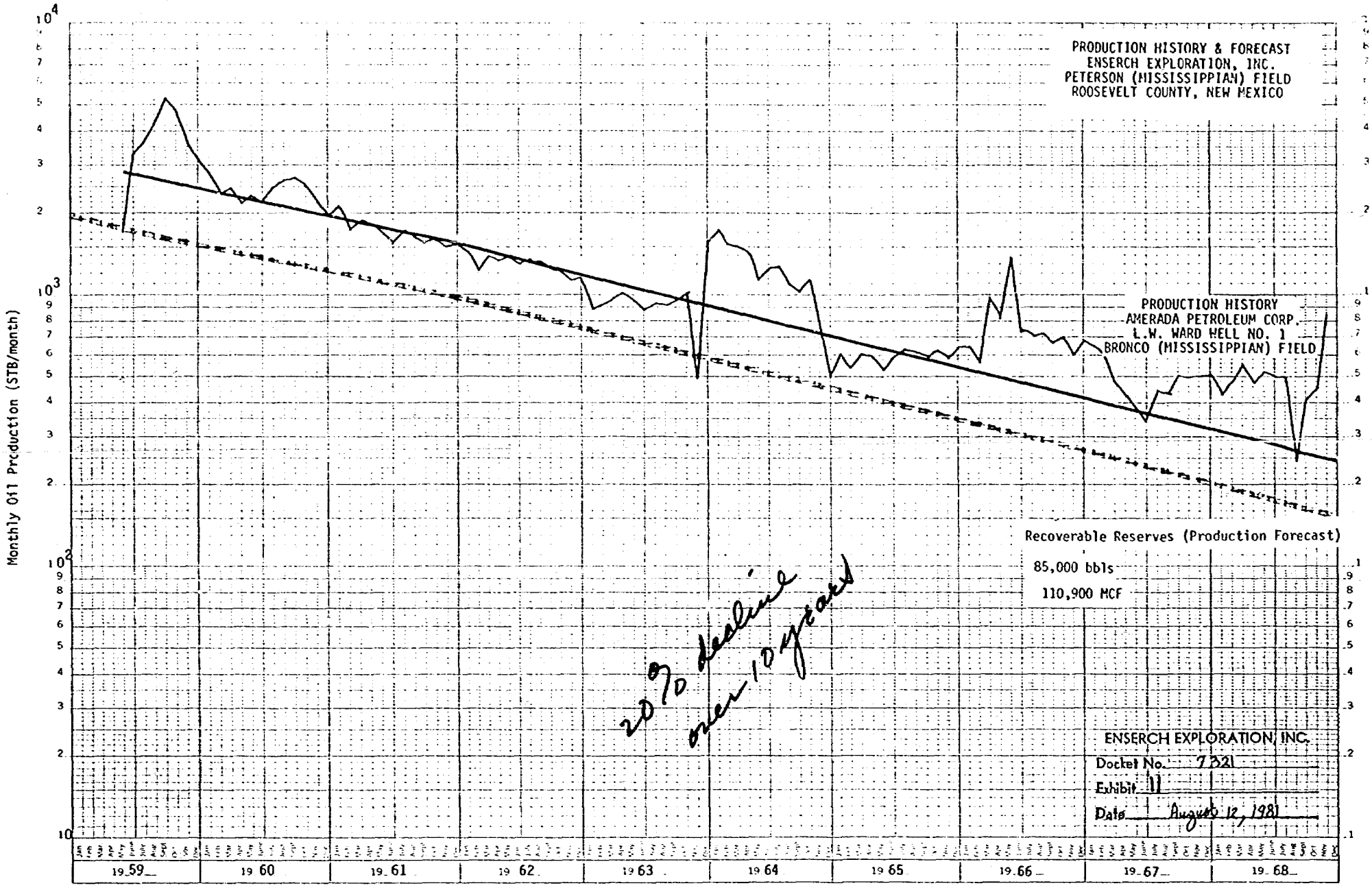
$$OOIP = 7758 \times A \times h \times \phi \times (1-S_w)/B_o$$
$$= 7758 \times 80 \times 16 \times 0.14 \times (1-0.41)/1.62$$
$$= 395 \text{ STB/acre-ft}$$
$$= 506{,}500 \text{ bbls}$$

Recoverable Oil Under an 80-Acre Lease:

$$N_p = OOIP \times R.F.$$
$$= 506{,}500 \times 0.15$$
$$= 76{,}000 \text{ bbls}$$

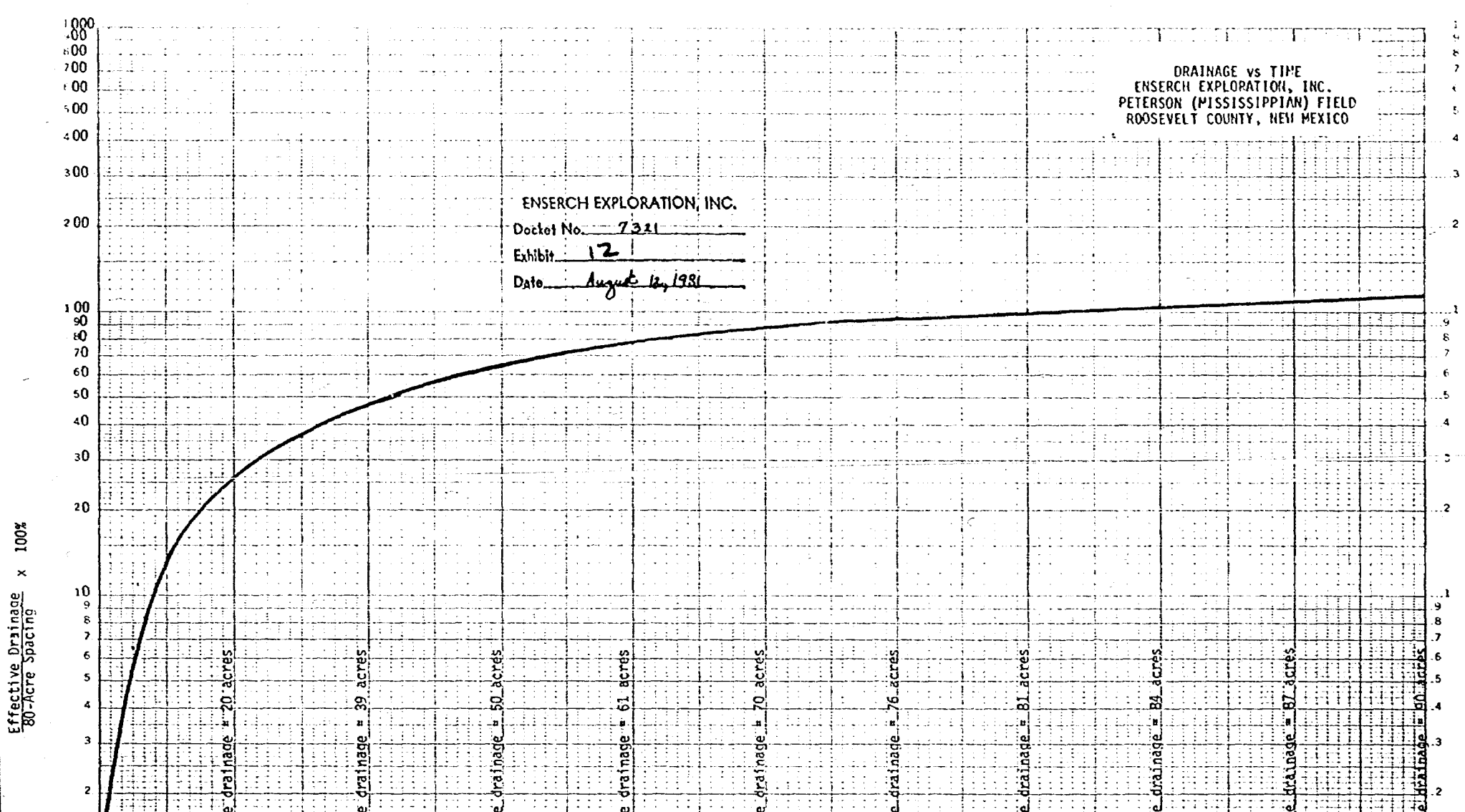
using 15% recovery factor

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 10
Date August 12, 1981


PRODUCTION HISTORY & FORECAST
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
PRODUCTION HISTORY
AMERADA PETROLEUM CORP.
L.W. WARD WELL NO. 1
BRONCO (MISSISSIPPIAN) FIELD
Monthly Oil Production (STB/month)
Recoverable Reserves (Production Forecast)
85,000 bbls
110,900 MCF
20 D decline
over 10 years
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 11
Date August 12, 1981
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968

PRODUCTION FORECAST
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Year	Oil Production STB	Gas Production MCF
1	19,000	24,800
2	16,000	20,900
3	13,000	16,950
4	10,000	13,050
5	8,000	10,450
6	6,000	7,850
7	4,500	5,850
8	3,500	4,550
9	3,000	3,900
10	2,000	2,600
Cumulative Production	85,000	110,900

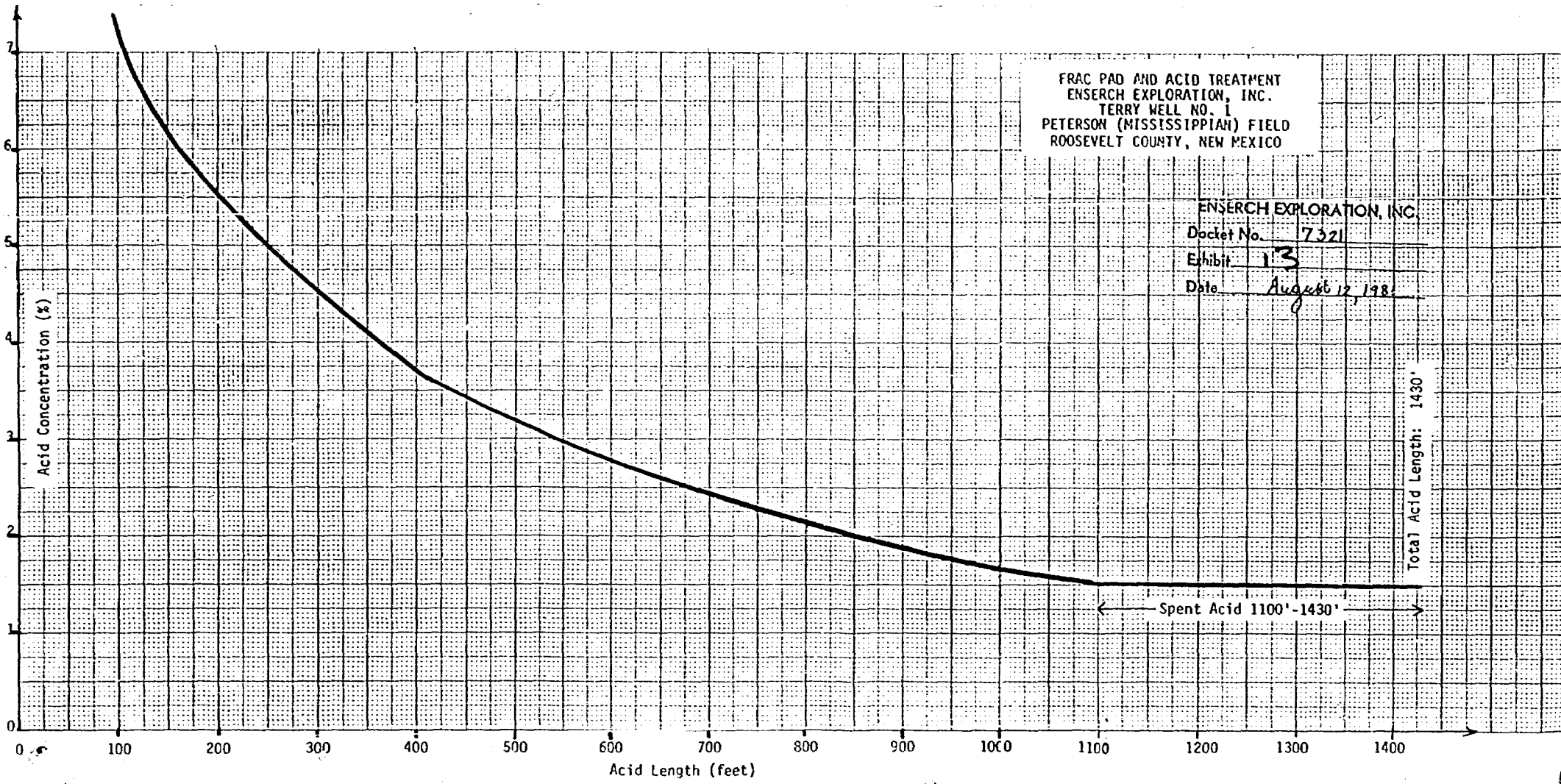

DRAINAGE vs TIME
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 12
Date August 12, 1981
Effective Drainage / 80-Acre Spacing x 100%
Effective drainage = 20 acres
Effective drainage = 39 acres
Effective drainage = 50 acres
Effective drainage = 61 acres
Effective drainage = 70 acres
Effective drainage = 76 acres
Effective drainage = 81 acres
Effective drainage = 84 acres
Effective drainage = 87 acres
Effective drainage = 90 acres
01
02
03
04
05
06
07
08
09
10

DRAINAGE CALCULATIONS
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Year	Oil Production (STB)	Cumulative Oil Production (STB)	Area Drained at Year End (Acres)	$\frac{\text{Area Drained}}{\text{80 Acre Spacing}} \times 100\%$ (%)
1	19,000	19,000	20	25%
2	16,000	35,000	37	46%
3	13,000	48,000	50	62%
4	10,000	58,000	61	76%
5	8,000	66,000	70	87%
6	6,000	72,000	76	95%
7	4,500	76,500	81	101%
8	3,500	80,000	84	105%
9	3,000	83,000	87	109%
10	2,000	85,000	90	112%
Cumulative Production	85,000	85,000	--	--

FRAC PAD AND ACID TREATMENT
ENSERCH EXPLORATION, INC.
TERRY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 13
Date August 12, 1981



DOWELL DIVISION OF THE DOW CHEMICAL COMPANY
PROJECT: STAD SYSTEM RUN RUN # 1
DATE: THU, JUL 16, 1981 (197) PAGE # 1

COMPANY:ENSEARCH WELL :TERRY1
COUNTY :ROOSEVELT STATE :NEWMEXICO
FIELD :N.PETERSON FORMTN:MISSISSIPPIAN

DOWELL ACID GUIDE II

FRAC PAD AND ACID TREATMENT

FRAC PAD: WF40 18000. GALLONS AT 9.0 BPM.

ACIDIZING AT 9.0 BPM WITH 15% HCL

ACID VOLUME	ACID LENGTH	CONC. AT ACID TIP	IN PLACE SPENDING ETCH WIDTH	FOLDS
990.	100.	7.5	0.665E-02	2.5
1565.	150.	6.4	0.704E-02	3.2
2193.	200.	5.6	0.750E-02	3.8
2872.	250.	5.0	0.799E-02	4.4
3602.	300.	4.5	0.852E-02	4.9
4383.	350.	4.0	0.907E-02	5.4
5212.	400.	3.7	0.963E-02	5.8
6089.	450.	3.4	0.102E-01	6.0
7014.	500.	3.1	0.108E-01	6.3
7986.	550.	2.9	0.114E-01	6.5
9003.	600.	2.7	0.120E-01	6.6
10066.	650.	2.5	0.126E-01	6.7
11173.	700.	2.4	0.132E-01	6.7
12322.	750.	2.2	0.138E-01	6.7
13514.	800.	2.1	0.144E-01	6.7
14748.	850.	2.0	0.150E-01	6.7
16022.	900.	1.9	0.157E-01	6.7
17335.	950.	1.8	0.163E-01	6.7
18687.	1000.	1.7	0.169E-01	6.7
20076.	1050.	1.6	0.176E-01	6.7
21502.	1100.	1.5	0.182E-01	6.7
21792.	1110.	1.5	0.183E-01	6.7

OVERFLUSHING AT 9.0 BPM WITH WF60
SPEARHEAD DEPLETED AT 1243. FEET.

RESUME:
PAD : 18000. GALLONS OF WF40
ACID : 21792. GALLONS OF 15% HCL
FLUSH: 3836. GALLONS OF WF60

TOTAL ACID PENETRATION =1302. FEET.
AVERAGE ETCH WIDTH = 0.213E-01 INCHES.
THEORETICAL FOLDS = 8.02
CONDUCTIVITY RATIO = 1.47 DARCY-FT/MD

PRESSURE BUILDUP ANALYSIS (DST)
HORNER PLOT - FINAL SHUT IN
ENSERCH EXPLORATION, INC.
RADCLIFF WELL NO. 1
PETERSON (MISSISSIPPINA) FIELD
ROOSEVELT COUNTY, NEW MEXICO

m = 2950-2730
m = 220 psi/cycle

ESIP = 2950 psi

3000
2000
1000
0

Pressure (psi)

ENSERCH EXPLORATION, INC.
Docket No. 7/821
Exhibit 14
Date August 12, 1981

Interval Tested: 8168'-8204'
Date of Test: 3/16/81
Strong Gas Blow
Gas to Surface in 5 min.
Permeability: 1.14 md
Reservoir pressure: 2950 psi

100 90 80 70 60 50 40 30 20 10 9 8 7 6 5 4 3 2 1

$(T + \Delta T)/\Delta T$

ECONOMIC EVALUATION
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

INPUT DATA

Well Cost:

Tangibles: $248,600
Intangibles: $615,200
Dry Hole Cost: $540,700

Total Well Cost: $863,800

Oil Price:

$35/Bbl + Escalation $2/year

Gas Price:

$2.36/MCF + Esclation $0.12/year

Hydrocarbon Reserves:

85,000 bbls
110,900 MMCF (GOR = 1305:1)
Life: 10 years

OUTPUT DATA

- First Case: One well per 80 acres

  Total Net Present Worth: $188,200
  Present Worth Index: 1.26

- Second Case: Two wells per 80 acres

  Total Net Present Worth: $-325,200
  Present Worth Index: 0.77

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 15
Date August 12, 1981

1	PROJECT & DESCRIPTION		ONE WELL PER 80 ACRE			
2	LIFE		10			
3	INIT EXP INV		615.20			
4	INIT CAP INV		248.60			
10	OIL PRICE INIT,ESC,MAX		35.00	2.00	53.00	
12	GAS PRICE INIT,ESC,MAX		236.00	6.00	296.00	
16	CONSTANT OPRTG EXP		15.00			
18	DIRECT TAX OIL		9.49			
19	DIRECT TAX GAS		3.00			
21	ANNUAL OIL PROD		19.00	16.00	13.00	10.00
	8.00	6.00	4.50	3.50	3.00	2.00
24	GAS CF/BBL		1305.00			
27	INIT WORKNG INTEREST		100.00			
28	INIT R & ORR LIQUIDS		17.00			
29	INIT R & ORR GAS		17.00			
39	PROBABILITY OF SUCCESS		75.00			
40	COST OF FAILURE		540.70			

***

PRODUCTION

YEAR	GROSS LIQUIDS MBBLS	GROSS GAS MMCF	NET LIQUIDS MBBLS	NET GAS MMCF
1	19.0	24.8	15.8	20.6
2	16.0	20.9	13.3	17.3
3	13.0	17.0	10.8	14.1
4	10.0	13.0	8.3	10.8
5	8.0	10.4	6.6	8.7
6	6.0	7.8	5.0	6.5
7	4.5	5.9	3.7	4.9
8	3.5	4.6	2.9	3.8
9	3.0	3.9	2.5	3.2
10	2.0	2.6	1.7	2.2
TOTALS	85.0	110.9	70.5	92.1

MEASURES OF PROFITABILITY

RISK ADJUSTED RESULTS

SUCCESS FACTOR = 75.00 %

100 % GROSS COST OF FAILURE = 540.70 $M

EXPECTED TOTAL PROJECT N.P.W. AT 14. % (M$)	***	188.2 ***
EXPECTED TOTAL PROJECT PRESENT WORTH INDEX	***	1.26 ***

1	PROJECT & DESCRIPTION	TWO WELLS PER 80 ACRE			
2	LIFE	10			
3	INIT EXP INV	1230.40			
4	INIT CAP INV	497.20			
10	OIL PRICE INIT,ESC,MAX	35.00	2.00	53.00	
12	GAS PRICE INIT,ESC,MAX	236.00	6.00	296.00	
16	CONSTANT OPRTG EXP	30.00			
18	DIRECT TAX OIL	9.49			
19	DIRECT TAX GAS	3.00			
21	ANNUAL OIL PROD	19.00	16.00	13.00	10.00
	8.00 6.00	4.50	3.50	3.00	2.00
24	GAS CF/BBL	1305.00			
27	INIT WORKNG INTEREST	100.00			
28	INIT R & ORR LIQUIDS	17.00			
29	INIT R & ORR GAS	17.00			
39	PROBABILITY OF SUCCESS	75.00			
***					
40	COST OF FAILURE	1081.40			

PRODUCTION

YEAR	GROSS LIQUIDS MBBLS	GROSS GAS MMCF	NET LIQUIDS MBBLS	NET GAS MMCF
1	19.0	24.8	15.8	20.6
2	16.0	20.9	13.3	17.3
3	13.0	17.0	10.8	14.1
4	10.0	13.0	8.3	10.8
5	8.0	10.4	6.6	8.7
6	6.0	7.8	5.0	6.5
7	4.5	5.9	3.7	4.9
8	3.5	4.6	2.9	3.8
9	3.0	3.9	2.5	3.2
10	2.0	2.6	1.7	2.2
TOTALS	85.0	110.9	70.5	92.1

MEASURES OF PROFITABILITY

RISK ADJUSTED RESULTS

SUCCESS FACTOR = 75.00 %

100 % GROSS COST OF FAILURE = 1081.40 $M

EXPECTED TOTAL PROJECT N.P.W. AT 14. % (M$)	***	-325.2 ***
EXPECTED TOTAL PROJECT PRESENT WORTH INDEX	***	0.77 ***

WELL COMPLETION FORM

ENSERCH EXPLORATION, INC. - FINLEY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8236' (-3720') KB = 4516'

Perforated Production Interval: 8250'-8254' (1 JSPF)
8265'-8269' (1 JSPF)
8281'-8302' (1 JSPF)

Stimulation Treatment: Spotted 100 gallons of 15% MCA acid
Acidized with 5000 gallons MOD 202 acid (2-1-81)
Dropped 20 RCN ball sealers
Flushed with 35 gallons 2% KCl water
Re-acidized with 10,000 gallons MOD 202 acid (2-6-81)
Flushed with 38 gallons 2% KCl water

Initial Potential Test:

Date of Test: 4-19-81 (Pumping)

116 BOPD + 23 BWPD + 212 MCFPD

GOR = 1827:1

Current Status: Shut-in awaiting gas line connection.

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 3
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Finley Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981	9	1563	2023	355	1294	18
05/1981	31	1252	5411	90	4321	7
06/1981	Well shut-in awaiting gas line connection					
07/1981	Well shut-in awaiting gas line connection					
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	40	2815	7434	445	2641	14

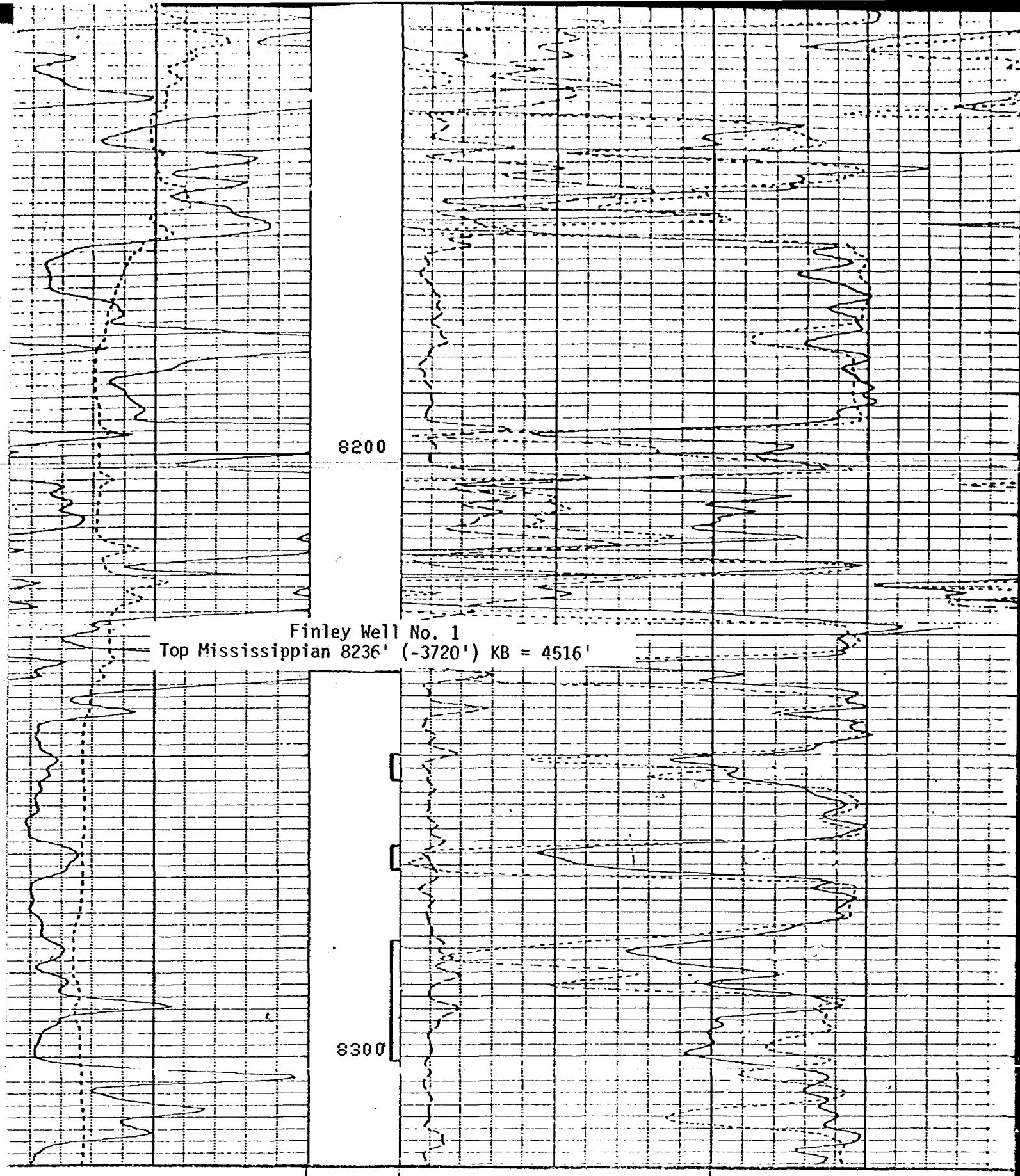
PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
FINLEY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2 10^3 9 8 7 6 5 4 3 2 10^2 9 8 7 6 5 4 3 2 10

Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.

19 81 | 19 82 | 19 83 | 19 84 | 19 85

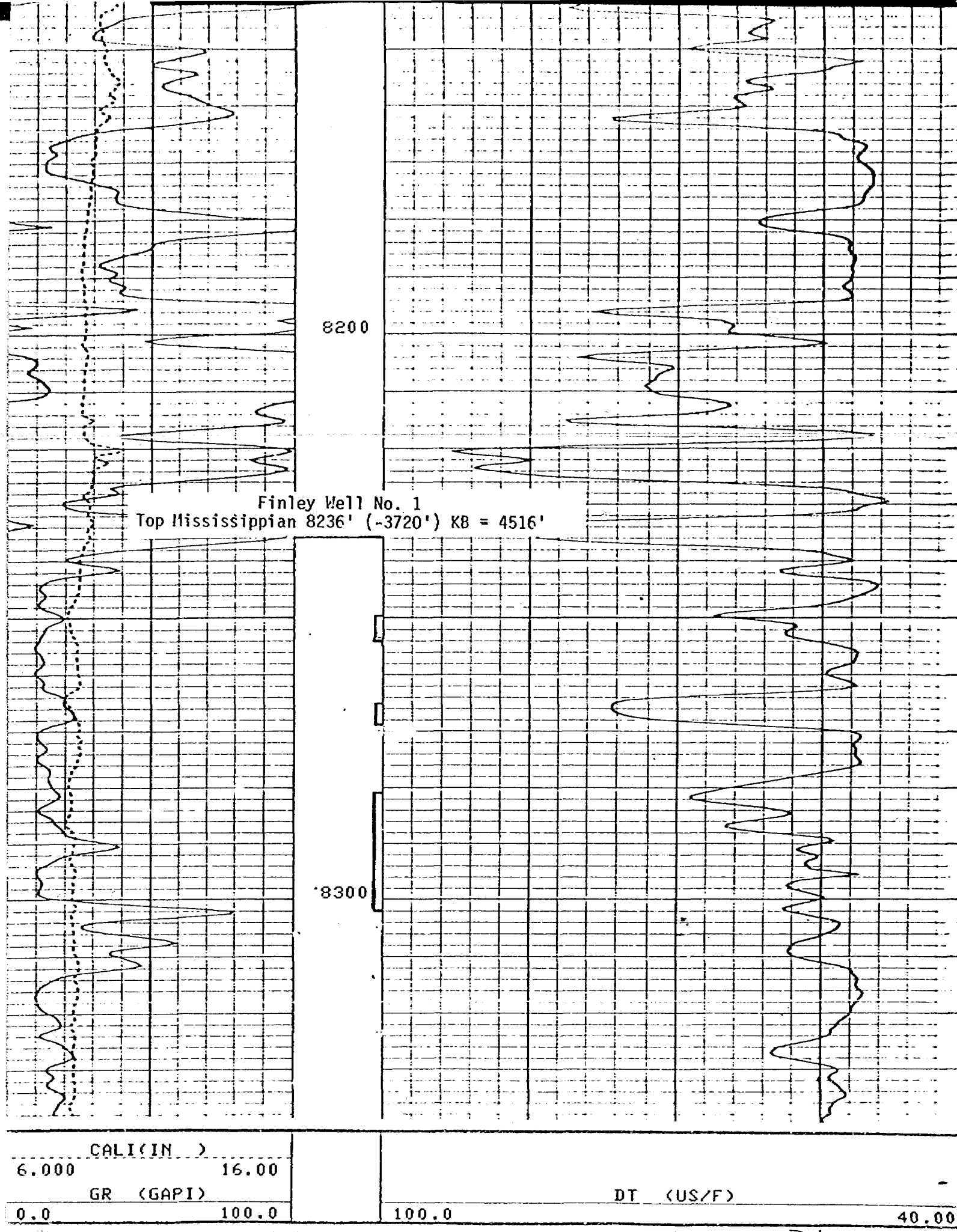

8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100

8200

Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'

8300

CALI(IN)		LLD (OHMM)	
6.000	16.00	2000.	200000
GR (GAPI)		MSFL(OHMM)	
0.0	100.0	0.2000	2000.
		LLS (OHMM)	
		0.2000	2000.
		LLD (OHMM)	
		0.2000	2000.


8200
Finley Well No. 1
Top Mississippian 8236' (-3720') KB = 4516'
8300
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DT (US/F)
100.0
40.00

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - RADCLIFF WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8146' (-3700') KB = 4446'

Perforated Production Interval: 8173'-8181' (2 JSPF)
8204'-8212' (2 JSPF)

Stimulation Treatment: Acidized with 4000 gallons MOD 202 acid (3-27-81)
Dropped 14 RCN ball sealers
Re-acidized with 10,000 gallons MOD 202 acid (4-2-81)
Dropped 24 RCN ball sealers
Re-acidized with 30,000 gallons 70 Quality MOD 202 acid (4-14-81)
Dropped 25 RCN ball sealers

Initial Potential Test:

Date of Test: 5-6-81 (pumping)

20 BOPD + 26 BWPD + 20 MCFPD

GOR = 1000:1

Current Status: Shut-in awaiting gas line connection.

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 4
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Radcliff Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981	8	146	140	130	958	47
06/1981	8	129	124	89	961	41
07/1981	Well shut-in awaiting gas line connection					
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	16	275	264	219	960	44

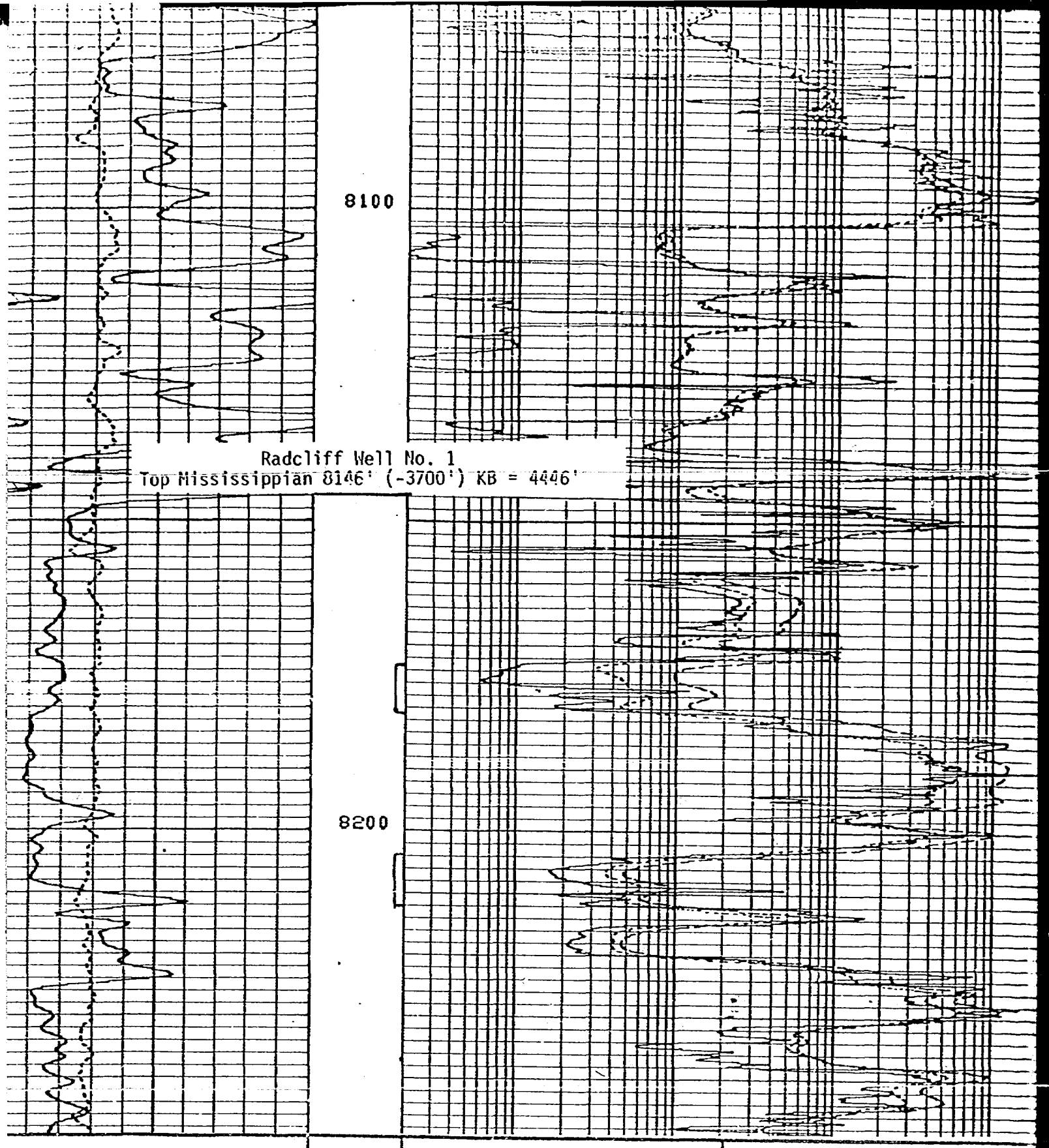
PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
RADCLIFF WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2 10^3 9 8 7 6 5 4 3 2 10^2 9 8 7 6 5 4 3 2 10

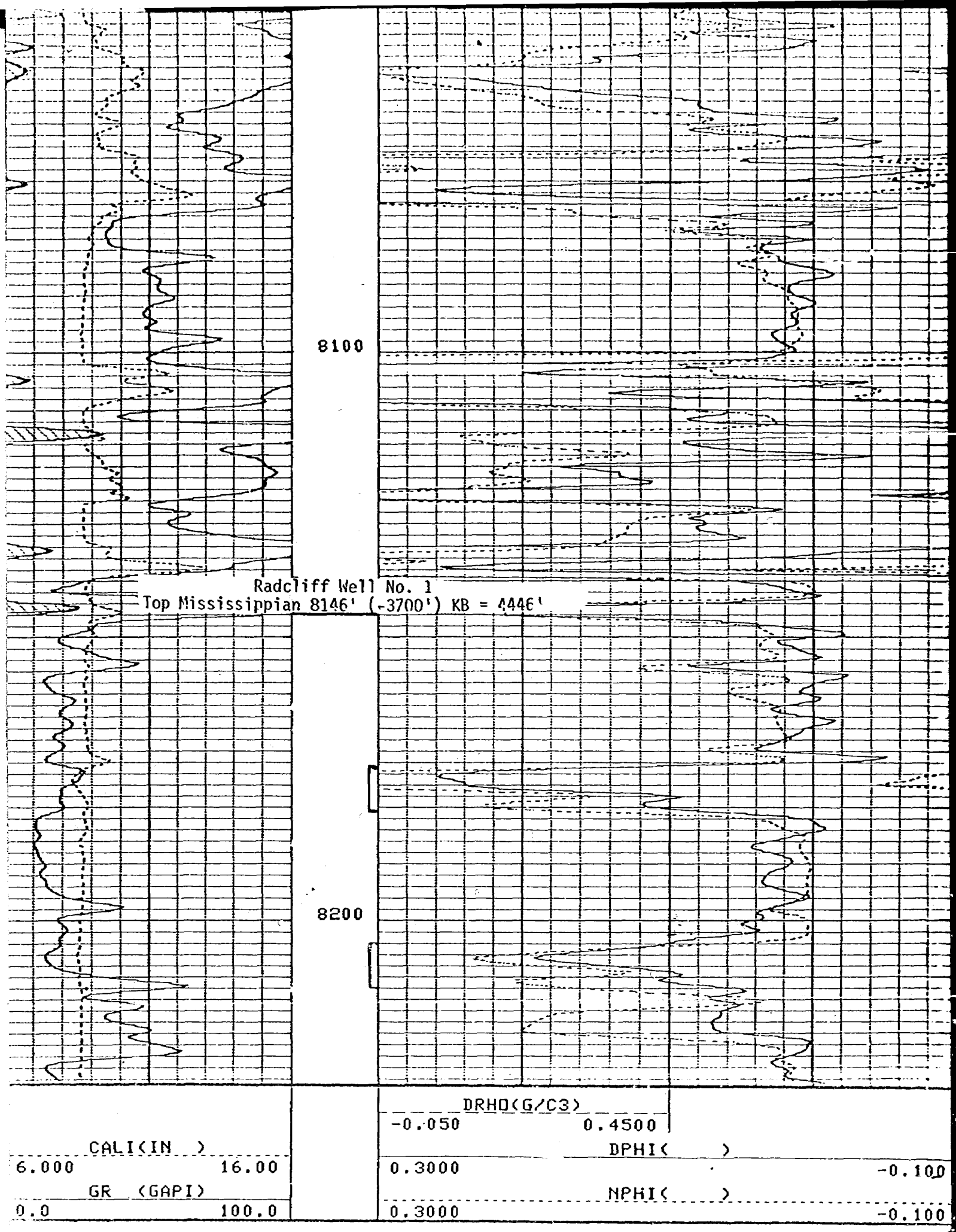
Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.

19 81 | 19 82 | 19 83 | 19 84 | 19 85



Radcliff Well No. 1
Top Mississippian 8146' (-3700') KB = 4446'

CALI(IN)		LLD (OHMM)	
6.000	16.00	2000.	200000
GR (GAPI)		MSFL(OHMM)	
0.0	100.0	0.2000	2000.
		LLS (OHMM)	
		0.2000	2000.
		LLD (OHMM)	
		0.2000	2000.


8100
Radcliff Well No. 1
Top Mississippian 8146' (-3700') KB = 4446'
8200
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DRHO(G/C3)
-0.050
0.4500
DPHI( )
0.3000
-0.100
NPHI( )
0.3000
-0.100

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - COLLIER "A" WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 7972' (-3619') KB = 4353'

Perforated Production Interval: 7986'-8001' (2 JSPF)

Stimulation Treatment: Spotted 150 gallons 15% MCA acid (5-2-81)
Acidized with 5500 gallons 15% NE FE HCl acid
Dropped 22 RCN ball sealers

Initial Potential Test:

Date of Test: 6-5-81 (Flowing)

101 BOPD + 7 BWPD + 120 MCFPD

GOR = 1188:1

Current Status: Shut-in awaiting gas line connection.

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 5
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Collier "A" Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981	23	1695	3476	9	1460	0
06/1981	30	1726	2513	27	1456	0
07/1981	3	157	322	0	2051	0
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	56	3078	6311	36	2050	0

07/1981: Production runs

PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
COLLIER "A" WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Monthly Oil Production (STB/month)

10^4 9 8 7 6 5 4 3 2

10^3 9 8 7 6 5 4 3 2

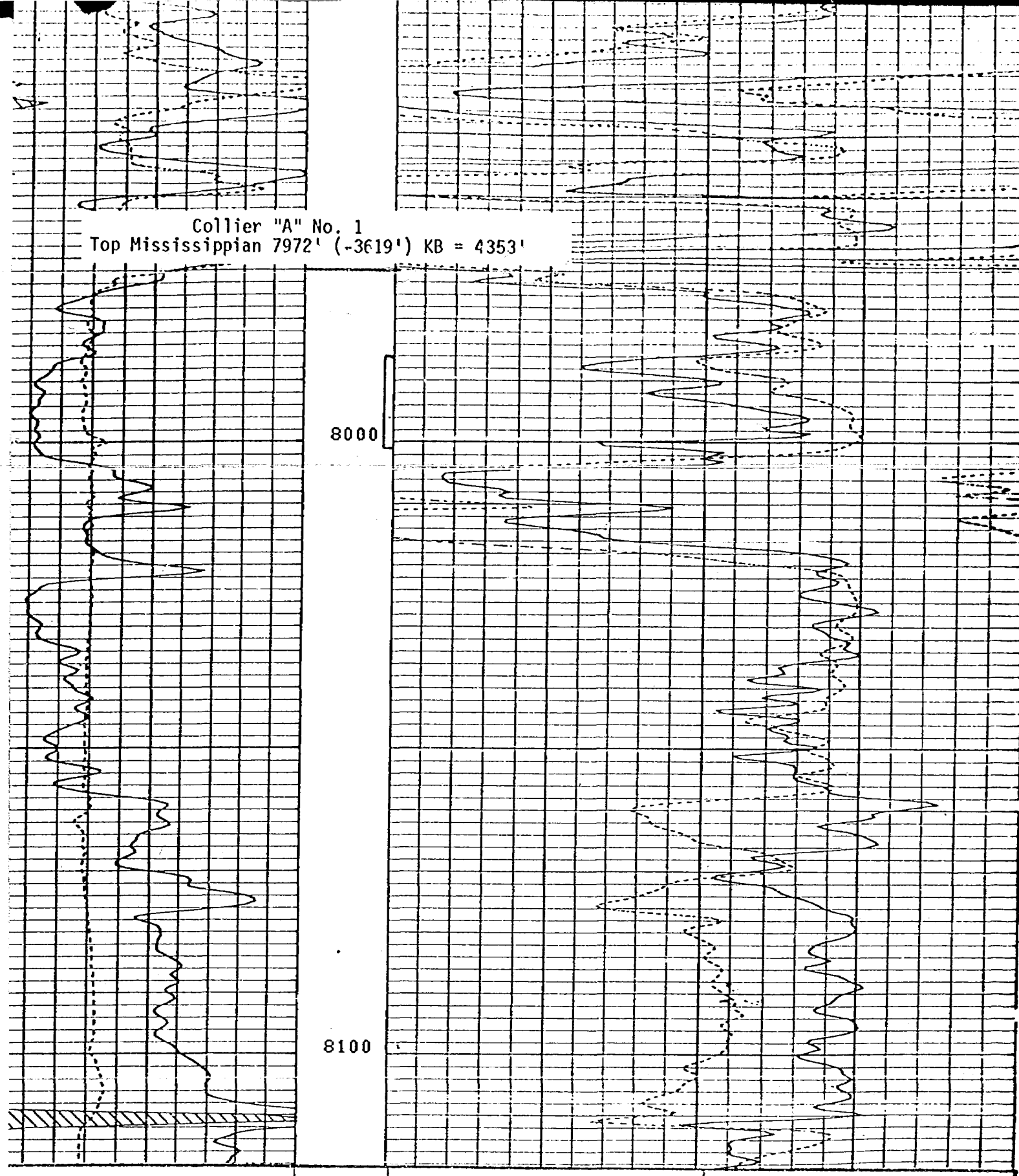
10^2 9 8 7 6 5 4 3 2

10

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

19 81 | 19 82 | 19 83 | 19 84 | 19 85

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'



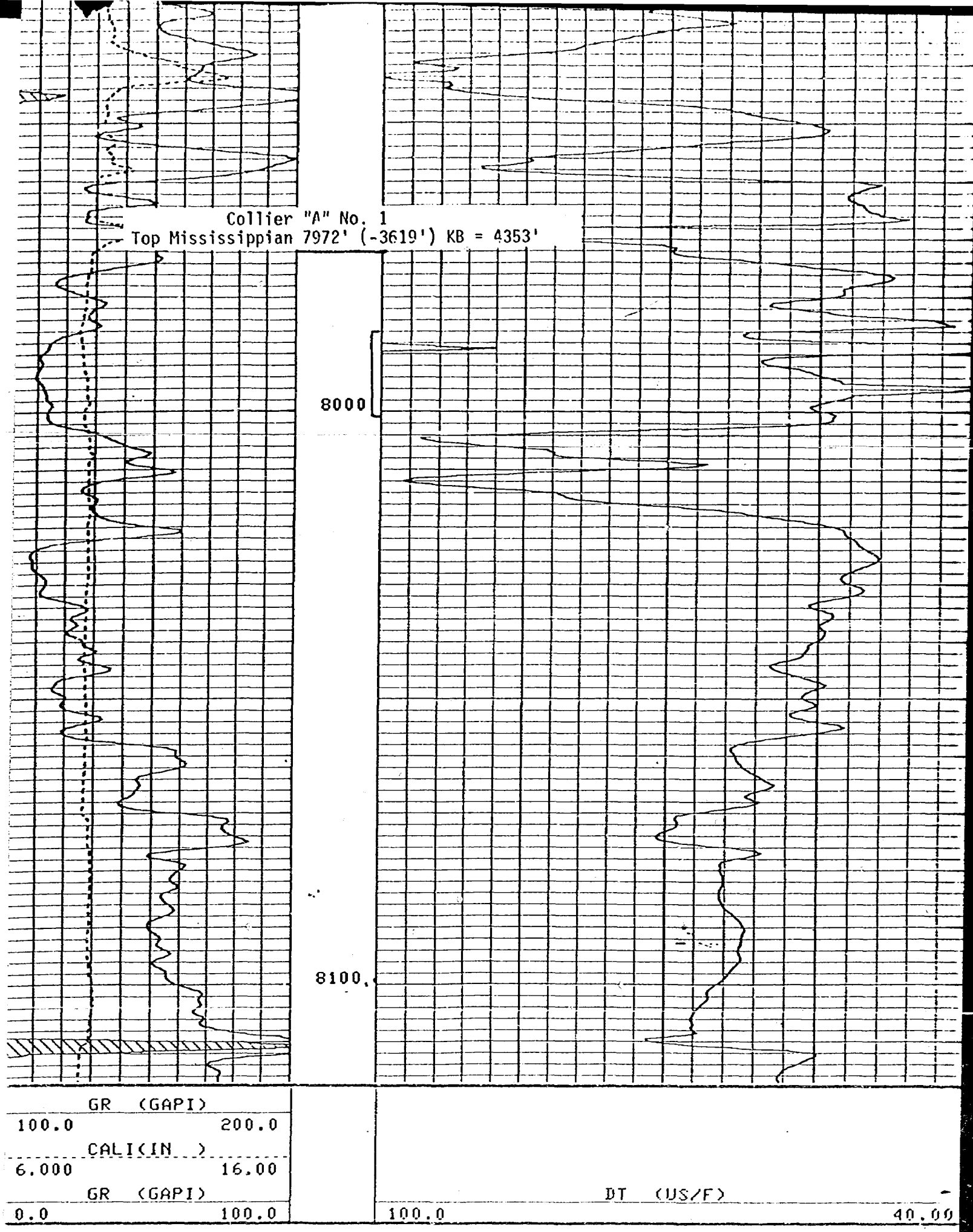
CALI(IN)		DRHO(G/C3)
.000		-0.050
16.00		0.4500
GR (GAPI)		DPHI( )
.0		0.3000
100.0		-0.100
		NPHI( )
		0.3000
		-0.100

Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'

8000

8100

CALI(IN)		LLD (OHMM)	
6.000	16.00	2000.	200000
GR (GAPI)		MSFL(OHMM)	
0.0	100.0	0.2000	2000.
		LLS (OHMM)	
		0.2000	2000.
		LLD (OHMM)	
		0.2000	2000.


Collier "A" No. 1
Top Mississippian 7972' (-3619') KB = 4353'
8000
8100
GR (GAPI)
100.0
200.0
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DT (US/F)
100.0
40.00

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - A. HARVEY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8226' (-3703') KB = 4523'

Perforated Production Interval: 8244'-8248' (1 JSPF)
8252'-8256' (1 JSPF)

Stimulation Treatment: Acidized with 5000 gallons of 15% NE FE HCl acid (7-14-81)
Dropped 8 ball sealers

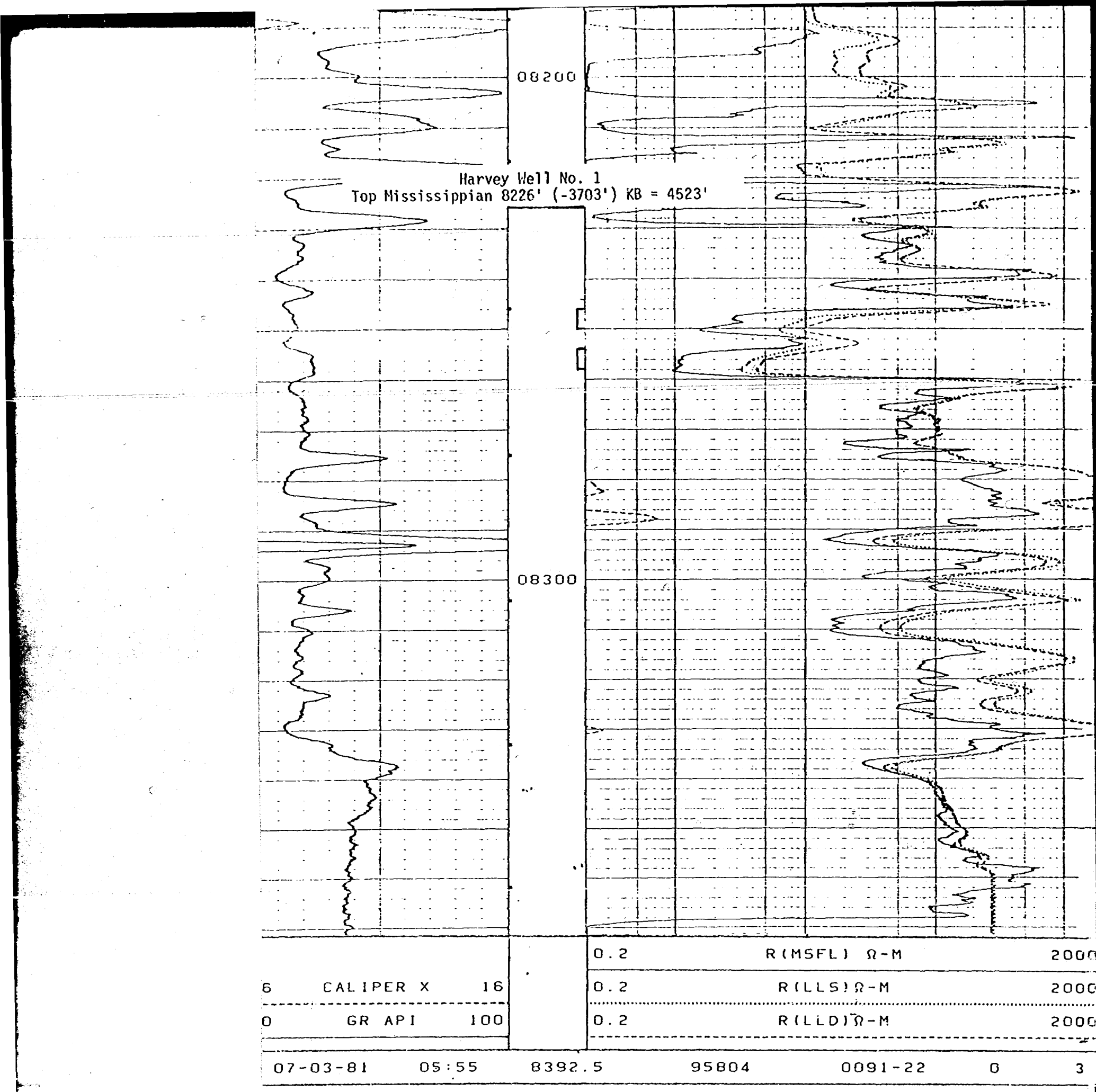
Initial Potential Test:

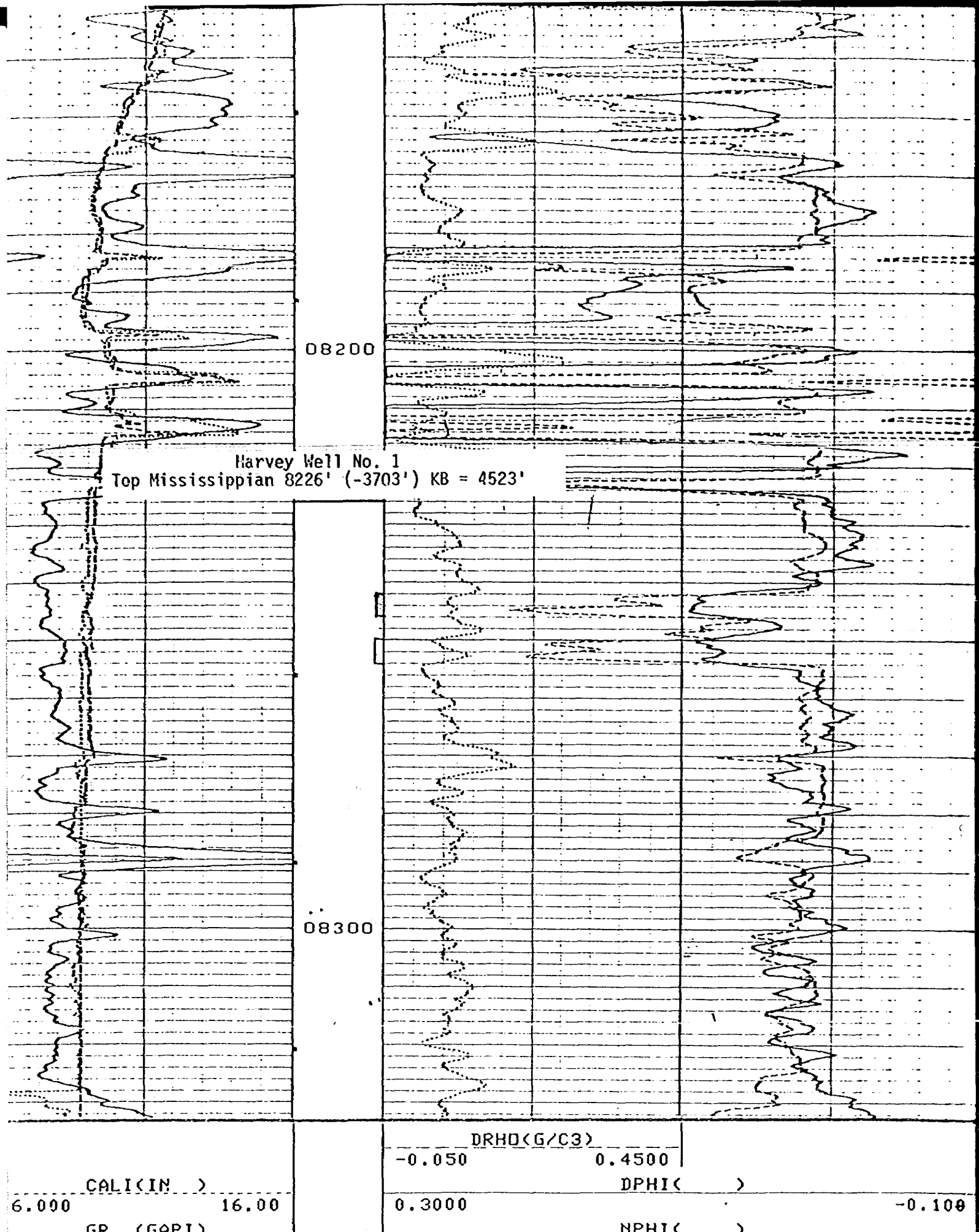
Date: 7-16-81 (Swabbed 7 hours)

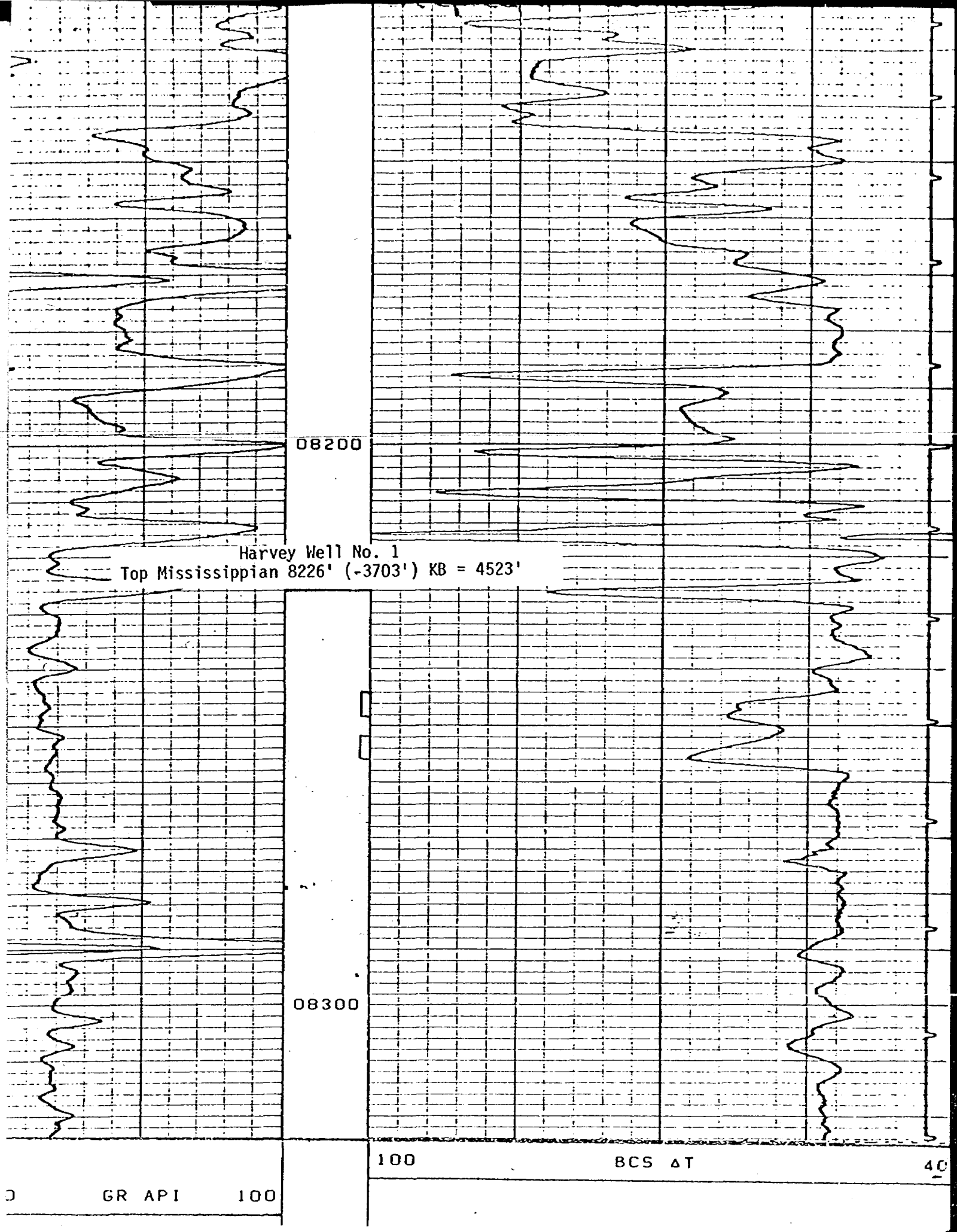
55 BOPD + 86 bbls spend acid water + good show of gas

Current Status: Well completed through Pennsylvanian zone.

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 6
Date August 12, 1981


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
6 CALIPER X 16
0 GR API 100
0.2 R(MSFL) Ω-M 2000
0.2 R(LLS) Ω-M 2000
0.2 R(LLD) Ω-M 2000
07-03-81 05:55 8392.5 95804 0091-22 0 3


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
100.0
DRHO(G/C3)
-0.050
0.4500
DPHI( )
0.3000
-0.100
NPHI( )
0.3000
-0.100


08200
Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'
08300
100
BCS ΔT
40
0
GR API
100

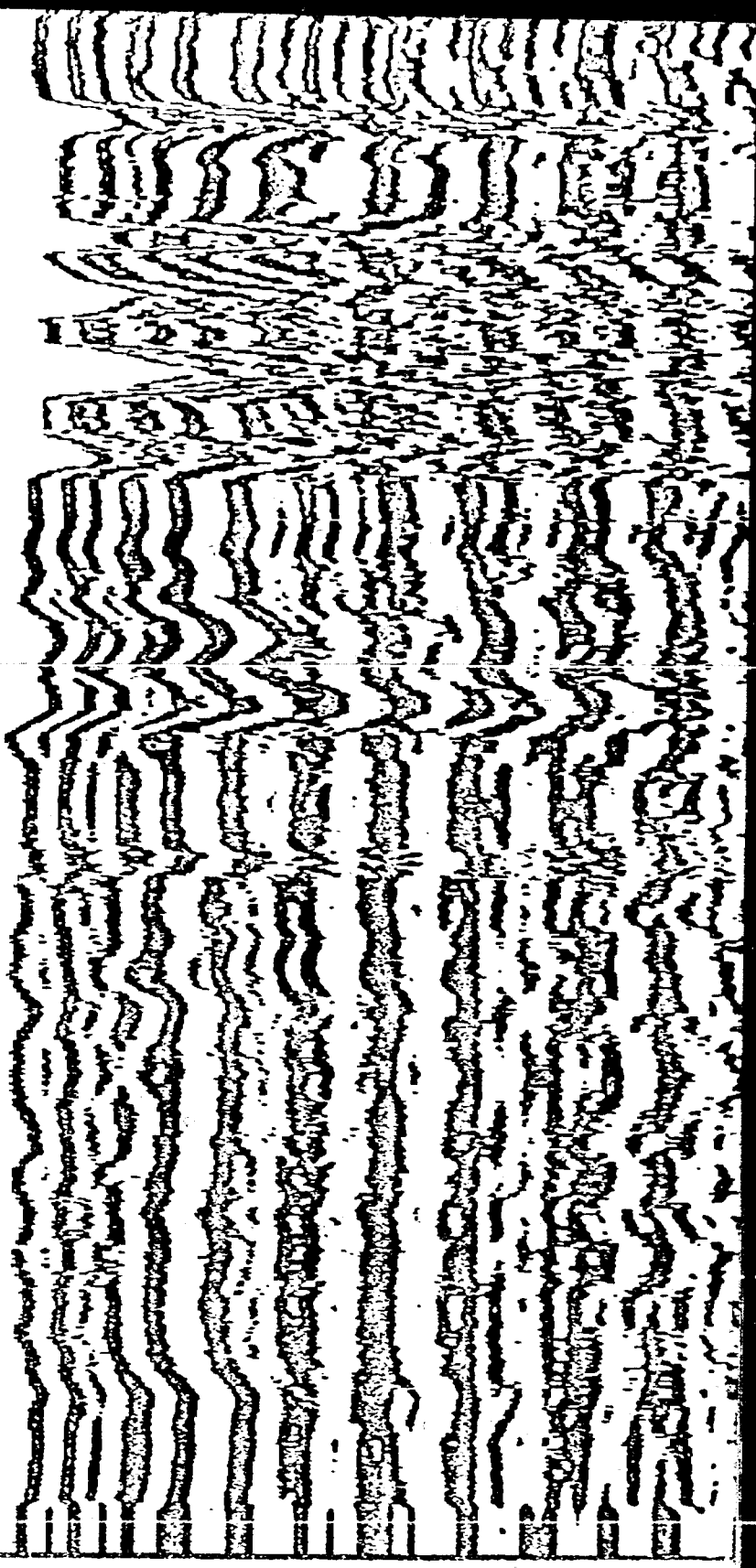
08200

Harvey Well No. 1
Top Mississippian 8226' (-3703') KB = 4523'

08300

GR

ΔT



GR API 100

00 BCS ΔT 40

100 SEIS SPECT 1100

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - TERRY WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8183' (-3693') KB = 4490'

Perforated Production Interval:

8208'-8210' (2 JSPF) 8212'-8218' (2 JSPF) 8224'-8231' (2 JSPF)	First stage
8186'-8188' (2 JSPF) 8194'-8202' (2 JSPF)	Second stage

Stimulation Treatment:

First Stage Acid Job: Spotted 150 gallons 15% MCA acid (6-17-81)
Pumped 500 gallons NE FE acid
Dropped 24 RCN ball sealers

Second Stage Acid Job: Spotted 150 gallons 15% MCA acid (6-21-81)
Pumped 3500 gallons 15% NE FE acid
Dropped 16 RCN ball sealers

Fracturing: 36,000 gallons 15% NCl NE FE acid (6-26-81)
23,000 gallons WF 40 gel
19,000 gallons WF 60 gel
24,400 pounds 100 mesh sand
34,000 pounds 20/40 mesh sand
944,000 SCF nitrogen

Initial Potential Test:

Date of Test: 7-21-81 (Pumping)
58 BOPD + 27 BWPD + 70 MCFPD
GOR = 1207:1

Current Status: Shut-in awaiting gas line connection.

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 7
Date August 12, 1981

PRODUCTION HISTORY
Enserch Exploration, Inc.
Terry Well No. 1
Peterson (Mississippian) Field
Roosevelt County, New Mexico

Date	Days of Production	Oil (STB)	Gas (MCF)	Water (Bbl)	GOR SCF/Bbl	Water Cut %
04/1981						
05/1981						
06/1981						
07/1981	21	406	640	0	1576	0
08/1981	Well shut-in awaiting gas line connection					
09/1981						
10/1981						
11/1981						
12/1981						
Cumulative Production	21	406	640	0	1576	0

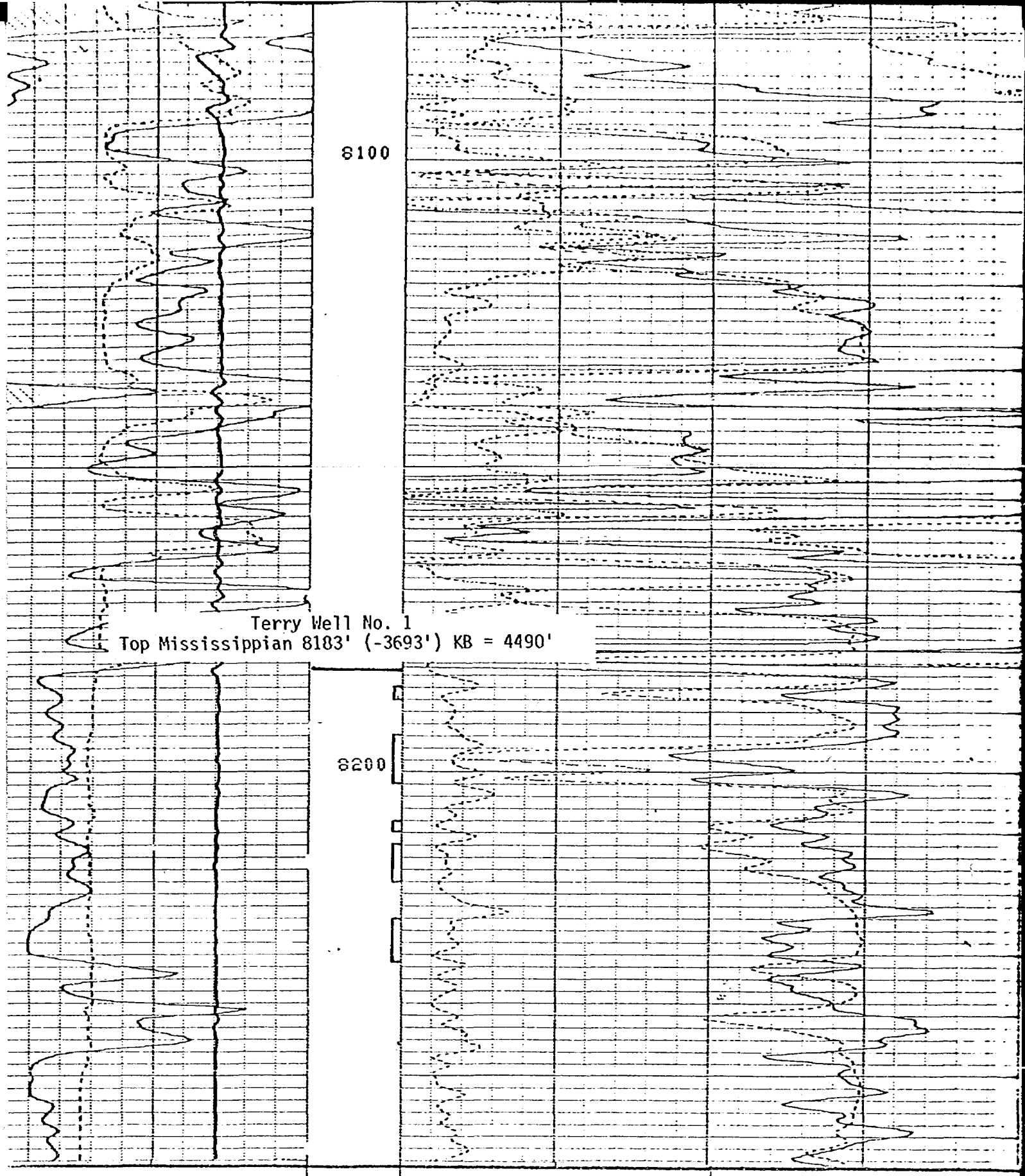
PRODUCTION HISTORY
ENSERCH EXPLORATION, INC.
TERRY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Monthly Oil Production (STB/month)

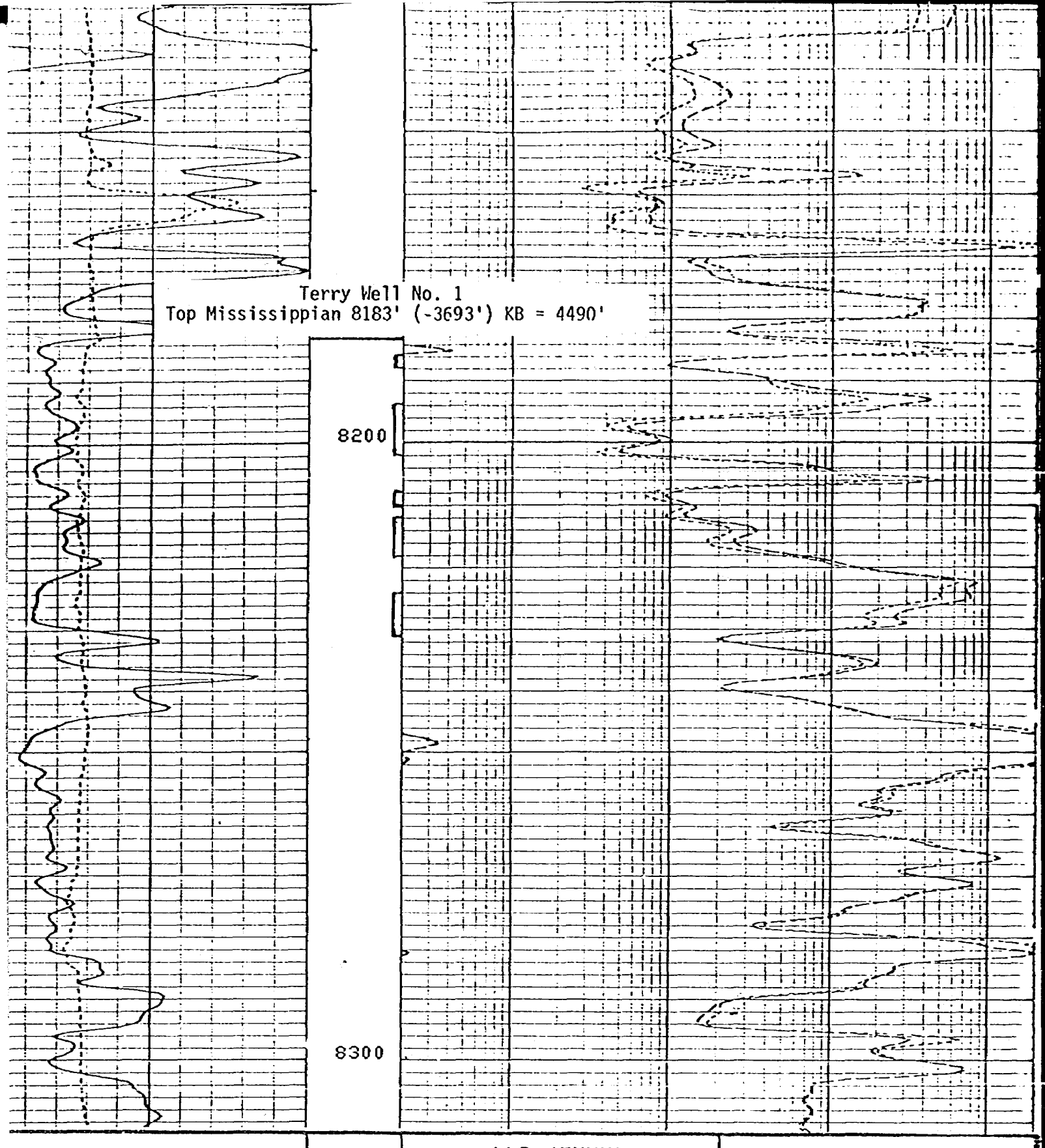
10^4 9 8 7 6 5 4 3 2 10^3 9 8 7 6 5 4 3 2 10^2 9 8 7 6 5 4 3 2 10

Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.

1981 | 1982 | 1983 | 1984 | 1985


8100
8200
Terry Well No. 1
Top Mississippian 8183' (-3693') KB = 4490'
DRHO(G/C3)
-0.050
0.4500
CALI(IN)
6.000
16.00
DPHI( )
0.3000
-0.100
GR (GAPI)
0.0
100.0
NPHI( )
0.3000
-0.100

Terry Well No. 1
Top Mississippian 8183' (-3693') KB = 4490'



		LLD (OHMM)
		2000. 200000
		MSFL(OHMM)
		0.2000 2000.
CALI(IN)		LLS (OHMM)
5.000 16.00		0.2000 2000.
GR (GAPI)		LLD (OHMM)
.0 100.0		0.2000 2000.

WELL COMPLETION DATA

ENSERCH EXPLORATION, INC. - COLLIER WELL NO. 1

PETERSON (MISSISSIPPIAN) FIELD

ROOSEVELT COUNTY, NEW MEXICO

Top Mississippian Formation: 8046' (-3678') KB = 4368'

Perforated Production Interval: 8074'-8080' (2 JSPF)
8090'-8096' (2 JSPF)

Stimulation Treatment: Acidized with 5500 gallons MOD 101 acid (8-4-81)
Dropped 18 RCN ball sealers
Flushed with 32 bbls 2% KCl water

Initial Potential Test:

Date of Test: 8-5-81 (Swabbed 8-1/2 hours)

Recovered 16 bls oil, 41 bbls spent acid water, good show of gas

Current Status: Testing Pennsylvanian zone.

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 8
Date August 12, 1981

8000

Collier Well No. 1
Top Mississippian 8046' (-3678') KB = 4368'

8100

ϕ_{FDC}

Caliper

ϕ_{CNL}

GR

F.R. (GR)

F.R. (CNL)

F.R. (CALIPER)

F.R. (FDC)

Tension Device Pick-up

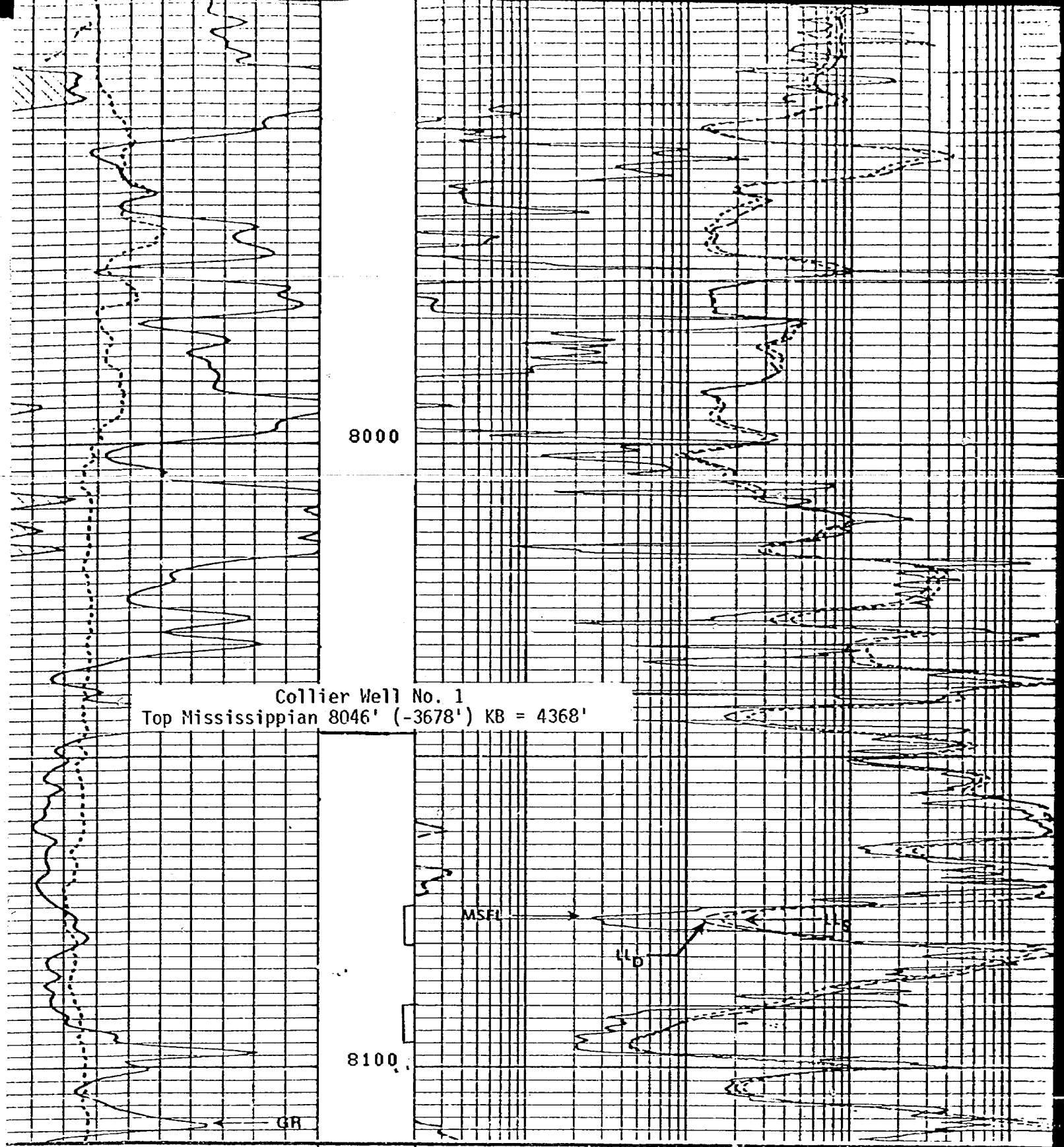
DRHO(G/C3)
-0.050 0.4500

CALI(IN)
6.000 16.00

DPHI( )
0.3000 -0.100

GR (GAPI)
0.0 100.0

NPHI( )
0.3000 -0.100



Collier Well No. 1
Top Mississippian 8046' (-3678') KB = 4368'

CALI(IN)		LLD (OHMM)	
6.000	16.00	2000.	200000
GR (GAPI)		MSFL(OHMM)	
0.0	100.0	0.2000	2000.
		LLS (OHMM)	
		0.2000	2000.
		LLD (OHMM)	
		0.2000	2000.

WELL DATA SHEET
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Well Name	Finley No. 1	Collier No. 1	Collier "A" No. 1	Radcliff No. 1	Terry No. 1	Harvey No. 1	Average Parameters
Perforated Interval (overall)	8250'-8302'	8074'-8096'	7986'-8001'	8173'-8212'	8186'-8231'	8244'-8248'	
Estimated Pay Thickness	29'	12'	15'	16'	25'	8'	16'
Porosity (%)	17	18	8	20	9	14	14
Water Saturation (%)	48	30	36	40	45	50	41
Initial Potential Test (bopd)	116	45 (est.)	101	20	58	55 (est.)	66
GOR (SCF/STB)	1827:1	Not Available	1188:1	1000:1	1207:1	Not Available	1305:1
Oil Gravity ^{O}API	40.8	Not Available	40	42.3	42.5	Not Available	41.4
Royalty & Override (%)	25	12.5	14.6	12.5	12.5	25	17

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 9
Date August 12, 1981

VOLUMETRIC CALCULATIONS
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Average Formation Characteristics:

Pay Thickness: 16'
Porosity: 14%
Water Saturation: 41%

Average Formation Fluid Characteristics:

Average Initial Potential Test: 66 BOPD
GOR: 1305:1
Oil Gravity: 41.4°API
Formation Volume Factor: 1.62 bbl/STB
Formation Temperature: 150°F

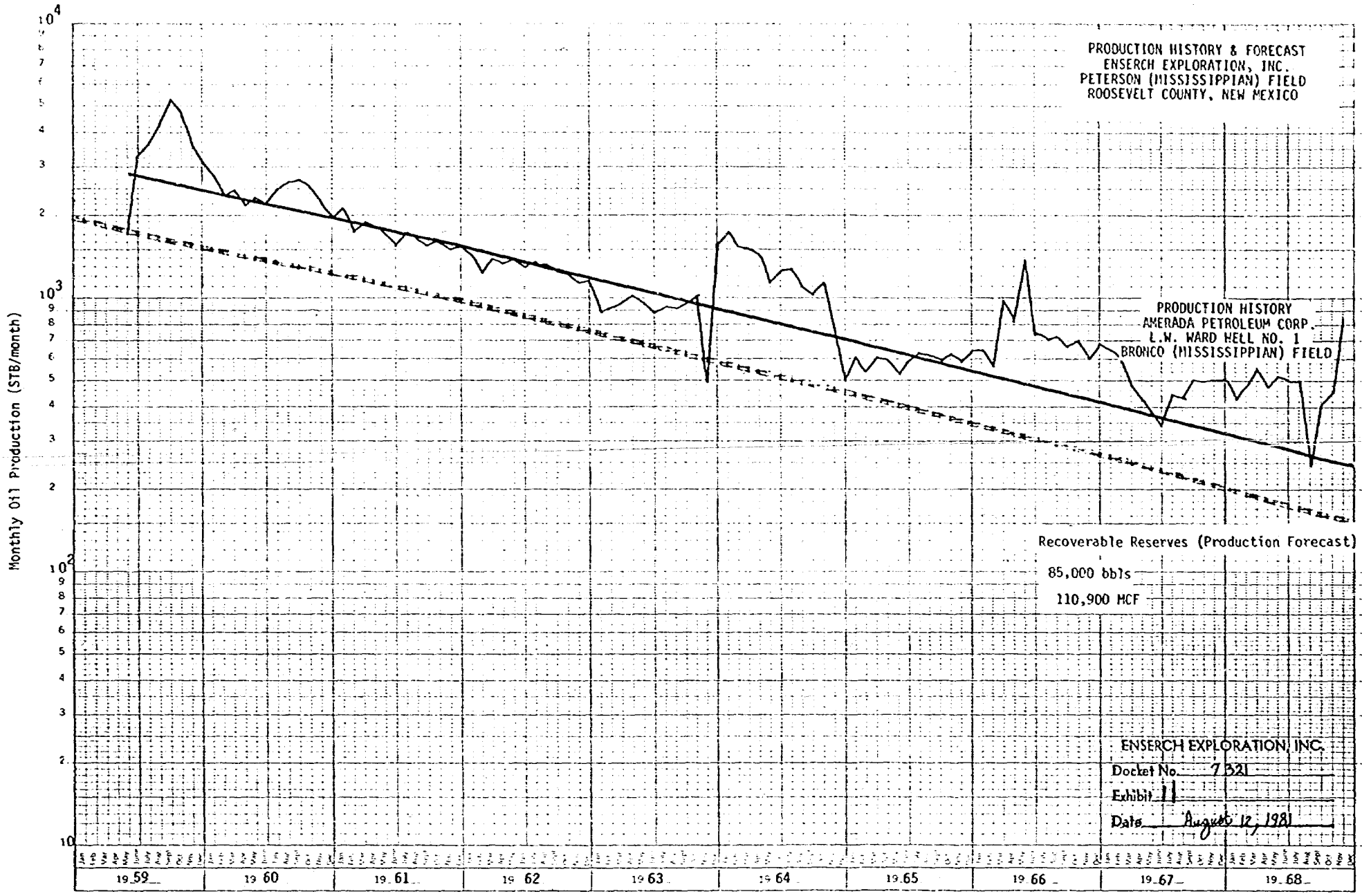
Original Oil In Place Under an 80-Acre Lease:

$$OOIP = 7758 \times A \times h \times \phi \times (1-S_w)/B_o$$
$$= 7758 \times 80 \times 16 \times 0.14 \times (1-0.41)/1.62$$
$$= 395 \text{ STB/acre-ft}$$
$$= 506{,}500 \text{ bbls}$$

Recoverable Oil Under an 80-Acre Lease:

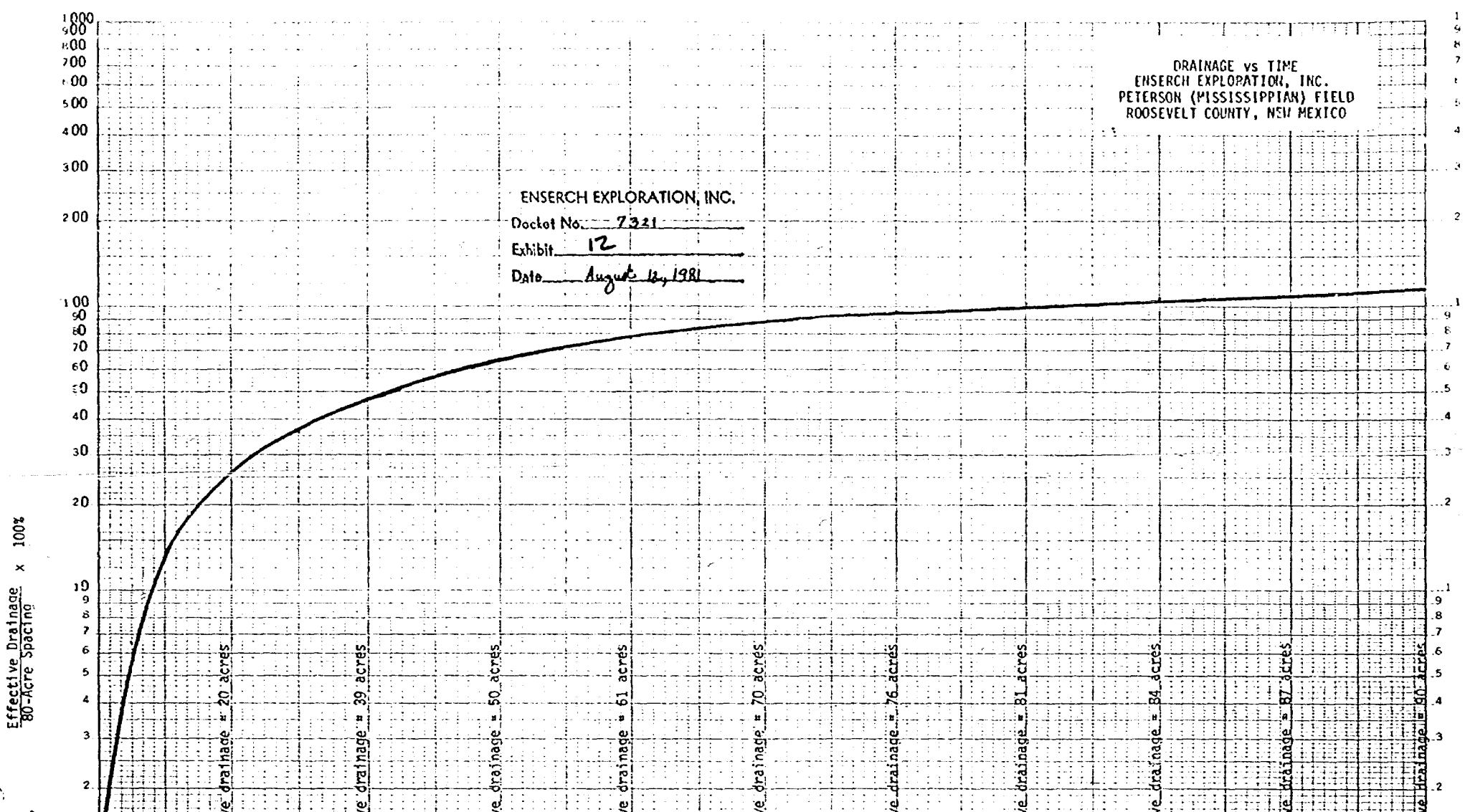
$$N_p = OOIP \times R.F.$$
$$= 506{,}500 \times 0.15$$
$$= 76{,}000 \text{ bbls}$$

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 10
Date August 12, 1981


PRODUCTION HISTORY & FORECAST
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
PRODUCTION HISTORY
AMERADA PETROLEUM CORP.
L.W. WARD WELL NO. 1
BRONCO (MISSISSIPPIAN) FIELD
Recoverable Reserves (Production Forecast)
85,000 bbls
110,900 MCF
Monthly Oil Production (STB/month)
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 11
Date August 12, 1981
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968

PRODUCTION FORECAST
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Year	Oil Production STB	Gas Production MCF
1	19,000	24,800
2	16,000	20,900
3	13,000	16,950
4	10,000	13,050
5	8,000	10,450
6	6,000	7,850
7	4,500	5,850
8	3,500	4,550
9	3,000	3,900
10	2,000	2,600
Cumulative Production	85,000	110,900

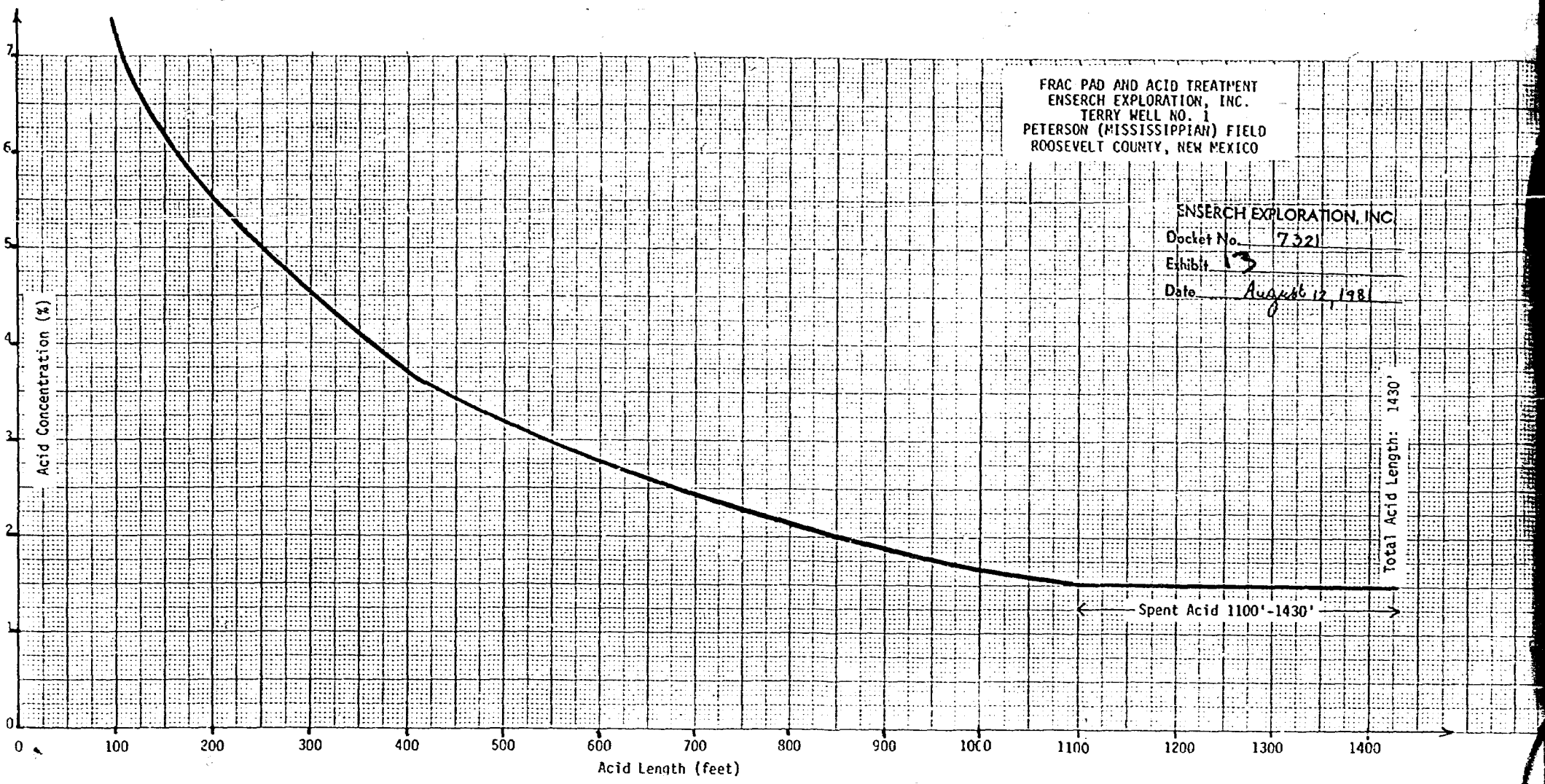

DRAINAGE vs TIME
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO
ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 12
Date August 13, 1981
Effective Drainage / 80-Acre Spacing x 100%
Effective drainage = 20 acres
Effective drainage = 39 acres
Effective drainage = 50 acres
Effective drainage = 61 acres
Effective drainage = 70 acres
Effective drainage = 76 acres
Effective drainage = 81 acres
Effective drainage = 84 acres
Effective drainage = 87 acres
Effective drainage = 90 acres
01
02
03
04
05
06
07
08
09
10

DRAINAGE CALCULATIONS
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

Year	Oil Production (STB)	Cumulative Oil Production (STB)	Area Drained at Year End (Acres)	$\frac{\text{Area Drained}}{\text{80 Acre Spacing}} \times 100\%$ (%)
1	19,000	19,000	20	25%
2	16,000	35,000	37	46%
3	13,000	48,000	50	62%
4	10,000	58,000	61	76%
5	8,000	66,000	70	87%
6	6,000	72,000	76	95%
7	4,500	76,500	81	101%
8	3,500	80,000	84	105%
9	3,000	83,000	87	109%
10	2,000	85,000	90	112%
Cumulative Production	85,000	85,000	--	--

FRAC PAD AND ACID TREATMENT
ENSERCH EXPLORATION, INC.
TERRY WELL NO. 1
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 13
Date August 12, 1981



DOWELL DIVISION OF THE DOW CHEMICAL COMPANY
PROJECT: STAD SYSTEM RUN RUN # 1
DATE: THU, JUL 16, 1981 (197) PAGE # 1

COMPANY:ENSEARCH WELL :TERRY1
COUNTY :ROOSEVELT STATE :NEWMEXICO
FIELD :N.PETERSON FORMTN:MISSISSIPPIAN

DOWELL ACID GUIDE II

FRAC PAD AND ACID TREATMENT

FRAC PAD: WF40 18000. GALLONS AT 9.0 BPM.

ACIDIZING AT 9.0 BPM WITH 15% HCL

ACID VOLUME	ACID LENGTH	CONC. AT ACID TIP	IN PLACE ETCH WIDTH	SPENDING FOLDS
990.	100.	7.5	0.665E-02	2.5
1565.	150.	6.4	0.704E-02	3.2
2193.	200.	5.6	0.750E-02	3.8
2872.	250.	5.0	0.799E-02	4.4
3602.	300.	4.5	0.852E-02	4.9
4383.	350.	4.0	0.907E-02	5.4
5212.	400.	3.7	0.963E-02	5.8
6089.	450.	3.4	0.102E-01	6.0
7014.	500.	3.1	0.108E-01	6.3
7986.	550.	2.9	0.114E-01	6.5
9003.	600.	2.7	0.120E-01	6.6
10066.	650.	2.5	0.126E-01	6.7
11173.	700.	2.4	0.132E-01	6.7
12322.	750.	2.2	0.138E-01	6.7
13514.	800.	2.1	0.144E-01	6.7
14748.	850.	2.0	0.150E-01	6.7
16022.	900.	1.9	0.157E-01	6.7
17335.	950.	1.8	0.163E-01	6.7
18687.	1000.	1.7	0.169E-01	6.7
20076.	1050.	1.6	0.176E-01	6.7
21502.	1100.	1.5	0.182E-01	6.7
21792.	1110.	1.5	0.183E-01	6.7

OVERFLUSHING AT 9.0 BPM WITH WF60
SPEARHEAD DEPLETED AT 1243. FEET.

RESUME:
PAD : 18000. GALLONS OF WF40
ACID : 21792. GALLONS OF 15% HCL
FLUSH: 3836. GALLONS OF WF60

TOTAL ACID PENETRATION =1302. FEET.
AVERAGE ETCH WIDTH = 0.213E-01 INCHES.
THEORETICAL FOLDS = 8.02
CONDUCTIVITY RATIO = 1.47 DARCY-FT/MD

PRESSURE BUILDUP ANALYSIS (DST)
HORNER PLOT - FINAL SHUT IN
ENSERCH EXPLORATION, INC.
RADCLIFF WELL NO. 1
PETERSON (MISSISSIPPINA) FIELD
ROOSEVELT COUNTY, NEW MEXICO

m = 2950-2730
m = 220 psi/cycle

ISIP = 2950 psi

3000
2000
1000
0

Pressure (psi)

ENSERCH EXPLORATION, INC.
Docket No. 7921
Exhibit 14
Date August 12 1981

Interval Tested: 8168'-8204'
Date of Test: 3/16/81
Strong Gas Blow
Gas to Surface in 5 min.
Permeability: 1.14 md
Reservoir pressure: 2950 psi

100 90 80 70 60 50 40 30 20 10 9 8 7 6 5 4 3 2 1 0

$(T + \Delta T)/\Delta T$

ECONOMIC EVALUATION
ENSERCH EXPLORATION, INC.
PETERSON (MISSISSIPPIAN) FIELD
ROOSEVELT COUNTY, NEW MEXICO

INPUT DATA

Well Cost:

Tangibles:	$248,600	
Intangibles:	$615,200	Total Well Cost: $863,800
Dry Hole Cost:	$540,700	

Oil Price:

$35/Bbl + Escalation $2/year

Gas Price:

$2.36/MCF + Esclation $0.12/year

Hydrocarbon Reserves:

85,000 bbls
110,900 MMCF (GOR = 1305:1)
Life: 10 years

OUTPUT DATA

·First Case: One well per 80 acres

Total Net Present Worth: $188,200
Present Worth Index: 1.26

·Second Case: Two wells per 80 acres

Total Net Present Worth: $-325,200
Present Worth Index: 0.77

ENSERCH EXPLORATION, INC.
Docket No. 7321
Exhibit 15
Date August 12, 1981

1

1	PROJECT & DESCRIPTION		ONE WELL PER 80 ACRE			
2	LIFE		10			
3	INIT EXP INV		615.20			
4	INIT CAP INV		248.60			
10	OIL PRICE INIT,ESC,MAX		35.00	2.00	53.00	
12	GAS PRICE INIT,ESC,MAX		236.00	6.00	296.00	
16	CONSTANT OPRTG EXP		15.00			
18	DIRECT TAX OIL		9.49			
19	DIRECT TAX GAS		3.00			
21	ANNUAL OIL PROD		19.00	16.00	13.00	10.00
	8.00	6.00	4.50	3.50	3.00	2.00
24	GAS CF/BBL		1305.00			
27	INIT WORKNG INTEREST		100.00			
28	INIT R & ORR LIQUIDS		17.00			
29	INIT R & ORR GAS		17.00			
39	PROBABILITY OF SUCCESS		75.00			
40	COST OF FAILURE		540.70			

***

PRODUCTION

YEAR	GROSS LIQUIDS MBBLS	GROSS GAS MMCF	NET LIQUIDS MBBLS	NET GAS MMCF
1	19.0	24.8	15.8	20.6
2	16.0	20.9	13.3	17.3
3	13.0	17.0	10.8	14.1
4	10.0	13.0	8.3	10.8
5	8.0	10.4	6.6	8.7
6	6.0	7.8	5.0	6.5
7	4.5	5.9	3.7	4.9
8	3.5	4.6	2.9	3.8
9	3.0	3.9	2.5	3.2
10	2.0	2.6	1.7	2.2
TOTALS	85.0	110.9	70.5	92.1

MEASURES OF PROFITABILITY

RISK ADJUSTED RESULTS

SUCCESS FACTOR = 75.00 %

100 % GROSS COST OF FAILURE = 540.70 $M

EXPECTED TOTAL PROJECT N.P.V. AT 14. % (M$) *** 188.2 ***

EXPECTED TOTAL PROJECT PRESENT WORTH INDEX *** 1.26 ***

1	PROJECT & DESCRIPTION		TWO WELLS PER 80 ACRE			
2	LIFE		10			
3	INIT EXP INV		1230.40			
4	INIT CAP INV		497.20			
10	OIL PRICE INIT,ESC,MAX		35.00	2.00	53.00	
12	GAS PRICE INIT,ESC,MAX		236.00	6.00	296.00	
16	CONSTANT OPRTG EXP		30.00			
18	DIRECT TAX OIL		9.49			
19	DIRECT TAX GAS		3.00			
21	ANNUAL OIL PROD		19.00	16.00	13.00	10.00
	8.00	6.00	4.50	3.56	3.00	2.00
24	GAS CF/BBL		1305.00			
27	INIT WORKNG INTEREST		100.00			
28	INIT R & ORR LIQUIDS		17.00			
29	INIT R & ORR GAS		17.00			
39	PROBABILITY OF SUCCESS		75.00			
***						
40	COST OF FAILURE		1081.40			

PRODUCTION

YEAR	GROSS LIQUIDS MBBLS	GROSS GAS MMCF	NET LIQUIDS MBBLS	NET GAS MMCF
1	19.0	24.8	15.8	20.6
2	16.0	20.9	13.3	17.3
3	13.0	17.0	10.8	14.1
4	10.0	13.0	8.3	10.8
5	8.0	10.4	6.6	8.7
6	6.0	7.8	5.0	6.5
7	4.5	5.9	3.7	4.9
8	3.5	4.6	2.9	3.8
9	3.0	3.9	2.5	3.2
10	2.0	2.6	1.7	2.2
TOTALS	85.0	110.9	70.5	92.1

MEASURES OF PROFITABILITY

RISK ADJUSTED RESULTS

SUCCESS FACTOR = 75.00 %

100 % GROSS COST OF FAILURE = 1081.40 $M

EXPECTED TOTAL PROJECT N.P.W. AT 14. % (M$)	***	-325.2 ***
EXPECTED TOTAL PROJECT PRESENT WORTH INDEX	***	0.77 ***

Docket No. 25-81

Dockets Nos. 26-81 and 27-81 are tentatively set for August 26 and September 9, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 12, 1981

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for September, 1981, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for September, 1981, for four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 7319: Application of Consolidated Oil & Gas, Inc. for six 160-acre Mesaverde proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of six non-standard gas proration units in the Blanco Mesaverde Pool, said units to comprise the NW/4 and SW/4 of Section 18, and the SW/4 and SE/4 of Section 7, both in Township 31 North, Range 12 West, and the NE/4 and SE/4 of Section 3, Township 31 North, Range 13 West, each unit to be dedicated to an existent well already drilled thereon.

CASE 7320: Application of Harvey E. Yates Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Cisco-Canyon formation thru one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, Travis-Upper Pennsylvanian Pool.

CASE 7129: (Readvertised)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7169: (Readvertised)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the S/2 of Section 22, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7321: Application of Enserch Exploration, Inc. for special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Peterson-Mississippian Pool including provisions for 80-acre spacing units and special well location requirements.

CASE 7322: Application of Coleman Oil & Gas, Inc. for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Gallegos-Gallup, Greenhorn, and Dakota production in the wellbore of its Navajo-Smith Well No. 1 located in Unit G of Section 24, Township 26 North, Range 12 West. Applicant further seeks approval of a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24.

CASE 7323: Application of Clements Energy Inc. for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CAMPBELL, BYRD & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
HARL D. BYRD
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
WILLIAM G. WARDLE

JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
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SANTA FE, NEW MEXICO 87501
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

RECEIVED
JUL 20 1981
OIL CONSERVATION DIVISION
SANTA FE

July 10, 1981

Mr. Joe D. Ramey
Director
Oil Conservation Division
New Mexico Department of
Energy and Minerals
Post Office Box 2088
Santa Fe, New Mexico 87501

Case 7321

Re: Application of Enserch Exploration, Inc. for Special Pool Rules, Roosevelt County, New Mexico

Dear Mr. Ramey:

Enclosed in triplicate is the application of Enserch Exploration, Inc. in the above-referenced matter.

Applicant requests that this matter be included on the docket for the first examiner hearing scheduled in August of 1981.

Very truly yours,

William F. Carr

William F. Carr

WFC:lr

Enclosures

cc: Mr. Leonard Kersh

RECEIVED
JUL 20 1981
OIL CONSERVATION DIVISION
SANTA FE

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF ENSERCH EXPLORATION, INC. FOR SPECIAL POOL RULES, ROOSEVELT COUNTY, NEW MEXICO.

CASE 7321

APPLICATION

Comes now ENSERCH EXPLORATION, INC., by their undersigned attorneys, and hereby makes application for an Order promulgating special pool rules for the Peterson-Mississippian Pool, including (1) 80 acre spacing or proration units on a permanent basis or, in the alternative, on a temporary basis and (2) special well location requirements, and in support of this application would show the Division:

1. That applicant has recently completed its Finley Well No. 1 located in Unit A of Section 6, Township 5 South, Range 33 East, N.M.P.M., Roosevelt County, New Mexico.

2. That said Finley Well No. 1 is classified as an oil well for Mississippian production.

3. On July 2, 1981, the Division heard Case 7301, which was called on its own motion to consider, among other things, the creation of the Peterson-Mississippian Pool to be comprised of:

Township 4 South, Range 33 East, N.M.P.M.
Section 28: SW/4
Section 29: S/2
Section 32: W/2

Township 5 South, Range 33 East, N.M.P.M.
Section 5: NW/4
Section 6: NE/4

4. In order to prevent economic loss caused by the drilling of unnecessary wells, to avoid augmentation of risk arising from the drilling of an excessive number of wells and to otherwise prevent waste and protect correlative rights, special pool rules and regulations providing for 80 acre spacing units should be promulgated for the new pool.

5. Applicant respectfully requests that these special pool rules provide that each well should be located on a standard unit containing 80 acres more or less, consisting of two contiguous governmental quarter-quarter sections and that the well may be located in either component of the 80 acre spacing unit. Applicant further requests that each well be located within 150 feet of the center of a governmental quarter-quarter section or lot.

WHEREFORE, Enserch Exploration, Inc., requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division and that after notice and hearing as required by law and the rules of the Division, that the application be approved.

Respectfully submitted,

CAMPBELL, BYRD & BLACK, P.A.

By _____
William F. Carr
Attorneys for Applicant
Post Office Box 2208
Santa Fe, New Mexico 87501

RECEIVED
JUL 20 1981
OIL CONSERVATION DIVISION
SANTA FE

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF ENSERCH EXPLORATION, INC. FOR SPECIAL POOL RULES, ROOSEVELT COUNTY, NEW MEXICO.

CASE 7321

APPLICATION

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1. That applicant has recently completed its Finley Well No. 1 located in Unit A of Section 6, Township 5 South, Range 33 East, N.M.P.M., Roosevelt County, New Mexico.

2. That said Finley Well No. 1 is classified as an oil well for Mississippian production.

3. On July 2, 1981, the Division heard Case 7301, which was called on its own motion to consider, among other things, the creation of the Peterson-Mississippian Pool to be comprised of:

Township 4 South, Range 33 East, N.M.P.M.
Section 28: SW/4
Section 29: S/2
Section 32: W/2

Township 5 South, Range 33 East, N.M.P.M.
Section 5: NW/4
Section 6: NE/4

4. In order to prevent economic loss caused by the drilling of unnecessary wells, to avoid augmentation of risk arising from the drilling of an excessive number of wells and to otherwise prevent waste and protect correlative rights, special pool rules and regulations providing for 80 acre spacing units should be promulgated for the new pool.

5. Applicant respectfully requests that these special pool rules provide that each well should be located on a standard unit containing 80 acres more or less, consisting of two contiguous governmental quarter-quarter sections and that the well may be located in either component of the 80 acre spacing unit. Applicant further requests that each well be located within 150 feet of the center of a governmental quarter-quarter section or lot.

WHEREFORE, Enserch Exploration, Inc., requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division and that after notice and hearing as required by law and the rules of the Division, that the application be approved.

Respectfully submitted,

CAMPBELL, BYRD & BLACK, P.A.

By _____
William F. Carr
Attorneys for Applicant
Post Office Box 2208
Santa Fe, New Mexico 87501

RECEIVED
JUL 20 1981
OIL CONSERVATION DIVISION
SANTA FE

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF ENSERCH EXPLORATION, INC. FOR SPECIAL POOL RULES, ROOSEVELT COUNTY, NEW MEXICO.

CASE 7321

APPLICATION

Comes now ENSERCH EXPLORATION, INC., by their undersigned attorneys, and hereby makes application for an Order promulgating special pool rules for the Peterson-Mississippian Pool, including (1) 80 acre spacing or proration units on a permanent basis or, in the alternative, on a temporary basis and (2) special well location requirements, and in support of this application would show the Division:

1. That applicant has recently completed its Finley Well No. 1 located in Unit A of Section 6, Township 5 South, Range 33 East, N.M.P.M., Roosevelt County, New Mexico.

2. That said Finley Well No. 1 is classified as an oil well for Mississippian production.

3. On July 2, 1981, the Division heard Case 7301, which was called on its own motion to consider, among other things, the creation of the Peterson-Mississippian Pool to be comprised of:

Township 4 South, Range 33 East, N.M.P.M.
Section 28: SW/4
Section 29: S/2
Section 32: W/2

Township 5 South, Range 33 East, N.M.P.M.
Section 5: NW/4
Section 6: NE/4

4. In order to prevent economic loss caused by the drilling of unnecessary wells, to avoid augmentation of risk arising from the drilling of an excessive number of wells and to otherwise prevent waste and protect correlative rights, special pool rules and regulations providing for 80 acre spacing units should be promulgated for the new pool.

5. Applicant respectfully requests that these special pool rules provide that each well should be located on a standard unit containing 80 acres more or less, consisting of two contiguous governmental quarter-quarter sections and that the well may be located in either component of the 80 acre spacing unit. Applicant further requests that each well be located within 150 feet of the center of a governmental quarter-quarter section or lot.

WHEREFORE, Enserch Exploration, Inc., requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division and that after notice and hearing as required by law and the rules of the Division, that the application be approved.

Respectfully submitted,

CAMPBELL, BYRD & BLACK, P.A.

By _____
William F. Carr
Attorneys for Applicant
Post Office Box 2208
Santa Fe, New Mexico 87501

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

7321
CASE NO. ~~6270~~
Order No. ~~R-5771~~ R-6764

APPLICATION OF ENSERCH EXPLORATION, INC., FOR ~~POOL CREATION AND~~ SPECIAL POOL RULES, ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on ~~July 6, 1978~~ Aug 12 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this ~~17th~~ day of ~~July~~ Aug, ~~1978~~ 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Enserch Exploration, Inc., ~~is the owner and operator of the Lambirth Well No. 1, located in Unit K of Section 31, Township 5 South, Range 33 East, NMPM, Roosevelt County, New Mexico.~~

~~(3) That said well has discovered a separate, common source of supply in the Russell formation, and applicant seeks the creation and designation of a new oil pool therefor and the promulgation of special pool rules governing said pool,~~ including provision for 80-acre spacing and proration units and well locations.

~~(4) That the applicant seeks the dismissal of that portion of this case relating to the establishment of a special gas-oil ratio limitation for said pool.~~

~~(5)~~ That the evidence presently available indicates that a new pool should be created and designated the South Peterson-

Fusselman Pool; that the vertical limits of said pool should be the Fusselman formation, and that the horizontal limits of said pool should comprise:

TOWNSHIP 5 SOUTH, RANGE 33 EAST, NMPM
Section 31: SW/4

(3) (5) That the evidence presently available indicates that the ~~the Fusselman formation encountered in the above-described~~ ~~[illegible]~~ the drainage radius ~~of the well~~ will be in excess of 40 acres.

(4) (7) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the ~~South~~ Peterson-~~Fusselman~~ Pool.

(5) (8) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(6) (9) That the temporary special rules and regulations should be established for ~~a one-year~~ period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(7) (10) That this case should be reopened at an examiner hearing in ~~July, 1979,~~ at which time the operators in the subject pool should be prepared to appear and show cause why the ~~South~~ Peterson-~~Fusselman~~ Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

(1) ~~That a new pool in Roosevelt County, New Mexico, classified as an oil pool for Fusselman production, is hereby~~ created and designated the South Peterson-Fusselman Pool, with vertical limits comprising the Fusselman formation, and horizontal limits comprising the following-described area:

~~TOWNSHIP 5 SOUTH, RANGE 33 EAST, NMPM~~
~~Section 31: SW/4~~

(1)(2) That temporary Special Rules and Regulations for the ~~South~~ Peterson-~~Fusselman~~ Pool, Roosevelt County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
~~SOUTH~~ PETERSON-~~FUSSELMAN~~ POOL

RULE 1. Each well completed or recompleted in the ~~South~~ Peterson-~~Fusselman~~ Pool or in the ~~Fusselman~~ formation within one mile thereof, and not nearer to or within the limits of another designated ~~Fusselman~~ oil pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section; provided however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Division Director may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location

has been entered within 20 days after the Director has received the application.

RULE 6. Top unit allowable for a standard proration unit (79 through 81 acres) shall be based on a depth bracket allowable of ~~267~~ 310 barrels per day, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the ~~South~~ Peterson-~~Fusselman~~ Mississippian Pool or in the ~~Fusselman~~ Mississippian formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Division in writing of the name and location of the well on or before ~~August 15, 1978~~ September 15, 1981.

(2) That, pursuant to Paragraph A. of Section ~~65-3-14.5~~, 70-2-18 NMSA ~~1953, contained in Chapter 271, Laws of 1969~~, existing wells in the ~~South~~ Peterson-~~Fusselman~~ Mississippian Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section ~~65-3-14.5~~ 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 80 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the ~~South~~ Peterson-~~Fusselman~~ Mississippian Pool or in the ~~Fusselman~~ formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in ~~July, 1979~~ February, 1983, at which time the operators in the subject pool should be prepared to appear and show cause why the ~~South~~ Peterson-~~Fusselman~~ Mississippian Pool should not be developed on 40-acre spacing units.

~~(4) That that portion of the application in this case dealing with the establishment of a special gas-oil ratio limitation for the South Peterson-Fusselman Pool is hereby dismissed.~~

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7321

Order No. R-6764-A

IN THE MATTER OF CASE 7321 BEING
REOPENED PURSUANT TO THE PROVISIONS OF
ORDER NO. R-6764, WHICH ORDER PROMULGATED
TEMPORARY SPECIAL RULES AND REGULATIONS FOR THE
PETERSON-MISSISSIPPIAN POOL, ROOSEVELT COUNTY,
NEW MEXICO, INCLUDING A PROVISION FOR 80-ACRE
PRORATION UNITS.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 2, 1983, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this_____day of February, 1983, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-6764, dated August 26, 1981, temporary Special Rules and Regulations were promulgated for the Peterson-Mississippian Pool, Roosevelt County, New Mexico, establishing temporary 80-acre spacing units.

(3) That pursuant to the provisions of Order No. R-6764, this case was reopened to allow the operators in the subject pool to appear and show cause why the Peterson-Mississippian Pool should not be developed on 40-acre spacing units.

(4) That no operator in the subject pool appeared to show cause why the Peterson-Mississippian Pool should not be developed on 40-acre spacing units.

(5) That it is not known at this time whether additional wells will be completed in the subject pool.

(6) That the operators in the subject pool have not established that one well can efficiently and economically drain and develop 80 acres.

(7) That the Special Rules and Regulations promulgated by Order No. R-6764 should be ~~rescinded~~. rescinded.

42 381 50 SHEETS 5 SQUARE
42 382 100 SHEETS 5 SQUARE
42 383 200 SHEETS 5 SQUARE
NATIONAL

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Peterson-Mississippian Pool, Roosevelt County, New Mexico, promulgated by Order No. R-6764, are hereby ~~continued in full force and effect until further order of the Division.~~ ~~are abolished.~~ rescinded.

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

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

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

JOE D. RAMEY,

Director

S E A L

CASE 7322: COLEMAN OIL & GAS, INC. FOR DOWNHOLE COMMINGLING AND A NON-STANDARD GAS PRORATION UNIT, SAN JUAN COUNTY, NEW MEXICO

Case No.

7322

Application

Transcripts.

Small Exhibits

ETC

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

file
Case 7322

January 4, 1982

Mr. W. M. Gallaway
101.2 Petroleum Plaza Building
Farmington NM 87401

Re: Navajo Smith #1 G-24-26N-12W

Dear Bill:

Your recommendation of production allocation for the referenced well as per Order R-6761 is accepted as follows:

	Oil	Gas
Gallegos-Gallup	60%	60%
Undesignated Greenhorn	7%	13%
Basin Dakota	33%	27%

If you have any questions please call this office.

Yours truly,

Frank T. Chavez
District Supervisor

FTC:gc

cc: Santa Fe
El Paso Natural Gas Co
Permian Corporation

RECEIVED
JAN 08 1982
OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

August 27, 1981

Mr. William F. Carr
Campbell, Byrd & Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico

Re: CASE NO. 7322
ORDER NO. R-6761

Applicant:

Coleman Oil & Gas, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD x

Other _____

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7322
Order No. R-6761

APPLICATION OF COLEMAN OIL & GAS,
INC. FOR DOWNHOLE COMMINGLING AND
A NON-STANDARD GAS PRORATION UNIT,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Coleman Oil & Gas, Inc., is the owner and operator of the Navajo-Smith Well No. 1, located in Unit G of Section 24, Township 26 North, Range 12 West, NMPM, San Juan County, New Mexico.

(3) That the applicant further seeks approval of a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24.

(4) That the applicant seeks authority to commingle Gallegos-Gallup, undesignated Greenhorn, and Basin-Dakota production within the wellbore of the above-described well.

(5) That from the Gallegos-Gallup zone, the subject well is expected to be capable of low marginal production only.

(6) That from the Greenhorn zone, the subject well is capable of low marginal production only.

(7) That from the Dakota zone, the subject well is expected to be capable of low marginal production only.

(8) That the proposed commingling may result in the recovery of additional hydrocarbons from each of the subject pools, thereby preventing waste, and will not violate correlative rights.

(9) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that the well is not shut-in for an extended period.

(10) That to afford the Division the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Aztec district office of the Division any time the subject well is shut-in for 7 consecutive days.

(11) That in order to allocate the commingled production to each of the commingled zones in the wells, applicant should consult with the supervisor of the Aztec district office of the Division and determine an allocation formula for each of the production zones.

(12) That the proposed 160-acre non-standard gas proration unit in the Basin-Dakota Gas Pool will afford the operator the opportunity to produce its just and equitable share of the gas in the pool, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Coleman Oil & Gas, Inc., is hereby authorized to commingle Gallegos-Gallup, undesignated Greenhorn and Basin-Dakota production within the wellbore of the Navajo-Smith Well No. 1, located in Unit G of Section 24, Township 26 North, Range 12 West, NMPM, San Juan County, New Mexico.

(2) That a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24 is hereby approved, to be dedicated to the aforesaid well.

(3) That the applicant shall consult with the Supervisor of the Aztec district office of the Division and determine an allocation formula for the allocation of production to each zone in the subject well.

(4) That the operator of the subject well shall immediately notify the Division's Aztec district office any time the well has been shut-in for 7 consecutive days and shall concurrently present, to the Division, a plan for remedial action.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Coleman Oil & Gas, Inc., for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico. CASE 7322

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: William F. Carr, Esq.
CAMPBELL, BYRD, & BLACK P.A.
Jefferson Place
Santa Fe, New Mexico 87501

I N D E X

W. M. GALLOWAY

Direct Examination by Mr. Carr 3

Cross Examination by Mr. Nutter 14

E X H I B I T S

Applicant Exhibit One, Plat 4

Applicant Exhibit Two, Report 5

Applicant Exhibit Three, Document 6

Applicant Exhibit Four, Table, etc. 7

Applicant Exhibit Five, Document 8

Applicant Exhibit Six, Log 9

MR. NUTTER: We'll call next Case 7322.

MR. PADILLA: Application of Coleman Oil and Gas, Inc., for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., of Santa Fe, appearing on behalf of the applicant.

I have one witness who needs to be sworn.

(Witness sworn.)

W. M. GALLOWAY

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. W. M. Galloway, Farmington, New Mexico.

Q. Mr. Galloway, by whom are you employed and in what capacity?

A. I'm an independent oil operator. Do my

own completions and engineering.

Q. In this case are you employed by Coleman?

A. No. I own half of this well in the hearing and I do the -- did the drilling and completion engineering.

Q. Have you previously testified before this Commission or one of its examiners and had your credentials as a practical oil man and oil and gas producer accepted and made a matter of record?

A. Yes, I have.

Q. Are you familiar with the application of Coleman in this case?

A. Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q. Mr. Galloway, have you prepared certain exhibits for introduction in this case?

A. Yes, I have.

Q. Will you please refer to what has been marked as Applicant's Exhibit Number One, identify this, and tell Mr. Nutter what it shows?

A. Mr. Nutter, this is a plat of the section involved, showing the 160-acre non-standard gas proration

unit and the well involved, as well as one old existing well, which was drilled in 1957.

It also shows two expired leases in the south half of this section.

Q. The subject proration -- the proration unit consists of the northeast quarter, is that it?

A. That is correct.

Q. Are there any other wells in the immediate area, Mr. Galloway, for which downhole commingling has been approved in similar zones?

A. Yes, the only well that I know of that has been involved in these zones as far as testing them was approved to be commingled, which is approximately 2-1/2 miles south and a fraction east of this existing well.

Q. Is that the Dugan Windfall No. 10 Well?

A. Yes, it is.

MR. CARR: That -- Order R-6720 approved downhole commingling of Gallup and Dakota in that well in Case 7281.

Q. Now, Mr. Galloway, will you refer to what has been marked as your Exhibit Number Two, identify this, and explain what it shows?

A. This is a well completion report on the Greenhorn formation, which I have applied in my application

as a salvage zone.

Q. In what zones is this well perforated?

A. It is perforated in the Greenhorn formation from 5612 to 5652 at various intervals.

Q. And why are you proposing to change the way the well is completed?

A. This formation has dropped off to approximately 1-1/2 barrel a day and 4 Mcf of gas, and I'm presently pumping the well and producing the gas as casinghead gas.

Q. Do you happen to have a gas/oil ratio test on any of the zones involved?

A. I ran a gas/oil ratio test on this well when it initially went on production. May 15th, I believe, is when I started producing it.

MR. NUTTER: So it's a new well, then.

A. It's a brand new well, that's correct.

Q. Mr. Galloway, I'd like to direct your attention to what has been marked your Exhibit Number Three and ask you to identify this and tell Mr. Nutter what it shows.

A. This is a well that Tenneco Oil Company drilled in February and the first part of March of 1981, and is producing 900 feet from the east line of this section.

It relates that the oil production and the gas production are marginal from the Gallup in this new well.

MR. NUTTER: This well would be about a mile east of the subject well?

A. This, right close to it, would be less than a mile east, Mr. Examiner. It's the difference between -- lacks 750 feet being a mile east. So it's about --

Q. Is it east or west?

A. It's west.

MR. CARR: So this is west of the subject well.

MR. NUTTER: Okay, it's west of it.

A. Yeah, it's over by the old well that was drilled by Getty in '57; just 900 feet off that line.

Q. Mr. Galloway, this well is capable of only marginal production from the Gallup, is that correct?

A. That is correct.

Q. Will you now refer to your Exhibit Number Four and explain to Mr. Nutter what this is and what is designed to show?

A. Well, this is the old well in this section the application is concerning. It was drilled by Skelly and absorbed by Getty in a merger. Getty is presently pro-

ducing it.

It shows that the zone is depleted in this wellbore and relates why the Tenneco well probably isn't producing any better and why mine wouldn't.

MR. NUTTER: Well now, Mr. Galloway, are the Tenneco well and the Getty well both in the Greenhorn?

A. No, they're in the Gallup.

MR. NUTTER: They're in the Gallup then.

A. They're in the zone that I wish to commingle.

The Greenhorn, to my knowledge, hasn't produced anywhere in, oh, 15 to 20 miles of there.

MR. NUTTER: Except in this, the subject well.

A. Except in the subject well.

MR. NUTTER: Okay.

Q. Mr. Galloway, would you now refer to Exhibit Number Five and review this for Mr. Nutter?

A. Exhibit Number Five shows the monthly production on the Greenhorn formation as to gas and oil.

Q. And does it show that the production is very marginal?

A. In July the production in oil was 48 barrels and production in gas was 135 Mcf.

Q. Now, Mr. Galloway, Exhibits Number Three and Four show that the Gallup in this area is capable of only marginal production, is that correct?

A. That is correct.

Q. And your Exhibit Number Five indicates that the Greenhorn should only be capable of -- or is only capable of marginal production.

A. Yes, sir.

Q. Is the Dakota likewise a marginal zone?

A. Yes. I have a log in an exhibit which indicates the Dakota has a small section.

Q. Is that what has been marked as your Exhibit Number Six?

A. Yes.

Q. Would you like to refer to that now and point out the subject zone?

A. It indicates that the zone at best is probably 18 feet with 70 percent water saturation and 8 percent porosity.

I've exhibited a computer log, which is a correlation of all the other logs that was run on the formation.

Q. So is it your testimony that all the zones that you propose to downhole commingle are capable of

only marginal production?

A. Yes, that's definitely my testimony.

Q. Is the ownership of all these zones common, including royalty interest?

A. Yes, it is.

Q. Will you pumping these zones or are they flowing?

A. Well, I anticipate this Dakota zone might make a small amount of water and we do have a brand new pump jack on it and we're pumping the zone now in the Greenhorn, so I anticipate to pump all three zones and produce casinghead gas.

Q. Do you have any pressure data on these zones?

A. Well, I have the DST on the Getty well in 57 which was 1455. My pressure on the Greenhorn was 1480, and in anticipation of other wells in the area in the Dakota, I would think that it would be within a few pounds of the -- of the ones that I do have data on.

Now Getty also drilled a well in the southeast of Section 14, diagonally offsetting me; this in 1958, and tested the Dakota and plugged it.

And they produced that well 2700 barrels out of the Gallup, and I have a report on that, as well.

Q. Would you anticipate pressure differentials that would result in gas migration between the zones you're downhole commingling?

A. Since the wells are hooked to the low pressure gas system and you're pumping the wells, there shouldn't be any commingling. Now if we have a shut-in period, of course I'll take that up with the local Oil and Gas Supervisor in Aztec.

Q. What is the current status of the well?

A. It's pumping.

Q. Do you have a recommendation to make to the Examiner as to the allocation of production between the zones?

A. I intend to test each zone separately.

Q. At that time would you work that out with the District Supervisor?

A. I'll work it out with the District Supervisor to his satisfaction.

Q. In your opinion are the reservoir characteristics of the reservoirs that you intend to commingle such that underground waste would not be caused by the proposed commingling?

A. That's the reason I propose to commingle them and strictly from an economical standpoint of returning

a return on our investment.

Q. Would granting this application, in your opinion, result in increased recovery of hydrocarbons?

A. Yes, it will.

Q. Mr. Galloway, I believe you're also requesting a non-standard proration unit.

A. Yes, this is correct.

Q. In what formation are you requesting a non-standard unit?

A. In the Dakota only.

Q. And how many acres would be in the non-standard proration unit?

A. 160.

Q. And what is the standard spacing for the Dakota?

A. 320.

Q. Has infill drilling been authorized in this area?

A. Yes, it has.

Q. So developing a 160-acre proration unit would not impair the right of any other operator in the -- offsetting operators to also develop their Dakota, is that correct?

A. No, it would not.

Q. It would not impair their rights?

A. No, it would not. It wouldn't impair their rights.

Q. Did you attempt to form a standard 320-acre unit?

A. This lease was expiring on May the 20th, and Tenneco Oil Company asked us to drill it on April 8th, and I contacted Getty Oil, who owned the northwest quarter, and asked them to join, and they declined to join on the Dakota.

Q. Does Getty have notice of this --

A. Yes.

Q. -- hearing today?

A. Yes, they do.

Q. And they still would be free to drill a Dakota well in the northwest?

A. Yes. They have asked me if I would okay them a non-standard gas proration unit should they decide to do so, and I said I would be happy to do it. Matter of fact, I put it in writing.

Q. Mr. Galloway, in your opinion would granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. It definitely would.

Q. Do you have anything further to add to your testimony?

A. No, I don't.

Q. Were Exhibits One through Six either prepared by you or compiled under your direction and supervision?

A. Yes, they were.

MR. CARR: At this time, Mr. Nutter, we would offer Applicant's Exhibits One through Six.

MR. NUTTER: Is this log included?

MR. CARR: Yes, it is.

MR. NUTTER: Exhibits One through Six will be admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Okay, now, Mr. Galloway, as I understand it, the well is new, it was just drilled in May of 1981.

A. That is correct.

Q. And it was drilled down through the Dakota or into the Dakota.

A. Yes, sir, it was.

Q. And it was initially completed in the

Greenhorn only?

A. Yes, sir.

Q. Did you get any tests in the Dakota?

A. No, sir, there was no DST.

Q. And --

A. What happened, Mr. Examiner, was this lease was expiring on May the 20th, and Tenneco Oil Company had declined. They had staked this application and they had decided they would not drill it, and they requested that Mr. Coleman and myself drill it.

So they said, well, we haven't had any luck with the Gallup there.

So I said I don't think the well is feasible without going to the Dakota and seeing what might be there.

Well, we had a small fracture in this Greenhorn, which depleted, and so time was not of such that I could try to form a unit or do anything like that to keep the lease from expiring. It was an Indian lease and it -- it had to be produced by midnight on May the 19th, and we didn't get the word until April 8th.

Q. Okay, so you did complete in the Greenhorn as a small Greenhorn well.

A. To save the lease.

Q. And met your deadline there.

A. Yes, sir.

Q. Now, on up the hole here, oh, where is the casing set in the well?

A. The casing is at -- 4-1/2 inch casing is set at 5807 to 37.

Q. So that is well down below these proposed Dakota completion intervals, then?

A. Yes, sir. My plugged back TD is 5849, so this interval is well above there.

Q. And you're proposing to perforate about 5764, it looks like, something like that.

A. Yes, sir, and I have run a correlation log and checked that plugged back TD, as well as a bond log, showing excellent cement all through all three of these zones behind the pipe.

Q. Okay, then on back up the hole at 48 something on down to 49 -- 5000, you've got these proposed Gallup perforations, and you've got a Gallup well to the west that belongs to Getty, and another Gallup well further west, that belongs to Tenneco. Are there any other Gallup wells in the immediate area?

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produced about 6000 barrels in the section south, about a mile south of us.

Q. Are these are all classified as Gallup oil wells, are they?

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Q. But as far as you know, you'd get an oil well in the Gallup?

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Q. But in all probability it would be an oil well rather than a gas well?

A. I intend to produce both.

Q. Well, I mean what would the characteristic production be?

A. The characteristics, it's probably going to be spaced on 80-acre oil in the Gallup.

Q. Is this in a Gallup oil pool?

A. It's in the Gallegos Pool but it's up-dip out of the main trend.

Q. Now didn't you mention that you had some pressure data available here on the Gallup formation?

A. I have Skelly's drill stem test that they run on their well in this section in 1957.

Q. And what was the Gallup pressure?

A. 1455.

Q. So that was original Gallup pressure, then?

A. Yes, sir.

Q. Okay. Now you mentioned that your Greenhorn had approximately 1455 pounds of pressure, also?

A. 1480.

Q. 1480. And how about in the Dakota, what kind of pressures do you anticipate there?

A. I anticipate within, oh, the neighborhood of, oh, 1450 to 1500 pounds. I'm basing this on another Dakota well which I have in the township southeast of there.

Q. Now you mentioned that there had been a well drilled that was a diagonal offset to the northeast?

A. In Section 14.

Q. In Section 14. That was a Dakota well, was it?

A. They drilled it to the Dakota and then they plugged the Dakota after testing it, and then opened up

the Gallup and produced 2760 something barrels out of it, and then it was plugged.

Q. What did they get in the Dakota when they tested that?

A. Water and gas.

Q. No oil?

A. I would anticipate there would be a certain amount of drip. Of course they fraced with water, so you know, that's --

Q. And you would expect this Dakota completion, if it's successful, to be classified as a gas well in the Dakota?

A. Yes, sir, I'd think that it, the hydrocarbons it would make, that it would be a gas ratio well.

Q. Do you anticipate that the Dakota production is going to be sufficient to lift the Dakota plus what liquids and small amount of gas comes out of the Greenhorn, plus the liquids that come out of the Gallup?

A. No, I --

Q. Or do you have to pump it?

A. I have a brand new pump jack on it, brand new rods and tubing, and I'm pumping it now, so I anticipate I'll continue to pump it.

Q. Then you don't think the Gallup -- the

Dakota gas is going to be sufficient to lift the production?

A. No, it won't, because I'm in the low pressure casinghead gas system, so we'll be producing the gas into the low pressure line. That line is about 18 pounds pressure now.

Q. Yeah, but what about the flowing pressure of the Dakota formation?

A. With the 70 percent water saturation in it and that small zone, I would anticipate whatever what happened, I would have to pump it, see.

Q. Okay.

A. In high pressure or low.

Q. You've estimated 7 percent salt water saturation from this log here.

A. Schlumberger estimated that in their calculations of all these other logs that I have here, in that computer log.

Q. I see. Is ownership of all three formations identical?

A. Yes, they are.

MR. NUTTER: Are there any further questions of Mr. Galloway? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: Nothing further.

MR. NUTTER: Does anyone have anything further they wish to offer in Case Number 7322?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7323 heard by me on 8/12 1981.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Coleman Oil & Gas, Inc., for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico. CASE 7322

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: William F. Carr, Esq.
CAMPBELL, BYRD, & BLACK P.A.
Jefferson Place
Santa Fe, New Mexico 87501

I N D E X

W. M. GALLOWAY

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E X H I B I T S

Applicant Exhibit One, Plat 4

Applicant Exhibit Two, Report 5

Applicant Exhibit Three, Document 6

Applicant Exhibit Four, Table, etc. 7

Applicant Exhibit Five, Document 8

Applicant Exhibit Six, Log 9

MR. NUTTER: We'll call next Case 7322.

MR. PADILLA: Application of Coleman Oil and Gas, Inc., for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., of Santa Fe, appearing on behalf of the applicant.

I have one witness who needs to be sworn.

(Witness sworn.)

W. M. GALLOWAY

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. W. M. Galloway, Farmington, New Mexico.

Q. Mr. Galloway, by whom are you employed and in what capacity?

A. I'm an independent oil operator. Do my

own completions and engineering.

Q. In this case are you employed by Coleman?

A. No. I own half of this well in the hearing and I do the -- did the drilling and completion engineering.

Q. Have you previously testified before this Commission or one of its examiners and had your credentials as a practical oil man and oil and gas producer accepted and made a matter of record?

A. Yes, I have.

Q. Are you familiar with the application of Coleman in this case?

A. Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q. Mr. Galloway, have you prepared certain exhibits for introduction in this case?

A. Yes, I have.

Q. Will you please refer to what has been marked as Applicant's Exhibit Number One, identify this, and tell Mr. Nutter what it shows?

A. Mr. Nutter, this is a plat of the section involved, showing the 160-acre non-standard gas proration

unit and the well involved, as well as one old existing well, which was drilled in 1957.

It also shows two expired leases in the south half of this section.

Q. The subject proration -- the proration unit consists of the northeast quarter, is that it?

A. That is correct.

Q. Are there any other wells in the immediate area, Mr. Galloway, for which downhole commingling has been approved in similar zones?

A. Yes, the only well that I know of that has been involved in these zones as far as testing them was approved to be commingled, which is approximately 2-1/2 miles south and a fraction east of this existing well.

Q. Is that the Dugan Windfall No. 10 Well?

A. Yes, it is.

MR. CARR: That -- Order R-6720 approved downhole commingling of Gallup and Dakota in that well in Case 7281.

Q. Now, Mr. Galloway, will you refer to what has been marked as your Exhibit Number Two, identify this, and explain what it shows?

A. This is a well completion report on the Greenhorn formation, which I have applied in my application

as a salvage zone.

Q. In what zones is this well perforated?

A. It is perforated in the Greenhorn formation from 5612 to 5652 at various intervals.

Q. And why are you proposing to change the way the well is completed?

A. This formation has dropped off to approximately 1-1/2 barrel a day and 4 Mcf of gas, and I'm presently pumping the well and producing the gas as casinghead gas.

Q. Do you happen to have a gas/oil ratio test on any of the zones involved?

A. I ran a gas/oil ratio test on this well when it initially went on production. May 15th, I believe, is when I started producing it.

MR. NUTTER: So it's a new well, then.

A. It's a brand new well, that's correct.

Q. Mr. Galloway, I'd like to direct your attention to what has been marked your Exhibit Number Three and ask you to identify this and tell Mr. Nutter what it shows.

A. This is a well that Tenneco Oil Company drilled in February and the first part of March of 1981, and is producing 900 feet from the east line of this section.

It relates that the oil production and the gas production are marginal from the Gallup in this new well.

MR. NUTTER: This well would be about a mile east of the subject well?

A. This, right close to it, would be less than a mile east, Mr. Examiner. It's the difference between -- lacks 750 feet being a mile east. So it's about --

Q. Is it east or west?

A. It's west.

MR. CARR: So this is west of the subject well.

MR. NUTTER: Okay, it's west of it.

A. Yeah, it's over by the old well that was drilled by Getty in '57; just 900 feet off that line.

Q. Mr. Galloway, this well is capable of only marginal production from the Gallup, is that correct?

A. That is correct.

Q. Will you now refer to your Exhibit Number Four and explain to Mr. Nutter what this is and what is designed to show?

A. Well, this is the old well in this section the application is concerning. It was drilled by Skelly and absorbed by Getty in a merger. Getty is presently pro-

ducing it.

It shows that the zone is depleted in this wellbore and relates why the Tenneco well probably isn't producing any better and why mine wouldn't.

MR. NUTTER: Well now, Mr. Galloway, are the Tenneco well and the Getty well both in the Greenhorn?

A. No, they're in the Gallup.

MR. NUTTER: They're in the Gallup then.

A. They're in the zone that I wish to commingle.

The Greenhorn, to my knowledge, hasn't produced anywhere in, oh, 15 to 20 miles of there.

MR. NUTTER: Except in this, the subject well.

A. Except in the subject well.

MR. NUTTER: Okay.

Q. Mr. Galloway, would you now refer to Exhibit Number Five and review this for Mr. Nutter?

A. Exhibit Number Five shows the monthly production on the Greenhorn formation as to gas and oil.

Q. And does it show that the production is very marginal?

A. In July the production in oil was 48 barrels and production in gas was 135 Mcf.

Q. Now, Mr. Galloway, Exhibits Number Three and Four show that the Gallup in this area is capable of only marginal production, is that correct?

A. That is correct.

Q. And your Exhibit Number Five indicates that the Greenhorn should only be capable of -- or is only capable of marginal production.

A. Yes, sir.

Q. Is the Dakota likewise a marginal zone?

A. Yes. I have a log in an exhibit which indicates the Dakota has a small section.

Q. Is that what has been marked as your Exhibit Number Six?

A. Yes.

Q. Would you like to refer to that now and point out the subject zone?

A. It indicates that the zone at best is probably 18 feet with 70 percent water saturation and 8 percent porosity.

I've exhibited a computer log, which is a correlation of all the other logs that was run on the formation.

Q. So is it your testimony that all the zones that you propose to downhole commingle are capable of

only marginal production?

A. Yes, that's definitely my testimony.

Q. Is the ownership of all these zones common, including royalty interest?

A. Yes, it is.

Q. Will you pumping these zones or are they flowing?

A. Well, I anticipate this Dakota zone might make a small amount of water and we do have a brand new pump jack on it and we're pumping the zone now in the Greenhorn, so I anticipate to pump all three zones and produce casinghead gas.

Q. Do you have any pressure data on these zones?

A. Well, I have the DST on the Getty well in 57 which was 1455. My pressure on the Greenhorn was 1480, and in anticipation of other wells in the area in the Dakota, I would think that it would be within a few pounds of the -- of the ones that I do have data on.

Now Getty also drilled a well in the southeast of Section 14, diagonally offsetting me; this in 1958, and tested the Dakota and plugged it.

And they produced that well 2700 barrels out of the Gallup, and I have a report on that, as well.

Q. Would you anticipate pressure differentials that would result in gas migration between the zones you're downhole commingling?

A. Since the wells are hooked to the low pressure gas system and you're pumping the wells, there shouldn't be any commingling. Now if we have a shut-in period, of course I'll take that up with the local Oil and Gas Supervisor in Aztec.

Q. What is the current status of the well?

A. It's pumping.

Q. Do you have a recommendation to make to the Examiner as to the allocation of production between the zones?

A. I intend to test each zone separately.

Q. At that time would you work that out with the District Supervisor?

A. I'll work it out with the District Supervisor to his satisfaction.

Q. In your opinion are the reservoir characteristics of the reservoirs that you intend to commingle such that underground waste would not be caused by the proposed commingling?

A. That's the reason I propose to commingle them and strictly from an economical standpoint of returning

a return on our investment.

Q. Would granting this application, in your opinion, result in increased recovery of hydrocarbons?

A. Yes, it will.

Q. Mr. Galloway, I believe you're also requesting a non-standard proration unit.

A. Yes, this is correct.

Q. In what formation are you requesting a non-standard unit?

A. In the Dakota only.

Q. And how many acres would be in the non-standard proration unit?

A. 160.

Q. And what is the standard spacing for the Dakota?

A. 320.

Q. Has infill drilling been authorized in this area?

A. Yes, it has.

Q. So developing a 160-acre proration unit would not impair the right of any other operator in the -- offsetting operators to also develop their Dakota, is that correct?

A. No, it would not.

Q. It would not impair their rights?

A. No, it would not. It wouldn't impair their rights.

Q. Did you attempt to form a standard 320-acre unit?

A. This lease was expiring on May the 20th, and Tenneco Oil Company asked us to drill it on April 8th, and I contacted Getty Oil, who owned the northwest quarter, and asked them to join, and they declined to join on the Dakota.

Q. Does Getty have notice of this --

A. Yes.

Q. -- hearing today?

A. Yes, they do.

Q. And they still would be free to drill a Dakota well in the northwest?

A. Yes. They have asked me if I would okay them a non-standard gas proration unit should they decide to do so, and I said I would be happy to do it. Matter of fact, I put it in writing.

Q Mr. Galloway, in your opinion would granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. It definitely would.

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A. No, sir, there was no DST.

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Q. Okay, so you did complete in the Greenhorn as a small Greenhorn well.

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Q. And met your deadline there.

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A. The casing is at -- 4-1/2 inch casing is set at 5807 to 37.

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A. Schlumberger estimated that in their calculations of all these other logs that I have here, in that computer log.

Q. I see. Is ownership of all three formations identical?

A. Yes, they are.

MR. NUTTER: Are there any further questions of Mr. Galloway? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: Nothing further.

MR. HUTTER: Does anyone have anything further they wish to offer in Case Number 7322?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7822, heard by me on 8/12 19 81.

Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Coleman Oil & Gas, Inc.	Concerning Navajo-Smith	1

Unit Letter	Section	Township	Range	County
G	24	26N	12W	San Juan

Actual Footage Location of Well: 1650 feet from the North line and 1650 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6031 GR			160 Acres

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

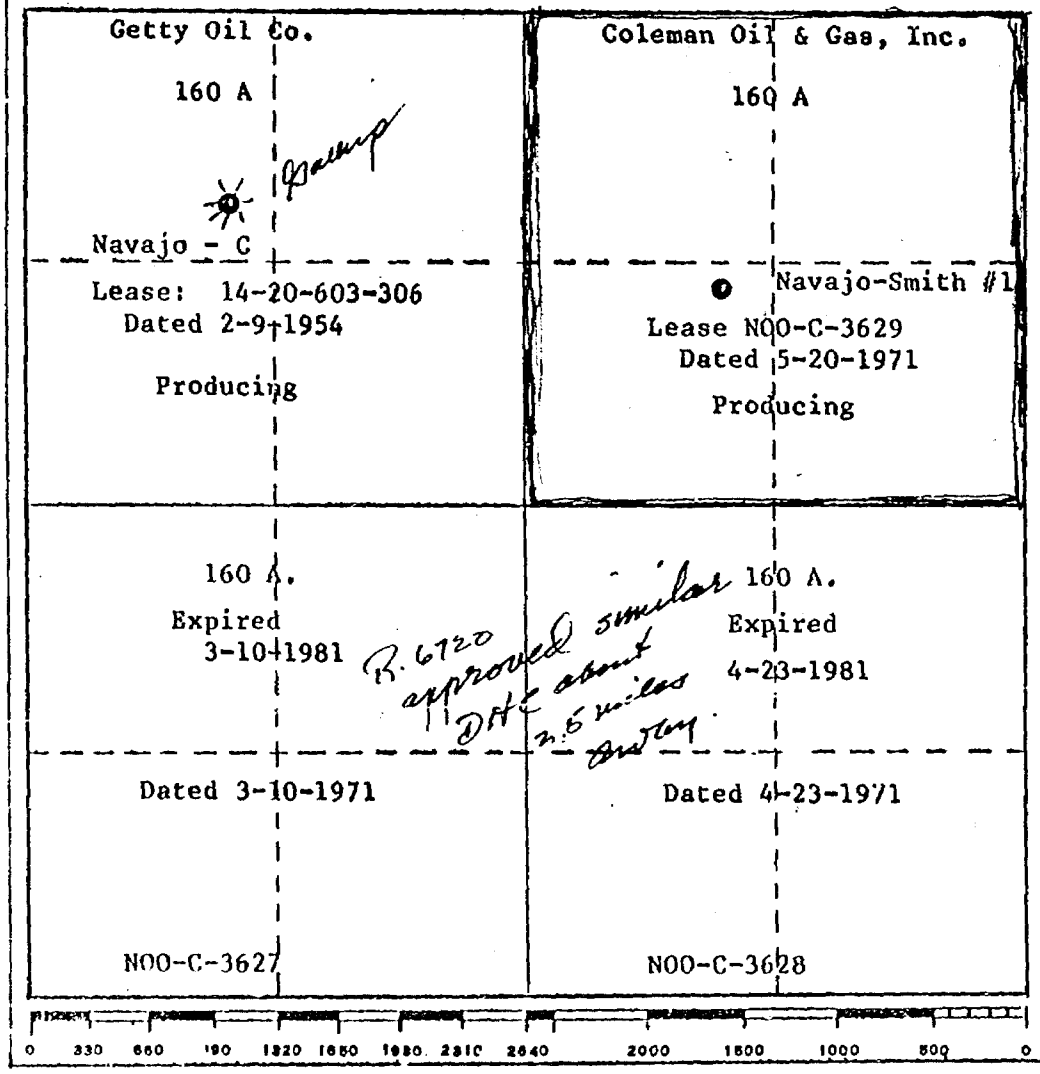
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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

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

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

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



CERTIFICATION

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

W M Gallaway

Name: W. M. Gallaway

Position: Engineer

Company: Coleman Oil & Gas, Inc.

Date: June 16, 1981

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

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

EK I Cs 7322

Certificate No.

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NOOC-14-20-3629

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ES Sun Ble Clun

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Navajo Smith

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: San Juan Undesignated Greenhorn

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 24, T26N, R12W

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: COLEMAN OIL & GAS, INC.

3. ADDRESS OF OPERATOR: 101-2 Petroleum Plaza Bldg., Farmington, N. M. 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1650' FNL, 1650' FEL
At top prod. interval reported below
At total depth

14. PERMIT NO.:
DATE ISSUED: 4-10-1981
12. COUNTY OR PARISH: San Juan
13. STATE: N. M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
4-12-81	4-23-81	5-10-81	6031' GR	6032'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
5877'	5849'		→	0' - T.D.	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 5612' - 5652'

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: I.E.L.

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24 #	241'	12 1/4"	135 sx Cacl.	None
4 1/2"	10.5#	5872.37	7 7/8"	300 sacks first stage	None
				and 450 sacks second stage	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	5650'	None

31. PERFORATION RECORD (Interval, size and number)

5612' - 52' 12 holes.

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5612'-5652' Greenhorn	500 gal. 7½% HCL - fraced with 650 bbls slick water & 17 M of sand.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
5-10-81	Pumping	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
5-12-81	24	None		10	30	TSTM	3 - 1

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
10#	30#					38.5

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented - El Paso will take gas.

TEST WITNESSED BY: H. E. McAnally

35. LIST OF ATTACHMENTS: GOR Test

ACCEPTED FOR RECORD

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED COLEMAN OIL & GAS, INC. W. M. Galloway TITLE Engineer DATE 5-13-81

MAY 13 1981

FARMINGTON DISTRICT

BY RS

*(See Instructions and Spaces for Additional Data on Reverse Side)

OPERATOR

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Ojo Alamo	290'	347'	
Fruitland Coal	1185'	1208'	
Pictured Cliffs	1255'	1325'	
Cliffhouse	1995'	2130'	
Point Lookout	3685'	3785'	
Gallup	4725'	5025'	
Greenhorn	5597'	5657'	
Dakota	5720'	5877' T.D.	

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Top of Pictured Cliffs	1255'	
Point Lookout	3685'	
Gallup	4725'	
Greenhorn	5597'	
Dakota	5720'	

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683536

GPO 680-147

NEW MEXICO OIL CONSERVATION COMMISSION

GAS - OIL RATIO TESTS

C-116
Revised 1-1-65

Operator	Pool	County
COLEMAN OIL & GAS, INC.	San Juan Undesignated Greenhorn	San Juan

Address: 101-2 Petroleum Plaza Bldg., Farmington, N. M. 87401

TYPE OF TEST - (X) Scheduled [ ] Completion [X] Special [ ]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL
Navajo Smith	1	G	24	26N	12W	5-12-81	P	None	10		24	TSTM	38.5	10	30	3mcf/1bbl

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

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

COLEMAN OIL & GAS, INC.

By: W. M. Galloway
(Signature)

W. M. Galloway, Engineer
(Title)

May 13, 1981

TENNECO OIL COMPANY

NAVAJO YAZZA #1

900' FNL, 900' FEL, Unit Letter A,
Sec. 23, T26N, R12W, San Juan County,
New Mexico

Gallup

First Produced in March, 1981

	Oil	Gas MCF	Days Prod.
March, 1981	187	364 Lease Use	26
	Sold El Paso Nat.	775	
April, 1981	225	420 Lease Use	30
	Sold El Paso Nat.	956	
May, 1981	112	322 Lease Use	23
	Sold El Paso Nat.	895	

this well is
about 1 mile
West of subject well

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 3
CASE NO. 7322

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.6.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: Tenneco Oil Company

3. ADDRESS OF OPERATOR: Box 3249, Englewood, CO 80155

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 900' FNL, 900' FEL "A"
At top prod. interval reported below
At total depth

5. LEASE DESIGNATION AND SERIAL NO.: NOOC 14-20-3626

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: AH DE YAZZA

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Navajo Yazza

9. WELL NO.: #1

10. FIELD AND POOL, OR WILDCAT: Gallegos Gallup

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Section 23, T26N, R12W

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: San Juan | 13. STATE: New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2/4/81	2/11/81	2/28/81	6174' gr.	--

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
5232'	5189'		→	0'-TD	--

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
4962-5130' Gallup

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN
IEL CD/CNL

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9-5/8"	36#	308'	12-1/4"	300 sx CL-B	
5-1/2"	17#	5232'	7-7/8"	1st: 500 sx 65/35 POZ, 6% gel, 150 sx CL-B; 2nd: 225 sx Lite, 150 sx CL-B	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-7/8"	5130'	

31. PERFORATION RECORD (Interval, size and number)
4962-72' 5110-14'
5064-70' 5124-30'
5076-82'
5088-92' 50' 100 holes 2 JSPF
5100-04'

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4962-5130'	2000 gals 15% HCL 200# salt 150 1.1 spec grav ball sealers 80,000 gal 20# XL gel 2% KCl wtr. w/400 SCF-N2, 120,000# 20/40 sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
2/28/81	Pumping - 54" stroke 8 strokes per min. Rod Pump	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
2/28/81	24 hrs.			70	108	2	648

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
25 PSI	50 PSI		70	108	2	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
To be sold.

TEST WITNESSED BY

35. LIST OF ATTACHMENTS
Electric logs forwarded by Gearhart-Owen.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED C. Curley Statton TITLE Asst. Div. Adm. Mgr. DATE 3/2/81

*(See Instructions and Spaces for Additional Data on Reverse Side)

BY RB

NM000

GETTY OIL COMPANY

NAVAJO C 1

Unit Letter D, Sec. 24, T26N, R12W,
San Juan County, New Mexico

	Oil	Gas MCF	Oil Accum.
1968	2334	13759	25415
1969	2640	20197	28055
1970	2380	22863	30435
1971	3361	37333	33796
1972	3583	45312	37379
1973	3373	47170	40752
1974	3023	42785	43775
1975	1270	22114	45045
1976	909	13962	45954
1977	789	13828	46743
1978	710	10119	47453
1979	724	9573	48177
1980	838	8046	49015
Through May, 1981	344	1695	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 4
CASE NO. 7322

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.4
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo
Tribe
Allottee Navajo "C"
Lease No. 14-20-603-306

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Report of Perforation	X
		Report of Sand-fracing	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

August 29, 19 57

Navajo "C"
Well No. 1 is located 1090 ft. from {N/S} line and 1090 ft. from {E/W} line of sec. 24

NW/4 Section 24 (¼ Sec. and Sec. No.) 26N (Twp.) 12W (Range) N.M.P.M. (Meridian)

Undesignated (Gallup) (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is ..... ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Perforated 5½" casing 4878-4907 & 4990-5055' with 4 9/16" bullets per ft. Total of 94' with 376 bullets.

Fraced 5½" casing perforations 4878-5907 & 4990-5055' with 40,000# sand & 48,426 gals. water. BDP 1900#, Max. pressure 2200#, Min. pressure 2100#, Max. Inj. rate 60 bbls. per minute. Flushed w/5280 gals. water & over-flushed w/4200 gals. Total fluid 63,840 gals. Time of treatment 21 minutes. Shut down pressure 650#.

RECEIVED
SEP 3 1957
OIL CON. COM.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company SKELLY OIL COMPANY

Address Box 426
Farmington, New Mexico

By (Signed) P. E. Cosper

Title District Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-8

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. 25-003629 Navajo Smith #1
Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of July, 1981

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	31	48	135	TSTM	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 5
CASE NO. 7322

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	139	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	48	135	TSTM
*Sold	0	135	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	187	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	N/A		XXXXXXXXXXXXXXXX

Authorized Signature: [signature] Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401
Title: Bookkeeper Page _____ of _____

GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-R0 356

MONTHLY REPORT OF OPERATIONS

Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the mont
of June, 19 81

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report c
result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and fo
foit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	26	119	159	TSTM	

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	20	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	119	159	TSTM
*Sold	0	159	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	TSTM
*Other (Identify)	0	0	0
*On hand, End of Month	139	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	N/A		XXXXXXXXXXXXXXXX

Authorized Signature: _____ Address: 101-2 Petroleum Plaza Bldg, Farmington,
Title: Bookkeeper N.M. 87401

Page 1 of 4

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Navajo Smith #1

Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of May, 19 81

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	14	240	101	TSTM	First del. 5-15-81

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	240	101	TSTM
*Sold	220	101	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	XXXXXXXXXXXXXXXX
*On hand, End of Month	20	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	40.5		

Authorized Signature: _____
Title: Bookkeeper
Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401

Exhibit 1

Case 7322

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-
Effective 1-1-

All distances must be from the outer boundaries of the Section.

Operator			Lease	Well No.
Coleman Oil & Gas, Inc.			Concerning Navajo-Smith	1
Unit Letter	**Section**	**Township**	**Range**	**County**
G	24	26N	12W	San Juan
Actual Footage Location of Well: 1650 feet from the North line and 1650 feet from the East line				
Ground Level Elev.	**Producing Formation**	**Pool**		**Dedicated Acreage**
6031 GR				160 Acres

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

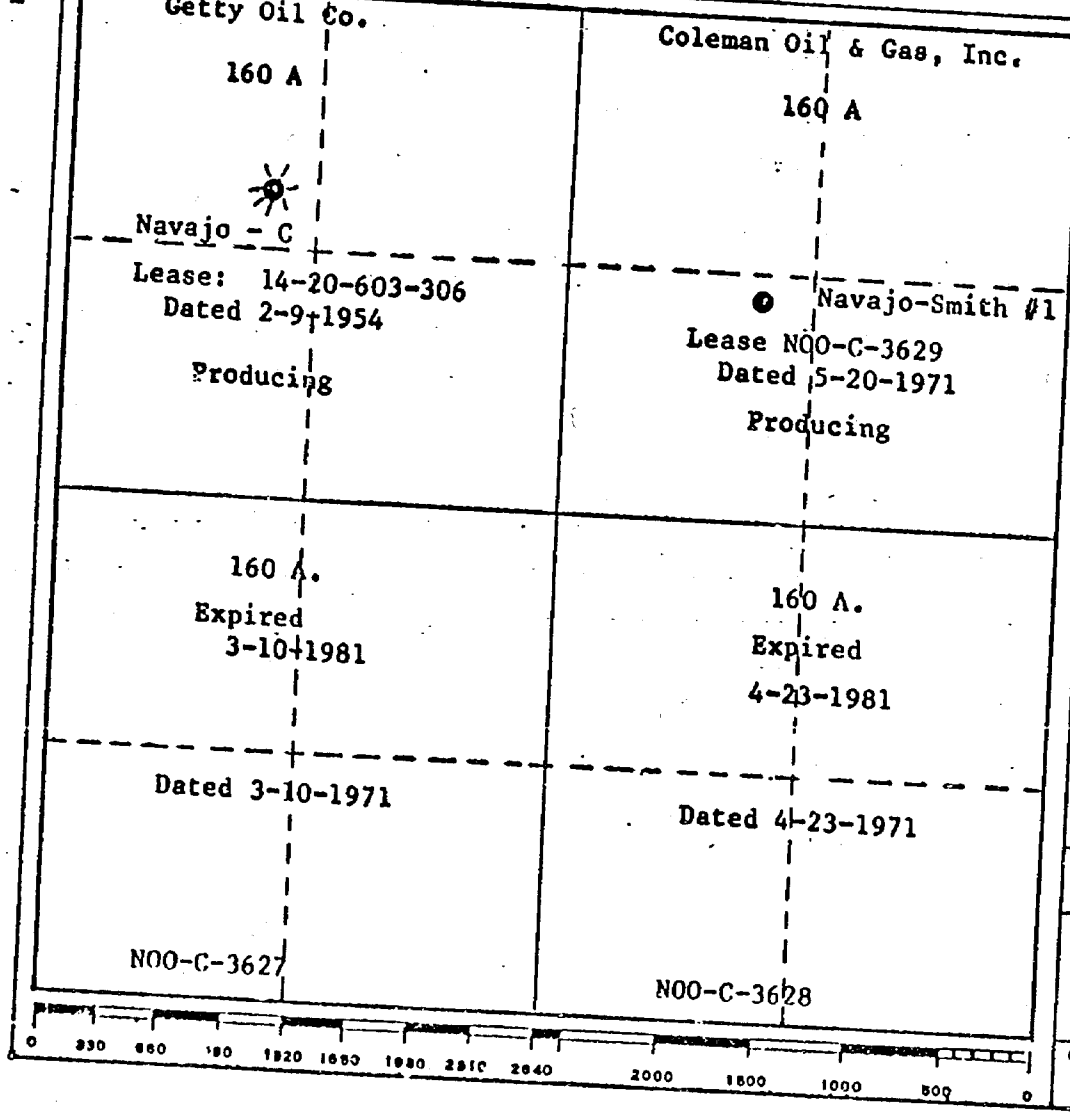
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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

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

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

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



CERTIFICATION

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

Name: W. M. Gallaway

Position: Engineer

Company: Coleman Oil & Gas, Inc.

Date: June 16, 1981

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

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

Exhibit 2
Case 7322

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved. Budget Bureau No. 42-R355.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL [✓] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: COLEMAN OIL & GAS, INC.

3. ADDRESS OF OPERATOR: 101-2 Petroleum Plaza Bldg., Farmington, N. M. 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1650' FNL, 1650' FEL
At top prod. interval reported below
At total depth

5. LEASE DESIGNATION AND SERIAL NO.: NOOC-14-20-3629
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ES Sun Ble Clun
7. UNIT AGREEMENT NAME:
8. FARM OR LEASE NAME: Navajo Smith
9. WELL NO.: 1
10. FIELD AND POOL, OR WILDCAT: San Juan Undesignated Gregnle
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 24, T26N, R12W

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
	4-10-1981	San Juan	N. M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
4-12-81	4-23-81	5-10-81	6031' GR	6032'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
5877'	5849'		→	0' - T.D.	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
5612' - 5652'

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN
I.E.L.

27. WAS WELL CORED: No

23. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24 #	241'	12 1/4"	135 sx Cacl.	None
4 1/2"	10.5#	5872.37	7 7/8"	300 sacks first stage	None
				and 450 sacks second stage	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	5650'	None

31. PERFORATION RECORD (Interval, size and number)
5612' - 52' 12 holes.

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5612'-5652'	500 gal. 7½% HCL - fraced with 650 bbls slick water & 17 [illegible] of sand.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
5-10-81	Pumping	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
5-12-81	24	None		10	30	TSTM	3 - 1

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
10#	30#					38.5

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
Vented - El Paso will take gas.

35. LIST OF ATTACHMENTS
GOR Test

TEST WITNESSED BY: H. E. McAnally

ACCEPTED FOR RECORD

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED: COLEMAN OIL & GAS, INC. V. M. Galloway TITLE: Engineer DATE: 5-13-81

MAY 13 1981
FARMINGTON DISTRICT
BY RB

*(See Instructions and Spaces for Additional Data on Reverse Side)

OPERATOR

1

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "*Sacks Cement*": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Ojo Alamo	290'	347'	
Fruitland Coal	1185'	1208'	
Pictured Cliffs	1255'	1325'	
Cliffhouse	1995'	2130'	
Point Lookout	3685'	3785'	
Gallup	4725'	5025'	
Greenhorn	5597'	5657'	
Dakota	5720'	5877' T.D.	

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Top of Pictured Cliffs	1255'	
Point Lookout	3685'	
Gallup	4725'	
Greenhorn	5597'	
Dakota	5720'	

U.S. GOVERNMENT PRINTING OFFICE: 1983—O-689636

GPO 680-147

NEW MEXICO OIL CONSERVATION COMMISSION
GAS - OIL RATIO TESTS

C-116
Revised 1-1-65

Operator: COLEMAN OIL & GAS, INC.
Pool: San Juan Undesignated Greenhorn
County: San Juan
Address: 101-2 Petroleum Plaza Bldg., Farmington, N. M. 87401
TYPE OF TEST - (X): Scheduled ☐ Completion [X] Special ☐

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - O RATIO CU.FT/B
Navajo Smith	1	G	24	26N	12W	5-12-81	P	None	10		24	TSTM	38.5	10	30	3mcf/1bbl

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

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

COLEMAN OIL & GAS, INC.

By: W. M. Galloway
(Signature)

W. M. Galloway, Engineer
(Title)

May 13, 1981

TENNECO OIL COMPANY

NAVAJO YAZZA #1

900' FNL, 900' FEL, Unit Letter A,
Sec. 23, T26N, R12W, San Juan County,
New Mexico

First Produced in March, 1981

	Oil	Gas MCF	Days Prod.
March, 1981	187	364 Lease Use	26
	Sold El Paso Nat.	775	
April, 1981	225	420 Lease Use	30
	Sold El Paso Nat.	956	
May, 1981	112	322 Lease Use	23
	Sold El Paso Nat.	895	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 3
CASE NO. 7322

Form 9-330
(Rev. 5-63)

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NOOC 14-20-3626

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ali DE YAZZA

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Navajo Yazza

2. NAME OF OPERATOR: Tenneco Oil Company

9. WELL NO.: #1

3. ADDRESS OF OPERATOR: Box 3249, Englewood, CO 80155

10. FIELD AND POOL, OR WILDCAT: Gallegos Gallup

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 900' FNL, 900' FEL "A"
At top prod. interval reported below
At total depth

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Section 23, T26N, R12W

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
		San Juan	New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2/4/81	2/11/81	2/28/81	6174' gr.	--

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
5232'	5189'		→	0'-TD	--

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
4962-5130' Gallup

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN
IEL CD/CNL

27. WAS WELL CORED

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9-5/8"	36#	308'	12-1/4"	300 sx CL-B	
5-1/2"	17#	5232'	7-7/8"	1st: 500 sx 65/35 POZ, 6% gel, 150 sx CL-B; 2nd: 225 sx Lite, 150 sx CL-B	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-7/8"	5130'	

31. PERFORATION RECORD (Interval, size and number)
4962-72' 5110-14'
5064-70' 5124-30'
5076-82'
5088-92' 50' 100 holes 2 JSPF
5100-04'

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4962-5130'	2000 gals 15% NCL 200# salt 150 1.1 spec grav ball sealers
	80,000 gal 20# XL gel 2% KCl wtr w/400 SCF-N_2, 120,000# 20/40 san

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
2/28/81	Pumping - 54" stroke 8 strokes per min. Rod Pump	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
2/28/81	24 hrs.			70	108	2	648

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
25 PSI	50 PSI		70	108	2	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
To be sold.

TEST WITNESSED BY

35. LIST OF ATTACHMENTS
Electric logs forwarded by Gearhart-Owen.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Cinley J. Hatten TITLE Asst. Div. Adm. Mgr. DATE 3/2/81

*(See Instructions and Spaces for Additional Data on Reverse Side)

BY RB

NM0000

GETTY OIL COMPANY

NAVAJO C 1

Unit Letter D, Sec. 24, T26N, R12W,
San Juan County, New Mexico

	Oil	Gas MCF	Oil Accum.
1968	2334	13759	25415
1969	2640	20197	28055
1970	2380	22863	30435
1971	3361	37333	33796
1972	3583	45312	37379
1973	3373	47170	40752
1974	3023	42785	43775
1975	1270	22114	45045
1976	909	13962	45954
1977	789	13828	46743
1978	710	10119	47453
1979	724	9573	48177
1980	838	8046	49015
Through May, 1981	344	1695	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLENAN EXHIBIT NO. 4
CASE NO. 7322

Form 9-331 b
(April 1952)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-R358.4
Approval expires 12-31-60.

Indian Agency Navajo
Tribe
Allottee Navajo "C"
Lease No. 14-20-603-306

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Report of Perforation	X
		Report of Sand-fracing	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

SEP 3 1957

August 29, 1957

Navajo "C"
Well No. 1 is located 1090 ft. from {N/S} line and 1090 ft. from {E/W} line of sec. 24

NW/4 Section 24 (¼ Sec. and Sec. No.) 26N (Twp.) 12W (Range) N.M.P.M. (Meridian)

Undesignated (Gallup) (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is ..... ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Perforated 5½" casing 4870-4907 & 4930-5055' with 4 9/16" bullets per ft. Total of 94' with 376 bullets.

Fraced 5½" casing perforations 4870-5907 & 4930-5055' with 40,000# sand & 48,426 gals. water. BDP 1900#, Max. pressure 2200#, Min. pressure 2100#, Max. Inj. rate 60 bbls. per minute. Flushed w/5280 gals. water & over-flushed w/4200 gals. Total fluid 63,840 gals. Time of treatment 21 minutes. Shut down pressure 650#.

RECEIVED
SEP 3 1957
OIL CON. COM.
DIST. 3

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company SKELLY OIL COMPANY

Address Box 426
Farmington, New Mexico

By (Signed) P. E. Cooper

Title District Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84378-8

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. 25-003629 Navajo Smith #1
Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the mon
of July, 1981

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report c
result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and f
feit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	31	48	135	TSTM	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 5
CASE NO. 7322

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	139	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	48	135	TSTM
*Sold	0	135	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	187	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	N/A		XXXXXXXXXXXXXXXX

Authorized Signature: [signature] Address: 101-2 Petroleum Plaza Bldg, Farmington,
Title: Bookkeeper N.M. 87401

Page _____ of _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-R0 356

MONTHLY REPORT OF OPERATIONS

Lease No. 25-003629 Navajo Smith #1
Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of June, 19 81

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	26	119	159	TSTM	

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	20	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	119	159	TSTM
*Sold	0	159	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	TSTM
*Other (Identify)	0	0	0
*On hand, End of Month	139	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	N/A		XXXXXXXXXXXXXXXX

Authorized Signature: _____ Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401
Title: Bookkeeper

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. 25-003629 Navajo Smith #1
Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of May, 19 81

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	14	240	101	TSTM	First del. 5-15-81

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	240	101	TSTM
*Sold	220	101	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	20	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	40.5		XXXXXXXXXXXXXXXX

Authorized Signature: [signature] Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401
Title: Bookkeeper

Exhibit #1

Case 7322

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-
Effective 14-

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Coleman Oil & Gas, Inc.	Concerning Navajo-Smith	1

Unit Letter	Section	Township	Range	County
G	24	26N	12W	San Juan

Actual Footage Location of Well: 1650 feet from the North line and 1650 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage
6031 GR			160 Acres

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

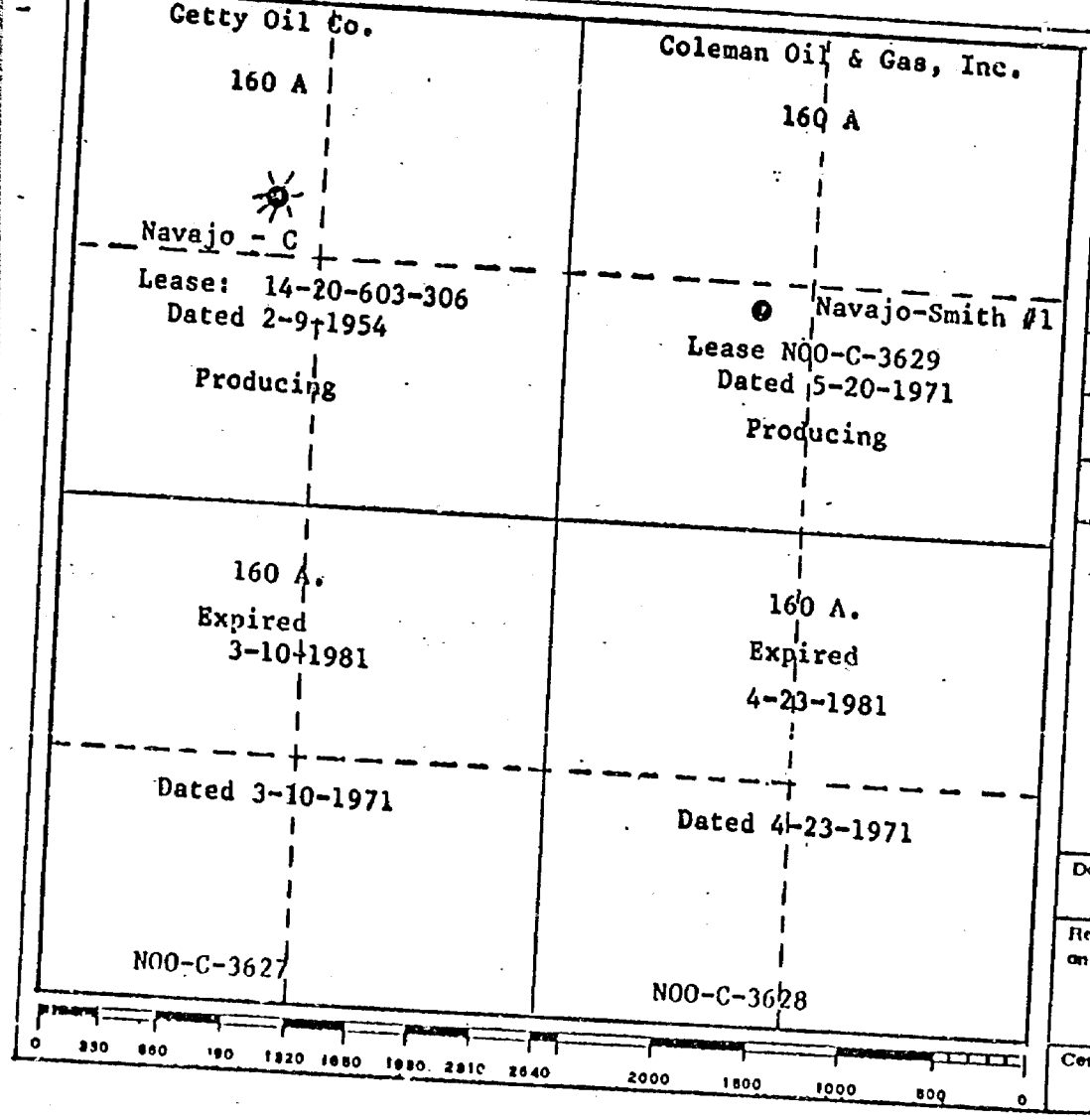
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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

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

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

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



CERTIFICATION

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

Name: W. M. Gallaway

Position: Engineer

Company: Coleman Oil & Gas, Inc.

Date: June 16, 1981

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

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

Exhibit 2
Case 332

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved. Budget Bureau No. 42-R355.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: COLEMAN OIL & GAS, INC.

3. ADDRESS OF OPERATOR: 101-2 Petroleum Plaza Bldg., Farmington, N. M. 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1650' FNL, 1650' FEL
At top prod. interval reported below
At total depth

5. LEASE DESIGNATION AND SERIAL NO.: NOOC-14-20-3629

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ES Sun Ble Clun

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Navajo Smith

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: San Juan Undesignated Gravnia

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 24, T26N, R12W

14. PERMIT NO. / DATE ISSUED: 4-10-1981

12. COUNTY OR PARISH: San Juan

13. STATE: N. M.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
4-12-81	4-23-81	5-10-81	6031' GR	6032'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
5877'	5849'		→	0' - T.D.	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
5612' - 5652'

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN
I.E.L.

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24 #	241'	12 1/4"	135 sx Cacl.	None
4 1/2"	10.5#	5872.37	7 7/8"	300 sacks first stage	None
				and 450 sacks second stage	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	5650'	None

31. PERFORATION RECORD (Interval, size and number)
5612' - 52' 12 holes.

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5612'-5652'	500 gal. 7½% HCL - fraced with 650 bbls slick water & 17 [illegible] of sand.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
5-10-81	Pumping	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
5-12-81	24	None		10	30	TSTM	3 - 1

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
10#	30#					38.5

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
Vented - El Paso will take gas.

TEST WITNESSED BY: H. E. McAnally

35. LIST OF ATTACHMENTS
GOR Test

ACCEPTED FOR RECORD

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED COLEMAN OIL & GAS, INC. W. N. Galloway TITLE Engineer DATE 5-13-81

MAY 13 1981
FARMINGTON DISTRICT
BY RB

*(See Instructions and Spaces for Additional Data on Reverse Side)

OPERATOR

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Ojo Alamo	290'	347'	
Fruitland Coal	1185'	1208'	
Pictured Cliffs	1255'	1325'	
Cliffhouse	1995'	2130'	
Point Lookout	3685'	3785'	
Gallup	4725'	5025'	
Greenhorn	5597'	5657'	
Dakota	5720'	5877' T.D.	

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Top of Pictured Cliffs	1255'	
Point Lookout	3685'	
Gallup	4725'	
Greenhorn	5597'	
Dakota	5720'	

U.S. GOVERNMENT PRINTING OFFICE : 1983—O-689636

GPO 680-147

NEW MEXICO OIL CONSERVATION COMMISSION
GAS - OIL RATIO TESTS

C-116
Revised 1-1-65

Operator: COLEMAN OIL & GAS, INC.
Pool: San Juan Undesignated Greenhorn
County: San Juan
Address: 101-2 Petroleum Plaza Bldg., Farmington, N. M. 87401
TYPE OF TEST - (X) Scheduled [ ] Completion [X] Special [ ]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL
Navajo Smith	1	G	24	26N	12W	5-12-81	P	None	10		24	TSTM	38.5	10	30	3mcf/1bbl

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

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

COLEMAN OIL & GAS, INC.

By: W. M. Galloway
(Signature)

W. M. Galloway, Engineer
(Title)

Nov 13, 1981

TENNECO OIL COMPANY

NAVAJO YAZZA #1

900' FNL, 900' FEL, Unit Letter A,
Sec. 23, T26N, R12W, San Juan County,
New Mexico

First Produced in March, 1981

	Oil	Gas MCF	Days Prod.
March, 1981	187	364 Lease Use	26
	Sold El Paso Nat.	775	
April, 1981	225	420 Lease Use	30
	Sold El Paso Nat.	956	
May, 1981	112	322 Lease Use	23
	Sold El Paso Nat.	895	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 3
CASE NO. 7322

Form 9-330
(Rev. 5-63)

SUBMIT IN DUPLICATE*
(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NOOC 14-20-3626

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: AH DE YAZZA

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Navajo Yazza

9. WELL NO.: #1

10. FIELD AND POOL, OR WILDCAT: Gallegos Gallup

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Section 23, T26N, R12W

12. COUNTY OR PARISH: San Juan

13. STATE: New Mexico

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: Tenneco Oil Company

3. ADDRESS OF OPERATOR: Box 3249, Englewood, CO 80155

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 900' FNL, 900' FEL "A"
At top prod. interval reported below
At total depth

14. PERMIT NO. | DATE ISSUED

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2/4/81	2/11/81	2/28/81	6174' gr.	--

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
5232'	5189'		→	0'-TD	--

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
4962-5130' Gallup

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN
IEL CD/CNL

27. WAS WELL CORED

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9-5/8"	36#	308'	12-1/4"	300 sx CL-B	
5-1/2"	17#	5232'	7-7/8"	1st: 500 sx 65/35 POZ, 6% Gel, 150 sx CL-B; 2nd: 225 sx Lite, 150 sx CL-B	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-7/8"	5130'	

31. PERFORATION RECORD (Interval, size and number)
4962-72' 5110-14'
5064-70' 5124-30'
5076-82'
5088-92' 50' 100 holes 2 JSPF
5100-04'

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4962-5130'	2000 gals 15% NCL 200# salt 150 1.1 spec grav ball sealers
	80,000 gal 20# XL gel 2% KCl wtr w/400 SCF-N_2, 120,000# 20/40 san

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
2/28/81	Pumping - 54" stroke 8 strokes per min. Rod Pump	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
2/28/81	24 hrs.			70	108	2	648

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
25 PSI	50 PSI		70	108	2	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
To be sold.

TEST WITNESSED BY

35. LIST OF ATTACHMENTS
Electric logs forwarded by Gearhart-Owen.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

SIGNED Wesley Patterson TITLE Asst. Div. Adm. Mgr. DATE 3/2/81

*(See Instructions and Spaces for Additional Data on Reverse Side)

RECEIVED MAR 11 1981
OIL CON. COM.
DIST. 3
BLM
FARMINGTON, N. M.

NMOCC

GETTY OIL COMPANY

NAVAJO C 1

Unit Letter D, Sec. 24, T26N, R12W,
San Juan County, New Mexico

	Oil	Gas MCF	Oil Accum.
1968	2334	13759	25415
1969	2640	20197	28055
1970	2380	22863	30435
1971	3361	37333	33796
1972	3583	45312	37379
1973	3373	47170	40752
1974	3023	42785	43775
1975	1270	22114	45045
1976	909	13962	45954
1977	789	13828	46743
1978	710	10119	47453
1979	724	9573	48177
1980	838	8046	49015
Through May, 1981	344	1695	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 4
CASE NO. 7322

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R358.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo
Tribe
Allottee Navajo "C"
Lease No. 14-20-603-306

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Report of Perforation	X
		Report of Sand-fracing	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

August 29, 1957

Navajo "C"
Well No. 1 is located 1090 ft. from {N/S} line and 1090 ft. from {E/W} line of sec. 24

NW/4 Section 24 (¼ Sec. and Sec. No.) 26N (Twp.) 12W (Range) N.M.P.M. (Meridian)

Undesignated (Gallup) (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is ..... ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Perforated 5½" casing 4878-4907 & 4990-5055' with 4 9/16" bullets per ft. Total of 94' with 376 bullets.

Fraced 5½" casing perforations 4878-5907 & 4990-5055' with 40,000# sand & 48,476 gals. water. BDP 1900#, Max. pressure 2200#, Min. pressure 2100#, Max. Inj. rate 60 bbls. per minute. Flushed w/5200 gals. water & over-flushed w/4200 gals. Total fluid 63,640 gals. Time of treatment 21 minutes. Shut down pressure 650#.

RECEIVED
SEP 3 1957
OIL CON. COM.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company SKELLY OIL COMPANY

Address Box 426
Farmington, New Mexico

By (Signed) P. E. Cooper

Title District Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-8

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. 25-003629 Navajo Smith #1
Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the mon
of July, 1981

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report c
result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and f
felt the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	31	48	135	TSTM	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
COLEMAN EXHIBIT NO. 5
CASE NO. 7322

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	139	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	48	135	TSTM
*Sold	0	135	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	187	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	N/A		XXXXXXXXXXXXXXXX

Authorized Signature: [signature]
Title: Bookkeeper
Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401

Page _____ of _____

GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-R0 356

MONTHLY REPORT OF OPERATIONS

Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexican
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the mont
of June, 19 81

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report ca
result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and fo
feit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	26	119	159	TSTM	

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	20	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	119	159	TSTM
*Sold	0	159	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	TSTM
*Other (Identify)	0	0	0
*On hand, End of Month	139	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	N/A		XXXXXXXXXXXXXXXX

Authorized Signature: _____
Title: Bookkeeper
Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401

Page 1 of 4

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Navajo Smith #1

Communitization Agreement No. _____
Field Name Greenhorn
Unit Name _____
Participating Area _____
County San Juan State New Mexico
Operator Coleman Oil & Gas, Inc.
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the mont
of May, 19 81

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report ca
result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and for
feit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	24	26N	12W	PGW	14	240	101	TSTM	First del. 5-15-81

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced	240	101	TSTM
*Sold	220	101	XXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	20	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content	40.5		XXXXXXXXXXXXXXXX

Authorized Signature: _____
Title: Bookkeeper
Address: 101-2 Petroleum Plaza Bldg, Farmington, N.M. 87401

Dockets Nos. 26-81 and 27-81 are tentatively set for August 26 and September 9, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 12, 1981

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for September, 1981, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for September, 1981, for four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 7319: Application of Consolidated Oil & Gas, Inc. for six 160-acre Mesaverde proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of six non-standard gas proration units in the Blanco Mesaverde Pool, said units to comprise the NW/4 and SW/4 of Section 18, and the SW/4 and SE/4 of Section 7, both in Township 31 North, Range 12 West, and the NE/4 and SE/4 of Section 3, Township 31 North, Range 13 West, each unit to be dedicated to an existent well already drilled thereon.

CASE 7320: Application of Harvey E. Yates Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Cisco-Canyon formation thru one well located in the NW/4 NE/4 of Section 13, Township 18 South, Range 28 East, Travis-Upper Pennsylvanian Pool.

CASE 7129: (Readvertised)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7169: (Readvertised)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the S/2 of Section 22, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7321: Application of Enserch Exploration, Inc. for special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Peterson-Mississippian Pool including provisions for 80-acre spacing units and special well location requirements.

CASE 7322: Application of Coleman Oil & Gas, Inc. for downhole commingling and a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Gallegos-Gallup, Greenhorn, and Dakota production in the wellbore of its Navajo-Smith Well No. 1 located in Unit G of Section 24, Township 26 North, Range 12 West. Applicant further seeks approval of a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24.

CASE 7323: Application of Clements Energy Inc. for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

SUBSIDIARIES
COLEMAN DRILLING CO.
BIG A WELL SERVICE
SUNCO TRUCKING

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

DRAWER 3337
FARMINGTON, N.M. 87401

OFFICE: 505-327-0356

COLEMAN OIL & GAS, INC.

July 15, 1981

Mr. Joe D. Ramey
Director, Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

Case 7322

Re: Navajo-Smith #1 Well,
1650' FNL, 1650' FEL,
Sec. 24, T26N, R12W,
San Juan County, New Mexico

Dear Mr. Ramey:

This is with reference to the above referenced well which was spudded on April 12, 1981, and completed on May 10, 1981, as a San Juan Undesignated Greenhorn. The Greenhorn has, since completion, become a salvage operation, making approximately 5 mcf of gas a day and three barrels of oil. There appears to be a marginal well in one small section of the Dakota Formation. In addition, the Gallegos Gallup has been known to give up some hydrocarbons in the area.

We are asking that the Oil Conservation Division give us approval to downhole commingle the Gallegos Gallup, the salvage operation in the Greenhorn and the marginal Dakota prospect in the same wellbore. We believe this will be necessary for this project to change itself into an economical one for our company.

I am enclosing a plat showing the lease expirations on the SE/4 of this section and the SW/4 of this section. We have endeavored to get Getty Oil Co. to join us with the NW/4 on a standard Dakota gas proration unit, to no avail. Therefore, we are also requesting that the NE/4, containing 160 acres, be O.K.'D as a non-standard gas proration unit in the Dakota Formation only.

Please let us know if you desire any additional information to allow us a hearing on the above.

Yours very truly,

COLEMAN OIL & GAS, INC.

George E Coleman

George E. Coleman
President

GEC:ji

Enc.

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-102
Supersedes C-128
Effective 1-1-65

WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	
Coleman Oil & Gas, Inc.	Concerning Navajo-Smith	1

Unit Letter	Section	Township	Range	County
G	24	26N	12W	San Juan

Actual Footage Location of Well:
1650 feet from the North line and 1650 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6031 GR			160 Acres

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

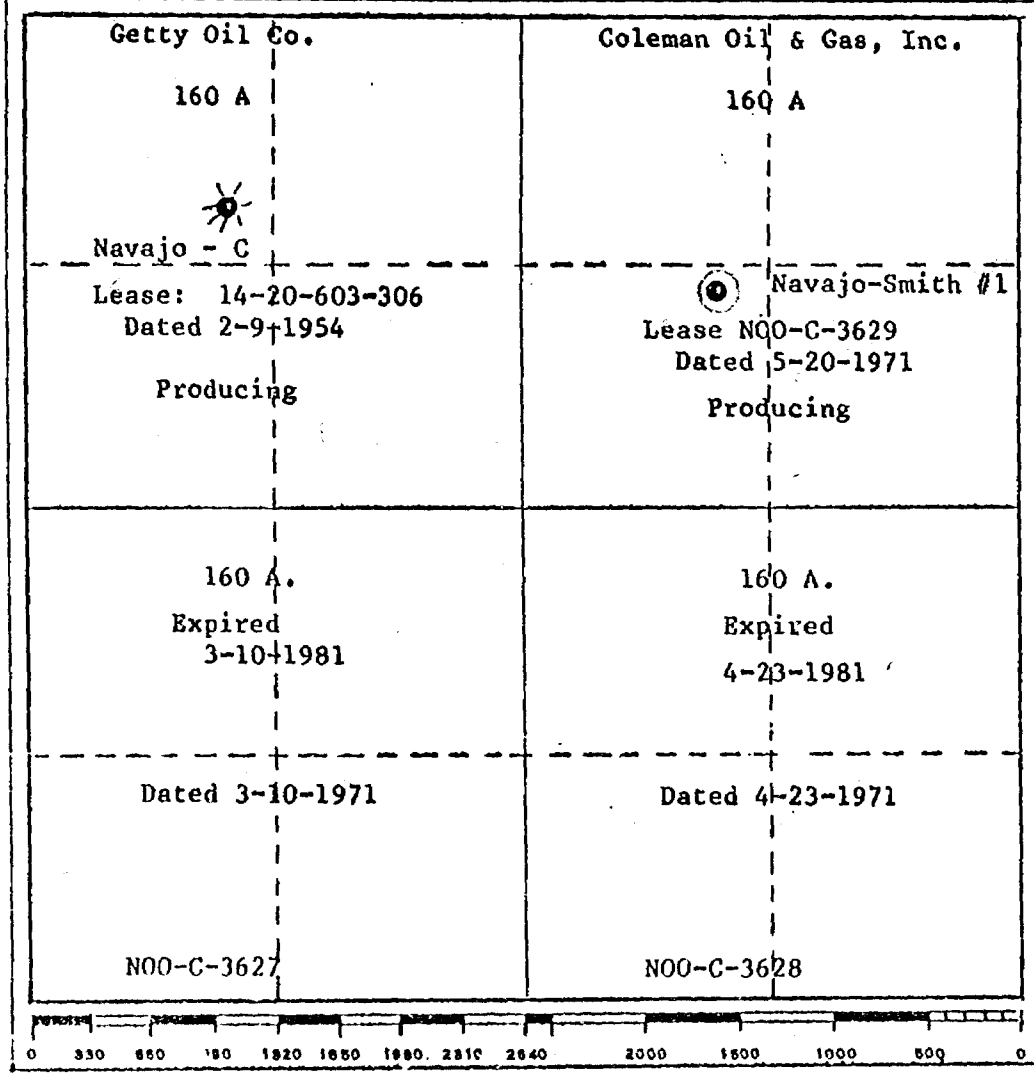
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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

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

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

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



CERTIFICATION

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

W. M. Gallaway

Name: W. M. Gallaway

Position: Engineer

Company: Coleman Oil & Gas, Inc.

Date: June 16, 1981

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

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

1

dr/

SAN JUAN

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7322

Order No. R-6761

APPLICATION OF COLEMAN OIL & GAS, INC.

FOR DOWNHOLE COMMINGLING AND A NON-STANDARD GAS PRORATION UNIT,

COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Coleman Oil & Gas, Inc., is the owner and operator of the Navajo-Smith Well No. 1, located in Unit G of Section 24, Township 26 North, Range 12 West, NMPM, _____ County, New Mexico.

(3) That the applicant seeks authority to commingle undesignated Gallegos-Gallup, Greenhorn and Basin Dakota production within the wellbore of the above-described well.

(4) That the applicant further seeks approval of a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24.

(5) That from the Gallegos-Gallup zone, the subject well is expected to be capable of low marginal production only.

(6) That from the Greenhorn zone, the subject well is capable of low marginal production only.

(7) That from the Dakota zone, the subject well is expected to be capable of low marginal production only.

(8) That the proposed commingling may result in the recovery of additional hydrocarbons from each of the subject pools, thereby preventing waste, and will not violate correlative rights.

(9) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that the well is not shut-in for an extended period.

(10) That to afford the Division the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Aztec district office of the Division any time the subject well is shut-in for 7 consecutive days.

(11) That in order to allocate the commingled production to each of the commingled zones in the subject well, _____ percent of the commingled _____ production should be allocated to the Gallegos-Gallup zone, and _____ percent of the commingled Greenhorn zone, and _____ percent of the commingled _____ production should be allocated to the Dakota zone.

~~(ALTERNATE)~~

(11) That in order to allocate the commingled production to each of the commingled zones in the wells, applicant should consult with the supervisor of the Aztec district office of the Division and determine an allocation formula for each of the production zones.

(12) That the proposed 160-acre non-standard gas proration unit in the Basin Dakota Gas Pool will afford the applicant the opportunity to produce its just and equitable share of the gas in the pool, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Coleman Oil & Gas, Inc., is hereby authorized to commingle Gallegos-Gallup, undesignated Greenhorn and Basin-Dakota production within the wellbore of the Navajo-Smith Well No. 1, located in Unit G of Section 24, Township 26 North, Range 12 West, NMPM, San Juan County, New Mexico.

(2) That the applicant shall consult with the Supervisor of the Aztec district office of the Division and determine an allocation formula for the allocation of production to each zone in each of the subject wells.

~~(ALTERNATE)~~

~~(2)~~ That _____ percent of the commingled _____ production shall be allocated to the Gallegos-Gallup zone, ~~and~~ _____ percent of the commingled _____ production shall be allocated to the Greenhorn zone, and _____ percent of the commingled _____ production shall be allocated to the Dakota zone.

(3) That the operator of the subject well shall immediately notify the Division's Aztec district office any time the well has been shut-in for 7 consecutive days and shall concurrently present, to the Division, a plan for remedial action.

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

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

(2) That a 160-acre non-standard Basin Dakota proration unit comprising the NE/4 of said Section 24 is hereby approved, to be dedicated to the aforesaid well.

CASE NO. 7323: CLEMENTS ENERGY, INC.
FOR COMPULSORY POOLING, CHAVES COUNTY,
NEW MEXICO DE NOVO OCTOBER 14, 1981 VVVV

Case No.

7323

Application

Transcripts.

Small Exhibits

ETC

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
October 14, 1981

COMMISSION HEARING

IN THE MATTER OF: (DE NOVO)

Application of Clements Energy,Inc. for compulsory pooling, Chaves County, New Mexico.

CASE 7323

BEFORE: Joe D. Ramey, Director

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: W. Perry Pearce
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

MR. RAMEY: Call Case 7323

MR. PEARCE: Case 7323, application of Clements Energy, Inc. for compulsory pooling, Chaves County, New Mexico. It is requested that this case be continued to October 16, 1981.

MR. RAMEY: The case is hereby continued to October 16, 1981. The hearing is adjourned.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
October 14, 1981

COMMISSION HEARING

IN THE MATTER OF: (DE NOVO)

Application of Clements Energy,Inc. for compulsory pooling, Chaves County, New Mexico.

CASE 7323

BEFORE: Joe D. Ramey, Director

TRANSCRIPT OF HEARING

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For the New Mexico Oil Conservation Commission: W. Perry Pearce
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

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MR. RAMEY: The case is hereby continued to October 16, 1981. The hearing is adjourned.

BARNES, EIMERS & NEWKUMET

J. D. Barnes
D. J. Eimers
A. W. Newkumet

OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

RECEIVED
OCT 28 1981
OIL CONSERVATION DIVISION
SANTA FE

October 26, 1981

Southland Royalty Company
1100 Wall Towers West
Midland, Texas 79701

Re: Case #7323. DeNovo Hearing.
Order #R-6762A
dated October 20, 1981.
CEI NM State 32 #1.
Lake Arthur Prospect.

Gentlemen:

As requested under the referenced order, attached is one copy of the itemized schedule of well cost, reflecting an estimated completed well cost of $859,380.00. We are furnishing this in behalf of Clements Energy, Inc. of Oklahoma City, Oklahoma.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

AWN/lfs
Enclosure
cc: New Mexico Oil Conservation Division - Joe Ramey
Clements Energy, Inc. - Mark Donaldson
Tom Kellahin

RECEIVED ON BEHALF OF SOUTHLAND ROYALTY COMPANY

this 26th day of October , 1981.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
16 October 1981

COMMISSION HEARING

IN THE MATTER OF:

Application of Clements Energy, Inc., for compulsory pooling, Chaves County, New Mexico. CASE 7323

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

A P P E A R A N C E S

For Southland Royalty Co.: William F. Carr, Esq.
CAMPBELL, BYRD, & BLACK P.A.
Jefferson Place
Santa Fe, New Mexico 87501

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MR. RAMEY: Call next Case 7323.

MR. PEARCE: Application of Clements Energy, Incorporated, for compulsory pooling, Chaves County, New Mexico.

MR. RAMEY: Are there any appearances in Case 7323?

MR. KELLAHIN: Yes, Mr. Ramey, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Clements Energy, Inc., and I have three witnesses.

MR. CARR: May it please the Commission, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., of Santa Fe, appearing on behalf of Southland Royalty Company.

I have one witness.

(Witnesses sworn.)

WAYNE NEWKUMET

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. All right, Mr. Newkumet, for the record

would you please state your name and spell your last name for us, please?

A. My name is Wayne Newkumet. That's N-E-W-K-U-M-E-T.

Q. Mr. Newkumet, have you previously testified before the Oil Conservation Division of New Mexico?

A. Yes, sir, I have.

Q. In what capacity was that?

A. As a landman.

Q. Do you hold a degree of any kind in petroleum land matters?

A. Yes, sir, from Oklahoma University.

Q. And in what year was that?

A. 1976.

Q. Subsequent to graduation, Mr. Newkumet, where have you been employed as a petroleum landman?

A. Worked initially for Texas Pacific Oil Company in Dallas and in Midland, Texas, for three years; had a short experience with Southland Royalty as a landman; and I went to work for Monsanto Company at Midland, also as a landman. All these have been in the Permian Basin area.

Then I went on my own independent and have been that way for about two years.

Q. What is your relationship, if any, with

Clements Energy?

A. I'm on a consulting basis with them.

Q. Pursuant to that employment, Mr. Newkumet, have you made a study of the petroleum land title situation with regards to the acreage involved in this compulsory pooling case?

A. Yes, sir, I have.

Q. Did you testify at the Examiner Hearing with regards to this application?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Newkumet as a professional petroleum landman.

MR. RAMEY: He is so accepted.

Q. Mr. Newkumet, let me direct your attention to the first of your exhibits, which is marked as Applicant Exhibit Number One, and have you first of all identify for us the proposed proration unit for which you seek compulsory pooling.

A. Okay, this would be the east half of Section 32 of Township 15 South, Range 27 East, Chaves County, New Mexico, as shown outlined in red on Exhibit One.

Q. This is a 320-acre proration unit?

A. Yes.

Q. And it will be for the east half of 32?

A. Yes.

Q. Can you give us a general idea where this acreage is in relation to any producing field or any community in Chaves County?

A. Let's see, I believe it's probably, say, 7 or 8 miles east of Lake Arthur, Town of Lake Arthur. The Buffalo Valley Field that you might be familiar with sets, probably, 6 or 7 miles east of here.

Q. East? Isn't it northwest? Northeast?

A. It would be northeast and a little bit north.

Q. All right, sir.

A. Diamond Mound Field to the south and east.

Q. All right. Within this proration unit, Mr. Newkumet, would you describe for us what the acreage ownership is?

A. Okay. Within the proposed pooled area Clements Energy, Inc., has a 62.5 percent interest through its leases. One, a 160-acre State of New Mexico lease; two, a 40-acre lease from the USA.

Q. Those are outlined in yellow?

A. Yes, those would be the ones outlined in yellow on the plat.

Q. All right, what is represented by the acreage that's not colored yellow that's in the outlined area?

A. This is acreage that is -- or leasehold that is owned by Southland Royalty in the north half northeast, and the southeast southeast.

Q. All right, and what percentage of this proration unit belongs to Southland?

A. Okay, that would be that 120 acres I've just described, which would be 37.5 percent of that pooled unit.

Q. With regards to the pooling, Mr. Newkumet, what potential formations are the subject for the pooling?

A. This would be for the Morrow.

Q. All right. The application indicates the Wolfcamp and any of the Pennsylvanian --

A. Okay.

Q. -- formations.

A. That's true. I'd hold off saying anything; maybe the geological witness would like to speak to that a little more.

Q. All right. The primary objective is to be a Morrow test, is it not?

A. Right, that's -- that's true.

Q. All right, sir, and you're seeking pooling, however, of all the Pennsylvanian formations?

A. That's right.

Q. Including the Wolfcamp. Let me ask you this, Mr. Newkumet, if this proration unit was reoriented to a south half of Section 32, would that remove the necessity for compulsory pooling?

A. I don't believe so because the ownership as far as Clements Energy, Inc., and Southland Royalty is concerned, would be the same.

Q. It would still require pooling or some agreement with Southland?

A. I believe that's correct. In fact, the interest would be the same.

MR. RAMEY: Tom, are you just asking for Wolfcamp and Pennsylvanian in this?

MR. KELLAHIN: Yes, sir.

MR. RAMEY: Okay.

MR. KELLAHIN: Yes, sir. That was modified, Mr. Ramey, at the Examiner Hearing. The original application had asked for more, but it was reduced at the time of the Examiner Hearing to Wolfcamp and Pennsylvanian.

MR. RAMEY: Okay.

Q. Give us some background, Mr. Newkumet,

with regards to when Clements Energy first approached Southland Royalty Company with regards to the drilling of this well.

A. Okay. The first contact would be, I believe we're calling it Exhibit Two, is a letter of April 29th, 1981.

Q. All right, let's turn to that exhibit. It's Exhibit Number Two? All right, sir.

A. That would be a letter from myself as representative for Clements Energy, addressed to Southland Royalty Company, proposing the communitization and the Morrow test. In addition it had a land plat attached and a rough draft of the AFE for that time.

It requested Southland's early consideration of this matter, as Clements had third or fourth quarter 1981 drilling plans.

Q. What, if any, response did you receive from Southland concerning your initial request of April 29th?

A. We received no comment from them at all.

Q. All right, sir, what then did you do?

A. By telephone conversation on May 12th, I spoke with Southland's District Landman, Gary Young, requested his comments on our proposal, asked him how they were leaning; did it look like they would join or farm out, or

what, what they were considering, and there was no -- basically no comment to that at all.

Q. Mr. Young was the gentleman to whom you'd sent the first letter?

A. This is true.

Q. And subsequent to that phone call, Mr. Newkumet, what, if any, response did you make then?

A. Okay, if you'll refer to what's marked Exhibit Three, that will be another letter, the June 12th, 1981, letter, addressed the same way, also from myself. This letter referenced the April 29th letter and the May 12th telephone conversation and advised that any comments or management decision would be greatly appreciated.

That letter also re-emphasized that Clements had definite plans to drill a well in the third or fourth quarter of 1981.

Q. All right, sir, what, if any, response did you receive from Southland concerning this correspondence?

A. Absolutely none.

Q. What then is the next thing you did, Mr. Newkumet?

A. Okay. Again refer to Exhibit Four. This is another letter, dated July 6th, 1981, again from myself, addressed to the same individual, Southland Royalty. This

letter advised that Clements had secured a rig for the drilling of the well. It, as outlined in the two previous letters and telephone conversation, advised that any comments at all would be greatly appreciated.

Copies of the previous letters were attached and this letter was sent by certified mail.

Q. You said you had secured a rig at this time, Mr. Newkumet. What was the schedule for the rig's commencement of this well at that time?

A. That was looking to be available in October.

Q. Of this year?

A. Right.

Q. All right, sir.

A. By the way, we've had to put that off. We do have it back at this time.

Q. All right, I'll ask you about that later.

A. Okay.

Q. Let's turn, then, to after the July 6th, 1981, letter, Mr. Newkumet. What then is the next thing that you did with regards to soliciting from Southland Royalty Company their joinder in the well or farm out or a lease, or any other cooperation to voluntarily drill this acreage?

A. Yes. This would be -- what I did at

this point, this is about the time that we began becoming desperate, we had a rig and we needed to drill this well.

I telephoned the District Geologist, Daryl James.

Q. Whose District Geolcgist?

A. Southland Royalty's District Geologist, Mr. Daryl James.

Q. Had you known Mr. James before?

A. Yes, I knew him.

Q. All right.

Q. And describe generally what that conversation was, Mr. Newkumet.

A. Very basically I just referred back to our previous correspondence by letter.

Q. Did Mr. James give you any indication that he was familiar with and knew what you were talking about?

A. Oh, yes, knew exactly what I was talking about, immediately.

Q. All right, sir. And what was that converstaion?

A. Well, basically, I asked him again which way are they leaning; does it look like we could join, farm out, not do anything, or what.

Q. And what, if anything, did Mr. James tell you?

A. Nothing pertinent to this, other than he felt -- well, let me just mention, his quote was, "The obvious location for the drilling of this well would be in Section 31."

Q. Which is to the west of this section?

A. To the west.

Q. All right, sir.

A. And continue with the quote, "and drilling in Section 32 is a wildcat. It is more than a mile away from any producing well."

Q. What was your general impressions, then, of Southland's position with regards to participating with you in this Morrow test in the east half of 32 at this time?

A. I did not know. I did not think that they were looking to cooperate.

Q. All right, sir, what then was the next thing you did?

A. That is when we filed for the first compulsory pooling hearing.

Q. All right, sir, let me show you what we've marked as Applicant Exhibit Number Six, Mr. Newkumet, and have you identify that for us.

A. Okay, this would be Tom Kellahin's letter to the Oil Conservation Division requesting that the pooling hearing be set.

Q. Okay. Does that indicate whether or not Southland was furnished a copy of that application?

A. Yes.

Q. All right.

A. Copy to Southland Royalty.

Q. All right. Subsequent to the application did this matter come forward for hearing before the Oil Conservation Division?

A. Yes, it did on August 12th, 1981.

Q. All right, sir, and subsequent to hearing was an order entered in this case?

A. Yes, it was.

Q. And that's appended at Exhibit Number Five?

A. That would be Exhibit Five.

Q. Exhibit Five to your packet of information.

A. Five.

Q. All right. What is your rig schedule now, Mr. Newkumet, with regards to the drilling of this well?

A. This rig will be available to commence

operations probably the first week of November.

Q. Let me direct your attention back to the latest estimated well costs which you tendered to Southland, and I believe that's appended to the letter of July 6th, 1981.

If you'll reference that AFE, Mr. Newkumet, let me ask you some questions about that.

A. Okay.

Q. This, in fact, is the AFE that you tendered to Southland?

A. Yes, it is.

Q. The latest one?

A. Yes.

Q. All right, sir, with regards to this AFE, as of the current date, in your opinion is the estimated well costs set forth here reasonable and consistent for wells of this depth in this area?

A. Yes, it is.

Q. Can you give us any indication of what the extent of your study has been with regards to determining whether the costs here are consistent with other costs in the area for such wells?

A. Just in -- in conversations with various individuals I feel that they are.

Q. All right, sir. Let me direct your

attention, then, to any recommendations you have to the Commission with regards to the overhead charges to be assessed against a nonconsenting working interest while drilling and then after completion of the well.

A. Yes, sir. I would recommend they -- the rates assigned be $4208 per month for the drilling well rates and $420 per month for producing well rates.

Q. All right, sir.

A. I might -- I might mention that these are the rates that Clements Energy charges for wells in the 8-to-12,000 foot range in their other operations in Oklahoma, Louisiana, and the Rocky Mountains.

Q. Your recommendation to the Examiner back in August of this year was for a different well rate, was it not?

A. Yes, sir.

Q. All right, sir, what has caused you to change your opinion with regards to those charges?

A. Clements has been involved in two wells in this general area, south of this general area about 12 to 15 miles south, the Exxon State "DB" No. 1, in Section 7 of 19 South, 24 East, of Eddy County, the wells rates agreed to by all parties in that well were $3815 per month while drilling, $381 per month while producing.

The other well that Clements was a working interest owner in was the Yates Petroleum Triangle Ranch "RA" State No. 1, a 9000 foot well in Section 14 of 19 South, 23 East, Eddy County. The well rates agreed to by all parties there were $3800 per month for the drilling well rates and $380 per month for the producing well rates.

Q. Based upon your study, then, Mr. Newkumet, in your opinion is the charge of $4208 while drilling and $420 per month after completion of the well reasonable and consistent with those charges in the area?

A. I believe so.

Q. Except for the Commission order, were the other exhibits that you have discussed, Mr. Newumet, Exhibits One through Six, either prepared by you directly or compiled under your direction and supervision?

A. Yes, with the exception of the AFE, which was prepared directly by one of the Clements engineers.

MR. KELLAHIN: That concludes my examination of Mr. Newkumet. We move the introduction of Exhibits One through Six.

MR. RAMEY: Exhibits One through Six will be admitted.

Any questions of the witness? Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Newkumet, I believe you stated that Daryl James advised you that they felt it adviseable to drill a well in Section 31, not 32, is that correct?

A. His comments were more along the line of if we're going to drill a well on this area, that it should be drilled in Section 31. For what reasons I'm not real sure. I did not ask the geologist about that.

Q. Was that the first time you had been advised that Southland was interested in a well in 31?

A. Yes, it was.

Q. Gary Young had never discussed that with you?

A. No.

Q. If a well was drilled in 31 would Clements have an interest in it?

A. Yes, they would.

Q. Would it be comparable to the interest in the proposed well?

A. It would be smaller.

Q. About how much smaller?

A. It would be 50 percent versus 62.5 per-

cent.

Q. I believe you stated that you had been involved in two wells, the drilling of two wells since the time you obtained the original order on the hearing of the original pooling case. Is that correct?

A. Are you saying in the interim period?

Q. Yes, sir. I'm trying to find out what it was you testified to. Did you state you had been --

A. Okay, that Clements Energy has been involved in two other wells, similar type wells, in this area, south of this area.

Q. Since what time?

A. The first one was probably agreed to, operating agreement signed, paperwork signed, et cetera, the Exxon well, I'm going to make a guess, but I think it was probably around June or earlier.

The Yates well, probably about the same time.

Q. And the overhead costs that you're proposing --

A. Let me say this. The overhead rates, and whatnot, were negotiated and agreed to earlier in the year.

Q. And you are proposing an overhead charge

in excess of either of those.

A. That's right.

MR. CARR: I have nothing further of Mr. Newkumet.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Newkumet, why -- why are your overhead charges --

A. Higher?

Q. -- higher than -- is this just inflation, or what?

A. No, I believe industry-wide at this point in time, today, those are consistent. These again, the Yates well operating agreement and the Exxon well operating agreement reflected some rates that were negotiated back in the early part of the year.

As everybody knows, things are just skyrocketing in this business right now. I believe that's why we see a higher --

Q. Did you hear the testimony in the previous case?

A. Sir?

Q. Did you hear the testimony in the previous

case?

A. Yes.

Q. And Bass suggested an overhead of $3500 and $350?

A. I didn't -- I didn't catch that. How deep were -- how deep are those wells?

MR. KELLAHIN: Bone Springs.

MR. RAMEY: No, it's Pennsylvanian and Strawn.

A. 11,000 feet? Those were, Mr. Ramey, I believe those were the costs that they have arrived at through their accounting studies, and whatnot, of the actual costs involved, and that's -- that's what they've arrived at.

I feel that they're probably fair.

Q. And your people have arrived at the $4208 and $420?

A. Yes, sir.

Q. Okay, thank you.

MR. KELLAHIN: I have nothing further for Mr. Newkumet.

MR. RAMEY: Any other questions? The witness may be excused.

JERRY BARNES

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Barnes, would you state your name and occupation, please?

A. Yes. My name is Jerry Barnes, B-A-R-N-E-S. I'm a geologist.

Q. Mr. Barnes, have you previously testified before the Division as a geologist?

A. Yes, I have.

Q. Were you the expert geologist that testified for Clements at the Examiner Hearing of this case?

A. I was.

Q. Mr. Barnes, would you tell the Commission when and where you obtained your degree in geology?

A. Yes. I obtained a Bachelor of Science degree in geology in 1969 from the University of Missouri, and I obtained a Master of Science degree in geology in 1971 from the same university.

In the past ten years I've been employed in the petroleum industry as an exploration geologist, an

exploration geophysicist, and a production geologist.

Of that ten year period eight and a half years have been spent in the Permian Basin area of West Texas and New Mexico.

Q. What is your current employment, Mr. Barnes?

A. I'm currently a self-employed geologist as a consultant retained by Clements Energy, as a consultant.

Q. Would you describe for us generally how long you've worked on this particular project for Clements Energy, Inc.?

A. Since original conception this project has probably entailed approximately twelve months I've been involved with it.

MR. KELLAHIN: We tender Mr. Barnes as an expert geologist.

MR. RAMEY: He's so qualified.

Q. Mr. Barnes, let me direct your attention to what we'll mark as Clements Energy Exhibit Number Seven.

A. Okay.

Q. Would you identify what this plat is for me, Mr. Barnes?

A. Yes. This is a Lower Morrow net sand isopach. The scale of the exhibit is one inch to 2000 feet.

The contour interval is 20 feet. The areas shaded in yellow are areas where Lower Morrow Sands are believed to be present. The area that you see shaded in brown are areas where we believe that not only are the Lower Morrow Sands, which are our primary objective with our well, not present, but in addition the entire Lower Morrow section itself is absent.

The wells that you see colored in red with gas symbols are wells that have been completed in the Lower Morrow interval.

The east half of Section 32, which has the red outline, shows our proposed proration unit. The red dot that you see indicates our proposed location. The stippled area indicates Clements Energy, Inc.'s current acreage position.

The dashed lines that you see on the exhibit indicate two cross sections I have also as exhibits, and shows their relationship to the map.

Q. The compulsory pooling, Mr. Barnes, requests pooling of the Wolfcamp and the Pennsylvanian formations; your Isopach is of the Lower Morrow net sands. Is this your principal objective?

A. Yes, it is. Our primary objective is for the Lower Morrow Sands; however, if you'll notice in Section 31 of 15 South, 27 East, the Ralph Lowe Moots Well

is a productive gas well; however, it's in an upper zone in the Strawn Sand.

Although not present in this specific area, the Wolfcamp is additionally productive over much of the area in northern Eddy, southern Chaves County. We would also pool those rights in addition.

I would emphasize, however, that our primary objective is the Lower Morrow Sand.

Q. All right, sir. Let me direct your attention to Section 31, to that Ralph Lowe Moots Well.

You've indicated that in your opinion you believe this is a Strawn producer?

A. Yes, that's correct.

Q. Would you tell us a little bit about this well? How long has it been producing?

A. That well was completed in March of 1963. It's still producing today, at an approximate daily rate of 110,000 cubic feet of gas a day.

Its cumulative is approximately 1.6 Bcf of gas.

That, to my knowledge, is the only well that's productive out of that zone. I might mention that while the cumulative production of that well has not been particularly bad, the producing rate was not particularly high, and

if, using today's drilling and completion costs, it would take that well approximately three plus years to pay out with today's economics.

I would also like to point out, going back to the display, if you'll notice beside each of the wells there are two numbers indicated.

The first number is the net feet of sand present in the well. You'll notice a slash. The second number is the -- indicates the number of feet of porosity in those sands that exceeds an 8 percent cutoff.

Q. Let's look at Section 2 --

A. Yes, sir.

Q. -- which is to the south of your location, and give me a specific example of what you mean by those numbers.

A. Well, for example, you'll notice the well that's approximately 660 from the east line of Section 2 and 1980 from the north line. The 19 feet sand indicates the total net feet of sand that the well encountered and the 8 feet indicates that of that 19 feet there was approximately 8 feet of porous sand; that is, that exceeded the 8 percent cutoff, which I feel, in my studies, is necessary in order to -- to be of commercial -- commercially viable production, be able to sustain commercially viable production.

Q. You're looking at the porosity number as opposed to --

A. That's -- that's --

Q. -- other number?

A. That's correct.

Q. All right.

A. That's correct.

Q. Is this the same exhibit that you introduced at the Examiner Hearing of this case?

A. Yes, it is.

Q. Have there been any amendments or changes to the exhibit since then?

A. No, there have not. You will notice that in Section 26 of 15, 27, and 35, there were two wells that are currently testing. I still have been unable to obtain additional information --

Q. Excuse me, you have not been able.

A. Not been able to obtain to update the map. I might also add that even if I did change them, it would not bear, I don't feel, directly on our proposed location any way, as the well in Section 12 of 16, 27, it's still a new well. I have not been able to obtain all the information on that well. Again, I don't feel that whatever that well does would bear directly upon our proposed location.

Q. Let's spend a moment, Mr. Barnes, and have you identify for me wells that penetrated the Lower Morrow, which indicated to you that they didn't have any sand present in the Lower Morrow.

How are those wells identified?

A. Certainly. We just start off with the area immediately north and west of our proposed location. If you'll notice in Section 25, in 15 South, 26 East, that well encountered not only no sand but was -- and I think my cross sections when I show them will illustrate the kinds that contain not only no sand but no Lower Morrow, as the well in Section 36 contained a very thin Lower Morrow section but no sands.

In 15 South, 27 East, the well I previously referred to, the Ralph Lowe Moots Well, again no sand.

Section 29, approximately one mile north/northwest of our proposed location, again no sand.

Section 27, 15 South, 27 East, approximately two miles northeast of our proposed location, the entire Lower Morrow section absent; no sand.

If you'll notice south of our proposed location, in Section 4, no sand.

In Section 11, the well approximately

1980 from the north and west line of that section, again, not only no sand but no Lower Morrow present.

I believe that's most of the wells immediately surrounding our location that encountered no sand.

Q. Based upon your studies of the geology of this area, Mr. Barnes, do you have an opinion with regards to the risk factor to be assessed against the non-participating interest owners?

A. I certainly do.

Q. And what is that recommendation, Mr. Barnes?

A. In my evaluation of this area, I feel that it's an extremely high risk area. We would ask for the maximum 200 percent penalty assessed against Southland.

Q. Upon what factors do you base that opinion, Mr. Barnes?

A. First of all, upon the geological considerations. For instance, you'll notice the sporadic nature of the presence of the Lower Morrow Sands. Many of the wells, as I pointed out, contain no Lower Morrow Sands at all.

A second consideration that I feel increases the risk substantially is that you'll notice in many wells that encountered Lower Morrow sands, these sands were not of -- of commercially viable quality. I would draw

your attention, for instance, to the well , say, in the southeast corner of Section 2. That well only had a show; it was a dry hole. It had 19 feet of sand, 6 feet of porosity, was not completed.

Notice also the well in the north --

Q. Just a minute, let me find that one. That's the southeast quarter of 2?

A. Yes.

Q. 19 feet of sand, 6 feet of porosity but --

A. It was a dry hole.

Q. -- it was a dry hole.

A. Notice also the well in the northwest corner of Section 1 of 16, 28.

Q. Which well is that?

A. The Internorth, Northern Natural Gas No. 1 Vandagriff Well.

Q. In Section 1?

A. Yes.

Q. All right, sir. What about that well?

A. 25 feet of sand but only 4 feet of porosity.

Again, I think this emphasizes the additional risks involved in not only trying to predict sand but also sand quality. I think when you combine these two

risks together, it makes it an exceedingly high risk area.

Q. This Vandagriff Well you've just mentioned, with the 4 feet of porosity, how much gas does it produce?

A. It's only produced .2 Bcf to date; currently producing about 130,000 a day. To reference you with today's drilling costs, acreage costs, and whatnot, our criteria is we feel like we need at least 400 or .4 Bcf just to recover our initial investment.

That well will probably never pay out.

Q. All right, sir. Those two examples, are there any more examples other than those two of wells that --

A. Well, for instance, you can -- you can look over the map for yourself, but for instance, in Section 11, 14 feet of sand, 12 feet of porosity. Again it had some porosity but it's only produced .05 Bcf. Its cumulative, or its current production is about 200 Mcf a day. That well would probably never pay out under our criteria.

Let me also draw your attention, however, to some good wells.

For instance, west of our area in Section 6, you'll notice 62 feet of sand with 44 feet of porosity. That's definitely a good well. It's flowing 5400 Mcf a day. It's an excellent well.

Just south of that --

Q. And it's in Section 6?

A. I'm sorry, Section 6, it would be, of 16 South, 28 East.

So I think this tends to emphasize, if you will, the sporadic nature of reservoir quality in the area.

So, again, it's not only a problem of predicting the presence of the sands, it's a problem of predicting the quality of the sands.

Q. Let's turn to your proration unit for your location here, Mr. Barnes. You've made a prediction that you hope to encounter approximately 40 feet of Lower Morrow net sand. How did you reach that conclusion?

A. Optimism. Basically there's no -- there is no direct evidence to support that the sands would even be present there.

Q. Even if the sands are present in the east half, as you've indicated, does the number of feet of sand have any relationship to the porosity feet that you'd encounter at that location?

A. Not necessarily, as I pointed out a moment ago, wells with -- with good sand intervals in them, unfortunately had poor reservoir quality and did not sustain what I would consider commercially viable production.

Q. All right. Tell us a little bit about the geology that you've discovered here in the Lower Morrow in this Lake Arthur prospect, Mr. Barnes.

A. Could I refer to the next exhibit?

Q. All right.

A. Which would be a cross section. I think the two cross sections will illustrate the concept a little better, perhaps, than the map.

Q. All right, sir, which one would you like to talk about first?

A. Perhaps the north/south cross section.

Q. You might want to tack it up here so that we could all follow you as you talk.

That's the east/west; let's hang the other one up, too.

A. Certainly.

Let me first draw your attention to --

Q. All right, which one are we going to talk about?

A. Let's talk about the north/south cross section first.

Q. That would be Exhibit Eight?

A. This well passes through our proposed location, as shown. It's a stratigraphic cross section datumed

at the top of the Strawn.

Let me draw your attention, if I could, to the interval that is our primary objective and that is the interval that lies below the Lower Morrow Shale zone that I've colored in green.

Basically, let me show you, if I could, what the risk is in the prospect. Notice that to the south and east of the location these sands are fairly well developed.

As you come further to the northwest notice that the sand becomes more broken and notice that the underlying Chester interval that the sands are deposited upon is coming higher.

As you go to the well north of our proposed location the entire Lower Morrow interval becomes very, very thin. There's no sands deposited.

If you were to just simply connect those two wells like this, I think you could see the risks involved.

We're hoping to find some kind of a low present in which these sands might be deposited. Again you can see without this low present, the deposition of Lower Morrow Sands, we'll probably have a dry hole.

Q. Now, Mr. Barnes, you've estimated that that low in there may be as thick as 40 feet --

A. Right, that's correct.

Q. -- net sands.

A. Again let me emphasize that there is no direct evidence that that low even exists, beyond my optimism.

Q. Okay.

A. I don't think it's unreasonable to expect that if it is there it might contain 40 feet of sand. I would emphasize again, as I did earlier, back to your Exhibit Number Seven, notice that quantity of sand is not necessarily the only criteria for production. Quality also enters into it, into consideration, which again serves to increase the risks in the area substantially.

Let me then move on to Exhibit Number Nine, if I could, which is the east/west exhibit, which would pass a bit south of our proposed location; the projected proposed location would be something like this.

Q. Where is this Ralph Lowe Well, Mr. Barnes?

A. The Ralph Lowe Moots Well in Section 31 is at the lefthand edge of the cross section.

Q. This is the one that produces from the Strawn?

A. That's correct, the Strawn sand here.

Q. Now, how -- will that sand correlate

with the well in Section Number 2?

A. No, it does not. The stratigraphical -- stratigraphic information that we have indicates that in fact there is no correlation.

Q. All right, but let me ask you this, then. The datum top of the Strawn upon which you've hung your logs, is that a readily identifiable marker?

A. Yes, it is. You can identify it quite readily in the area.

Let me point your attention now again at our prospective interval, which is again the area below the Lower Morrow Shale. Notice again as you move west of our area it just shows the nice development in the Lower Strawn -- or Lower Morrow Sands. Again, as the underlying Mississippian increases in height the sand tends to break up, and in fact, again, if you'll allow me to draw the analogy, should our expected topographic low be absent, the chances are we'll have a dry hole.

We're looking, again, for some type of a low area where these sands could accumulate again. There's no direct evidence that that type of configuration exists in the area.

I did color this one sand in here, which is what I've called an Upper Morrow Sand. It produces spora-

dically in the area. There's only a couple or three wells where this sand has even been encountered and in only one well, in fact, was a stand-alone completion attempted in that interval. The well was shut-in and to my knowledge there was never any production out of that zone.

In other instances it was, as in this well, perforated in conjunction with a Lower Morrow Sand commingled with it and in fact used to enhance, if you will, the production from the Lower Morrow Sand.

Q. In your opinion is that Middle Morrow Sand present in the well in the -- in the Mesa Well in Section 2? Do you have a chance of encountering that in 32?

A. No, sir, I don't feel that we do. As I said, it's sporadically developed in the area and I don't feel that the very thin nature of the Morrow in question in this well immediately west/northwest of us, that there's much of a chance of finding this zone. And as I said earlier, even if you do, that's a stand-alone zone. To my knowledge there's been no commercial production from just this sand by itself in the area. It's always been in conjunction with a Lower Morrow, or perhaps you could pick up an Atoka Sand that you could perforate with it, and together they'd make a commercially viable well.

Q. What are the chances of finding the

Strawn formation that's present in that Lowe Well in your proration unit?

A. Well, since it was not encountered in any of the wells southeast of us, you know, we don't consider it as an objective. To my knowledge the Moots Well is the only well that this sand is productive in. I might mention that it was encountered, in my estimation, in some wells immediately northwest of it. It was tested and never found productive in any of those wells.

There again, we're not considering it as an objective.

Q. Just to complete a discussion that we commenced earlier with Mr. Newkumet about Southland's desires, at least by one geologist, to offset that well, Lowe Well in the Strawn, do you have any thoughts or opinions with regards to doing that, Mr. Barnes?

A. Well, we would have to look at it very closely, of course. I think, as I mentioned, obviously the Moots Well has been a producer. Although the cumulative production is something in excess of 1.6 Bcf, it's not been particularly bad. The fact that it took it 18 years to make that much gas, with today's drilling costs and acreage costs, and everything, it would be, in our estimation, a borderline economically, even if you found it, as to whether or not it

would be attractive on our economics.

Again, if they, you know, we would say, fine, if you want to drill one, let us look at it and we'll evaluate it.

But again, let me emphasize, we're not looking for that zone in our well in Section 32.

Q. All right.

Mr. Barnes, were Exhibits Seven, Eight, and Nine prepared by you?

A. Yes, they were.

Q. In your opinion will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. It most certainly will.

MR. KELLAHIN: We move the introduction of Exhibits Seven, Eight, and Nine.

MR. RAMEY: Exhibits Seven, Eight, and Nine will be admitted.

MR. KELLAHIN: That concludes our examination of Mr. Barnes.

MR. RAMEY: Let's have a short coffee-break before we release Mr. Carr.

(Thereupon a short recess

was taken.)

MR. RAMEY: The hearing will come to order. Are there any questions of Mr. Barnes?

MR. CARR: I have a few.

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Barnes, as I look at your Exhibits Eight and Nine, as I understand your testimony, your primary objective is what is called the Lower Morrow Shale or below the Lower Morrow Shale?

A. Below the Lower Morrow Shale, that's correct.

Q. At the very top of the Morrow, you have -- there's a thin stringer that appears in the well in the center of Exhibit Number Nine, I believe. Is that an Upper Morrow zone?

A. Yes. Let me, if I could, develop the idea just a little bit.

You'll notice that I call that Middle Morrow on my -- or I refer to it as Middle Morrow. These units, Upper, Middle, Lower Morrow are best developed just south of this area as you go basinwards.

As you come into this area the Upper Morrow appears to thin and in fact Upper Morrow and Middle Morrow become almost indistinguishable, so I might -- I called it Middle Morrow -- a Middle Morrow, it might, in fact, be a little bit of Upper Morrow, but it is what I would call definitely Morrow.

Q. But it is a stringer colored -- shaded in yellow that is immediately below the line separating the Morrow and Atoka, is it not?

A. That is correct.

Q. You do not consider that a likely prospect for commercial production at your proposed location?

A. No, I don't. As I testified previously, that sand has been encountered, or has been tested in this area in three different wells. Only one of those wells, the well actually in Section 27, of 15, 27, was the -- an attempt made at completing just that interval. It was completed, fraced and completed, I believe, and I'm recalling from memory now, about 490,000 a day potential.

The well was shut-in and I can find no record that that well was actually ever produced out of that zone.

In the other instances where I know that that well -- that zone has been encountered and completed

in, it's been completed in conjunction with either, say, an Atoka Sand above it, or with the Lower Morrow.

Q. How recently was that well in 27 drilled?

A. If you'll allow me to get my notes, I might be able to give you that date.

Q. Okay.

A. Thank you. That well was drilled in 1975.

Q. Is it possible that new gas prices might make that a more attractive interval today?

A. Because I don't have any production, and I don't know at what rate, if any, it ever produced, I can't honestly answer that. I would say if it could, in fact, flow half a million a day, and sustain that production, it perhaps would be commercial today.

Because I don't have any production history for that well, I don't in fact know if it ever produced at the rate that it potentialed, so I can't honestly answer that.

Q. Is it possible that that zone might be -- might appear in the well which you propose to drill?

A. I don't feel that it will. As I said, it's a very sporadic zone. It has been encountered in a few wells to the west of us. None of those wells produced.

The only wells that I'm familiar with that actually produced in that zone, or were completed in that zone, was, as I mentioned, the well in Section 27 of 15, 27; the well that's shown there on that cross section, which is the well in Section 2; and then the well in Section 11, out of the northwest corner of 16 South, 27 East. I believe that well also encountered this zone and I believe in that well it was commingled with the Lower Morrow Sand. So again it was -- it was producing in conjunction with another zone.

Q. Now, your exhibit, I believe it's Exhibit Six, but it's the Isopach.

A. Yes, sir.

Q. That is a map of just the Lower Morrow. It wouldn't include this stringer we've been talking about.

A. No, that's correct.

Q. Have you attempted to map the sand that would be in this stringer that we've been talking about?

A. Yes, I have.

Q. And what conclusions have you reached?

A. The conclusions were much as I have just expressed to you. Basically, at our proposed location our feeling is that that sand offers no potential.

Again, where it has produced, it is usually in conjunction with another zone and in the one in-

stance where it was completed by itself, to my knowledge, it was never produced, and so even if we were to pick up that sand stand-alone, there is no evidence that it by itself is a commercially viable zone.

Q. Now, on the exhibit -- on your Exhibit Number Nine you also have depicted the Strawn producing interval in the Moots Well.

A. That's correct.

Q. Do you believe that that well -- or that that interval is likely to appear in the well you propose to drill?

A. No, I do not. Again, that well -- that same zone was encountered by the wells north and west of our location. In no other well, however, that it was encountered did it produce. It was tested but never again found productive.

I don't feel that it exists in any of the wells southeast of our location. So basically what I would be saying is, it's only productive in one well and in fact was not encountered in any of the wells southeast of our location.

My own feeling is, again, that it's not prospective at our proposed location.

Q. Did you attempt to prepare or map the

extent of the Strawn in this area?

A. Yes, I have.

Q. And what control points did you use?

A. I used all the control, all the wells that you see on this plat, plus others.

Q. There would be no control, however, from the Ralph Lowe Moots Well in the extreme west of 31, all the way over to the Mesa Well in Section 2.

A. No control.

Q. But it is your opinion that this Strawn would not appear in the proposed well?

A. That is my opinion.

Q. But you are asking that the Strawn interval be pooled.

A. Yes, I am. I'm saying that although it is not our primary objective, and although it's only productive in one well, that we would also pool the STrawn as an outside chance that we would encounter it and find it productive.

Q. So is it a secondary objective in this effort?

A. You might call it a secondary objective, much, if you will, as you might call that sand in the Upper Morrow a secondary objective.

Q. And would the Wolfcamp also be a secondary

objective?

A. Yes, it would.

Q. Now I believe you recommended a 200 percent risk factor.

A. Yes, I did.

Q. And that was your recommendation based on the potential production in the Lower Morrow?

A. Based on all the considerations of the geology in the area, the Lower Morrow being our primary objective, and as I testified earlier, in my opinion exhibiting extreme high risk in this area.

If you want to consider the Strawn zone, it's only productive, in my estimation, in the one well. Again, it's a stand-alone zone. It's been -- it has not been produced in any other well. I wouldn't consider it as a -- as a viable objective; perhaps a bail-out zone, but not a viable objective.

The same would be true for the Upper Morrow Sand. You might find it but it wouldn't be an objective which you'd go drilling a well exclusively for.

We feel we need the Lower Morrow in order to have a commercially viable prospect.

Q. It is fair to say you were optimistic about the Lower Morrow --

A. Extremely.

Q. -- but not about the Strawn?

A. Yes. Let me back up. I'd be -- I'm optimistic when I can be. Notice all the wells are producing the Lower Morrow in the area.

In the Strawn there's only one well. It's hard to be optimistic when there's only one well there, as far as generating a stand-alone prospect. And as I mentioned, if you look at the economics of that one well under today's condition, you're looking at -- at in excess of three years to payout.

So for the economic reason, in addition to the geological reasons, it would be a difficult well to drill simply for that zone. I'm not saying you wouldn't drill it, but it would be very close on the economics of whether you could justify, in fact, drilling that well for just the STrawn.

Q. And based on the risk you would encounter in the Morrow zone, you believe 200 percent --

A. I certainly do.

Q. -- is --

A. I certainly do.

MR. CARR: I have nothing further.

MR. RAMEY: Any other questions of Mr.

Barnes?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Let me see if I understand you, Mr. Barnes.

The potential formation that demonstrates the lowest risk is that zone that produces in the area, and that is the Lower Morrow as you've identified it.

A. Yes. Yes, that's a good way to put it.

Q. And that -- and that risk, even though it is the lowest for any of the formations which you're attempting to pool, that risk, in and of itself, is at least 200 percent?

A. Yes.

Q. All right.

MR. KELLAHIN: Nothing further.

MR. RAMEY: Any other questions? The witness may be excused.

JERRY MORITZ

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. For the record, would you please state your name and occupation?

A. Jerry Moritz, and I'm a petroleum engineer. That is M-O-R-I-T-Z.

Q. Mr. Moritz, have you previously testified before the Oil Conservation Division as a petroleum engineer?

A. Yes.

Q. What is your current occupation, Mr. Moritz?

A. I am president of a company called Meyer, Moritz, and Company.

Q. And what is the business of that company?

A. We're consultant drill site engineers.

Q. Have you done consulting work and drill site engineering for Morrow wells in southeastern New Mexico?

A. Yes, we have.

Q. Have you had an opportunity to examine Clements Energy, Inc.'s proposed AFE for the drilling of this MOrrow test?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Moritz as

an expert petroleum engineer.

MR. RAMEY: He is so qualified.

Q. Mr. Moritz, let me direct your attention to that AFE, which I believe is dated July 30th of 1981, and is attached to the packet of exhibits as an attachment to Exhibit Number Four.

Have you had an opportunity to study that AFE?

A. Yes, it's the same one I was furnished with, yes.

Q. All right, sir. In your opinion, based upon the estimated cost for the drilling of the subject well, are those costs reasonable and consistent with the charges for such wells at similar depths in the area?

A. Yes.

Q. Mr. Moritz, do you have any experience with regards to what the current overhead charges are with regards to drilling well rates after drilling and during drilling?

A. No, not in this particular area, we haven't had any experience.

Q. I see.

MR. KELLAHIN: That concludes my examination of Mr. Moritz.

MR. RAMEY: Any questions?

MR. CARR: No questions.

MR. KELLAHIN: That concludes the presentation of our case.

MR. RAMEY: The witness may be excused. Mr. Carr, you may proceed.

JACK W. BECHER

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your full name?

A. I'm Jack William Becher.

Q. Where do you reside?

A. 3401 Shell, Midland, Texas.

Q. By whom are you employed?

A. Southland Royalty Company.

Q. In what capacity?

A. As a geologist.

Q. Mr. Becher, have you previously testified before this Commission?

A. No, I have not.

Q. Would you briefly summarize for the Commission your educational background, work experience?

A. I received a Bachelor of Science degree from Oregon State University in 1972; a Master of Science degree in geology from Louisiana State University in '75.

I worked for Phillips Petroleum Company for two years; Pennzoil, three years; and have been with Southland Royalty for a year and a half.

Q. Are you familiar with the application which was filed on behalf of Clements in this case?

A. Yes.

Q. Are you familiar with the subject acreage?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes, they are.

Q. Mr. Becher, would you briefly state why Southland is appearing in this case and objecting to the application?

A. First, we believe that a 200 percent risk penalty is out of line with the actual risk of the location.

And we would like to show evidence to deomnstrate that a 30 percent risk penalty would be an appro-

priate, an appropriate number to use for this well.

And we'd also like to show our geology on our alternate location in Section 31. We believe that this location would be a more prudent location to drill at this time, and drilling that location first and drilling the location in Section 32 second would result in more efficient reservoir drainage.

Q. So Southland is not objecting to the pooling order or the AFE or the designation of operator in Section 32?

A. No, just the risk penalty.

Q. Have you prepared certain exhibits for introduction in this case?

A. Yes.

Q. Will you please refer to what has been marked for identification as Southland Exhibit Number One, identify this, and explain what it shows?

A. This is a cross section, the same format as the north/south cross section just presented; however, it has Southland'e interpretation of the sand bodies and correlation of the Strawn, Atoka, and Morrow are different.

Q. Now, I believe on this exhibit there is a key -- key map down in the lower lefthand corner. Is there a drafting error on this key map?

A. Yes. The red line going from the well location labeled SRC to the cross section line is a drafting error and should be disregarded.

Q. Now generally what does this exhibit show?

A. It shows a cross section through the proposed Clements location, through two producing wells, and one dry hole.

The Southland acreage is shown on the index map in a stippled pattern and Clements acreage in a cross hatched pattern.

The Mesa No. 1 Diamond Mound Well on the south end of the cross section was completed in the Morrow formation and it has produced over a billion cubic feet of gas.

The center well, the Mesa Bogle State, was produced -- was completed in the Morrow and Atoka and to date has produced over 691-million cubic feet.

The Pubco well at the north end of the cross section, in Section 29, was plugged and abandoned in 1973; however, the Strawn zone at about 7700 feet appears productive on log analysis. I have calculated 8 to 10 percent porosity and a water saturation of 28 percent.

The Clements location has Strawn, Atoka,

and Morrow sands present, and they appear to be productive.

Q. Now when you say -- talk about the Atoka sand producing in the Mesa Bogle State Com No. 1 Well, is that the same zone that Mr. Barnes has characterized as Upper Morrow?

A. Yes, it is. I have named these zones differently because of paleontology I have in the Moots Well and the Pubco Well.

Q. But you are talking about the same interval?

A. The same interval, right.

Q. Now I believe you indicated that the Strawn was present, or appeared to be present in the Pubco Hagerman Com No. 1 Well.

A. Yes.

Q. Was that -- was the Strawn ever tested there?

A. It was not tested. It was --

Q. Do you happen to have any idea why it might not have been tested?

A. That was plugged in '73 and gas prices weren't that good at that time. It could possibly be commercial at this time.

Q. Would you now refer to what has been

marked as Southland Exhibit Number Two and review this for the Commission?

A. This is an east/west cross section on the same format as the east/west Clements cross section. The well on the east end was completed in the Morrow and has a cumulative production of 130,000 Mcf.

The center well is the common well with the first cross section.

And the well on the west is the Ralph Lowe Moots Well, which was completed in the -- in the Strawn and has produced about 1.6 billion cubic feet and about 4000 barrels of oil.

This cross section shows the Clements location and the alternate Southland location in Section 31, to both contain Strawn, Atoka, and Morrow sands,which appear to be productive.

Q. Now I direct your attention to Southland Exhibit Three and ask you to review this.

First I might ask you by whom this exhibit was prepared?

Q. This map was originally drawn by Dennis Eimers (sic) and David Fee. Dennis Eimers is a Southland geologist, now working in our Denver District, and Dennis Eimers is a former Southland geologist, who I understand is

now associated with Clements.

Q. Have you reviewed this and revised this exhibit?

A. Yes, I have revised the map in August of '81.

Q. Will you now -- I direct you to this map and ask you to review it for the Commission.

A. I've indicated the wells penetrating the Strawn with large circles; gas producers, the circle colored red; shows in this zone are colored red on the right half and possible producers are shown by -- colored on the north half of the circle. I have indicated both the gross feet of sand present in the well and the net porosity by each data point, and those numbers are separated by a slash. Southland acreage is shown in a heavy stippling and Clements acreage is shown in a light stippling.

This we -- Southland considers this Strawn sand a primary objective in the area. It's a marine sand with a northeast/southwest trend, and the Moots Well was an economical location. It made 1.6 billion cubic feet.

The wells to the south do not have that sand but because of the nature of the sand being elongate northeast/southwest, they weren't in the right place to encounter that sand, but we believe that the well in Section

29, which is shown on the Exhibit One, could possibly be a commercial producer, and there was a gas show in the sand in Section 36.

Southland's location which we proposed to Clements, lies much closer to the Moots Well. This is the main reason we believe it would be more prudent to drill this location. Our location has about 30 feet of sand; the Clements location has about 20 feet of sand.

Q. Will you now refer to what has been marked Southland Exhibit Number Four and review this for the Commission?

A. This is my interpretation of the Morrow Sand. This is a fluvial, deltaic sand with sand bodies having north/south trend.

I might point out several good wells in the area. In Section 34 of 15, 27, the Read & Stevens Tolen Federal had an initial potential of 23-million per day through a 21/64th choke. That is a new well and we don't have any production data on it yet.

The, again, the Mesa Bogle State Well in Section 2 has made 608-million; paid out and made some money.

The two wells in the south half of Section 1, Mesa No. 1 and No. 2 Diamond MOund, have each made

over a billion cubic feet of gas.

This has been a very active area. There have been nine wells drilled in this mapped area in 1981. Six of these have been completed in the Morrow zone.

The overall success ratio of deep wells on this map is 67 percent and there are a total of 30 deep wells, 20 of which were successful.

We consider this an excellent objective, a primary objective, and of very low risk nature.

Q. Mr. Becher, will you now review Exhibit Number Five?

A. This is my map of the Atoka. It's similar to the first two maps. We consider this a secondary objective; however, there is a good possibility that the zone will produce in the east half of Section 32.

I'd like to point out there in the southwest corner of Section 16, the Husky No. 1 SRC State, in which Southland hada 50 percent working interest. It reported a calculated absolute open flow of 3.8 million from this zone in January and the well has not been produced yet and we don't have any production data to know how it's going to do. It looks like a real good zone. It had 17 feet of pay sand.

Q. Mr. Barnes, will you now review Exhibit

Number Six for the Commission?

A. This is a producing zone map where I have color coded production in various wells. The large red rectangle is the area of the previous maps.

I've indicated Morrow production in red; Atoka in green; Strawn in purple; Wolfcamp in orange; San Andres in yellow; Grayburg in blue.

I'd like to call your attention to the northeast corner of the map where this is Buffalo Valley Field, which currently has 32 producing wells, and has produced 66-million Bcf, at a greater than 2 Bcf per well average.

Next I'd like to call your attention to the Diamond Mound Field, which is circled in the central portion of the map. It currently has 20 wells. Again, 9 of these wells were drilled this year. There were six completions in the Morrow and one completion in the Atoka.

We don't have any production data, good production data on this field yet because most of the wells are so new, but it looks like it should be as good as the Buffalo Valley Field.

And in Section 31, the Lake Arthur Field, the one well, the Ralph Lowe Motts, which has made 1.6 Bcf of -- from the Strawn. And the proposed location in Section 32 lies between these three fields. We consider the risk in

Section 31 and 32 to be similar to that in Buffalo Valley and Diamond Mound Fields. It should be a very good area, and that it is not a risky area.

Q. Mr. Becher, what recommendation will you make to this Commission as to the risk penalty that should be assessed against the non-consenting working interest owners in Section 32?

A. I would recommend that a 30 percent penalty be assigned because there has been a 67 percent success ratio on all deep drilling. That is counting two deep wells that were drilled in the early 1950's, Continental Nolan Federal in Section 4 and the Continental Thurman Federal in Section 11. These wells were drilled before there was any gas market at all in the area.

Entering those wells into the calculation, the area still has a 67 percent success ratio. I would recommend a 30 percent penalty.

Q. Now, as I understand the testimony, Southland proposed drilling a well in Section 31, is that correct?

A. Right. We have a well budgetted for 1981 at that location.

Q. As I look at your exhibits, don't both the wells in 31 and 32 indicate that there would be three

potential zones according to your data that could produce in commercial quantities?

A. Right.

Q. Why would the location in 31 be preferable?

A. It is -- on the Strawn horizon it is closer to the Moots Well, closer to production, and that well needs to be drilled anyway to effectively drain the Strawn reservoir, and in drilling that well first it would give us an extra data point to better place locations in Section 32 for -- with locations being picked for maximum drainage of the Atoka and Morrow reservoirs.

We feel that it's prudent to drill 31 first in the interest of best development of the area.

Q. Are you familiar with Commission Order R-6762, which was entered in this case when it was heard by an Examiner?

A. Yes.

Q. Are you familiar with the monthly charges that were -- charge for administration, overhead, and were provided for in that order?

A. Yes, I am.

Q. And did you also hear the testimony today of Mr. Newkumet concerning overhead charges?

A. Yes.

Q. Would you comment on what you consider reasonable?

A. I consider the first set of numbers from the original hearing very reasonable.

Q. Do you believe those are more in line with what's being charged by operators in the area?

A. Yes, I do.

Q. Were Exhibits One through Six prepared by you or under your direction and supervision?

A. Yes, they were.

MR. CARR: At this time we would offer Southland Exhibits One through Six.

MR. RAMEY: Southland Exhibits One through Six will be admitted.

MR. CARR: I have nothing further on direct of Mr. Becher.

MR. RAMEY: Any questions of Mr. Becher?

MR. KELLAHIN: Yes, sir.

MR. RAMEY: Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Becher, Southland Royalty Company is an oil and gas operator that does drill Morrow wells in

southeastern New Mexico, does it not?

A. Right.

Q. Would you identify for us on any of your exhibits any of the wells that Southland operates in this area?

A. We -- the only one that we have an interest in --

Q. On Exhibit Six?

A. Right, on Exhibit Six.

Q. All right, sir.

A. In the north half of Section 16 we have --

Q. Just a minute, you have to go slow for me to find it.

A. Okay. Right here.

Q. All right, sir.

A. We have a 50 percent working interest in that. We did not operate it.

Q. All right, this is the well in Section 16.

A. Right.

Q. It's in the shaded area. It's a McClendon Oil?

A. No, it's the Husky SRC State.

Q. Husky Oil. Who operates that, Husky?

A. Husky operates it.

Q. And you have an interest in that?

A. Right.

Q. All right. Would you identify any wells that Southland operates?

A. We don't operate any on this map. We operate -- we drilled two dry holes up to the north of this map and operate a number of properties to the south.

Q. Okay. So of the -- the two dry holes to the south, those are Morrow tests?

A. Two dry holes to the north.

Q. To the north.

A. Were Atoka tests.

Q. Atoka tests, all right.

A. And most of the acreage we hold to the south and operate is the Morrow.

Q. When was this Husky well drilled and completed, Mr. Becher?

A. It was completed in January of 1981.

Q. 1981?

A. Right.

Q. And what are the overhead charges that you're paying Husky on that well?

A. I'm not familiar with that.

Q. You don't know?

A. No.

Q. Well, then how do you know that Clements Energy's proposed overhead charges are not reasonable, if you've not made a comparison of what your own working interest owners are charging you?

A. Part of my capacity is to figure what our -- or assist the engineers, our engineers in figuring well costs and these are,the numbers that we generally come up with are in the range of the -- those discussed in the first hearing.

I'm not directly responsible for generating these numbers.

Q. So what it comes down to, Mr. Becher, is you don't know whether these $3600 figure or the $4200 figure is going to be fair and reasonable for Morrow wells in this particular area, do you?

A. The $3600 figure is, I think, what we've generally used.

Q. And you reached that opinion without studying any of the overhead charges for any of these wells indicated on your plat.

A. Yes.

Q. Have you assigned a risk, Mr. Becher, to the well you propose in Section 31? What's the risk of

that well?

A. I would give that about a 25 percent risk because it is a direct offset to the Strawn producer.

Q. All right, sir, and this would be for an east half proration unit for the Section 31?

A. Correct.

Q. And we're talking about the Atoka, Strawn, and Lower Morrow?

A. Correct.

Q. And if Southland should drill a well at that proration unit and should have to force pool Clements you would assign a 25 percent risk factor to Clements share if they went non-consent.

A. Correct.

Q. With regards to the east half of 32, then, you believe that represents a 30 percent risk.

A. Correct.

Q. All right. Have you formally propcsed to drill this test in the east half of 31 to Clements Energy?

A. Yes, in a telephone conversation. We do have a well budgetted for 1981 at that location.

Q. You have the well budgetted. I'm concerned about what, if any, telephone conversations or communications you or Southland has made to Clements requesting

formally that they join you in committing their interest to a well in Section 31.

A. We --

Q. You don't know, do you?

A. We, no, we have made no formal --

Q. You have not made that formal request to --

A. We have made no formal request, no.

Q. -- Clements. All right, but you do know that Southland has budgetted money to drill such a well in Section 31.

A. Right.

Q. And they're going to do it in 1981.

A. Well, it depends on what happens with the well in 32, whether it will be done or not. That's up to my management, not to me.

Q. Okay. I think if I understood you correctly, Mr. Becher, when we were looking at some of your earlier exhibits, and let's go back to the Strawn gross sand Isopach, whatever the number was on that.

A. Exhibit Number Three.

Q. And if you'll look at the Morrow gross sand Isopach, what number is that one?

A. It would be Number Four.

Q. Okay. Now help me out if I'm wrong on this, but it looks like in comparing your Morrow Isopach to Mr. Barnes', and then using your STrawn Isopach, the real difference in the risk here is that you are far more optimistic about the Strawn potential in the east half of 32 than Mr. Barnes is. Is that not the difference?

A. Yes. Yes.

Q. That's really the difference in the risk, is it not?

A. Yes. Yeah.

Q. Okay. But looking at the Morrow --

A. The Morrow is a great zone. There's plenty production to the south. It just hasn't been drilled to the north yet.

Q. Well, and that's right, on the Morrow this is going to be a pretty good step out to the north and west.

A. Uh-húh.

Q. There is production to the south and east, but as we go to the north and west we've got all these dry holes out there, don't we? In the Morrow?

A. All those are older wells, yes. They're dry holes.

Q. All right, sir, so there, you know, when

we look at the Morrow your two Isopachs, give or take a few percentages, generally depict the Morrow in the same characteristics in terms of risk.

A. Yes.

Q. All right, sir. And the real difference, then, is going to be that you think we're going to get some Strawn here in the east half of 32 that Mr. Barnes does not think we're going to find.

A. And I believe the Morrow is a stronger zone than Mr. Barnes is indicating.

Q. Okay. And when we look at this Isopach on Exhibit Three, if I understood you correctly, that conforms to this cross section which is Exhibit Number One, in which you have put some of these -- what you think to be a good Strawn zone in this Pubco well.

A. It's good on log calculations. It may, like any other zone, it may produce and it may not.

Q. All right, sir. Let me see if I understand what we've done here on the cross section on the Pubco Well, this is the one in Section 29.

A. Correct.

Q. And that's on your Strawn Isopach. You've got -- you've got 8, 10 percent porosity, and that's the one you shaded in yellow here.

A. Correct.

Q. All right. Over here on your Isopach, then, you have assigned an 8-4 number. What is that number?

A. Okay, that 8 is the gross feet of sand and the 4 is the net feet of porosity.

Q. The only other well you've used, then, that produces -- well, the Pubco well, that's just log indication. The only well that does in fact produce from the Strawn is this Ralph Lowe Moots Well.

A. Correct.

Q. And this is the one that is 20 years old or 18 years old.

A. Correct.

Q. What happens to your Isopach if this Pubco well up here doesn't have any Strawn in it at all?

A. In 29?

Q. Yes, sir.

A. It does have.

Q. On the log indications. All right, let's --

A. Well --

Q. -- assume for the sake of argument that it has zero.

A. It has the sand. The log indication is

that it's gas productive.

Q. All right.

A. The sand is there on the log.

Q. Let's assume we go ahead and perforate and test that Strawn in the Pubco well and it won't produce. Nothing. Zero.

A. Yeah.

Q. What happens to your Isopach? Does that change it any?

A. The Isopach doesn't change. The sand and the porosity are there. That's all the Isopach indicates.

Q. Well, I'm concerned --

A. Whether the gas is there or not aren't shown; can't -- can't be shown by an Isopach map.

Q. I appreciate that, but what we're really looking for the degree of risk involved in actually finding gas in the east half of 32, and I believe you told me that the substantial difference between your conclusion and that of Mr. Barnes is that you anticipate the Strawn to be productive in the east half of 32.

A. Right.

Q. You've shown that to me on an Isopach. I don't have anything else to ask you about.

A. Okay.

Q. I appreciate the fact that you can have an indication of sand in a log and it might not be productive. But where else are you showing me that's going to show that the Strawn is going to be productive in 32, if it is not for the log indication in the Pubco Well and then the Ralph Lowe Well?

A. I've indicated, I believe, that there's 20 feet of sand at the Clements location in 32.

Q. How do you do that? How are you going to get 20 feet of sand across there?

A. That is my interpretation.

Q. Is not that interpretation based upon your opinion that this Pubco Well is going to be productive of the Strawn in 29?

A. No. It is based on the fact that there is sand in that well and this is the shape of this type of sand body.

I believe that the type of sand we're dealing with will be this shape and I have drawn it, drawn my interpretation of that type sand body.

Q Well, maybe it's simply because I don't understand, Mr. Becher. You're telling me that the presence of 20 feet of sand in the Strawn across the east half of 32 is not necessarily indicative that the Strawn will be productive

in the east half of 32?

A. Correct.

Q. Mr. Becher, did you know that Harvey Yates re-entered this Pubco Well in Section 29 in 1976 and in fact perforated and tested the Strawn formation?

A. No.

Q. And they subsequently abandoned it? You did not know that?

A. No, I did not.

Q. Mr. Becher, if this risk is only 30 percent at this location, are you prepared to drill the well for us and let us go non-consent at 30 percent?

A. I can't answer that. That would be up to my management.

Q. Your management hasn't indicated that they desire to drill the well there, have they?

A. Not to me. They would rather drill 31 first.

Q. Okay.

MR. KELLAHIN: I have nothing else.

MR. RAMEY: Any other questions of Mr. Becher?

MR. CARR: I have no questions of Mr. Becher.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Becher, the well in Section 36 shows a drill stem test. Do you have any pressure information on that?

A. Yes, I did.

MR. KELLAHIN: What are we looking at?

MR. RAMEY: The well to the west of Moots, the Moots Well.

A. Recovered 125 feet of gas cut mud. Initial and final shut-ins of 1677. Low pressure 35. Hydrostatic 3672.

Q. Do you have any idea what the original pressure was in the Ralph Lowe Well?

A. Let's see. About 2600 pounds.

Q. Is that bottom hole or shut-in pressure?

A. That's shut-in.

Q. Is there any possibility that the Ralph Lowe Well has drained a very large area, considering how long it's produced?

A. Yes, that's why we would move our location over to as far east as we could, 660 from the east line

of 31.

Q. With an original shut-in pressure of 2600 pounds, that would make a bottom hole pressure of probably around 3000. Would that not be true?

A. Yes.

Q. And the well in Section 36 only had bottom hole pressure of 1677, would that be reflective of --

A. That one --

Q. -- drainage by the Ralph Lowe Well, perhaps?

A. Or lack of permeability in the -- in 36.

Q. The initial shut-in pressure and the final shut-in pressure are the same, why, it looks like there is permeability there, I would think.

If there's drainage to the west there could also be drainage to the east in that well, if any drainage has occurred.

Thank you.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: I have a brief statement.

MR. KELLAHIN: Just a minute, let me see if I've got anything else here, gentlemen.

We have nothing further. Thank you.

MR. RAMEY: Mr. Carr, you may proceed.

MR. CARR: May it please the Commission, Clements Energy has come before you proposing the drilling of a well and force pooling certain acreage into a standard spacing unit.

They've asked that you assess a 200 percent risk penalty but by their own admissions in the hearing today in determining what that penalty should be, they have focussed only on the Lower Morrow zone. They have not considered the possibility of commercial production from the Strawn, which by Southland Royalty Company's interpretation would be the primary objective in a well drilled at this location.

They have discounted that. They aren't optimistic about production in the Strawn, but they've stated that there is no control in the area; they have simply elected to cut off the Strawn pay before it approaches the proposed well location.

They also are not considering the possibility of commercial production in the Atoka or Upper Morrow and are also disregarding the potential of any production in the Wolfcamp.

They disregard these for the purposes of assessing the penalty, but they do not ask you to exclude those

from the pooling hearing.

We submit they recognize that there is potential for completing a commercial well in each of those zones, but they don't consider that in asking you to impose a 200 percent risk penalty. They have in fact looked at one zone instead of looking at three or four commercial zones in asking you to assess this penalty.

You also should weigh the fact that there's a success for these wells in this area of 67 percent. We frankly submit that the evidence shows that a 200 percent risk penalty is excessive. It is not that high risk a venture and they -- Mr. Barnes by his own admission stated that they felt that a 200 percent penalty should be assessed from looking at only the Morrow alone.

We submit they're putting blinders on in not looking at the whole picture, and they come in to you with this request.

Now, we understand that they want to drill where they have the greatest interest. They have a greater interest in Section 32 than they do in 31. We submit however, it would be wiser to step out from the Moots Well, accumulate data, and drill at the best possible location.

But we think that they'll probably make a well. We think that they might make a better decision as

to where the well should be located if they stepped out from the Moots Well in an orderly fashion.

We also believe that the record shows the increase that they have made in this de novo hearing over what they requested at the Examiner Hearing in the charges to be assessed for overhead and administrative costs. They really are out of line. They are excessive. They are trying, because they came back for a de novo hearing, get something more.

We submit that they are stepping into an area and asking for an excessive amount in terms of these charges, as well.

We therefor submit that you should enter an order pooling the lands, designating an operator, but that the order should provide for a reasonable risk penalty and also should not provide for excessive costs.

MR. RAMEY: Thank you, Mr. Carr. Mr. Kellahin, do you have anything?

MR. KELLAHIN: I think so, Mr. Ramey. I think I was at the same hearing Mr. Carr was in, but from his comments, I'm not sure.

He says our witnesses were looking at only what we call the Lower Morrow. In fact, Mr. Carr asked Mr. Barnes, have you mapped the Strawn? He said, yes, sir,

I have and it's not present in our location.

He asked him about the Atoka, and all the other potentially productive Pennsylvanian formations in this area, and he answered the same.

On redirect I asked Mr. Barnes, I said, have you not, in fact, taken what you think is the best of all the Pennsylvanian formations to examine as a potential source? He says yes.

I asked him whether or not any of the others represented a lesser degree of risk, and he said, no, they were all more speculative than this.

And then we went back to the discussion of the Morrow.

In fact, this is highly risky. If it wasn't risky, Southland, which is a substantial operator, would have responded to our letter of April 29th, 1981. No response. They would have done something about the June 12th, 1981 letter. No response.

If they are so excited about drilling in Section 31, they would have done it. They certainly can do it now. Nothing happened.

We are the only operator out there willing to put up the money to drill this well and we did get no response from Southland. We don't get response at the Examiner

Hearing. They weren't here. They didn't present anything. They come today and say it's a 30 percent risk.

If it's that risk, we'll let them drill it. No proposal from them.

Mr. Becher tells us that the overhead charges are unreasonable. I asked him what had he examined? He hadn't examined any of the wells in this area. I asked him what wells he operated; don't have any in this area. We do have an ownership interest in the Husky well. I asked him, well, what's your overhead charges on that well. That was a January '81 well. Well, I don't know what they are.

But their opinion with regards to what the charges are, unsubstantiated in the record, should not cause you to agree with that witness.

Mr. Barnes came forward and testified as to what the overhead charges were for other wells in this area, and it demonstrates that the charges in the Examiner Order are conservative, and that to keep up with current costs, they have to increase. I think it's a very small point but it's indicative of the way Southland has acted with regards to the pooling. Simply done nothing and ignored it.

The time has come. Our rig has been postponed on several occasions. We believe that we are an adequate operator to drill this well and ought to be given

the right to do so, and do so with regards to the 200 percent penalty, which we think is more than justified.

MR. RAMEY: Thank you, Mr. Kellahin.

Does anyone have anything further to add in this case, Case 7323?

If not, we'll take the case under advisement and the hearing is adjourned.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
16 October 1981

COMMISSION HEARING

IN THE MATTER OF:

Application of Clements Energy, Inc., for compulsory pooling, Chaves County, New Mexico. CASE 7323

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

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MR. RAMEY: Call next Case 7323.

MR. PEARCE: Application of Clements Energy, Incorporated, for compulsory pooling, Chaves County, New Mexico.

MR. RAMEY: Are there any appearances in Case 7323?

MR. KELLAHIN: Yes, Mr. Ramey, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Clements Energy, Inc., and I have three witnesses.

MR. CARR: May it please the Commission, my name is William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., of Santa Fe, appearing on behalf of Southland Royalty Company.

I have one witness.

(Witnesses sworn.)

WAYNE NEWKUMET

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q All right, Mr. Newkumet, for the record

would you please state your name and spell your last name for us, please?

A. My name is Wayne Newkumet. That's N-E-W-K-U-M-E-T.

Q. Mr. Newkumet, have you previously testified before the Oil Conservation Division of New Mexico?

A. Yes, sir, I have.

Q. In what capacity was that?

A. As a landman.

Q. Do you hold a degree of any kind in petroleum land matters?

A. Yes, sir, from Oklahoma University.

Q. And in what year was that?

A. 1976.

Q. Subsequent to graduation, Mr. Newkumet, where have you been employed as a petroleum landman?

A. Worked initially for Texas Pacific Oil Company in Dallas and in Midland, Texas, for three years; had a short experience with Southland Royalty as a landman; and I went to work for Monsanto Company at Midland, also as a landman. All these have been in the Permian Basin area.

Then I went on my own independent and have been that way for about two years.

Q. What is your relationship, if any, with

Clements Energy?

A. I'm on a consulting basis with them.

Q. Pursuant to that employment, Mr. Newkumet, have you made a study of the petroleum land title situation with regards to the acreage involved in this compulsory pooling case?

A. Yes, sir, I have.

Q. Did you testify at the Examiner Hearing with regards to this application?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Newkumet as a professional petroleum landman.

MR. RAMEY: He is so accepted.

Q. Mr. Newkumet, let me direct your attention to the first of your exhibits, which is marked as Applicant Exhibit Number One, and have you first of all identify for us the proposed proration unit for which you seek compulsory pooling.

A. Okay, this would be the east half of Section 32 of Township 15 South, Range 27 East, Chaves County, New Mexico, as shown outlined in red on Exhibit One.

Q. This is a 320-acre proration unit?

A. Yes.

Q. And it will be for the east half of 32?

A. Yes.

Q. Can you give us a general idea where this acreage is in relation to any producing field or any community in Chaves County?

A. Let's see, I believe it's probably, say, 7 or 8 miles east of Lake Arthur, Town of Lake Arthur. The Buffalo Valley Field that you might be familiar with sets, probably, 6 or 7 miles east of here.

Q. East? Isn't it northwest? Northeast?

A. It would be northeast and a little bit north.

Q. All right, sir.

A. Diamond Mound Field to the south and east.

Q. All right. Within this proration unit, Mr. Newkumet, would you describe for us what the acreage ownership is?

A. Okay. Within the proposed pooled area Clements Energy, Inc., has a 62.5 percent interest through its leases. One, a 160-acre State of New Mexico lease; two, a 40-acre lease from the USA.

Q. Those are outlined in yellow?

A. Yes, those would be the ones outlined in yellow on the plat.

Q. All right, what is represented by the acreage that's not colored yellow that's in the outlined area?

A. This is acreage that is -- or leasehold that is owned by Southland Royalty in the north half northeast, and the southeast southeast.

Q. All right, and what percentage of this proration unit belongs to Southland?

A. Okay, that would be that 120 acres I've just described, which would be 37.5 percent of that pooled unit.

Q. With regards to the pooling, Mr. Newkumet, what potential formations are the subject for the pooling?

A. This would be for the Morrow.

Q. All right. The application indicates the Wolfcamp and any of the Pennsylvanian --

A. Okay.

Q. -- formations.

A. That's true. I'd hold off saying anything; maybe the geological witness would like to speak to that a little more.

Q. All right. The primary objective is to be a Morrow test, is it not?

A. Right, that's -- that's true.

Q. All right, sir, and you're seeking pooling, however, of all the Pennsylvanian formations?

A. That's right.

Q. Including the Wolfcamp. Let me ask you this, Mr. Newkumet, if this proration unit was reoriented to a south half of Section 32, would that remove the necessity for compulsory pooling?

A. I don't believe so because the ownership as far as Clements Energy, Inc., and Southland Royalty is concerned, would be the same.

Q. It would still require pooling or some agreement with Southland?

A. I believe that's correct. In fact, the interest would be the same.

MR. RAMEY: Tom, are you just asking for Wolfcamp and Pennsylvanian in this?

MR. KELLAHIN: Yes, sir.

MR. RAMEY: Okay.

MR. KELLAHIN: Yes, sir. That was modified, Mr. Ramey, at the Examiner Hearing. The original application had asked for more, but it was reduced at the time of the Examiner Hearing to Wolfcamp and Pennsylvanian.

MR. RAMEY: Okay.

Q. Give us some background, Mr. Newkumet,

with regards to when Clements Energy first approached Southland Royalty Company with regards to the drilling of this well.

A. Okay. The first contact would be, I believe we're calling it Exhibit Two, is a letter of April 29th, 1981.

Q. All right, let's turn to that exhibit. It's Exhibit Number Two? All right, sir.

A. That would be a letter from myself as representative for Clements Energy, addressed to Southland Royalty Company, proposing the communitization and the Morrow test. In addition it had a land plat attached and a rough draft of the AFE for that time.

It requested Southland's early consideration of this matter, as Clements had third or fourth quarter 1981 drilling plans.

Q. What, if any, response did you receive from Southland concerning your initial request of April 29th?

A. We received no comment from them at all.

Q. All right, sir, what then did you do?

A. By telephone conversation on May 12th, I spoke with Southland's District Landman, Gary Young, requested his comments on our proposal, asked him how they were leaning; did it look like they would join or farm out, or

what, what they were considering, and there was no -- basically no comment to that at all.

Q Mr. Young was the gentleman to whom you'd sent the first letter?

A. This is true.

Q And subsequent to that phone call, Mr. Newkumet, what, if any, response did you make then?

A. Okay, if you'll refer to what's marked Exhibit Three, that will be another letter, the June 12th, 1981, letter, addressed the same way, also from myself. This letter referenced the April 29th letter and the May 12th telephone conversation and advised that any comments or management decision would be greatly appreciated.

That letter also re-emphasized that Clements had definite plans to drill a well in the third or fourth quarter of 1981.

Q All right, sir, what, if any, response did you receive from Southland concerning this correspondence?

A. Absolutely none.

Q What then is the next thing you did, Mr. Newkumet?

A. Okay. Again refer to Exhibit Four. This is another letter, dated July 6th, 1981, again from myself, addressed to the same individual, Southland Royalty. This

letter advised that Clements had secured a rig for the drilling of the well. It, as outlined in the two previous letters and telephone conversation, advised that any comments at all would be greatly appreciated.

Copies of the previous letters were attached and this letter was sent by certified mail.

Q. You said you had secured a rig at this time, Mr. Newkumet. What was the schedule for the rig's commencement of this well at that time?

A. That was looking to be available in October.

Q. Of this year?

A. Right.

Q. All right, sir.

A. By the way, we've had to put that off. We do have it back at this time.

Q. All right, I'll ask you about that later.

A. Okay.

Q. Let's turn, then, to after the July 6th, 1981, letter, Mr. Newkumet. What then is the next thing that you did with regards to soliciting from Southland Royalty Company their joinder in the well or farm out or a lease, or any other cooperation to voluntarily drill this acreage?

A. Yes. This would be -- what I did at

this point, this is about the time that we began becoming desperate, we had a rig and we needed to drill this well.

I telephoned the District Geologist, Daryl James.

Q. Whose District Geologist?

A. Southland Royalty's District Geologist, Mr. Daryl James.

Q. Had you known Mr. James before?

A. Yes, I knew him.

Q. All right.

Q. And describe generally what that conversation was, Mr. Newkumet.

A. Very basically I just referred back to our previous correspondence by letter.

Q. Did Mr. James give you any indication that he was familiar with and knew what you were talking about?

A. Oh, yes, knew exactly what I was talking about, immediately.

Q. All right, sir. And what was that converstaion?

A. Well, basically, I asked him again which way are they leaning; does it look like we could join, farm out, not do anything, or what.

Q. And what, if anything, did Mr. James tell you?

A. Nothing pertinent to this, other than he felt -- well, let me just mention, his quote was, "The obvious location for the drilling of this well would be in Section 31."

Q. Which is to the west of this section?

A. To the west.

Q. All right, sir.

A. And continue with the quote, "and drilling in Section 32 is a wildcat. It is more than a mile away from any producing well."

Q. What was your general impressions, then, of Southland's position with regards to participating with you in this Morrow test in the east half of 32 at this time?

A. I did not know. I did not think that they were looking to cooperate.

Q. All right, sir, what then was the next thing you did?

A. That is when we filed for the first compulsory pooling hearing.

Q. All right, sir, let me show you what we've marked as Applicant Exhibit Number Six, Mr. Newkumet, and have you identify that for us.

A. Okay, this would be Tom Kellahin's letter to the Oil Conservation Division requesting that the pooling hearing be set.

Q. Okay. Does that indicate whether or not Southland was furnished a copy of that application?

A. Yes.

Q. All right.

A. Copy to Southland Royalty.

Q. All right. Subsequent to the application did this matter come forward for hearing before the Oil Conservation Division?

A. Yes, it did on August 12th, 1981.

Q. All right, sir, and subsequent to hearing was an order entered in this case?

A. Yes, it was.

Q. And that's appended at Exhibit Number Five?

A. That would be Exhibit Five.

Q. Exhibit Five to your packet of information.

A. Five.

Q. All right. What is your rig schedule now, Mr. Newkumet, with regards to the drilling of this well?

A. This rig will be available to commence

operations probably the first week of November.

Q. Let me direct your attention back to the latest estimated well costs which you tendered to Southland, and I believe that's appended to the letter of July 6th, 1981.

If you'll reference that AFE, Mr. Newkumet, let me ask you some questions about that.

A. Okay.

Q. This, in fact, is the AFE that you tendered to Southland?

A. Yes, it is.

Q. The latest one?

A. Yes.

Q. All right, sir, with regards to this AFE, as of the current date, in your opinion is the estimated well costs set forth here reasonable and consistent for wells of this depth in this area?

A. Yes, it is.

Q. Can you give us any indication of what the extent of your study has been with regards to determining whether the costs here are consistent with other costs in the area for such wells?

A. Just in -- in conversations with various individuals I feel that they are.

Q. All right, sir. Let me direct your

attention, then, to any recommendations you have to the Commission with regards to the overhead charges to be assessed against a nonconsenting working interest while drilling and then after completion of the well.

A. Yes, sir. I would recommend they -- the rates assigned be $4208 per month for the drilling well rates and $420 per month for producing well rates.

Q. All right, sir.

A. I might -- I might mention that these are the rates that Clements Energy charges for wells in the 8-to-12,000 foot range in their other operations in Oklahoma, Louisiana, and the Rocky Mountains.

Q. Your recommendation to the Examiner back in August of this year was for a different well rate, was it not?

A. Yes, sir.

Q. All right, sir, what has caused you to change your opinion with regards to those charges?

A. Clements has been involved in two wells in this general area, south of this general area about 12 to 15 miles south, the Exxon State "DB" No. 1, in Section 7 of 19 South, 24 East, of Eddy County, the wells rates agreed to by all parties in that well were $3815 per month while drilling, $381 per month while producing.

The other well that Clements was a working interest owner in was the Yates Petroleum Triangle Ranch "RA" State No. 1, a 9000 foot well in Section 14 of 19 South, 23 East, Eddy County. The well rates agreed to by all parties there were $3800 per month for the drilling well rates and $380 per month for the producing well rates.

Q. Based upon your study, then, Mr. Newkumet, in your opinion is the charge of $4208 while drilling and $420 per month after completion of the well reasonable and consistent with those charges in the area?

A. I believe so.

Q. Except for the Commission order, were the other exhibits that you have discussed, Mr. Newkumet, Exhibits One through Six, either prepared by you directly or compiled under your direction and supervision?

A. Yes, with the exception of the AFE, which was prepared directly by one of the Clements engineers.

MR. KELLAHIN: That concludes my examination of Mr. Newkumet. We move the introduction of Exhibits One through Six.

MR. RAMEY: Exhibits One through Six will be admitted.

Any questions of the witness? Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Newkumet, I believe you stated that Daryl James advised you that they felt it adviseable to drill a well in Section 31, not 32, is that correct?

A. His comments were more along the line of if we're going to drill a well on this area, that it should be drilled in Section 31. For what reasons I'm not real sure. I did not ask the geologist about that.

Q. Was that the first time you had been advised that Southland was interested in a well in 31?

A. Yes, it was.

Q. Gary Young had never discussed that with you?

A. No.

Q. If a well was drilled in 31 would Clements have an interest in it?

A. Yes, they would.

Q. Would it be comparable to the interest in the proposed well?

A. It would be smaller.

Q. About how much smaller?

A. It would be 50 percent versus 62.5 per-

cent.

Q. I believe you stated that you had been involved in two wells, the drilling of two wells since the time you obtained the original order on the hearing of the original pooling case. Is that correct?

A. Are you saying in the interim period?

Q. Yes, sir. I'm trying to find out what it was you testified to. Did you state you had been --

A. Okay, that Clements Energy has been involved in two other wells, similar type wells, in this area, south of this area.

Q. Since what time?

A. The first one was probably agreed to, operating agreement signed, paperwork signed, et cetera, the Exxon well, I'm going to make a guess, but I think it was probably around June or earlier.

The Yates well, probably about the same time.

Q. And the overhead costs that you're proposing --

A. Let me say this. The overhead rates, and whatnot, were negotiated and agreed to earlier in the year.

Q. And you are proposing an overhead charge

in excess of either of those.

A. That's right.

MR. CARR: I have nothing further of Mr. Newkumet.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Newkumet, why -- why are your overhead charges --

A. Higher?

Q. -- higher than -- is this just inflation, or what?

A. No, I believe industry-wide at this point in time, today, those are consistent. These again, the Yates well operating agreement and the Exxon well operating agreement reflected some rates that were negotiated back in the early part of the year.

As everybody knows, things are just skyrocketing in this business right now. I believe that's why we see a higher --

Q. Did you hear the testimony in the previous case?

A. Sir?

Q. Did you hear the testimony in the previous

case?

A. Yes.

Q. And Bass suggested an overhead of $3500 and $350?

A. I didn't -- I didn't catch that. How deep were -- how deep are those wells?

MR. KELLAHIN: Bone Springs.

MR. RAMEY: No, it's Pennsylvanian and Strawn.

A. 11,000 feet? Those were, Mr. Ramey, I believe those were the costs that they have arrived at through their accounting studies, and whatnot, of the actual costs involved, and that's -- that's what they've arrived at.

I feel that they're probably fair.

Q. And your people have arrived at the $4208 and $420?

A. Yes, sir.

Q. Okay, thank you.

MR. KELLAHIN: I have nothing further for Mr. Newkumet.

MR. RAMEY: Any other questions? The witness may be excused.

JERRY BARNES

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Barnes, would you state your name and occupation, please?

A. Yes. My name is Jerry Barnes, B-A-R-N-E-S. I'm a geologist.

Q. Mr. Barnes, have you previously testified before the Division as a geologist?

A. Yes, I have.

Q. Were you the expert geologist that testified for Clements at the Examiner Hearing of this case?

A. I was.

Q. Mr. Barnes, would you tell the Commission when and where you obtained your degree in geology?

A. Yes. I obtained a Bachelor of Science degree in geology in 1969 from the University of Missouri, and I obtained a Master of Science degree in geology in 1971 from the same university.

In the past ten years I've been employed in the petroleum industry as an exploration geologist, an

exploration geophysicist, and a production geologist.

Of that ten year period eight and a half years have been spent in the Permian Basin area of West Texas and New Mexico.

Q. What is your current employment, Mr. Barnes?

A. I'm currently a self-employed geologist as a consultant retained by Clements Energy, as a consultant.

Q. Would you describe for us generally how long you've worked on this particular project for Clements Energy, Inc.?

A. Since original conception this project has probably entailed approximately twelve months I've been involved with it.

MR. KELLAHIN: We tender Mr. Barnes as an expert geologist.

MR. RAMEY: He's so qualified.

Q. Mr. Barnes, let me direct your attention to what we'll mark as Clements Energy Exhibit Number Seven.

A. Okay.

Q. Would you identify what this plat is for me, Mr. Barnes?

A. Yes. This is a Lower Morrow net sand isopach. The scale of the exhibit is one inch to 2000 feet.

The contour interval is 20 feet. The areas shaded in yellow are areas where Lower Morrow Sands are believed to be present. The area that you see shaded in brown are areas where we believe that not only are the Lower Morrow Sands, which are our primary objective with our well, not present, but in addition the entire Lower Morrow section itself is absent.

The wells that you see colored in red with gas symbols are wells that have been completed in the Lower Morrow interval.

The east half of Section 32, which has the red outline, shows our proposed proration unit. The red dot that you see indicates our proposed location. The stippled area indicates Clements Energy, Inc.'s current acreage position.

The dashed lines that you see on the exhibit indicate two cross sections I have also as exhibits, and shows their relationship to the map.

Q. The compulsory pooling, Mr. Barnes, requests pooling of the Wolfcamp and the Pennsylvanian formations; your Isopach is of the Lower Morrow net sands. Is this your principal objective?

A. Yes, it is. Our primary objective is for the Lower Morrow Sands; however, if you'll notice in Section 31 of 15 South, 27 East, the Ralph Lowe Moots Well

is a productive gas well; however, it's in an upper zone in the Strawn Sand.

Although not present in this specific area, the Wolfcamp is additionally productive over much of the area in northern Eddy, southern Chaves County. We would also pool those rights in addition.

I would emphasize, however, that our primary objective is the Lower Morrow Sand.

Q All right, sir. Let me direct your attention to Section 31, to that Ralph Lowe Moots Well.

You've indicated that in your opinion you believe this is a Strawn producer?

A Yes, that's correct.

Q Would you tell us a little bit about this well? How long has it been producing?

A That well was completed in March of 1963. It's still producing today, at an approximate daily rate of 110,000 cubic feet of gas a day.

Its cumulative is approximately 1.6 Bcf of gas.

That, to my knowledge, is the only well that's productive out of that zone. I might mention that while the cumulative production of that well has not been particularly bad, the producing rate was not particularly high, and

if, using today's drilling and completion costs, it would take that well approximately three plus years to pay out with today's economics.

I would also like to point out, going back to the display, if you'll notice beside each of the wells there are two numbers indicated.

The first number is the net feet of sand present in the well. You'll notice a slash. The second number is the -- indicates the number of feet of porosity in those sands that exceeds an 8 percent cutoff.

Q Let's look at Section 2 --

A Yes, sir.

Q -- which is to the south of your location, and give me a specific example of what you mean by those numbers.

A Well, for example, you'll notice the well that's approximately 660 from the east line of Section 2 and 1980 from the north line. The 19 feet sand indicates the total net feet of sand that the well encountered and the 8 feet indicates that of that 19 feet there was approximately 8 feet of porous sand; that is, that exceeded the 8 percent cutoff, which I feel, in my studies, is necessary in order to -- to be of commercial -- commercially viable production, be able to sustain commercially viable production.

Q You're looking at the porosity number as opposed to --

A That's -- that's --

Q -- other number?

A That's correct.

Q All right.

A That's correct.

Q Is this the same exhibit that you introduced at the Examiner Hearing of this case?

A Yes, it is.

Q Have there been any amendments or changes to the exhibit since then?

A No, there have not. You will notice that in Section 26 of 15, 27, and 35, there were two wells that are currently testing. I still have been unable to obtain additional information --

Q Excuse me, you have not been able.

A Not been able to obtain to update the map. I might also add that even if I did change them, it would not bear, I don't feel, directly on our proposed location any way, as the well in Section 12 of 16, 27, it's still a new well. I have not been able to obtain all the information on that well. Again, I don't feel that whatever that well does would bear directly upon our proposed location.

Q Let's spend a moment, Mr. Barnes, and have you identify for me wells that penetrated the Lower Morrow, which indicated to you that they didn't have any sand present in the Lower Morrow.

How are those wells identified?

A Certainly. We just start off with the area immediately north and west of our proposed location. If you'll notice in Section 25, in 15 South, 26 East, that well encountered not only no sand but was -- and I think my cross sections when I show them will illustrate the kinds that contain not only no sand but no Lower Morrow, as the well in Section 36 contained a very thin Lower Morrow section but no sands.

In 15 South, 27 East, the well I previously referred to, the Ralph Lowe Moots Well, again no sand.

Section 29, approximately one mile north/northwest of our proposed location, again no sand.

Section 27, 15 South, 27 East, approximately two miles northeast of our proposed location, the entire Lower Morrow section absent; no sand.

If you'll notice south of our proposed location, in Section 4, no sand.

In Section 11, the well approximately

1980 from the north and west line of that section, again, not only no sand but no Lower Morrow present.

I believe that's most of the wells immediately surrounding our location that encountered no sand.

Q. Based upon your studies of the geology of this area, Mr. Barnes, do you have an opinion with regards to the risk factor to be assessed against the non-participating interest owners?

A. I certainly do.

Q. And what is that recommendation, Mr. Barnes?

A. In my evaluation of this area, I feel that it's an extremely high risk area. We would ask for the maximum 200 percent penalty assessed against Southland.

Q. Upon what factors do you base that opinion, Mr. Barnes?

A. First of all, upon the geological considerations. For instance, you'll notice the sporadic nature of the presence of the Lower Morrow Sands. Many of the wells, as I pointed out, contain no Lower Morrow Sands at all.

A second consideration that I feel increases the risk substantially is that you'll notice in many wells that encountered Lower Morrow sands, these sands were not of -- of commercially viable quality. I would draw

your attention, for instance, to the well , say, in the southeast corner of Section 2. That well only had a show; it was a dry hole. It had 19 feet of sand, 6 feet of porosity, was not completed.

Notice also the well in the north --

Q. Just a minute, let me find that one. That's the southeast quarter of 2?

A. Yes.

Q. 19 feet of sand, 6 feet of porosity but --

A. It was a dry hole.

Q. -- it was a dry hole.

A. Notice also the well in the northwest corner of Section 1 of 16, 28.

Q. Which well is that?

A. The Internorth, Northern Natural Gas No. 1 Vandagriff Well.

Q. In Section 1?

A. Yes.

Q. All right, sir. What about that well?

A. 25 feet of sand but only 4 feet of porosity.

Again, I think this emphasizes the additional risks involved in not only trying to predict sand but also sand quality. I think when you combine these two

risks together, it makes it an exceedingly high risk area.

Q This Vandagriff Well you've just mentioned, with the 4 feet of porosity, how much gas does it produce?

A It's only produced .2 Bcf to date; currently producing about 130,000 a day. To reference you with today's drilling costs, acreage costs, and whatnot, our criteria is we feel like we need at least 400 or .4 Bcf just to recover our initial investment.

That well will probably never pay out.

Q All right, sir. Those two examples, are there any more examples other than those two of wells that --

A Well, for instance, you can -- you can look over the map for yourself, but for instance, in Section 11, 14 feet of sand, 12 feet of porosity. Again it had some porosity but it's only produced .05 Bcf. Its cumulative, or its current production is about 200 Mcf a day. That well would probably never pay out under our criteria.

Let me also draw your attention, however, to some good wells.

For instance, west of our area in Section 6, you'll notice 62 feet of sand with 44 feet of porosity. That's definitely a good well. It's flowing 5400 Mcf a day. It's an excellent well.

Just south of that --

Q. And it's in Section 6?

A. I'm sorry, Section 6, it would be, of 16 South, 28 East.

So I think this tends to emphasize, if you will, the sporadic nature of reservoir quality in the area.

So, again, it's not only a problem of predicting the presence of the sands, it's a problem of predicting the quality of the sands.

Q. Let's turn to your proration unit for your location here, Mr. Barnes. You've made a prediction that you hope to encounter approximately 40 feet of Lower Morrow net sand. How did you reach that conclusion?

A. Optimism. Basically there's no -- there is no direct evidence to support that the sands would even be present there.

Q. Even if the sands are present in the east half, as you've indicated, does the number of feet of sand have any relationship to the porosity feet that you'd encounter at that location?

A. Not necessarily, as I pointed out a moment ago, wells with -- with good sand intervals in them, unfortunately had poor reservoir quality and did not sustain what I would consider commercially viable production.

Q. All right. Tell us a little bit about the geology that you've discovered here in the Lower Morrow in this Lake Arthur prospect, Mr. Barnes.

A. Could I refer to the next exhibit?

Q. All right.

A. Which would be a cross section. I think the two cross sections will illustrate the concept a little better, perhaps, than the map.

Q. All right, sir, which one would you like to talk about first?

A. Perhaps the north/south cross section.

Q. You might want to tack it up here so that we could all follow you as you talk.

That's the east/west; let's hang the other one up, too.

A. Certainly.

Let me first draw your attention to --

Q. All right, which one are we going to talk about?

A. Let's talk about the north/south cross section first.

Q. That would be Exhibit Eight?

A. This well passes through our proposed location, as shown. It's a stratigraphic cross section datumed

at the top of the Strawn.

Let me draw your attention, if I could, to the interval that is our primary objective and that is the interval that lies below the Lower Morrow Shale zone that I've colored in green.

Basically, let me show you, if I could, what the risk is in the prospect. Notice that to the south and east of the location these sands are fairly well developed.

As you come further to the northwest notice that the sand becomes more broken and notice that the underlying Chester interval that the sands are deposited upon is coming higher.

As you go to the well north of our proposed location the entire Lower Morrow interval becomes very, very thin. There's no sands deposited.

If you were to just simply connect those two wells like this, I think you could see the risks involved.

We're hoping to find some kind of a low present in which these sands might be deposited. Again you can see without this low present, the deposition of Lower Morrow Sands, we'll probably have a dry hole.

Q Now, Mr. Barnes, you've estimated that that low in there may be as thick as 40 feet --

A Right, that's correct.

Q. -- net sands.

A. Again let me emphasize that there is no direct evidence that that low even exists, beyond my optimism.

Q. Okay.

A. I don't think it's unreasonable to expect that if it is there it might contain 40 feet of sand. I would emphasize again, as I did earlier, back to your Exhibit Number Seven, notice that quantity of sand is not necessarily the only criteria for production. Quality also enters into it, into consideration, which again serves to increase the risks in the area substantially.

Let me then move on to Exhibit Number Nine, if I could, which is the east/west exhibit, which would pass a bit south of our proposed location; the projected proposed location would be something like this.

Q. Where is this Ralph Lowe Well, Mr. Barnes?

A. The Ralph Lowe Moots Well in Section 31 is at the lefthand edge of the cross section.

Q. This is the one that produces from the Strawn?

A. That's correct, the Strawn sand here.

Q. Now, how -- will that sand correlate

with the well in Section Number 2?

A. No, it does not. The stratigraphical -- stratigraphic information that we have indicates that in fact there is no correlation.

Q. All right, but let me ask you this, then. The datum top of the Strawn upon which you've hung your logs, is that a readily identifiable marker?

A. Yes, it is. You can identify it quite readily in the area.

Let me point your attention now again at our prospective interval, which is again the area below the Lower Morrow Shale. Notice again as you move west of our area it just shows the nice development in the Lower Strawn -- or Lower Morrow Sands. Again, as the underlying Mississippian increases in height the sand tends to break up, and in fact, again, if you'll allow me to draw the analogy, should our expected topographic low be absent, the chances are we'll have a dry hole.

We're looking, again, for some type of a low area where these sands could accumulate again. There's no direct evidence that that type of configuration exists in the area.

I did color this one sand in here, which is what I've called an Upper Morrow Sand. It produces spora-

dically in the area. There's only a couple or three wells where this sand has even been encountered and in only one well, in fact, was a stand-alone completion attempted in that interval. The well was shut-in and to my knowledge there was never any production out of that zone.

In other instances it was, as in this well, perforated in conjunction with a Lower Morrow Sand commingled with it and in fact used to enhance, if you will, the production from the Lower Morrow Sand.

Q In your opinion is that Middle Morrow Sand present in the well in the -- in the Mesa Well in Section 2? Do you have a chance of encountering that in 32?

A No, sir, I don't feel that we do. As I said, it's sporadically developed in the area and I don't feel that the very thin nature of the Morrow in question in this well immediately west/northwest of us, that there's much of a chance of finding this zone. And as I said earlier, even if you do, that's a stand-alone zone. To my knowledge there's been no commercial production from just this sand by itself in the area. It's always been in conjunction with a Lower Morrow, or perhaps you could pick up an Atoka Sand that you could perforate with it, and together they'd make a commercially viable well.

Q What are the chances of finding the

Strawn formation that's present in that Lowe Well in your proration unit?

A. Well, since it was not encountered in any of the wells southeast of us, you know, we don't consider it as an objective. To my knowledge the Moots Well is the only well that this sand is productive in. I might mention that it was encountered, in my estimation, in some wells immediately northwest of it. It was tested and never found productive in any of those wells.

There again, we're not considering it as an objective.

Q. Just to complete a discussion that we commenced earlier with Mr. Newkumet about Southland's desires, at least by one geologist, to offset that well, Lowe Well in the Strawn, do you have any thoughts or opinions with regards to doing that, Mr. Barnes?

A. Well, we would have to look at it very closely, of course. I think, as I mentioned, obviously the Moots Well has been a producer. Although the cumulative production is something in excess of 1.6 Bcf, it's not been particularly bad. The fact that it took it 18 years to make that much gas, with today's drilling costs and acreage costs, and everything, it would be, in our estimation, a borderline economically, even if you found it, as to whether or not it

would be attractive on our economics.

Again, if they, you know, we would say, fine, if you want to drill one, let us look at it and we'll evaluate it.

But again, let me emphasize, we're not looking for that zone in our well in Section 32.

Q. All right.

Mr. Barnes, were Exhibits Seven, Eight, and Nine prepared by you?

A. Yes, they were.

Q. In your opinion will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. It most certainly will.

MR. KELLAHIN: We move the introduction of Exhibits Seven, Eight, and Nine.

MR. RAMEY: Exhibits Seven, Eight, and Nine will be admitted.

MR. KELLAHIN: That concludes our examination of Mr. Barnes.

MR. RAMEY: Let's have a short coffee-break before we release Mr. Carr.

(Thereupon a short recess

was taken.)

MR. RAMEY: The hearing will come to order. Are there any questions of Mr. Barnes?

MR. CARR: I have a few.

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Barnes, as I look at your Exhibits Eight and Nine, as I understand your testimony, your primary objective is what is called the Lower Morrow Shale or below the Lower Morrow Shale?

A. Below the Lower Morrow Shale, that's correct.

Q. At the very top of the Morrow, you have -- there's a thin stringer that appears in the well in the center of Exhibit Number Nine, I believe. Is that an Upper Morrow zone?

A. Yes. Let me, if I could, develop the idea just a little bit.

You'll notice that I call that Middle Morrow on my -- or I refer to it as Middle Morrow. These units, Upper, Middle, Lower Morrow are best developed just south of this area as you go basinwards.

As you come into this area the Upper Morrow appears to thin and in fact Upper Morrow and Middle Morrow become almost indistinguishable, so I might -- I called it Middle Morrow -- a Middle Morrow, it might, in fact, be a little bit of Upper Morrow, but it is what I would call definitely Morrow.

Q. But it is a stringer colored -- shaded in yellow that is immediately below the line separating the Morrow and Atoka, is it not?

A. That is correct.

Q. You do not consider that a likely prospect for commercial production at your proposed location?

A. No, I don't. As I testified previously, that sand has been encountered, or has been tested in this area in three different wells. Only one of those wells, the well actually in Section 27, of 15, 27, was the -- an attempt made at completing just that interval. It was completed, fraced and completed, I believe, and I'm recalling from memory now, about 490,000 a day potential.

The well was shut-in and I can find no record that that well was actually ever produced out of that zone.

In the other instances where I know that that well -- that zone has been encountered and completed

in, it's been completed in conjunction with either, say, an Atoka Sand above it, or with the Lower Morrow.

Q. How recently was that well in 27 drilled?

A. If you'll allow me to get my notes, I might be able to give you that date.

Q. Okay.

A. Thank you. That well was drilled in 1975.

Q. Is it possible that new gas prices might make that a more attractive interval today?

A. Because I don't have any production, and I don't know at what rate, if any, it ever produced, I can't honestly answer that. I would say if it could, in fact, flow half a million a day, and sustain that production, it perhaps would be commercial today.

Because I don't have any production history for that well, I don't in fact know if it ever produced at the rate that it potentialed, so I can't honestly answer that.

Q. Is it possible that that zone might be -- might appear in the well which you propose to drill?

A. I don't feel that it will. As I said, it's a very sporadic zone. It has been encountered in a few wells to the west of us. None of those wells produced.

The only wells that I'm familiar with that actually produced in that zone, or were completed in that zone, was, as I mentioned, the well in Section 27 of 15, 27; the well that's shown there on that cross section, which is the well in Section 2; and then the well in Section 11, out of the northwest corner of 16 South, 27 East. I believe that well also encountered this zone and I believe in that well it was commingled with the Lower Morrow Sand. So again it was -- it was producing in conjunction with another zone.

Q. Now, your exhibit, I believe it's Exhibit Six, but it's the Isopach.

A. Yes, sir.

Q. That is a map of just the Lower Morrow. It wouldn't include this stringer we've been talking about.

A. No, that's correct.

Q. Have you attempted to map the sand that would be in this stringer that we've been talking about?

A. Yes, I have.

Q. And what conclusions have you reached?

A. The conclusions were much as I have just expressed to you. Basically, at our proposed location our feeling is that that sand offers no potential.

Again, where it has produced, it is usually in conjunction with another zone and in the one in-

stance where it was completed by itself, to my knowledge, it was never produced, and so even if we were to pick up that sand stand-alone, there is no evidence that it by itself is a commercially viable zone.

Q. Now, on the exhibit -- on your Exhibit Number Nine you also have depicted the Strawn producing interval in the Moots Well.

A. That's correct.

Q. Do you believe that that well -- or that that interval is likely to appear in the well you propose to drill?

A. No, I do not. Again, that well -- that same zone was encountered by the wells north and west of our location. In no other well, however, that it was encountered did it produce. It was tested but never again found productive.

I don't feel that it exists in any of the wells southeast of our location. So basically what I would be saying is, it's only productive in one well and in fact was not encountered in any of the wells southeast of our location.

My own feeling is, again, that it's not prospective at our proposed location.

Q. Did you attempt to prepare or map the

extent of the Strawn in this area?

A. Yes, I have.

Q. And what control points did you use?

A. I used all the control, all the wells that you see on this plat, plus others.

Q. There would be no control, however, from the Ralph Lowe Moots Well in the extreme west of 31, all the way over to the Mesa Well in Section 2.

A. No control.

Q. But it is your opinion that this Strawn would not appear in the proposed well?

A. That is my opinion.

Q. But you are asking that the Strawn interval be pooled.

A. Yes, I am. I'm saying that although it is not our primary objective, and although it's only productive in one well, that we would also pool the STrawn as an outside chance that we would encounter it and find it productive.

Q. So is it a secondary objective in this effort?

A. You might call it a secondary objective, much, if you will, as you might call that sand in the Upper Morrow a secondary objective.

Q. And would the Wolfcamp also be a secondary

objective?

A. Yes, it would.

Q. Now I believe you recommended a 200 percent risk factor.

A. Yes, I did.

Q. And that was your recommendation based on the potential production in the Lower Morrow?

A. Based on all the considerations of the geology in the area, the Lower Morrow being our primary objective, and as I testified earlier, in my opinion exhibiting extreme high risk in this area.

If you want to consider the Strawn zone, it's only productive, in my estimation, in the one well. Again, it's a stand-alone zone. It's been -- it has not been produced in any other well. I wouldn't consider it as a -- as a viable objective; perhaps a bail-out zone, but not a viable objective.

The same would be true for the Upper Morrow Sand. You might find it but it wouldn't be an objective which you'd go drilling a well exclusively for.

We feel we need the Lower Morrow in order to have a commercially viable prospect.

Q. It is fair to say you were optimistic about the Lower Morrow --

A. Extremely.

Q. -- but not about the Strawn?

A. Yes. Let me back up. I'd be -- I'm optimistic when I can be. Notice all the wells are producing the Lower Morrow in the area.

In the Strawn there's only one well. It's hard to be optimistic when there's only one well there, as far as generating a stand-alone prospect. And as I mentioned, if you look at the economics of that one well under today's condition, you're looking at -- at in excess of three years to payout.

So for the economic reason, in addition to the geological reasons, it would be a difficult well to drill simply for that zone. I'm not saying you wouldn't drill it, but it would be very close on the economics of whether you could justify, in fact, drilling that well for just the STrawn.

Q. And based on the risk you would encounter in the Morrow zone, you believe 200 percent --

A. I certainly do.

Q. -- is --

A. I certainly do.

MR. CARR: I have nothing further.

MR. RAMEY: Any other questions of Mr.

Barnes?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Let me see if I understand you, Mr. Barnes.

The potential formation that demonstrates the lowest risk is that zone that produces in the area, and that is the Lower Morrow as you've identified it.

A. Yes. Yes, that's a good way to put it.

Q. And that -- and that risk, even though it is the lowest for any of the formations which you're attempting to pool, that risk, in and of itself, is at least 200 percent?

A. Yes.

Q. All right.

MR. KELLAHIN: Nothing further.

MR. RAMEY: Any other questions? The witness may be excused.

JERRY MORITZ,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. For the record, would you please state your name and occupation?

A. Jerry Moritz, and I'm a petroleum engineer. That is M-O-R-I-T-Z.

Q. Mr. Moritz, have you previously testified before the Oil Conservation Division as a petroleum engineer?

A. Yes.

Q. What is your current occupation, Mr. Moritz?

A. I am president of a company called Meyer, Moritz, and Company.

Q. And what is the business of that company?

A. We're consultant drill site engineers.

Q. Have you done consulting work and drill site engineering for Morrow wells in southeastern New Mexico?

A. Yes, we have.

Q. Have you had an opportunity to examine Clements Energy, Inc.'s proposed AFE for the drilling of this MOrrow test?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Moritz as

an expert petroleum engineer.

MR. RAMEY: He is so qualified.

Q. Mr. Moritz, let me direct your attention to that AFE, which I believe is dated July 30th of 1981, and is attached to the packet of exhibits as an attachment to Exhibit Number Four.

Have you had an opportunity to study that AFE?

A. Yes, it's the same one I was furnished with, yes.

Q. All right, sir. In your opinion, based upon the estimated cost for the drilling of the subject well, are those costs reasonable and consistent with the charges for such wells at similar depths in the area?

A. Yes.

Q. Mr. Moritz, do you have any experience with regards to what the current overhead charges are with regards to drilling well rates after drilling and during drilling?

A. No, not in this particular area, we haven't had any experience.

Q. I see.

MR. KELLAHIN: That concludes my examination of Mr. Moritz.

MR. RAMEY: Any questions?

MR. CARR: No questions.

MR. KELLAHIN: That concludes the presentation of our case.

MR. RAMEY: The witness may be excused. Mr. Carr, you may proceed.

JACK W. BECHER

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your full name?

A. I'm Jack William Becher.

Q. Where do you reside?

A. 3401 Shell, Midland, Texas.

Q. By whom are you employed?

A. Southland Royalty Company.

Q. In what capacity?

A. As a geologist.

Q. Mr. Becher, have you previously testified before this Commission?

A. No, I have not.

Q. Would you briefly summarize for the Commission your educational background, work experience?

A. I received a Bachelor of Science degree from Oregon State University in 1972; a Master of Science degree in geology from Louisiana State University in '75.

I worked for Phillips Petroleum Company for two years; Pennzoil, three years; and have been with Southland Royalty for a year and a half.

Q. Are you familiar with the application which was filed on behalf of Clements in this case?

A. Yes.

Q. Are you familiar with the subject acreage?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes, they are.

Q. Mr. Becher, would you briefly state why Southland is appearing in this case and objecting to the application?

A. First, we believe that a 200 percent risk penalty is out of line with the actual risk of the location.

And we would like to show evidence to deomnstrate that a 30 percent risk penalty would be an appro-

priate, an appropriate number to use for this well.

And we'd also like to show our geology on our alternate location in Section 31. We believe that this location would be a more prudent location to drill at this time, and drilling that location first and drilling the location in Section 32 second would result in more efficient reservoir drainage.

Q. So Southland is not objecting to the pooling order or the AFE or the designation of operator in Section 32?

A. No, just the risk penalty.

Q. Have you prepared certain exhibits for introduction in this case?

A. Yes.

Q. Will you please refer to what has been marked for identification as Southland Exhibit Number One, identify this, and explain what it shows?

A. This is a cross section, the same format as the north/south cross section just presented; however, it has Southland'e interpretation of the sand bodies and correlation of the Strawn, Atoka, and Morrow are different.

Q. Now, I believe on this exhibit there is a key -- key map down in the lower lefthand corner. Is there a drafting error on this key map?

A. Yes. The red line going from the well location labeled SRC to the cross section line is a drafting error and should be disregarded.

Q. Now generally what does this exhibit show?

A. It shows a cross section through the proposed Clements location, through two producing wells, and one dry hole.

The Southland acreage is shown on the index map in a stippled pattern and Clements acreage in a cross hatched pattern.

The Mesa No. 1 Diamond Mound Well on the south end of the cross section was completed in the Morrow formation and it has produced over a billion cubic feet of gas.

The center well, the Mesa Bogle State, was produced -- was completed in the Morrow and Atoka and to date has produced over 691-million cubic feet.

The Pubco well at the north end of the cross section, in Section 29, was plugged and abandoned in 1973; however, the Strawn zone at about 7700 feet appears productive on log analysis. I have calculated 8 to 10 percent porosity and a water saturation of 28 percent.

The Clements location has Strawn, Atoka,

and Morrow sands present, and they appear to be productive.

Q. Now when you say -- talk about the Atoka sand producing in the Mesa Bogle State Com No. 1 Well, is that the same zone that Mr. Barnes has characterized as Upper Morrow?

A. Yes, it is. I have named these zones differently because of paleontology I have in the Moots Well and the Pubco Well.

Q. But you are talking about the same interval?

A. The same interval, right.

Q. Now I believe you indicated that the Strawn was present, or appeared to be present in the Pubco Hagerman Com No. 1 Well.

A. Yes.

Q. Was that -- was the Strawn ever tested there?

A. It was not tested. It was --

Q. Do you happen to have any idea why it might not have been tested?

A. That was plugged in '73 and gas prices weren't that good at that time. It could possibly be commercial at this time.

Q. Would you now refer to what has been

marked as Southland Exhibit Number Two and review this for the Commission?

A. This is an east/west cross section on the same format as the east/west Clements cross section. The well on the east end was completed in the Morrow and has a cumulative production of 130,000 Mcf.

The center well is the common well with the first cross section.

And the well on the west is the Ralph Lowe Moots Well, which was completed in the -- in the Strawn and has produced about 1.6 billion cubic feet and about 4000 barrels of oil.

This cross section shows the Clements location and the alternate Southland location in Section 31, to both contain Strawn, Atoka, and Morrow sands,which appear to be productive.

Q. Now I direct your attention to Southland Exhibit Three and ask you to review this.

First I might ask you by whom this exhibit was prepared?

Q. This map was originally drawn by Dennis Eimers (sic) and David Fee. Dennis Eimers is a Southland geologist, now working in our Denver District, and Dennis Eimers is a former Southland geologist, who I understand is

now associated with Clements.

Q. Have you reviewed this and revised this exhibit?

A. Yes, I have revised the map in August of '81.

Q. Will you now -- I direct you to this map and ask you to review it for the Commission.

A. I've indicated the wells penetrating the Strawn with large circles; gas producers, the circle colored red; shows in this zone are colored red on the right half and possible producers are shown by -- colored on the north half of the circle. I have indicated both the gross feet of sand present in the well and the net porosity by each data point, and those numbers are separated by a slash. Southland acreage is shown in a heavy stippling and Clements acreage is shown in a light stippling.

This we -- Southland considers this Strawn sand a primary objective in the area. It's a marine sand with a northeast/southwest trend, and the Moots Well was an economical location. It made 1.6 billion cubic feet.

The wells to the south do not have that sand but because of the nature of the sand being elongate northeast/southwest, they weren't in the right place to encounter that sand, but we believe that the well in Section

29, which is shown on the Exhibit One, could possibly be a commercial producer, and there was a gas show in the sand in Section 36.

Southland's location which we proposed to Clements, lies much closer to the Moots Well. This is the main reason we believe it would be more prudent to drill this location. Our location has about 30 feet of sand; the Clements location has about 20 feet of sand.

Q Will you now refer to what has been marked Southland Exhibit Number Four and review this for the Commission?

A This is my interpretation of the Morrow Sand. This is a fluvial, deltaic sand with sand bodies having north/south trend.

I might point out several good wells in the area. In Section 34 of 15, 27, the Read & Stevens Tolen Federal had an initial potential of 23-million per day through a 21/64th choke. That is a new well and we don't have any production data on it yet.

The, again, the Mesa Bogle State Well in Section 2 has made 608-million; paid out and made some money.

The two wells in the south half of Section 1, Mesa No. 1 and No. 2 Diamond MOund, have each made

over a billion cubic feet of gas.

This has been a very active area. There have been nine wells drilled in this mapped area in 1981. Six of these have been completed in the Morrow zone.

The overall success ratio of deep wells on this map is 67 percent and there are a total of 30 deep wells, 20 of which were successful.

We consider this an excellent objective, a primary objective, and of very low risk nature.

Q. Mr. Becher, will you now review Exhibit Number Five?

A. This is my map of the Atoka. It's similar to the first two maps. We consider this a secondary objective; however, there is a good possibility that the zone will produce in the east half of Section 32.

I'd like to point out there in the southwest corner of Section 16, the Husky No. 1 SRC State, in which Southland hada 50 percent working interest. It reported a calculated absolute open flow of 3.8 million from this zone in January and the well has not been produced yet and we don't have any production data to know how it's going to do. It looks like a real good zone. It had 17 feet of pay sand.

Q. Mr. Barnes, will you now review Exhibit

Number Six for the Commission?

A. This is a producing zone map where I have color coded production in various wells. The large red rectangle is the area of the previous maps.

I've indicated Morrow production in red; Atoka in green; Strawn in purple; Wolfcamp in orange; San Andres in yellow; Grayburg in blue.

I'd like to call your attention to the northeast corner of the map where this is Buffalo Valley Field, which currently has 32 producing wells, and has produced 66-million Bcf, at a greater than 2 Bcf per well average.

Next I'd like to call your attention to the Diamond Mound Field, which is circled in the central portion of the map. It currently has 20 wells. Again, 9 of these wells were drilled this year. There were six completions in the Morrow and one completion in the Atoka.

We don't have any production data, good production data on this field yet because most of the wells are so new, but it looks like it should be as good as the Buffalo Valley Field.

And in Section 31, the Lake Arthur Field, the one well, the Ralph Lowe Motts, which has made 1.6 Bcf of -- from the Strawn. And the proposed location in Section 32 lies between these three fields. We consider the risk in

Section 31 and 32 to be similar to that in Buffalo Valley and Diamond Mound Fields. It should be a very good area, and that it is not a risky area.

Q Mr. Becher, what recommendation will you make to this Commission as to the risk penalty that should be assessed against the non-consenting working interest owners in Section 32?

A I would recommend that a 30 percent penalty be assigned because there has been a 67 percent success ratio on all deep drilling. That is counting two deep wells that were drilled in the early 1950's, Continental Nolan Federal in Section 4 and the Continental Thurman Federal in Section 11. These wells were drilled before there was any gas market at all in the area.

Entering those wells into the calculation, the area still has a 67 percent success ratio. I would recommend a 30 percent penalty.

Q Now, as I understand the testimony, Southland proposed drilling a well in Section 31, is that correct?

A Right. We have a well budgetted for 1981 at that location.

Q As I look at your exhibits, don't both the wells in 31 and 32 indicate that there would be three

potential zones according to your data that could produce in commercial quantities?

A. Right.

Q. Why would the location in 31 be preferable?

A. It is -- on the Strawn horizon it is closer to the Moots Well, closer to production, and that well needs to be drilled anyway to effectively drain the Strawn reservoir, and in drilling that well first it would give us an extra data point to better place locations in Section 32 for -- with locations being picked for maximum drainage of the Atoka and Morrow reservoirs.

We feel that it's prudent to drill 31 first in the interest of best development of the area.

Q. Are you familiar with Commission Order R-6762, which was entered in this case when it was heard by an Examiner?

A. Yes.

Q. Are you familiar with the monthly charges that were -- charge for administration, overhead, and were provided for in that order?

A. Yes, I am.

Q. And did you also hear the testimony today of Mr. Newkumet concerning overhead charges?

A. Yes.

Q. Would you comment on what you consider reasonable?

A. I consider the first set of numbers from the original hearing very reasonable.

Q. Do you believe those are more in line with what's being charged by operators in the area?

A. Yes, I do.

Q. Were Exhibits One through Six prepared by you or under your direction and supervision?

A. Yes, they were.

MR. CARR: At this time we would offer Southland Exhibits One through Six.

MR. RAMEY: Southland Exhibits One through Six will be admitted.

MR. CARR: I have nothing further on direct of Mr. Becher.

MR. RAMEY: Any questions of Mr. Becher?

MR. KELLAHIN: Yes, sir.

MR. RAMEY: Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Becher, Southland Royalty Company is an oil and gas operator that does drill Morrow wells in

southeastern New Mexico, does it not?

A. Right.

Q. Would you identify for us on any of your exhibits any of the wells that Southland operates in this area?

A. We -- the only one that we have an interest in --

Q. On Exhibit Six?

A. Right, on Exhibit Six.

Q. All right, sir.

A. In the north half of Section 16 we have --

Q. Just a minute, you have to go slow for me to find it.

A. Okay. Right here.

Q. All right, sir.

A. We have a 50 percent working interest in that. We did not operate it.

Q. All right, this is the well in Section 16.

A. Right.

Q. It's in the shaded area. It's a McClendon Oil?

A. No, it's the Husky SRC State.

Q. Husky Oil. Who operates that, Husky?

A. Husky operates it.

Q. And you have an interest in that?

A. Right.

Q. All right. Would you identify any wells that Southland operates?

A. We don't operate any on this map. We operate -- we drilled two dry holes up to the north of this map and operate a number of properties to the south.

Q. Okay. So of the -- the two dry holes to the south, those are Morrow tests?

A. Two dry holes to the north.

Q. To the north.

A. Were Atoka tests.

Q. Atoka tests, all right.

A. And most of the acreage we hold to the south and operate is the Morrow.

Q. When was this Husky well drilled and completed, Mr. Becher?

A. It was completed in January of 1981.

Q. 1981?

A. Right.

Q. And what are the overhead charges that you're paying Husky on that well?

A. I'm not familiar with that.

Q. You don't know?

A. No.

Q. Well, then how do you know that Clements Energy's proposed overhead charges are not reasonable, if you've not made a comparison of what your own working interest owners are charging you?

A. Part of my capacity is to figure what our -- or assist the engineers, our engineers in figuring well costs and these are,the numbers that we generally come up with are in the range of the -- those discussed in the first hearing.

I'm not directly responsible for generating these numbers.

Q. So what it comes down to, Mr. Becher, is you don't know whether these $3600 figure or the $4200 figure is going to be fair and reasonable for Morrow wells in this particular area, do you?

A. The $3600 figure is, I think, what we've generally used.

Q. And you reached that opinion without studying any of the overhead charges for any of these wells indicated on your plat.

A. Yes.

Q. Have you assigned a risk, Mr. Becher, to the well you propose in Section 31? What's the risk of

that well?

A. I would give that about a 25 percent risk because it is a direct offset to the Strawn producer.

Q. All right, sir, and this would be for an east half proration unit for the Section 31?

A. Correct.

Q. And we're talking about the Atoka, Strawn, and Lower Morrow?

A. Correct.

Q. And if Southland should drill a well at that proration unit and should have to force pool Clements you would assign a 25 percent risk factor to Clements share if they went non-consent.

A. Correct.

Q. With regards to the east half of 32, then, you believe that represents a 30 percent risk.

A. Correct.

Q. All right. Have you formally proposed to drill this test in the east half of 31 to Clements Energy?

A. Yes, in a telephone conversation. We do have a well budgetted for 1981 at that location.

Q. You have the well budgetted. I'm concerned about what, if any, telephone conversations or communications you or Southland has made to Clements requesting

formally that they join you in committing their interest to a well in Section 31.

A. We --

Q. You don't know, do you?

A. We, no, we have made no formal --

Q. You have not made that formal request to --

A. We have made no formal request, no.

Q. -- Clements. All right, but you do know that Southland has budgetted money to drill such a well in Section 31.

A. Right.

Q. And they're going to do it in 1981.

A. Well, it depends on what happens with the well in 32, whether it will be done or not. That's up to my management, not to me.

Q. Okay. I think if I understood you correctly, Mr. Becher, when we were looking at some of your earlier exhibits, and let's go back to the Strawn gross sand Isopach, whatever the number was on that.

A. Exhibit Number Three.

Q. And if you'll look at the Morrow gross sand Isopach, what number is that one?

A. It would be Number Four.

Q. Okay. Now help me out if I'm wrong on this, but it looks like in comparing your Morrow Isopach to Mr. Barnes', and then using your STrawn Isopach, the real difference in the risk here is that you are far more optimistic about the Strawn potential in the east half of 32 than Mr. Barnes is. Is that not the difference?

A. Yes. Yes.

Q. That's really the difference in the risk, is it not?

A. Yes. Yeah.

Q. Okay. But looking at the Morrow --

A. The Morrow is a great zone. There's plenty production to the south. It just hasn't been drilled to the north yet.

Q. Well, and that's right, on the Morrow this is going to be a pretty good step out to the north and west.

A. Uh-huh.

Q. There is production to the south and east, but as we go to the north and west we've got all these dry holes out there, don't we? In the Morrow?

A. All those are older wells, yes. They're dry holes.

Q. All right, sir, so there, you know, when

we look at the Morrow your two Isopachs, give or take a few percentages, generally depict the Morrow in the same characteristics in terms of risk.

A. Yes.

Q. All right, sir. And the real difference, then, is going to be that you think we're going to get some Strawn here in the east half of 32 that Mr. Barnes does not think we're going to find.

A. And I believe the Morrow is a stronger zone than Mr. Barnes is indicating.

Q. Okay. And when we look at this Isopach on Exhibit Three, if I understood you correctly, that conforms to this cross section which is Exhibit Number One, in which you have put some of these -- what you think to be a good Strawn zone in this Pubco well.

A. It's good on log calculations. It may, like any other zone, it may produce and it may not.

Q. All right, sir. Let me see if I understand what we've done here on the cross section on the Pubco Well, this is the one in Section 29.

A. Correct.

Q. And that's on your Strawn Isopach. You've got -- you've got 8, 10 percent porosity, and that's the one you shaded in yellow here.

A. Correct.

Q. All right. Over here on your Isopach, then, you have assigned an 8-4 number. What is that number?

A. Okay, that 8 is the gross feet of sand and the 4 is the net feet of porosity.

Q. The only other well you've used, then, that produces -- well, the Pubco well, that's just log indication. The only well that does in fact produce from the Strawn is this Ralph Lowe Moots Well.

A. Correct.

Q. And this is the one that is 20 years old or 18 years old.

A. Correct.

Q. What happens to your Isopach if this Pubco well up here doesn't have any Strawn in it at all?

A. In 29?

Q. Yes, sir.

A. It does have.

Q. On the log indications. All right, let's --

A. Well --

Q. -- assume for the sake of argument that it has zero.

A. It has the sand. The log indication is

that it's gas productive.

Q. All right.

A. The sand is there on the log.

Q. Let's assume we go ahead and perforate and test that Strawn in the Pubco well and it won't produce. Nothing. Zero.

A. Yeah.

Q. What happens to your Isopach? Does that change it any?

A. The Isopach doesn't change. The sand and the porosity are there. That's all the Isopach indicates.

Q. Well, I'm concerned --

A. Whether the gas is there or not aren't shown; can't -- can't be shown by an Isopach map.

Q. I appreciate that, but what we're really looking for the degree of risk involved in actually finding gas in the east half of 32, and I believe you told me that the substantial difference between your conclusion and that of Mr. Barnes is that you anticipate the Strawn to be productive in the east half of 32.

A. Right.

Q. You've shown that to me on an Isopach. I don't have anything else to ask you about.

A. Okay.

Q I appreciate the fact that you can have an indication of sand in a log and it might not be productive. But where else are you showing me that's going to show that the Strawn is going to be productive in 32, if it is not for the log indication in the Pubco Well and then the Ralph Lowe Well?

A I've indicated, I believe, that there's 20 feet of sand at the Clements location in 32.

Q How do you do that? How are you going to get 20 feet of sand across there?

A That is my interpretation.

Q Is not that interpretation based upon your opinion that this Pubco Well is going to be productive of the Strawn in 29?

A No. It is based on the fact that there is sand in that well and this is the shape of this type of sand body.

I believe that the type of sand we're dealing with will be this shape and I have drawn it, drawn my interpretation of that type sand body.

Q Well, maybe it's simply because I don't understand, Mr. Becher. You're telling me that the presence of 20 feet of sand in the Strawn across the east half of 32 is not necessarily indicative that the Strawn will be productive

in the east half of 32?

A. Correct.

Q. Mr. Becher, did you know that Harvey Yates re-entered this Pubco Well in Section 29 in 1976 and in fact perforated and tested the Strawn formation?

A. No.

Q. And they subsequently abandoned it? You did not know that?

A. No, I did not.

Q. Mr. Becher, if this risk is only 30 percent at this location, are you prepared to drill the well for us and let us go non-consent at 30 percent?

A. I can't answer that. That would be up to my management.

Q. Your management hasn't indicated that they desire to drill the well there, have they?

A. Not to me. They would rather drill 31 first.

Q. Okay.

MR. KELLAHIN: I have nothing else.

MR. RAMEY: Any other questions of Mr. Becher?

MR. CARR: I have no questions of Mr. Becher.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Becher, the well in Section 36 shows a drill stem test. Do you have any pressure information on that?

A. Yes, I did.

MR. KELLAHIN: What are we looking at?

MR. RAMEY: The well to the west of Moots, the Moots Well.

A. Recovered 125 feet of gas cut mud. Initial and final shut-ins of 1677. Low pressure 35. Hydrostatic 3672.

Q. Do you have any idea what the original pressure was in the Ralph Lowe Well?

A. Let's see. About 2600 pounds.

Q. Is that bottom hole or shut-in pressure?

A. That's shut-in.

Q. Is there any possibility that the Ralph Lowe Well has drained a very large area, considering how long it's produced?

A. Yes, that's why we would move our location over to as far east as we could, 660 from the east line

of 31.

Q. With an original shut-in pressure of 2600 pounds, that would make a bottom hole pressure of probably around 3000. Would that not be true?

A. Yes.

Q. And the well in Section 36 only had bottom hole pressure of 1677, would that be reflective of --

A. That one --

Q. -- drainage by the Ralph Lowe Well, perhaps?

A. Or lack of permeability in the -- in 36.

Q. The initial shut-in pressure and the final shut-in pressure are the same, why, it looks like there is permeability there, I would think.

If there's drainage to the west there could also be drainage to the east in that well, if any drainage has occurred.

Thank you.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: I have a brief statement.

MR. KELLAHIN: Just a minute, let me see if I've got anything else here, gentlemen.

We have nothing further. Thank you.

MR. RAMEY: Mr. Carr, you may proceed.

MR. CARR: May it please the Commission, Clements Energy has come before you proposing the drilling of a well and force pooling certain acreage into a standard spacing unit.

They've asked that you assess a 200 percent risk penalty but by their own admissions in the hearing today in determining what that penalty should be, they have focussed only on the Lower Morrow zone. They have not considered the possibility of commercial production from the Strawn, which by Southland Royalty Company's interpretation would be the primary objective in a well drilled at this location.

They have discounted that. They aren't optimistic about production in the Strawn, but they've stated that there is no control in the area; they have simply elected to cut off the Strawn pay before it approaches the proposed well location.

They also are not considering the possibility of commercial production in the Atoka or Upper Morrow and are also disregarding the potential of any production in the Wolfcamp.

They disregard these for the purposes of assessing the penalty, but they do not ask you to exclude those

from the pooling hearing.

We submit they recognize that there is potential for completing a commercial well in each of those zones, but they don't consider that in asking you to impose a 200 percent risk penalty. They have in fact looked at one zone instead of looking at three or four commercial zones in asking you to assess this penalty.

You also should weigh the fact that there's a success for these wells in this area of 67 percent. We frankly submit that the evidence shows that a 200 percent risk penalty is excessive. It is not that high risk a venture and they -- Mr. Barnes by his own admission stated that they felt that a 200 percent penalty should be assessed from looking at only the Morrow alone.

We submit they're putting blinders on in not looking at the whole picture, and they come in to you with this request.

Now, we understand that they want to drill where they have the greatest interest. They have a greater interest in Section 32 than they do in 31. We submit, however, it would be wiser to step out from the Moots Well, accumulate data, and drill at the best possible location.

But we think that they'll probably make a well. We think that they might make a better decision as

to where the well should be located if they stepped out from the Moots Well in an orderly fashion.

We also believe that the record shows the increase that they have made in this de novo hearing over what they requested at the Examiner Hearing in the charges to be assessed for overhead and administrative costs. They really are out of line. They are excessive. They are trying, because they came back for a de novo hearing, get something more.

We submit that they are stepping into an area and asking for an excessive amount in terms of these charges, as well.

We therefor submit that you should enter an order pooling the lands, designating an operator, but that the order should provide for a reasonable risk penalty and also should not provide for excessive costs.

MR. RAMEY: Thank you, Mr. Carr. Mr. Kellahin, do you have anything?

MR. KELLAHIN: I think so, Mr. Ramey. I think I was at the same hearing Mr. Carr was in, but from his comments, I'm not sure.

He says our witnesses were looking at only what we call the Lower Morrow. In fact, Mr. Carr asked Mr. Barnes, have you mapped the Strawn? He said, yes, sir,

I have and it's not present in our location.

He asked him about the Atoka, and all the other potentially productive Pennsylvanian formations in this area, and he answered the same.

On redirect I asked Mr. Barnes, I said, have you not, in fact, taken what you think is the best of all the Pennsylvanian formations to examine as a potential source? He says yes.

I asked him whether or not any of the others represented a lesser degree of risk, and he said, no, they were all more speculative than this.

And then we went back to the discussion of the Morrow.

In fact, this is highly risky. If it wasn't risky, Southland, which is a substantial operator, would have responded to our letter of April 29th, 1981. No response. They would have done something about the June 12th, 1981 letter. No response.

If they are so excited about drilling in Section 31, they would have done it. They certainly can do it now. Nothing happened.

We are the only operator out there willing to put up the money to drill this well and we did get no response from Southland. We don't get response at the Examiner

Hearing. They weren't here. They didn't present anything. They come today and say it's a 30 percent risk.

If it's that risk, we'll let them drill it. No proposal from them.

Mr. Becher tells us that the overhead charges are unreasonable. I asked him what had he examined? He hadn't examined any of the wells in this area. I asked him what wells he operated; don't have any in this area. We do have an ownership interest in the Husky well. I asked him, well, what's your overhead charges on that well. That was a January '81 well. Well, I don't know what they are.

But their opinion with regards to what the charges are, unsubstantiated in the record, should not cause you to agree with that witness.

Mr. Barnes came forward and testified as to what the overhead charges were for other wells in this area, and it demonstrates that the charges in the Examiner Order are conservative, and that to keep up with current costs, they have to increase. I think it's a very small point but it's indicative of the way Southland has acted with regards to the pooling. Simply done nothing and ignored it.

The time has come. Our rig has been postponed on several occasions. We believe that we are an adequate operator to drill this well and ought to be given

the right to do so, and do so with regards to the 200 percent penalty, which we think is more than justified.

MR. RAMEY: Thank you, Mr. Kellahin.

Does anyone have anything further to add in this case, Case 7323?

If not, we'll take the case under advisement and the hearing is adjourned.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

October 21, 1981

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 7323
ORDER NO. R-6762-A

Applicant:

Clements Energy, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other William F. Carr

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7323 DE NOVO
Order No. R-6762-A

APPLICATION OF CLEMENTS ENERGY,
INC. FOR COMPULSORY POOLING,
CHAVES COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 16, 1981, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 20th day of October, 1981, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Clements Energy, Inc., seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico.

(3) That the matter came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter and, pursuant to this hearing, Order No. R-6762 was issued on August 26, 1981, which granted Clements' application.

(4) That on September 24, 1981, application for Hearing De Novo was made by Southland Royalty Company and the matter was set for hearing before the Commission.

(5) That the matter came on for hearing de novo on October 16, 1981.

(6) That the evidence adduced at said hearing indicates that Division Order No. R-6762 entered August 26, 1981, should be affirmed, except as follows:

That Finding No. 11 on Page 2 of said Order No. R-6762 and Order No. 9 on Page 4 of said order should be amended to reflect $3800.00 per month while drilling and $380.00 per month while producing as reasonable charges for supervision (combined fixed rates).

IT IS THEREFORE ORDERED:

(1) That Division Order No. R-6762, entered August 26, 1981, is hereby affirmed except as follows:

That Finding No. 11 on Page 2 of said Order No. R-6762 and Order No. 9 on Page 4 of said order is amended to reflect $3800.00 per month while drilling and $380.00 per month while producing as reasonable charges for supervision (combined fixed rates).

(2) 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

EMERY C. ARNOLD, Chairman

ALEX J. ARMIJO, Member

JOE D. RAMEY, Member & Secretary

S E A L

fd/

Tom Kellahin
3 wtn.

Corr
1 witn.

Clements Testimony

Wayne New Kumont
62.5% owned by Clements
37.5% Southland

Wolfcamp & Penn~~sylvanian~~

Rig scheduled 1st week November

Over head 4208 Drlg. Others 3800
420 Prod. 380

Jerry Barnes

Risk factor 200%

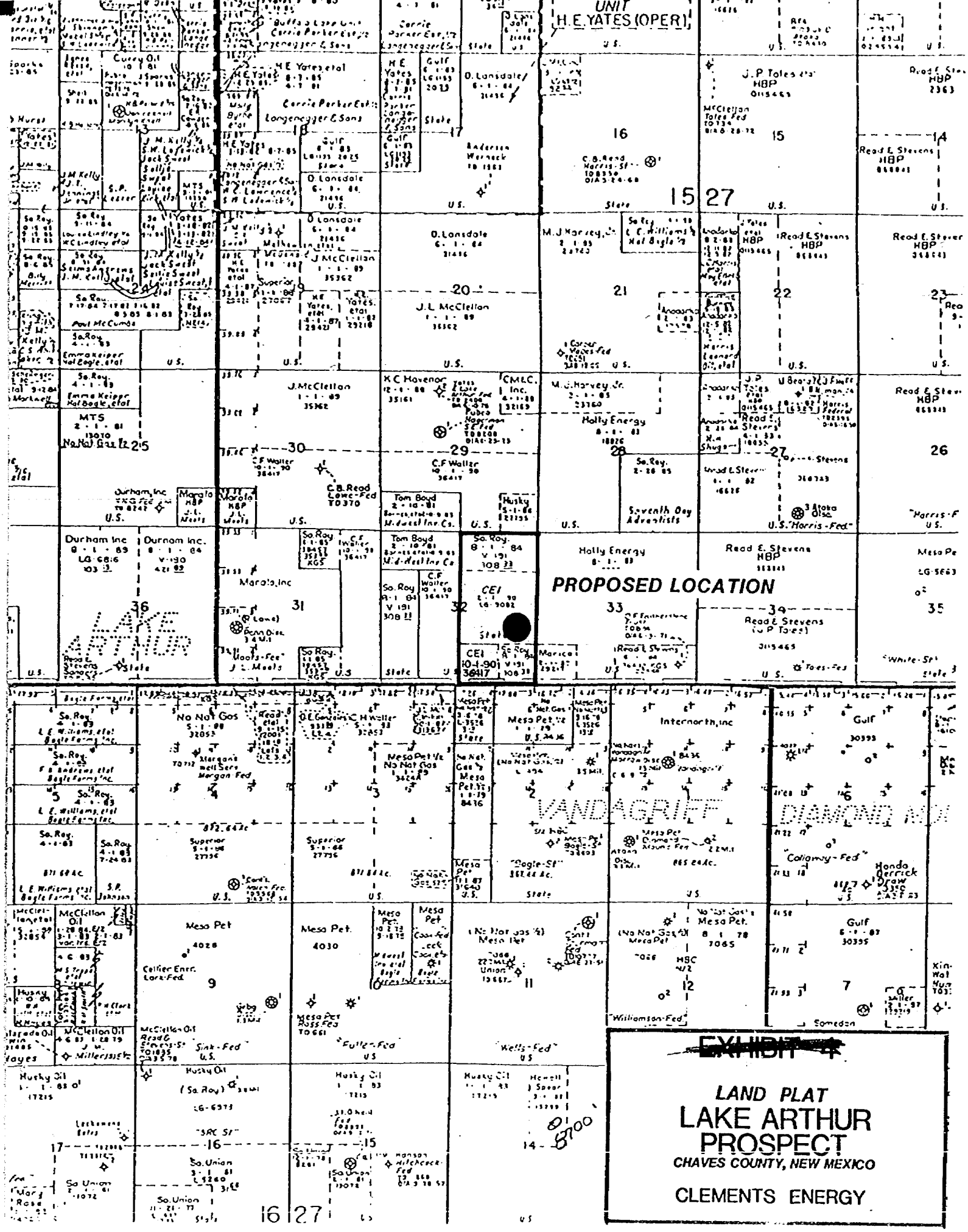
Jerry Moritz

Southland

Jack Becker

Suggested risk 30%

Overhead more reasonable in Ex. bearing


PROPOSED LOCATION
EXHIBIT 4
LAND PLAT
LAKE ARTHUR PROSPECT
CHAVES COUNTY, NEW MEXICO
CLEMENTS ENERGY

J. D. Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

April 29, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico.
Lake Arthur - I Prospect.

Dear Gary:

Barnes, Eimers & Newkumet as representative for Clements Energy, Inc. of Oklahoma City, Oklahoma propose to communitize the E/2 Section 32 for the drilling of a 9000' Morrow test at a location in the NE/4 Section 32. I have attached a land plat of the area reflecting the proposed communitization and well location, along with a copy of Clements Energy's AFE for such well.

Our records indicate that you own 120 acres of the 320 acre proration unit or 37.5%; Clements Energy, Inc. owns the balance. Plans are to commence this well in the third quarter of this year and at the latest, in the fourth quarter, so please consider this matter at your earliest convenience.

For your information we have been in contact with Holly Energy and Read and Stevens concerning a farmout of their acreage in Section 28 and Section 33. We will advise you as soon as we hear.

As mentioned above, please consider this matter at your earliest convenience and advise your comments or questions by telephone so that we may begin preparation of the necessary communitization agreement and operating agreement. Thank you very much for your consideration.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
Enclosure
cc: Dwight Johnson - Clements Energy, Inc.

EXAMPLE 2

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7323 Exhibit No. 2
Submitted by
Hearing Date 14 Oct 81

1

BUFFALO LAKE UNIT
H.E. YATES (OPER)

PROPOSED WELL LOCATION

CHAVES COUNTY, N.M.

AUTHORITY FOR EXPENDITURE

FIELD OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
ke Arthur	Clements Energy, Inc.		

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
Mexico	Chaves	Section 33-15S-27E	9,000'	Morrow

NATURE OF EXPENDITURE	CONTRACTOR #	RIG TYPE
ill and test Morrow	Cactus	

RECOMPL.	[X]	LAND	[X]	SINGLE	[XX]	EXPLORATORY	[XX]	OIL	[X]	WATER DISP/INJ.	[ ]
RECOVER	[ ]	OFFSHORE	[ ]	DUAL	[ ]	DEVELOPMENT	[ ]	GAS	[X]	WATER SUPPLY	[ ]
COMPLETE	[ ]	INLAND WATER	[ ]	OTHER	[ ]		[ ]	SEC. REC.	[ ]	OTHER	[ ]

CODE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
	RIG MOVE IN AND OUT	$ 30,000.	--	$ 30,000.
	FOOTAGE OR TURNKEY	--	--	--
	DAYWORK 30 days @ $6,300./day	189,000.	--	189,000.
	COMPLETION, W.O., SWAB UNIT 12 days @ $1,800./day	--	21,600.	21,600.
	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	25,000.	--	25,000.
	MUD, ADDITIVES, DIESEL, PKR FLUID	18,000.	--	18,000.
	CEMENT AND SERVICES	4,000.	4,000.	8,000.
	FLOAT EQUIP, CENTRALIZER, SCRATCHER	800.	1,500.	2,300.
	OPENHOLE LOGS, F.T.	15,000.	--	15,000.
	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
	DST, CORING, SWC, ANALYSIS	8,500)	--	8,500.
	EQUIPMENT RENTAL	1,500.	2,000.	3,500.
	CASING CREW, TONGS, TOOLS	2,500.	4,500.	7,000.
	MUD LOGGING: CREW AND EQUIPMENT 25 days @ $500./day	12,500.	--	12,500.
	TRANSPORTATION: LAND AND MARINE	--	--	--
	FUEL, POWER, WATER	33,000.	--	33,000.
	BITS: DRILLING AND COMPLETION	32,000.	--	32,000.
	SUPERVISION	8,000.	4,800.	12,800.
	OVERHEAD	3,500.	--	3,500.
	STIMULATION SERVICES	--	40,000.	40,000.
	EQUIPMENT INSPECTION AND TESTING	--	--	--
	WELL TESTING, PROD TEST, BHP TEST	--	--	--
	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
	FISHING TOOLS AND SERVICES	--	--	--
	MISC AND CONTINGENCY	56,000.	12,400.	68,400.
	OTHER			
	TOTAL INTANGIBLE EXPENSE	$ 439,300.	$ 95,300.	$ 534,600.

CODE	TANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
	DRIVE CASING ____ FT. ____ O.D. AT ____ S/FT.	--	--	--
	COND CASING 60 FT. 20 O.D. AT ____ S/FT.	5,000.	--	5,000.
	SURF CASING 800 FT. 8-5/8 O.D. AT 12.00 S/FT.	9,600.	--	9,600.
	INTER CASING ____ FT. ____ O.D. AT ____ S/FT.	--	--	--
	PROD CASING 9000 FT. 5-1/2 O.D. AT 7.00 S/FT.	--	63,000.	63,000.
	LINER CASING ____ FT. ____ O.D. AT ____ S/FT.	--	--	--
	TUBING 9000 FT. 2-3/8 O.D. AT 3.25 S/FT.	--	29,250.	29,250.
	WELLHEAD EQUIPMENT	2,500.	6,000.	8,500.
	DOWNHOLE EQUIPMENT Packer	--	2,500.	2,500.
	SURF PROD EQUIPMENT	--	18,000.	18,000.
	ARTIFICIAL LIFT EQUIPMENT	--	--	--
	MISC AND CONTINGENCY 15%	2,500.	18,000.	20,500.
	OTHER			
	TOTAL TANGIBLE EXPENSE	$ 19,600.	$ 136,750.	$ 156,350.
	TOTAL WELL COST	$ 458,900.	$ 232,050.	$ 690,950.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL

PREPARED	DATE
WEG WEG	4/14/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL

COMPANY	DATE

J D Barnes
D J Eimers
A W Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

June 12, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico
Lake Arthur - I Prospect

Dear Gary:

As per our letter of April 29, 1981, (copy attached) and my telephone conversation with you May 12, 1981, Barnes, Eimers & Newkumet are still waiting on Southland's comments on the above referenced.

We still have very definite plans to commence the well in the third or fourth quarter of this year and your comments or recommendations would be greatly appreciated.

Thank you for your time and consideration in this matter. Your prompt attention to this matter would be appreciated.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

WN:dj
Enclosures

cc: Dwight Johnson - Clements Energy, Inc.

EXAMPLE 3

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7323 Exhibit No. 3
Submitted by
Hearing Date 14 oct 81

P11 4924348
Registered

D. Barnes
O. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

July 6, 1981

Southland Royalty Company
1100 Wall Towers West
Midland, Texas 79701

Attn: Gary Young

Re: Proposed Communitization
and Morrow Test.
E/2 Sec. 32, T-15-S, R-27-E,
Chaves County, New Mexico.
Lake Arthur I Prospect.

Dear Gary:

Our client, Clements Energy, Inc. of Oklahoma City, Oklahoma has advised that they have secured a rig for the drilling of the proposed Morrow test as outlined in my letter to you of 4/29/81 and 5/12/81 and 6/12/81.

A fourth quarter commencement date is rapidly approaching and we would especially appreciate your comments on our proposed communitization and test well.

Thank you for your consideration in this matter. I have attached copies of the above referred to letters for your assistance in evaluating this proposal.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
cc: Dwight Johnson - CEI
Enclosures

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 9323 Exhibit No. 4 on
Submitted by
Hearing Date 14 Oct 81

Darlene hand delivered a copy of this on 7-22-81.

EXAMPLE 4

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☐ Show to whom and date delivered.....¢
   - ☒ Show to whom, date and address of delivery....¢
   - ☐ RESTRICTED DELIVERY
     - Show to whom and date delivered.....¢
     - ☐ RESTRICTED DELIVERY.
     - Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   SOUTHLAND ROYALTY CO.
   1100 Wall Towers West
   Midland, TX 79701

3. ARTICLE DESCRIPTION: REGISTERED NO. | CERTIFIED NO. P11 4924348 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

POSTMARK

CLERK'S INITIALS

P.O. 3611, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

GPO : 1979-288-848

P11 4924348

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Southland Royalty Co.

STREET AND NO.
1100 Wall Towers West

P.O., STATE AND ZIP CODE
Midland, TX 79701

POSTAGE		$
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	— ¢
OPTIONAL SERVICES	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$

POSTMARK OR DATE

M. R. Smith

PS Form 3800, Apr. 1976

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

AFE NUMBER: 81-19A
PROPERTY NUMBER:

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur I (81-)	Clements Energy, Inc.	NM State	1-32

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	C SE NE Section 32-15-27	8550'	Morrow

PURPOSE OF EXPENDITURE: Drill and test Morrow Sand
CONTRACTOR: N
RIG TYPE:

DRILL/COMPL. [X]	LAND [X]	SINGLE [X]	EXPLORATORY [X]	OIL [ ]	WATER DISP/INJ. [ ]
WORKOVER [ ]	OFFSHORE [ ]	DUAL [ ]	DEVELOPMENT [ ]	GAS [X]	WATER SUPPLY [ ]
RE-COMPLETE [ ]	INLAND WATER [ ]	OTHER [ ]		SEC. REC. [ ]	OTHER [ ]

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
01	RIG MOVE IN AND OUT	30,000.	--	30,000.
02	FOOTAGE OR TURNKEY	--	--	--
03	DAYWORK $6,500 x 38	247,000.	13,000.	260,000.
04	COMPLETION, W.O., SWAB UNIT $1,500 x 10	--	15,000.	15,000.
05	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	40,000.	--	40,000.
06	MUD, ADDITIVES, DIESEL, PKR FLUID	28,000.	--	28,000.
07	CEMENT AND SERVICES	11,000.	4,000.	15,000.
08	FLOAT EQUIP, CENTRALIZER, SCRATCHER	1,500.	1,000.	2,500.
09	OPENHOLE LOGS, F.T.	30,000.	--	30,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	16,000.	--	16,000.
12	EQUIPMENT RENTAL	5,000.	5,000.	10,000.
13	CASING CREW, TONGS, TOOLS	7,000.	3,000.	10,000.
14	MUD LOGGING: CREW AND EQUIPMENT $550 x 35	19,250.	--	19,250.
15	TRANSPORTATION: LAND AND MARINE	5,000.	5,000.	10,000.
16	FUEL, POWER, WATER $700 x 38 + $5,000.	31,600.	--	31,600.
17	BITS: DRILLING AND COMPLETION	21,000.	--	21,000.
18	SUPERVISION	12,000.	4,000.	16,000.
19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	35,000.	35,000.
21	EQUIPMENT INSPECTION AND TESTING	3,000.	2,000.	5,000.
22	WELL TESTING, PROD TEST, BHP TEST	--	2,000	2,000.
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY 10%	51,085.	9,350.	60,435.
26	OTHER Insurance	6,550.	--	6,550.
27	TOTAL INTANGIBLE EXPENSE	$568,485.	$102,850.	$671,335.

TANGIBLE EXPENSE

30	DRIVE CASING		FT.		O.D. AT		S/FT.	--	--	--
31	COND CASING	50	FT.	20	O.D. AT		S/FT.	5,000.	--	5,000.
32	SURF CASING	350	FT.	13-3/8	O.D. AT	24.00	S/FT.	8,400.	--	8,400.
33	INTER CASING	2,000	FT.	8-5/8	O.D. AT	12.00	S/FT.	24,000.	--	24,000.
34	PROD CASING	9,000	FT.	4-1/2	O.D. AT	6.25	S/FT.	--	56,250.	56,250.
35	LINER CASING		FT.		O.D. AT		S/FT.	--	--	--
36	TUBING	9,000	FT.	2-3/8	O.D. AT	3.30	S/FT.		29,700.	29,700.
37	WELLHEAD EQUIPMENT							1,500.	8,500.	10,000.
38	DOWNHOLE EQUIPMENT Packer							--	2,600.	2,600.
39	SURF PROD EQUIPMENT							--	35,000.	35,000.
40	ARTIFICIAL LIFT EQUIPMENT							--	--	--
41	MISC AND CONTINGENCY 10%							3,890.	13,205.	17,095.
42	OTHER							--	--	--
43	TOTAL TANGIBLE EXPENSE							42,790.	145,255.	188,045
	TOTAL WELL COST							$611,275.	$248,105.	$859,380.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

EXAMPLE 6

OPERATOR APPROVAL

PREPARED	DATE
WEG/W E Gordon	7/30/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL

COMPANY	DATE
APPROVED	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7323
Order No. R-6762

APPLICATION OF CLEMENTS ENERGY, INC. FOR COMPULSORY POOLING, CHAVES COUNTY, NEW MEXICO.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7323 Exhibit 5
Submitted by
Hearing Date

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Clements Energy, Inc., seeks an order pooling all mineral interests in the ~~Wolfcamp and Pennsylvanian~~ formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico.

(3) That the applicant has the right to drill and proposes to drill a well at a standard location thereon.

(4) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(5) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(6) That the applicant should be designated the operator of the subject well and unit.

(7) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(8) That any non-consenting working interest owner who does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional ~~200 percent~~ thereof as a reasonable charge for the risk involved in the drilling of the well.

(9) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(10) That following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(11) That $3600.00 per month while drilling and $360.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(12) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(13) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before ~~December 1, 1980,~~ the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico, are hereby pooled to form a standard 320-acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the ~~first~~ day of December, 1981, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Morrow zone of the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the first day of December, 1981, Order (1) of this order shall be null and void and of no effect whatsoever, unless said operator obtains a time extension from the Division for good cause shown.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Division Director and show cause why Order (1) of this order should not be rescinded.

(2) That Clements Energy, Inc. is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 90 days prior to commencing said well, the operator shall furnish the Division and each ~~known working~~ interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division

and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Division will determine reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $3600.00 per month while drilling and $360.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall immediately be placed in escrow in Chaves County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 30 days from the date of first deposit with said escrow agent.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

July 22, 1981

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 7323 Exhibit No. 6
Submitted by
Hearing Date 14 Oct 81

Mr. Joe D. Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Clements Energy Inc.

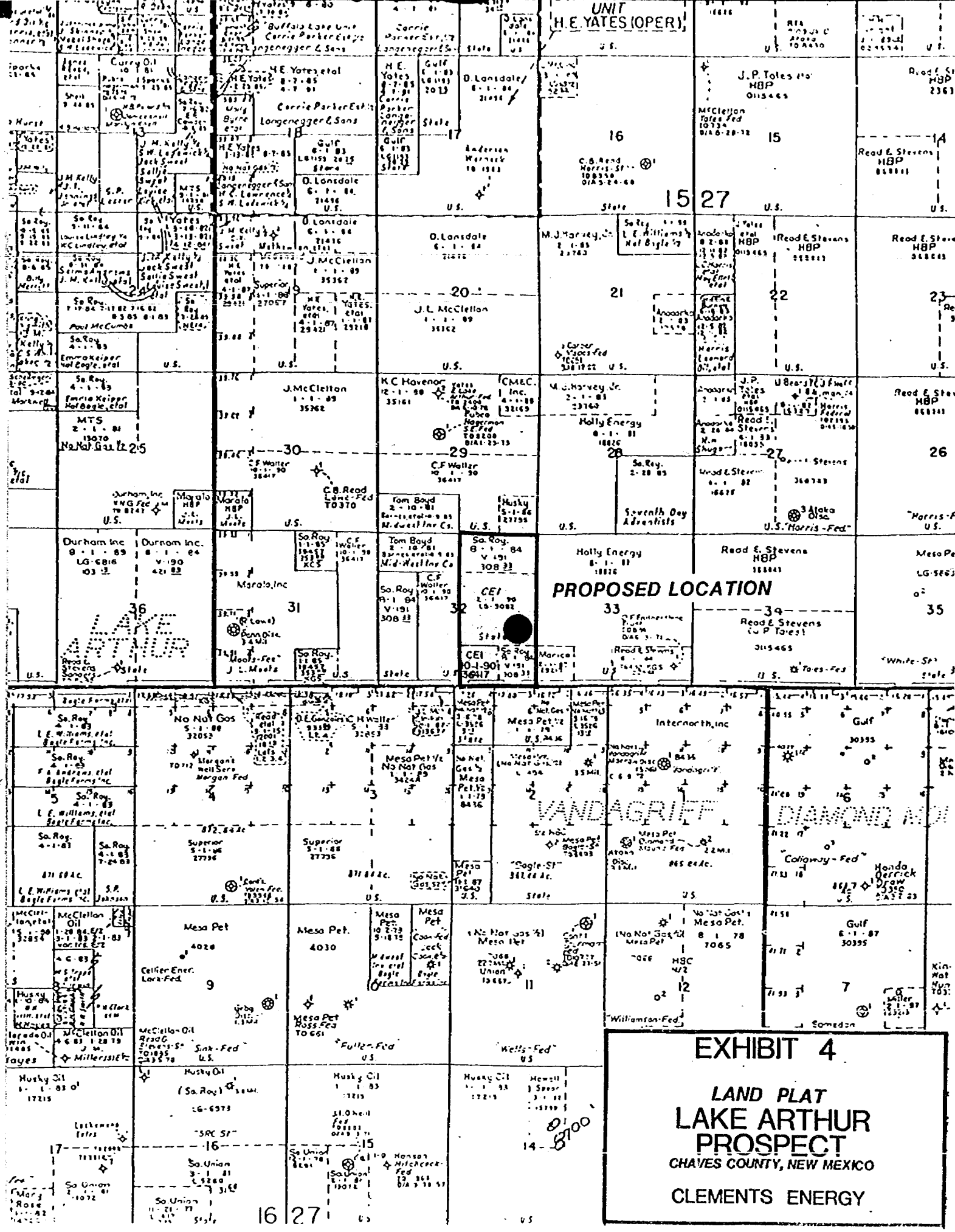
Dear Mr. Ramey:

Please set the enclosed Compulsory Pooling Application for the Examiner Hearing scheduled for August 12, 1981.

Very truly yours,

W. Thomas Kellahin

WTK:jm
Enclosures
cc: Mr. Wayne Newkumet
Clements Energy Inc.
Southland Royalty


PROPOSED LOCATION
EXHIBIT 4
LAND PLAT
LAKE ARTHUR PROSPECT
CHAVES COUNTY, NEW MEXICO
CLEMENTS ENERGY

J D Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

April 29, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico.
Lake Arthur - I Prospect.

Dear Gary:

Barnes, Eimers & Newkumet as representative for Clements Energy, Inc. of Oklahoma City, Oklahoma propose to communitize the E/2 Section 32 for the drilling of a 9000' Morrow test at a location in the NE/4 Section 32. I have attached a land plat of the area reflecting the proposed communitization and well location, along with a copy of Clements Energy's AFE for such well.

Our records indicate that you own 120 acres of the 320 acre proration unit or 37.5%; Clements Energy, Inc. owns the balance. Plans are to commence this well in the third quarter of this year and at the latest, in the fourth quarter, so please consider this matter at your earliest convenience.

For your information we have been in contact with Holly Energy and Read and Stevens concerning a farmout of their acreage in Section 28 and Section 33. We will advise you as soon as we hear.

As mentioned above, please consider this matter at your earliest convenience and advise your comments or questions by telephone so that we may begin preparation of the necessary communitization agreement and operating agreement. Thank you very much for your consideration.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

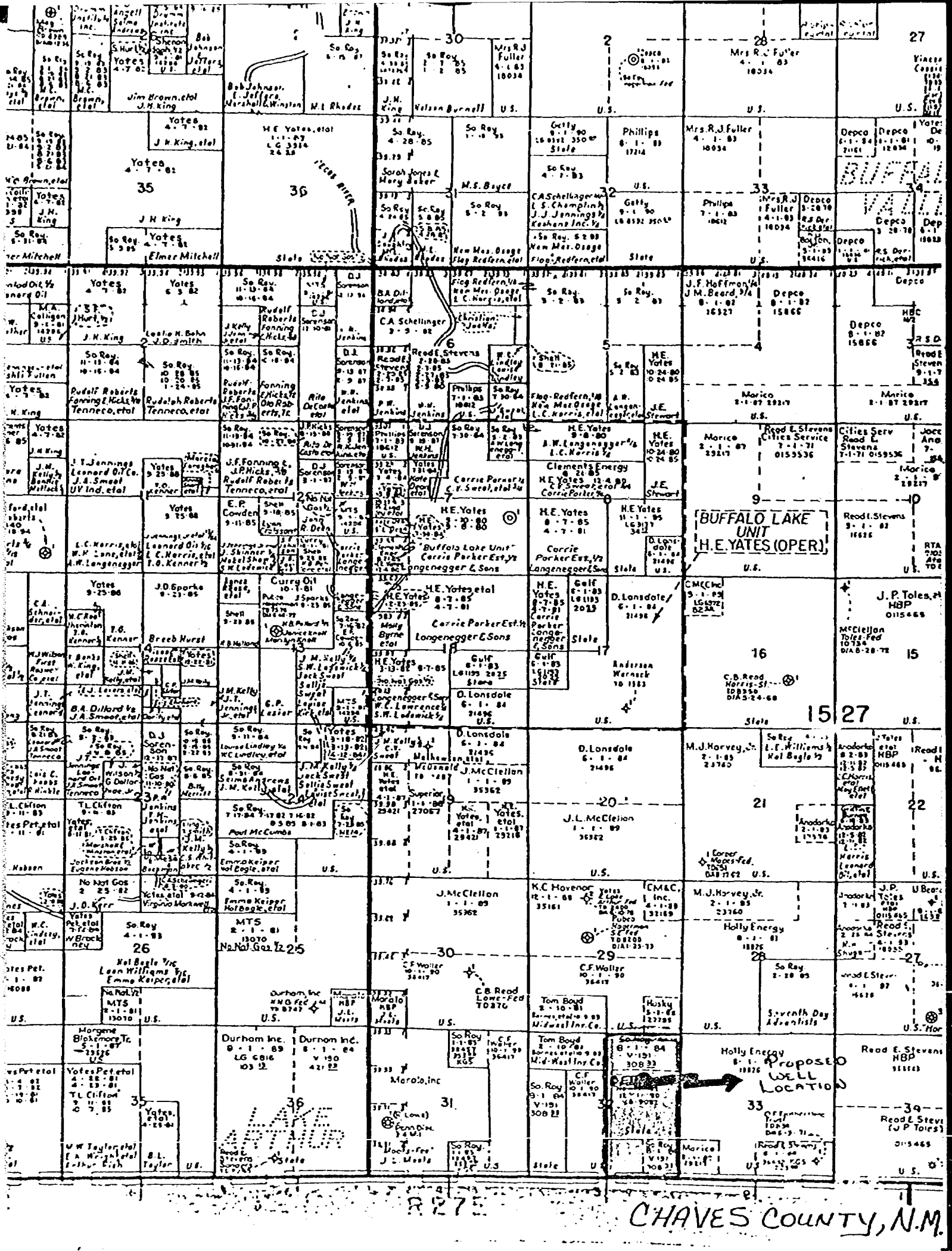
Wayne Newkumet

Exhibit 2
Case 7323

AWN/lfs
Enclosure
cc: Dwight Johnson - Clements Energy, Inc.

EXAMPLE 2

1


BUFFALO LAKE UNIT
H.E. YATES (OPER.)
Proposed Well Location
Buffalo Lake Unit
Carrie Parker Est. & Longenegger & Sons
Yates
Phillips
Getty
Depco
Marico
Holly Energy
Durham Inc.
Morale, Inc
Tom Boyd
Mid-West Inv. Co.
Seventh Day Adventists
Cities Service
Read E. Stevens
J.P. Toles, et al HBP
Sonat
Anadarko
Harris Leonard Oil, et al
R 27 E
CHAVES COUNTY, N.M.

AUTHORITY FOR EXPENDITURE

81

FIELD OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
ke Arthur	Clements Energy, Inc.		

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
Mexico	Chaves	Section 32 33-15S-27E	9,000'	Morrow

USE OF EXPENDITURE	CONTRACTOR #	RIG TYPE
111 and test Morrow	Cactus	

RECOMPL. [X]	LAND [X]	SINGLE [XX]	EXPLORATORY [XX]	OIL [X]	WATER DISP/INJ. [ ]
ROVER [ ]	OFFSHORE [ ]	DUAL [ ]	DEVELOPMENT [ ]	GAS [X]	WATER SUPPLY [ ]
OMPLETE [ ]	INLAND WATER [ ]	OTHER [ ]		SEC. REC. [ ]	OTHER [ ]

	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
	RIG MOVE IN AND OUT	$ 30,000.	--	$ 30,000.
	FOOTAGE OR TURNKEY	--	--	--
	DAYWORK 30 days @ $6,300./day	189,000.	--	189,000.
	COMPLETION, W.O., SWAB UNIT 12 days @ $1,800./day	--	21,600.	21,600.
	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	25,000.	--	25,000.
	MUD, ADDITIVES, DIESEL, PKR FLUID	18,000.	--	18,000.
	CEMENT AND SERVICES	4,000.	4,000.	8,000.
	FLOAT EQUIP, CENTRALIZER, SCRATCHER	800.	1,500.	2,300.
	OPENHOLE LOGS, F.T.	15,000.	--	15,000.
	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
	DST, CORING, SWC, ANALYSIS	8,500	--	8,500.
	EQUIPMENT RENTAL	1,500.	2,000.	3,500.
	CASING CREW, TONGS, TOOLS	2,500.	4,500.	7,000.
	MUD LOGGING: CREW AND EQUIPMENT 25 days @ $500./day	12,500.	--	12,500.
	TRANSPORTATION: LAND AND MARINE	--	--	--
	FUEL, POWER, WATER	33,000.	--	33,000.
	BITS: DRILLING AND COMPLETION	32,000.	--	32,000.
	SUPERVISION	8,000.	4,800.	12,800.
	OVERHEAD	3,500.	--	3,500.
	STIMULATION SERVICES	--	40,000.	40,000.
	EQUIPMENT INSPECTION AND TESTING	--	--	--
	WELL TESTING, PROD TEST, BHP TEST	--	--	--
	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
	FISHING TOOLS AND SERVICES	--	--	--
	MISC AND CONTINGENCY	56,000.	12,400.	68,400.
	OTHER			
	TOTAL INTANGIBLE EXPENSE	$ 439,300.	$ 95,300.	$ 534,600.

TANGIBLE EXPENSE

					CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
DRIVE CASING	____	FT. ____	O.D. AT ____	#/FT.	--	--	--
COND CASING	60	FT. 20	O.D. AT ____	#/FT.	5,000.	--	5,000.
SURF CASING	800	FT. 8-5/8	O.D. AT 12.00	#/FT.	9,600.	--	9,600.
INTER CASING	____	FT. ____	O.D. AT ____	#/FT.	--	--	--
PROD CASING	9000	FT. 5-1/2	O.D. AT 7.00	#/FT.	--	63,000.	63,000.
LINER CASING	____	FT. ____	O.D. AT ____	#/FT.	--	--	--
TUBING	9000	FT. 2-3/8	O.D. AT 3.25	#/FT.	--	29,250.	29,250.
WELLHEAD EQUIPMENT					2,500.	6,000.	8,500.
DOWNHOLE EQUIPMENT		Packer			--	2,500.	2,500.
SURF PROD EQUIPMENT					--	18,000.	18,000.
ARTIFICIAL LIFT EQUIPMENT					--	--	--
MISC AND CONTINGENCY		15%			2,500.	18,000.	20,500.
OTHER							
			TOTAL TANGIBLE EXPENSE		$ 19,600.	$ 136,750.	$ 156,350.
			TOTAL WELL COST		$ 458,900.	$ 232,050.	$ 690,950.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL

PREPARED	DATE
WEG WEG	4/14/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL

COMPANY	DATE

J D Barnes
D J Eimers
A W Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

June 12, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico
Lake Arthur - I Prospect

Dear Gary:

As per our letter of April 29, 1981, (copy attached) and my telephone conversation with you May 12, 1981, Barnes, Eimers & Newkumet are still waiting on Southland's comments on the above referenced.

We still have very definite plans to commence the well in the third or fourth quarter of this year and your comments or recommendations would be greatly appreciated.

Thank you for your time and consideration in this matter. Your prompt attention to this matter would be appreciated.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

WN:dj
Enclosures

cc: Dwight Johnson - Clements Energy, Inc.

Exhibit 3
Case 7823

EXAMPLE 3

P11 4924348
Registered

D. Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

July 6, 1981

Southland Royalty Company
1100 Wall Towers West
Midland, Texas 79701

Attn: Gary Young

Re: Proposed Communitization
and Morrow Test.
E/2 Sec. 32, T-15-S, R-27-E,
Chaves County, New Mexico.
Lake Arthur I Prospect.

Dear Gary:

Our client, Clements Energy, Inc. of Oklahoma City, Oklahoma has advised that they have secured a rig for the drilling of the proposed Morrow test as outlined in my letter to you of 4/29/81 and 5/12/81 and 6/12/81.

A fourth quarter commencement date is rapidly approaching and we would especially appreciate your comments on our proposed communitization and test well.

Thank you for your consideration in this matter. I have attached copies of the above referred to letters for your assistance in evaluating this proposal.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
cc: Dwight Johnson - CEI
Enclosures

Darlene hand delivered a copy of this on 7-22-81.

Exhibit 4
Case 7323

EXAMPLE 4

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space provided.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered.....¢
- ☒ Show to whom, date and address of delivery.....¢
- ☐ RESTRICTED DELIVERY
  - Show to whom and date delivered.....¢
  - ☐ RESTRICTED DELIVERY. Show to whom, date, and address of delivery.$\frac{1}{2}$.....¢

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
SOUTHLAND ROYALTY CO.
1100 Wall Towers West
Midland, TX 79701

3. ARTICLE DESCRIPTION: REGISTERED NO. | CERTIFIED NO. P11 4924348 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent
M. M. Smith

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-288-848

A 3811, Jan. 1979 RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

P11 4924348

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Southland Royalty Co.

STREET AND NO.
1100 Wall Towers West

P.O., STATE AND ZIP CODE
Midland, TX 79701

POSTAGE	$
CERTIFIED FEE	— ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$

CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES

PS Form 3800, Apr. 1976

POSTMARK OR DATE

M. M. Smith

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

AFE NUMBER: 81-19A
PROPERTY NUMBER:

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur I (81-)	Clements Energy, Inc.	NM State	1-32

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	C SE NE Section 32-15-27	8550'	Morrow

PURPOSE OF EXPENDITURE: Drill and test Morrow Sand
CONTRACTOR #:
RIG TYPE:

DRILL/COMPL.	X	LAND	X	SINGLE	X	EXPLORATORY	X	OIL		WATER DISP/INJ.	
WORKOVER		OFFSHORE		DUAL		DEVELOPMENT		GAS	X	WATER SUPPLY	
RE-COMPLETE		INLAND WATER		OTHER				SEC. REC.		OTHER	

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
01	RIG MOVE IN AND OUT	30,000.	--	30,000.
02	FOOTAGE OR TURNKEY	--	--	--
03	DAYWORK $6,500 x 38	247,000.	13,000.	260,000.
04	COMPLETION, W.O., SWAB UNIT $1,500 x 10	--	15,000.	15,000.
05	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	40,000.	--	40,000.
06	MUD, ADDITIVES, DIESEL, PKR FLUID	28,000.	--	28,000.
07	CEMENT AND SERVICES	11,000.	4,000.	15,000.
08	FLOAT EQUIP, CENTRALIZER, SCRATCHER	1,500.	1,000.	2,500.
09	OPENHOLE LOGS, F.T.	30,000.	--	30,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	16,000.	--	16,000.
12	EQUIPMENT RENTAL	5,000.	5,000.	10,000.
13	CASING CREW, TONGS, TOOLS	7,000.	3,000.	10,000.
14	MUD LOGGING: CREW AND EQUIPMENT $550 x 35	19,250.	--	19,250.
15	TRANSPORTATION: LAND AND MARINE	5,000.	5,000.	10,000.
16	FUEL, POWER, WATER $700 x 38 + $5,000.	31,600.	--	31,600.
17	BITS: DRILLING AND COMPLETION	21,000.	--	21,000.
18	SUPERVISION	12,000.	4,000.	16,000.
19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	35,000.	35,000.
21	EQUIPMENT INSPECTION AND TESTING	3,000.	2,000.	5,000.
22	WELL TESTING, PROD TEST, BHP TEST	--	2,000	2,000.
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY 10%	51,085.	9,350.	60,435.
26	OTHER Insurance	6,550.	--	6,550.
27	TOTAL INTANGIBLE EXPENSE	$568,485.	$102,850.	$671,335.

TANGIBLE EXPENSE

30	DRIVE CASING		FT.		O.D. AT		SI/FT.	--	--	--
31	COND CASING	50	FT	20	O.D. AT		SI/FT.	5,000.	--	5,000.
32	SURF CASING	350	FT	13-3/8	O.D. AT	24.00	SI/FT.	8,400.	--	8,400.
33	INTER CASING	2,000	FT.	8-5/8	O.D. AT	12.00	SI/FT.	24,000.	--	24,000.
34	PROD CASING	9,000	FT.	4-1/2	O.D. AT	6.25	SI/FT.	--	56,250.	56,250.
35	LINER CASING		FT.		O.D. AT		SI/FT.	--	--	--
36	TUBING	9,000	FT.	2-3/8	O.D. AT	3.30	SI/FT.		29,700.	29,700.
37	WELLHEAD EQUIPMENT							1,500.	8,500.	10,000.
38	DOWNHOLE EQUIPMENT Packer							--	2,600.	2,600.
39	SURF PROD EQUIPMENT								35,000.	35,000.
40	ARTIFICIAL LIFT EQUIPMENT							--	--	--
41	MISC AND CONTINGENCY 10%							3,890.	13,205.	17,095.
42	OTHER							--	--	--
43	TOTAL TANGIBLE EXPENSE							42,790.	145,255.	188,045
	TOTAL WELL COST							$611,275.	$248,105.	$859,380.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

EXAMPLE 6

OPERATOR APPROVAL

PREPARED	DATE
WEC/WE Gallun	7/30/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL

COMPANY	DATE
APPROVED	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7323
Order No. R-6762

APPLICATION OF CLEMENTS ENERGY,
INC. FOR COMPULSORY POOLING,
CHAVES COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Clements Energy, Inc., seeks an order pooling all mineral interests in the ~~Wolfcamp~~ and ~~Pennsyl~~-vanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico.

(3) That the applicant has the right to drill and proposes to drill a well at a standard location thereon.

(4) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(5) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

Exhibit 5
Case 7323

(6) That the applicant should be designated the operator of the subject well and unit.

(7) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(8) That any non-consenting working interest owner who does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional ~~200 percent~~ thereof as a reasonable charge for the risk involved in the drilling of the well.

(9) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(10) That following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(11) That $3600.00 per month while drilling and $360.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(12) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(13) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before ~~December 1, 1980,~~ the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico, are hereby pooled to form a standard 320-acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the ~~first day of~~ December, ~~1~~ 1981, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Morrow zone of the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the first day of December, 1981, Order (1) of this order shall be null and void and of no effect whatsoever, unless said operator obtains a time extension from the Division for good cause shown.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Division Director and show cause why Order (1) of this order should not be rescinded.

(2) That Clements Energy, Inc. is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 90 days prior to commencing said well, the operator shall furnish the Division and each ~~known working~~ interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division

and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Division will determine reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $3600.00 per month while drilling and $360.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall immediately be placed in escrow in Chaves County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 30 days from the date of first deposit with said escrow agent.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

July 22, 1981

Mr. Joe D. Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Clements Energy Inc.

Dear Mr. Ramey:

Please set the enclosed Compulsory Pooling Application for the Examiner Hearing scheduled for August 12, 1981.

Very truly yours,

W. Thomas Kellahin

WTK:jm
Enclosures
cc: Mr. Wayne Newkumet
Clements Energy Inc.
Southland Royalty

Exhibit 6
Case 7323

Docket Nos. 34-81 and 35-81 are tentatively set for October 21 and November 4, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - WEDNESDAY - OCTOBER 14, 1981

9 A.M. - OIL CONSERVATION COMMISSION - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

(The following cases are continued from the October 14, 1981, Commission hearing to October 16, 1981.)

CASE 7345: (Continued and Readvertised)

Application of Bass Enterprises Production Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the San Andres, Bone Springs and Pennsylvanian formations, Lovington Field, underlying the N/2 NE/4 of Section 13, Township 16 South, Range 36 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7323: (DE NOVO)

Application of Clements Energy, Inc., for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

Upon application of Southland Royalty Company, this case will be heard DE NOVO pursuant to the provisions of Rule 1220.

****

Docket No. 34-81

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 21, 1981

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for November, 1981, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for November, 1981, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 7373: Application of J. C. Williamson for Amendment of Division Order No. R-6738, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the Amendment of Division Order No. R-6738, which approved an unorthodox location for a well 1560 feet from the North line and 1830 feet from the West line of Section 10, Township 23 South, Range 34 East. Applicant seeks the Amendment of said order to reflect the corrected location of said well at a point 1580 feet from the North line and 2614 feet from the West line of said Section 10.

CASE 7374: Application of Dugan Production Corporation for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Farmington formation well located 330 feet from the South line and 990 feet from the East line of Section 9, Township 28 North, Range 11 West, the E/2 of said Section 9 to be dedicated to the well.

Docket Nos. 34-81 and 35-81 are tentatively set for October 21 and November 4, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - WEDNESDAY - OCTOBER 14, 1981

9 A.M. - OIL CONSERVATION COMMISSION - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 7345: (Continued and Readvertised)

Application of Bass Enterprises Production Company for compulsory pooling, Lea County,New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the San Andres, Bone Springs and Pennsylvanian formations, Lovington Field, underlying the N/2 NE/4 of Section 13, Township 16 South, Range 36 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7323: (DE NOVO)

Application of Clements Energy, Inc., for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

Upon application of Southland Royalty Company, this case will be heard DE NOVO pursuant to the provisions of Rule 1220.

CAMPBELL, BYRD & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
HARL D. BYRD
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
WILLIAM G. WARDLE

JEFFERSON PLACE
SUITE I - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87501
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

September 24, 1981

RECEIVED
SEP 24 1981
OIL CONSERVATION DIVISION
SANTA FE

Mr. Joe D. Ramey
Director
Oil Conservation Division
New Mexico Department of
Energy and Minerals
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Application of Clements Energy, Inc. for Compulsory Pooling, Chaves County, New Mexico: Case No. 7323; Order No. R-6762

Dear Mr. Ramey:

Enclosed for filing in the above-referenced case is the application of Southland Royalty Company for a hearing de novo. Southland would appreciate this matter being set for hearing at the earliest possible date.

Very truly yours,

William F. Carr

William F. Carr

WFC:lr

Enclosures

cc: Mr. W. Thomas Kellahin

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

RECEIVED
SEP 24 1981
OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION OF CLEMENTS ENERGY, INC. FOR COMPULSORY POOLING, CHAVES COUNTY, NEW MEXICO.

Case 7323
Order R-6762

APPLICATION FOR HEARING DE NOVO

Comes now, SOUTHLAND ROYALTY COMPANY, by and through its undersigned attorneys, being a party adversely affected by Order R-6762, and pursuant to Section 70-2-13, N.M.S.A. (1978 Compilation) and Oil Conservation Commission Rule No. 1220, hereby applies to the Commission for a hearing de novo in the above-referenced cause.

Respectfully submitted,

CAMPBELL, BYRD & BLACK, P.A.

By_____
William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Southland
Royalty Company

RECEIVED
SEP 24 1981
OIL CONSERVATION DIVISION

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION
OF CLEMENTS ENERGY, INC. FOR
COMPULSORY POOLING, CHAVES
COUNTY, NEW MEXICO.

Case 7323
Order R-6762

APPLICATION FOR HEARING DE NOVO

Comes now, SOUTHLAND ROYALTY COMPANY, by and through its undersigned attorneys, being a party adversely affected by Order R-6762, and pursuant to Section 70-2-13, N.M.S.A. (1978 Compilation) and Oil Conservation Commission Rule No. 1220, hereby applies to the Commission for a hearing de novo in the above-referenced cause.

Respectfully submitted,

CAMPBELL, BYRD & BLACK, P.A.

By_____
William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Southland
Royalty Company

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

RECEIVED
SEP 24 1981
OIL CONSERVATION DIV.
SANTA FE

IN THE MATTER OF THE APPLICATION OF CLEMENTS ENERGY, INC. FOR COMPULSORY POOLING, CHAVES COUNTY, NEW MEXICO.

Case 7323
Order R-6762

APPLICATION FOR HEARING DE NOVO

Comes now, SOUTHLAND ROYALTY COMPANY, by and through its undersigned attorneys, being a party adversely affected by Order R-6762, and pursuant to Section 70-2-13, N.M.S.A. (1978 Compilation) and Oil Conservation Commission Rule No. 1220, hereby applies to the Commission for a hearing de novo in the above-referenced cause.

Respectfully submitted,

CAMPBELL, BYRD & BLACK, P.A.

By_____

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Southland
Royalty Company

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7323 DE NOVO
Order No. R-6762-A

APPLICATION OF CLEMENTS ENERGY, INC. FOR ~~A~~ COMPULSORY POOLING, ~~EDDY~~ CHAVES COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 14, 1981, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of _____, 1981, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Clements Energy, Inc., seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico.

(3) That the matter came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter and, pursuant to this hearing, Order No. R-6762 was issued on August 26, 1981, which granted Clements' application

(4) That on September 24, 1981, application for Hearing De Novo was made by Southland Royalty Company and the matter was set for hearing before the Commission.

(5) That the matter came on for hearing de novo on October 16, 1981.

(6) That the evidence adduced at said hearing indicates that Division Order No. R-6762 entered August 26, 1981, should be affirmed, except as follows:

That Finding No. 11 on Page 2 of said Order No. R-6762 and Order No. 9 on Page 4 of said order should be amended to reflect $3800.00 per month while drilling and $380.00 per month while producing as reasonable charges for supervision (combined fixed rates).

IT IS THEREFORE ORDERED:

(1) That Division Order No. R-6762, entered August 26, 1981, is hereby affirmed except as follows:

That Finding No. 11 on Page 2 of said Order No. R-6762 and Order No. 9 on Page 4 of said order is amended to reflect $3800.00 per month while drilling and $380.00 per month while producing as reasonable charges for supervision (combined fixed rates).

(2) 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

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

CASE 7323: CLEMENTS ENERGY, INC. FOR COMPULSORY POOLING, CHAVES COUNTY, NEW MEXICO

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

The application of Clements Energy, Inc, for compulsory pooling, Chaves County, New Mexico. CASE **7323**

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	Ernest L. Padilla, Esq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501
For the Applicant:	**W. Thomas Kellahin, Esq.** **KELLAHIN & KELLAHIN** **500 Don Gaspar** **Santa Fe, New Mexico 87501**
For Southland Royalty Co.:	**William F. Carr, Esq.** **CAMPBELL, BYRD, & BLACK P.A.** **Jefferson Place** **Santa Fe, New Mexico 87501**

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MR. NUTTER: Call next Case Number 7323.

MR. PADILLA: Application of Clements Energy, Inc., for compulsory pooling, Chaves County, New Mexico.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have two witnesses.

MR. CARR: May it please the Examiner, I'm William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., Santa Fe, appearing on behalf of Southland Royalty Company, and I do not intend to call a witness.

(Witnesses sworn.)

WAYNE NEWKUMET

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Newkumet, for the record would you please state your name and occupation?

A. It's Wayne Newkumet. I'm an independent landman in Midland, Texas.

MR. NUTTER: Spell your name, please.

A. N-E-W-K-U-M-E-T.

MR. NUTTER: What was the last three letters?

A. M-E-T.

MR. NUTTER: M-E-T, thank you.

Q. Mr. Newkumet, have you previously testified before the Oil Conservation Division?

A. Yes.

Q. In what capacity was that?

A. As a landman.

Q. And what is your relationship with Clements Energy, Inc., the applicant in this case?

A. I am on a retainer situation with Clements for a Permian Basin program.

Q. Pursuant to that retainer, have you examined the land ownership interest in the east half of Section 32, which is the subject acreage for this pooling hearing?

A. Yes, sir.

Q. And you've compiled certain correspondence and exhibits?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Newkumet

as an expert petroleum landman.

MR. NUTTER: Mr. Newkumet is qualified.

Q. Mr. Newkumet, let me direct your attention to what we've marked as Applicant Exhibit Number One, and have you identify that for me, and first of all, located the proration unit that you're seeking pooling.

A. Okay. The pool unit that we're seeking is the east half of Section 32, Township 15 South, Range 27 east, Chaves County, New Mexico.

The exhibit shows -- the exhibit is a land ownership plat of the area and the red outline shows the pooled unit. Yellow is the Clements Energy leasehold in the proration unit, or the pooled unit.

Q. The yellow acreage being the 40 -- 40-acre tract in the southwest quarter of the southeast quarter?

A. Uh-huh.

Q. Would you identify that? Is that fee, State, Federal acreage?

A. That is a Federal lease, USANM 36417.

Q. All right, sir, then the block of -- the balance of the yellow acreage, what kind of lease is that?

A. That's a State of New Mexico lease, Number LG 9082.

Q. Does Clements Energy, Inc., have volun-

tary commitment from the owners of the acreage outlined in yellow?

A. Yes, with the exception of the Southland Royalty lease in the north half northeast quarter, a State lease, and another part of that base lease in the southeast quarter of the southeast quarter.

Q. What is the yellow dot indicate, Mr. Newkumet?

A. That -- the red dot?

Q. I'm sorry, the red dot.

A. Yeah, that is the proposed drilling location, 1980 feet from the south line and 660 from the east line of the section.

Q. Mr. Newkumet, what is the proposed target for the well at that location?

A. This is a Morrow test.

Q. All right, and would that be a standard location for a Morrow test?

A. Yes, it would.

Q. All right, sir, let me direct your attention to what is marked as Exhibit Number Two, and would you identify that for us?

A. Okay. Exhibit Two is a copy of a letter April 29th, 1981, from myself to Southland, directed to

Southland Royalty Company, wherein the -- the pooling was proposed, along with the initial -- along with the test well, and there is also a rough AFE of that time, and a land plat.

Q. Is this your first contact with Southland Royalty concerning a proposal to commit their acreage to this Morrow test?

A. Yes, it is.

Q. And what, if any, response did you receive from them?

A. We received none.

Q. All right, sir, subsequent to that what, if anything, did you do concerning the obtaining of voluntary commitment from Southland Royalty to commit their acreage?

A. Okay. I made a telephone call to the Division Landman, a Jerry Young, just to ask what they had done, if anything, or if they had reviewed the proposal, and he said it was under -- under their management's review.

Q. All right, sir, what, if anything, happened then?

A. Then, okay, the next exhibit would be the June 12th letter.

Q. That's Exhibit Six?

A. Exhibit Three.

Q. Exhibit Three, I'm sorry.

A. Wherein I referenced the April 29th letter and our telephone conversation and requested that they advise of any comments or recommendations that they had on the matter.

Q. And what, if any, response did you receive from Southland Royalty concerning that letter?

A. None on that one.

Q. All right, sir, what's the next thing that happened?

A. Okay. I wrote another letter, dated July 6th, 1981, which would be --

Q. Exhibit Four?

A. -- Exhibit Four, and again requested -- referred back to the previous three letters, and again requested their joinder in this pooling and the well, and we sent this letter registered to make sure they did, in fact, get the thing. And attached to it is a copy of the registration slip in the mail.

Q. All right, sir, thereafter what's your next contact, if any, with Southland Royalty Company?

A. The only other contact would have been a July 22nd, I telephoned the District Geologist, Darryl James, and asked for his comments on our proposal and if he'd reviewed it, and how they were leaning and what their -- any

comments they might have on our pooling, and basically we just had a discussion on what their plans were for the area. I don't think anything pertinent to this case, really, but at that point he was -- it was still under management advisement. Management review.

Q. Did you advise Mr. James that Southland's inactivity left you no alternative but to seek compulsory pooling?

A. I mentioned that it probably would and he said it wouldn't surprise him if they were.

Q. Okay.

MR. NUTTER: Well now, that was July the 22nd?

A. July 22nd.

MR. NUTTER: And then what did you do? I see a note here that you hand-delivered a copy of the --

A. Oh, okay, on Exhibit Four?

MR. NUTTER: So after your telephone conversation did you send Darlene over with a copy of the --

A. Yes, the receptionist, I sent her over, just to make darned sure that they'd received all these things.

MR. NUTTER: After you sent the letter in the mail, then you hand-delivered one.

A. That's right.

MR. NUTTER: Okay.

A. That's right. Just wanted to make certain that they had received all the information and had been able to review it.

Q. And as of the date of this hearing, what, if any, responses have you received from Southland Royalty concerning the commitment of their acreage?

A. None whatsoever.

Q. All right.

MR. KELLAHIN: If the Examiner please, the application will reflect that it was mailed to the Commission for filing on July 22nd. A copy of that application was also sent to Southland Royalty.

Q. Now, Mr. Newkumet, let me direct your attention to Exhibit Number Five and have you identify that.

A. Okay, Exhibit Five would be the Clements Energy's AFE for the drilling of this well, the current AFE for the drilling of this well.

Q. Have you made a study, Mr. Newkumet, to determine what is the prevailing rate for overhead charges to be assessed against non-consenting working interest owners?

A. Yes. I've contacted Read and Stevens, who is a fairly active operator in the area. This is in the

vicinity of the Buffalo Valley Field that I'm sure you all are familiar with it. They've operated several wells in, and they indicated their monthly drilling overhead charges were $3388 per month and that their producing monthly overhead rate was $328 per month, for wells in the 8-to-12,000 foot range.

Also, Clements was involved very recently in a well in Township 19 South, Range 24 East, just south of this area, a Morrow well about the same depth. The overhead rates in that operating agreement were $3606 per month drilling rate and $360 per month producing rate.

Clements Energy's normal charges for wells in this depth range that they've used throughout Oklahoma and east Texas, Louisiana, and some of the Rocky Mountains, have been $4208 per month and $420 per month, and these are apparently readily acceptable by all the other operators that they've -- that have been involved in any of their wells.

Q. Based upon your experience, Mr. Newkumet, in your opinion is that a reasonable charge to be assessed as an overhead charge in a Division order?

A. The Clements Energy charges?

Q. Yes.

A. I think they probably are, yes. They're possibly on the high side. I think the Exxon charges are probably very reasonable. So --

MR. NUTTER: The Exxon charges are the ones that you paid --

A. Yes.

MR. NUTTER: -- for the well south of here?

A. Right.

MR. NUTTER: That is the $3600 and $360.

MR. KELLAHIN: No, sir.

A. That's correct.

MR. KELLAHIN: That was $3815, wasn't it?

A. Yes, okay, I'm sorry. That was the $3815 and the $381.

MR. NUTTER: Oh.

Q. Okay, and that's Exxon's charges for the State "DB" No. 1 Well in Section 7?

A. Section 7 of 19 South, 24 East.

Q. Okay.

MR. KELLAHIN: That concludes my examination of Mr. Newkumet. We have a geological witness so we can talk about the risk to be recommended.

CROSS EXAMINATION

BY MR. NUTTER:

Q. So actually, Mr. Newkumet, you never had any response from Southland?

A. That's correct, I've had no --

Q. Except for the hearing today; Mr. Carr's here.

A. That's true, except for my -- my telephone conversations, my telephone calls to them.

Q. Now have you ever offered to take the land on a farmout or just asked them to participate?

A. I think in the original letter -- okay, it's not in the letter, but when I did talk to Jerry Young, I requested his comments, you know, would they consider joining, would they consider farming out, what they might do. And I also mentioned that to Darryl James in the July 22nd conversation.

Q. Well now --

A. And I did request their comments, or recommendations on the proposal, which in my opinion is in essence asking for their comments in a joinder or their comments on a farmout.

Q. Well now, this original AFE that you sent with them -- to them on April the 29th was for a 9000 foot Morrow well in Section 33.

A. Yes. I believe that --

Q. Of 15, 27.

A. Correct. I believe Section 33 was a typo. This was a rough AFE that was assembled for the drilling of this well. The recent AFE is in much more detail and --

Q. But it's for a well in Township 14, 26.

A. That has got to be a typo. Better apologize for that, because you can see the Clemnts Energy NM State No. 1-32 Well, that is the name for our proposed well.

That has just got to be a typo error. I don't know --

Q. Okay, so this --

A. It's incorrect.

Q. Okay, so the one has the wrong section and the other one has the wrong township.

A. Correct.

Q. Now what is the depth, 8550 or 9000?

A. 8550.

Q. Okay, and even at that, the AFE that was prepared July the 30th is for $859,000 for a completed well to 8550, but the AFE that was prepared in April is for $691,000 for a well to 9000.

A. That's true.

Q. So the delay has cost an extra couple hundred thousand dollars.

A. I would say so, yes.

Q. Okay.

MR. NUTTER: Are there any further questions of the witness? He may be excused.

JERRY BARNES

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation?

A. My name is Jerry Barnes. I'm a geologist.

Q. Mr. Barnes, have you previously testified before the Division as a geologist?

A. No, I have not.

Q. Would you give Mr. Nutter a brief summary of your educational background and your working experience?

A. Certainly. I received a Bachelor of Science degree in geology from the University of Missouri. I received a Master of Science in geology from the University of Missouri.

I have ten years of petroleum company

experience as an exploration geologist, production geologist, and exploration geophysicist.

Of that approximately 8-1/2 years have been spent in west Texas and southeastern New Mexico.

Q. What is your relationship with Clements Energy?

A. I'm a consultant.

Q. Pursuant to that employment, have you made a study of the geology of this area?

A. Yes.

MR. KELLAHIN: We tender Mr. Barnes as an expert petroleum geologist.

MR. NUTTER: Mr. Barnes is qualified.

Q. Mr. Barnes, let me direct your attention to what we've marked as Applicant Exhibit Number Six, which is your Isopach.

A. Certainly.

Q. And have you identify that for me.

A. That is a net sand Isopach of the Lower Morrow interval that we are drilling the well for. Its scale is one inch to 2000 feet. The contour interval is 20-foot. The area shaded in yellow are areas that we've interpreted where the sand exists. The area that you see shaded in brown is an area where not only do the sands not exist but we feel

that not --- that the Lower Morrow itself is not even present.

The wells that you see highlighted with gas symbols in red are wells that currently produce from the Lower Morrow sands, which is our objective.

The red outline around the east half of Section 32 is our proposed proration unit. The stippled area inside that is Clements Energy's acreage position within the proposed unit. The red dot is the proposed location.

Q. The application when originally filed, Mr. Barnes, requests a pooling of all potentially productive horizons within the east half of Section 32. Can you more specifically identify for us today your anticipated potentially productive horizons?

A. We feel that our major objective, of course, is the Lower Morrow Sands, which is what the map is constructed on. Additionally there are a few wells to the south that produce from what we term a Middle Morrow, which are some sporadic sands that frequently develop within that interval.

There is an outside possibility that we might pick up a Strawn sand, which is what the well you see in Section 31 produces from.

Q. Is there any --

A. And please notice that in that well in

Section 31 our objective interval was not present.

Q. Is there any potential for Wolfcamp production?

A. To my knowledge there is no Wolfcamp production in this area.

Q. In your opinion would a pooling order pooling all the Pennsylvanian formations in the east half of Section 32 be appropriately broad enough to include the potentially productive horizons?

A. Yes, it would.

Q. All right, sir. Now would you identify for us the closest producing well that produces from the target Morrow?

A. That well is in Section 2 of 16 South, 27 East. It is approximately a mile southeast of our proposed location.

Q. You've contoured your Isopach using what kind of -- what percentage porosity cutoff?

A. Okay, it's a net sand Isopach. I've used a 50 percent cutoff generally; however, realizing that occasionally there are Morrow Sands which are radioactive, if I can determine that in additional logs, then I include those in my -- in the net sand that I'm mapping.

The second number that you see behind

the slashes would be the net feet of porosity that's greater than or equal to 8 percent, which we feel is a cutoff for Morrow production.

Q. In your opinion is the proposed location the optimum location within Section 32 to test the Morrow formation?

A. Yes, it is.

Q. All right. Let's go on to Exhibit Number Seven.

All right, sir, would you identify that for us?

A. Yes. Exhibit Number Seven is a north/south stratigraphic cross section that goes through our proposed location. I've attempted to -- it's datumed on the top of the Strawn formation. Our proposed location is shown at the top of the exhibit.

To the south of us is shown the, first of all, below the green shaded area are the sands that we're looking for in our proposed location.

To the south of us, as you can see on the log on the righthand edge of the cross section, these sands are quite well developed.

If you'll refer back to Exhibit Six you can see that in fact these sands thicken to the south.

However, as you come north those sands which are well developed south break up into thinner sands and as you continue to come northward there is a risk that these sands might not be developed at all, and we draw your attention to the well on the lefthand edge of the cross section in which the entire Lower Morrow section is essentially absent.

So not only were there no sands developed, the entire section appears to be absent.

Q. All right, sir.

Turn to Exhibit Number Eight.

A. Exhibit Number Eight is an east/west cross section that runs approximately a half a mile south of our proposed location. You'll see at the top where I have labeled projected proposed location. It's intended to show additionally the correlatable interval that we are looking for in the Lower Morrow.

Please note in the well in Section 31 that I spoke of earlier, not only again are the Morrow sands that we're looking for absent, but in fact the entire Lower Morrow interval itself appears to be absent.

Q. Based upon your study of the geology in this area, Mr. Barnes, do you have an opinion as to what the risk factor is for the drilling of this well?

A. Yes, I do. We feel that it is a very

risky location and we would ask for the maximum penalty.

Q. Have you had an opportunity to review Exhibit Number Five, which is the proposed AFE for this well?

A. Yes, I have. In my --

Q. Yes, sir, based upon your experience in this area in drilling exploratory Morrow wells, is the anticipated charges reasonable and appropriate for this well?

A. In my experience, they're reasonable.

Q. In your opinion, Mr. Barnes, will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. It certainly will.

Q. And were Exhibits Six, Seven, and Eight prepared by you?

A. Yes.

MR. KELLAHIN: If the Examiner please, we move the introduction of Exhibits One through Eight.

MR. NUTTER: Exhibits One through Eight will be admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q. What about Atoka, Mr. Barnes?

A. In theDiamond MOund Field, which is the field just south of us that's prorated in both Morrow and Atoka, it would correlate in what I would call, or we call, Middle Morrow. In other words, I would say all the production in the Diamond Mound Field falls within what we correlate as Morrow, although it is prorated as Atoka as well as Morrow, although we feel that it's all Morrow, as is, for instance, the Buffalo Valley Field. Even though it's prorated as Atoka, we correlate it as Morrow for our -- for our work.

Q. I see.

MR. NUTTER: Are there any further questions of the witness?

MR. KELLAHIN: No, sir.

MR. NUTTER: He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: Not in this case.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7323?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7323, heard by me on 8/12 19 81.

Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7323
Order No. R-6762

APPLICATION OF CLEMENTS ENERGY,
INC. FOR COMPULSORY POOLING,
CHAVES COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Clements Energy, Inc., seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico.

(3) That the applicant has the right to drill and proposes to drill a well at a standard location thereon.

(4) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(5) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(6) That the applicant should be designated the operator of the subject well and unit.

(7) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(8) That any non-consenting working interest owner who does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 200 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(9) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(10) That following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(11) That $3600.00 per month while drilling and $360.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(12) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(13) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before December 1, 1980, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico, are hereby pooled to form a standard 320-acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the first day of December, 1981, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Morrow zone of the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the first day of December, 1981, Order (1) of this order shall be null and void and of no effect whatsoever, unless said operator obtains a time extension from the Division for good cause shown.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Division Director and show cause why Order (1) of this order should not be rescinded.

(2) That Clements Energy, Inc. is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 90 days prior to commencing said well, the operator shall furnish the Division and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division

and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Division will determine reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $3600.00 per month while drilling and $360.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall immediately be placed in escrow in Chaves County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 30 days from the date of first deposit with said escrow agent.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

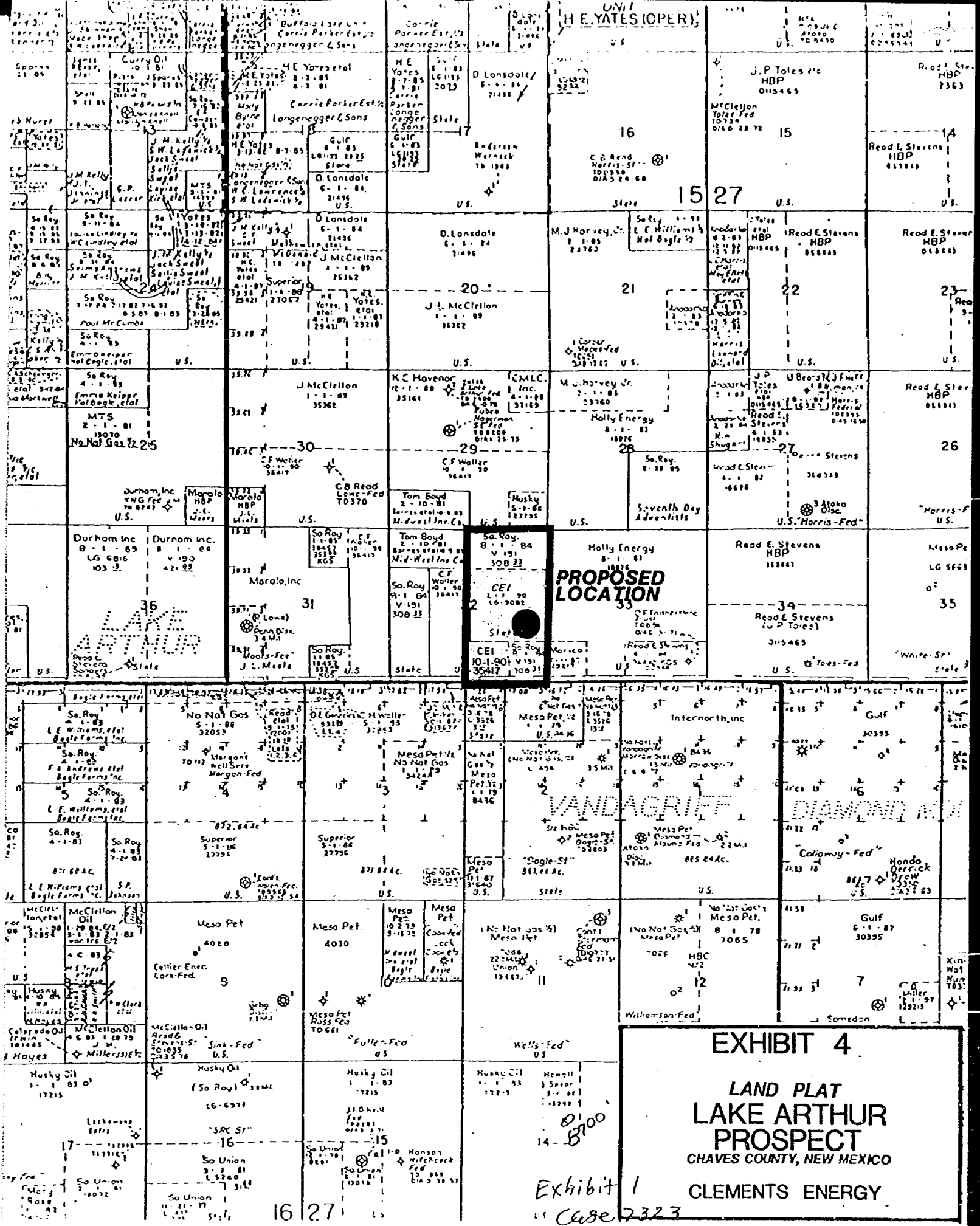


EXHIBIT 4

LAND PLAT
LAKE ARTHUR PROSPECT
CHAVES COUNTY, NEW MEXICO

CLEMENTS ENERGY

J. D. Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

April 29, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico.
Lake Arthur - I Prospect.

Dear Gary:

Barnes, Eimers & Newkumet as representative for Clements Energy, Inc. of Oklahoma City, Oklahoma propose to communitize the E/2 Section 32 for the drilling of a 9000' Morrow test at a location in the NE/4 Section 32. I have attached a land plat of the area reflecting the proposed communitization and well location, along with a copy of Clements Energy's AFE for such well.

Our records indicate that you own 120 acres of the 320 acre proration unit or 37.5%; Clements Energy, Inc. owns the balance. Plans are to commence this well in the third quarter of this year and at the latest, in the fourth quarter, so please consider this matter at your earliest convenience.

For your information we have been in contact with Holly Energy and Read and Stevens concerning a farmout of their acreage in Section 28 and Section 33. We will advise you as soon as we hear.

As mentioned above, please consider this matter at your earliest convenience and advise your comments or questions by telephone so that we may begin preparation of the necessary communitization agreement and operating agreement. Thank you very much for your consideration.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
Enclosure
cc: Dwight Johnson - Clements Energy, Inc.

Exhibit 2
Case 7323

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

81-

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur	Clements Energy, Inc.		

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	Section 33-15S-27E	9,000'	Morrow

PURPOSE OF EXPENDITURE	CONTRACTOR #	RIG TYPE
Drill and test Morrow	Cactus	

DRILL/COMPL.	[X]	LAND	[X]	SINGLE	[XX]	EXPLORATORY	[XX]	OIL	[X]	WATER DISP/INJ.	[ ]
WORKOVER	[ ]	OFFSHORE	[ ]	DUAL	[ ]	DEVELOPMENT	[ ]	GAS	[X]	WATER SUPPLY	[ ]
RECOMPLETE	[ ]	INLAND WATER	[ ]	OTHER	[ ]		[ ]	SEC. REC.	[ ]	OTHER	[ ]

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
11	RIG MOVE IN AND OUT	$ 30,000.	--	$ 30,000.
12	FOOTAGE OR TURNKEY	--	--	--
13	DAYWORK 30 days @ $6,300./day	189,000.	--	189,000.
14	COMPLETION, W.O., SWAB UNIT 12 days @ $1,800./day	--	21,600.	21,600.
15	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	25,000.	--	25,000.
16	MUD, ADDITIVES, DIESEL, PKR FLUID	18,000.	--	18,000.
17	CEMENT AND SERVICES	4,000.	4,000.	8,000.
18	FLOAT EQUIP, CENTRALIZER, SCRATCHER	800.	1,500.	2,300.
19	OPENHOLE LOGS, F.T.	15,000	--	15,000
20	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
21	DST, CORING, SWC, ANALYSIS	8,500)	--	8,500.
22	EQUIPMENT RENTAL	1,500.	2,000.	3,500.
23	CASING CREW, TONGS, TOOLS	2,500.	4,500.	7,000.
24	MUD LOGGING: CREW AND EQUIPMENT 25 days @ $500./day	12,500.	--	12,500.
25	TRANSPORTATION: LAND AND MARINE	--	--	--
26	FUEL, POWER, WATER	33,000.	--	33,000.
27	BITS: DRILLING AND COMPLETION	32,000.	--	32,000.
28	SUPERVISION	8,000.	4,800.	12,800.
29	OVERHEAD	3,500.	--	3,500.
30	STIMULATION SERVICES	--	40,000.	40,000.
31	EQUIPMENT INSPECTION AND TESTING	--	--	--
32	WELL TESTING, PROD TEST, BHP TEST	--	--	--
33	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
34	FISHING TOOLS AND SERVICES	--	--	--
35	MISC AND CONTINGENCY	56,000.	12,400.	68,400.
36	OTHER			
37	TOTAL INTANGIBLE EXPENSE	$ 439,300.	$ 95,300.	$ 534,600.

TANGIBLE EXPENSE

LINE		CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
40	DRIVE CASING ____ FT. ____ O.D. AT ____ $/FT.	--	--	--
41	COND CASING 60 FT. 20 O.D. AT ____ $/FT.	5,000.	--	5,000.
42	SURF CASING 800 FT. 8-5/8 O.D. AT 12.00 $/FT.	9,600.	--	9,600.
43	INTER CASING ____ FT. ____ O.D. AT ____ $/FT.	--	--	--
44	PROD CASING 9000 FT. 5-1/2 O.D. AT 7.00 $/FT.	--	63,000.	63,000.
45	LINER CASING ____ FT. ____ O.D. AT ____ $/FT.	--	--	--
46	TUBING 9000 FT. 2-3/8 O.D. AT 3.25 $/FT.	--	29,250.	29,250.
47	WELLHEAD EQUIPMENT	2,500.	6,000.	8,500.
48	DOWNHOLE EQUIPMENT Packer	--	2,500.	2,500.
49	SURF PROD EQUIPMENT	--	18,000.	18,000.
50	ARTIFICIAL LIFT EQUIPMENT	--	--	--
51	MISC AND CONTINGENCY 15%	2,500.	18,000.	20,500.
52	OTHER			
53	TOTAL TANGIBLE EXPENSE	$ 19,600.	$ 136,750.	$ 156,350.
	TOTAL WELL COST	$ 458,900.	$ 232,050.	$ 690,950.

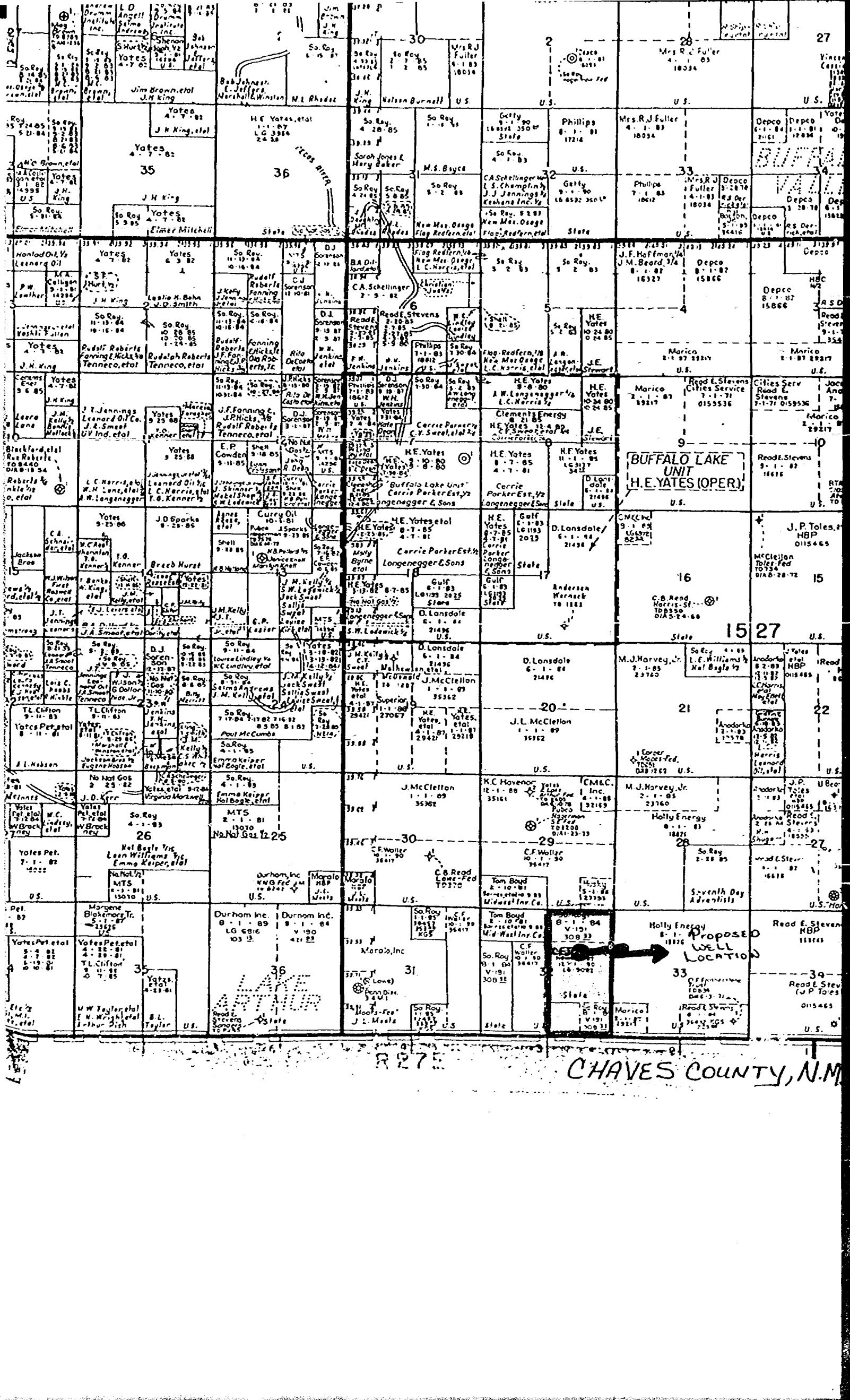
WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL

PREPARED	DATE
WEG WEB	4/14/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL

COMPANY	DATE
APPROVED BY	


BUFFALO LAKE UNIT
H.E. YATES (OPER.)
PROPOSED WELL LOCATION
CHAVES COUNTY, N.M.
R27E
Pecos River
Buffalo Lake Unit
Carrie Parker Est. 1/2
Longenegger & Sons
Yates
Seven Rivers
Queen
Grayburg
San Andres
Glorieta
Clear Fork
Tubb
Drinkard
Abo
Wolfcamp
Devonian
Ellenburger

J. D. Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

June 12, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico
Lake Arthur - I Prospect

Dear Gary:

As per our letter of April 29, 1981, (copy attached) and my telephone conversation with you May 12, 1981, Barnes, Eimers & Newkumet are still waiting on Southland's comments on the above referenced.

We still have very definite plans to commence the well in the third or fourth quarter of this year and your comments or recommendations would be greatly appreciated.

Thank you for your time and consideration in this matter. Your prompt attention to this matter would be appreciated.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

WN:dj
Enclosures

cc: Dwight Johnson - Clements Energy, Inc.

Exhibit 3
Case 7323

P11 4924348
Registered

J D Barnes
D. J. Eimers
A W Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

July 6, 1981

Southland Royalty Company
1100 Wall Towers West
Midland, Texas 79701

Attn: Gary Young

Re: Proposed Communitization
and Morrow Test.
E/2 Sec. 32, T-15-S, R-27-E,
Chaves County, New Mexico.
Lake Arthur I Prospect.

Dear Gary:

Our client, Clements Energy, Inc. of Oklahoma City, Oklahoma has advised that they have secured a rig for the drilling of the proposed Morrow test as outlined in my letter to you of 4/29/81 and 5/12/81 and 6/12/81.

A fourth quarter commencement date is rapidly approaching and we would especially appreciate your comments on our proposed communitization and test well.

Thank you for your consideration in this matter. I have attached copies of the above referred to letters for your assistance in evaluating this proposal.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
cc: Dwight Johnson - CEI
Enclosures

Darlene hand delivered a copy of this on 7-22-81.

Exhibit 4
Case 7323

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered..... ___¢
- ☒ Show to whom, date and address of delivery.... ___¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered..... ___¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$ ___

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
SOUTHLAND ROYALTY CO.
1100 Wall Towers West
Midland, TX 79701

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	P11 4924348	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1979-288-848

P 3811, Jan. 1978

P11 4924348

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Southland Royalty Co.
STREET AND NO.
1100 Wall Towers West
P.O., STATE AND ZIP CODE
Midland, TX 79701

POSTAGE	$
CERTIFIED FEE	¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES	
TOTAL POSTAGE AND FEES	$
POSTMARK OR DATE	

M. P. Smith

PS Form 3800, Apr. 1976

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

AFE NUMBER: 81-19A
PROPERTY NUMBER:

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur I (81-)	Clements Energy, Inc.	NM State	1-32

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	C SE NE Section 32-14S-26E	8550'	Morrow

PURPOSE OF EXPENDITURE: Drill and test Morrow Sand
CONTRACTOR #:
RIG TYPE:

DRILL/COMPL.	X	LAND	X	SINGLE	X	EXPLORATORY	X	OIL		WATER DISP/INJ.	
WORKOVER		OFFSHORE		DUAL		DEVELOPMENT		GAS	X	WATER SUPPLY	
RE-COMPLETE		INLAND WATER		OTHER				SEC. REC.		OTHER	

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
01	RIG MOVE IN AND OUT	30,000.	--	30,000.
02	FOOTAGE OR TURNKEY	--	--	--
03	DAYWORK $6,500 x 38	247,000.	13,000.	260,000.
04	COMPLETION, W.O., SWAB UNIT $1,500 x 10	--	15,000.	15,000.
05	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	40,000.	--	40,000.
06	MUD, ADDITIVES, DIESEL, PKR FLUID	28,000.	--	28,000.
07	CEMENT AND SERVICES	11,000.	4,000.	15,000.
08	FLOAT EQUIP, CENTRALIZER, SCRATCHER	1,500.	1,000.	2,500.
09	OPENHOLE LOGS, F.T.	30,000.	--	30,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	16,000.	--	16,000.
12	EQUIPMENT RENTAL	5,000.	5,000.	10,000.
13	CASING CREW, TONGS, TOOLS	7,000.	3,000.	10,000.
14	MUD LOGGING: CREW AND EQUIPMENT $550 x 35	19,250.	--	19,250.
15	TRANSPORTATION: LAND AND MARINE	5,000.	5,000.	10,000.
16	FUEL, POWER, WATER $700 x 38 + $5,000.	31,600.	--	31,600.
17	BITS: DRILLING AND COMPLETION	21,000.	--	21,000.
18	SUPERVISION	12,000.	4,000.	16,000.
19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	35,000.	35,000.
21	EQUIPMENT INSPECTION AND TESTING	3,000.	2,000.	5,000.
22	WELL TESTING, PROD TEST, BHP TEST	--	2,000	2,000.
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY 10%	51,085.	9,350.	60,435.
26	OTHER Insurance	6,550.	--	6,550.
27	TOTAL INTANGIBLE EXPENSE	$568,485.	$102,850.	$671,335.

TANGIBLE EXPENSE

50	DRIVE CASING		FT.		O.D. AT		$/FT.	--	--	--
51	COND CASING	50	FT.	20	O.D. AT		$/FT.	5,000.	--	5,000.
52	SURF CASING	350	FT.	13-3/8	O.D. AT	24.00	$/FT	8,400.	--	8,400.
53	INTER CASING	2,000	FT.	8-5/8	O.D. AT	12.00	$/FT.	24,000.	--	24,000.
54	PROD CASING	9,000	FT.	4-1/2	O.D. AT	6.25	$/FT.	---	56,250.	56,250.
55	LINER CASING		FT.		O.D. AT		$/FT.	--	--	--
56	TUBING	9,000	FT.	2-3/8	O.D. AT	3.30	$/FT.		29,700.	29,700.
57	WELLHEAD EQUIPMENT							1,500.	8,500.	10,000.
58	DOWNHOLE EQUIPMENT Packer							--	2,600.	2,600.
59	SURF PROD EQUIPMENT							---	35,000.	35,000.
60	ARTIFICIAL LIFT EQUIPMENT							--	--	--
61	MISC AND CONTINGENCY 10%							3,890.	13,205.	17,095.
62	OTHER							--	--	--
63	TOTAL TANGIBLE EXPENSE							42,790.	145,255.	188,045
	TOTAL WELL COST							$611,275.	$248,105.	$859,380.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

Exhibit 5
Case 9323

OPERATOR APPROVAL	
PREPARED WEG/WEGolden	DATE 7/30/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL	
COMPANY	DATE
APPROVED BY	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

The application of Clements Energy, Inc, for compulsory pooling, Chaves County, New Mexico.

CASE 7323

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	Ernest L. Padilla, Esq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501
For the Applicant:	W. Thomas Kellahin, Esq. KELLAHIN & KELLAHIN 500 Don Gaspar Santa Fe, New Mexico 87501
For Southland Royalty Co.:	William F. Carr, Esq. CAMPBELL, BYRD, & BLACK P.A. Jefferson Place Santa Fe, New Mexico 87501

I N D E X

WAYNE NEWKUMET

Direct Examination by Mr. Kellahin 3

Cross Examination by Mr. Nutter 13

JERRY BARNES

Direct Examination by Mr. Kellahin 15

Cross Examination by Mr. Nutter 21

E X H I B I T S

Applicant Exhibit One, Plat 5

Applicant Exhibit Two, Letter 6

Applicant Exhibit Three, Letter 7

Applicant Exhibit Four, Letter 8

Applicant Exhibit Five, AFE 10

Applicant Exhibit Six, Isopach 16

Applicant Exhibit Seven, Cross Section 19

Applicant Exhibit Eight, Cross Section 20

MR. NUTTER: Call next Case Number 7323.

MR. PADILLA: Application of Clements Energy, Inc., for compulsory pooling, Chaves County, New Mexico.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have two witnesses.

MR. CARR: May it please the Examiner, I'm William F. Carr, with the law firm Campbell, Byrd, and Black, P. A., Santa Fe, appearing on behalf of Southland Royalty Company, and I do not intend to call a witness.

(Witnesses sworn.)

WAYNE NEWKUMET

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Newkumet, for the record would you please state your name and occupation?

A. It's Wayne Newkumet. I'm an independent landman in Midland, Texas.

MR. NUTTER: Spell your name, please.

A. N-E-W-K-U-M-E-T.

MR. NUTTER: What was the last three letters?

A. M-E-T.

MR. NUTTER: M-E-T, thank you.

Q. Mr. Newkumet, have you previously testified before the Oil Conservation Division?

A. Yes.

Q. In what capacity was that?

A. As a landman.

Q. And what is your relationship with Clements Energy, Inc., the applicant in this case?

A. I am on a retainer situation with Clements for a Permian Basin program.

Q. Pursuant to that retainer, have you examined the land ownership interest in the east half of Section 32, which is the subject acreage for this pooling hearing?

A. Yes, sir.

Q. And you've compiled certain correspondence and exhibits?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Newkumet

as an expert petroleum landman.

MR. NUTTER: Mr. Newkumet is qualified.

Q. Mr. Newkumet, let me direct your attention to what we've marked as Applicant Exhibit Number One, and have you identify that for me, and first of all, located the proration unit that you're seeking pooling.

A. Okay. The pool unit that we're seeking is the east half of Section 32, Township 15 South, Range 27 east, Chaves County, New Mexico.

The exhibit shows -- the exhibit is a land ownership plat of the area and the red outline shows the pooled unit. Yellow is the Clements Energy leasehold in the proration unit, or the pooled unit.

Q. The yellow acreage being the 40 -- 40-acre tract in the southwest quarter of the southeast quarter?

A. Uh-huh.

Q. Would you identify that? Is that fee, State, Federal acreage?

A. That is a Federal lease, USANM 36417.

Q. All right, sir, then the block of -- the balance of the yellow acreage, what kind of lease is that?

A. That's a State of New Mexico lease, Number LG 9082.

Q. Does Clements Energy, Inc., have volun-

tary commitment from the owners of the acreage outlined in yellow?

A. Yes, with the exception of the Southland Royalty lease in the north half northeast quarter, a State lease, and another part of that base lease in the southeast quarter of the southeast quarter.

Q. What is the yellow dot indicate, Mr. Newkumet?

A. That -- the red dot?

Q. I'm sorry, the red dot.

A. Yeah, that is the proposed drilling location, 1980 feet from the south line and 660 from the east line of the section.

Q. Mr. Newkumet, what is the proposed target for the well at that location?

A. This is a Morrow test.

Q. All right, and would that be a standard location for a Morrow test?

A. Yes, it would.

Q. All right, sir, let me direct your attention to what is marked as Exhibit Number Two, and would you identify that for us?

A. Okay. Exhibit Two is a copy of a letter April 29th, 1981, from myself to Southland, directed to

Southland Royalty Company, wherein the -- the pooling was proposed, along with the initial -- along with the test well, and there is also a rough AFE of that time, and a land plat.

Q. Is this your first contact with Southland Royalty concerning a proposal to commit their acreage to this Morrow test?

A. Yes, it is.

Q. And what, if any, response did you receive from them?

A. We received none.

Q. All right, sir, subsequent to that what, if anything, did you do concerning the obtaining of voluntary commitment from Southland Royalty to commit their acreage?

A. Okay. I made a telephone call to the Division Landman, a Jerry Young, just to ask what they had done, if anything, or if they had reviewed the proposal, and he said it was under -- under their management's review.

Q. All right, sir, what, if anything, happened then?

A. Then, okay, the next exhibit would be the June 12th letter.

Q. That's Exhibit Six?

A. Exhibit Three.

Q. Exhibit Three, I'm sorry.

A. Wherein I referenced the April 29th letter and our telephone conversation and requested that they advise of any comments or recommendations that they had on the matter.

Q. And what, if any, response did you receive from Southland Royalty concerning that letter?

A. None on that one.

Q. All right, sir, what's the next thing that happened?

A. Okay. I wrote another letter, dated July 6th, 1981, which would be --

Q. Exhibit Four?

A. -- Exhibit Four, and again requested -- referred back to the previous three letters, and again requested their joinder in this pooling and the well, and we sent this letter registered to make sure they did, in fact, get the thing. And attached to it is a copy of the registration slip in the mail.

Q. All right, sir, thereafter what's your next contact, if any, with Southland Royalty Company?

A. The only other contact would have been a July 22nd, I telephoned the District Geologist, Darryl James, and asked for his comments on our proposal and if he'd reviewed it, and how they were leaning and what their -- any

comments they might have on our pooling, and basically we just had a discussion on what their plans were for the area. I don't think anything pertinent to this case, really, but at that point he was -- it was still under management advisement. Management review.

Q. Did you advise Mr. James that Southland's inactivity left you no alternative but to seek compulsory pooling?

A. I mentioned that it probably would and he said it wouldn't surprise him if they were.

Q. Okay.

MR. NUTTER: Well now, that was July the 22nd?

A. July 22nd.

MR. NUTTER: And then what did you do? I see a note here that you hand-delivered a copy of the --

A. Oh, okay, on Exhibit Four?

MR. NUTTER: So after your telephone conversation did you send Darlene over with a copy of the --

A. Yes, the receptionist, I sent her over, just to make darned sure that they'd received all these things.

MR. NUTTER: After you sent the letter in the mail, then you hand-delivered one.

A. That's right.

MR. NUTTER: Okay.

A. That's right. Just wanted to make certain that they had received all the information and had been able to review it.

Q. And as of the date of this hearing, what, if any, responses have you received from Southland Royalty concerning the commitment of their acreage?

A. None whatsoever.

Q. All right.

MR. KELLAHIN: If the Examiner please, the application will reflect that it was mailed to the Commission for filing on July 22nd. A copy of that application was also sent to Southland Royalty.

Q. Now, Mr. Newkumet, let me direct your attention to Exhibit Number Five and have you identify that.

A. Okay, Exhibit Five would be the Clements Energy's AFE for the drilling of this well, the current AFE for the drilling of this well.

Q. Have you made a study, Mr. Newkumet, to determine what is the prevailing rate for overhead charges to be assessed against non-consenting working interest owners?

A. Yes. I've contacted Read and Stevens, who is a fairly active operator in the area. This is in the

vicinity of the Buffalo Valley Field that I'm sure you all are familiar with it. They've operated several wells in, and they indicated their monthly drilling overhead charges were $3388 per month and that their producing monthly overhead rate was $328 per month, for wells in the 8-to-12,000 foot range.

Also, Clements was involved very recently in a well in Township 19 South, Range 24 East, just south of this area, a Morrow well about the same depth. The overhead rates in that operating agreement were $3606 per month drilling rate and $360 per month producing rate.

Clements Energy's normal charges for wells in this depth range that they've used throughout Oklahoma and east Texas, Louisiana, and some of the Rocky Mountains, have been $4208 per month and $420 per month, and these are apparently readily acceptable by all the other operators that they've -- that have been involved in any of their wells.

Q. Based upon your experience, Mr. Newkumet, in your opinion is that a reasonable charge to be assessed as an overhead charge in a Division order?

A. The Clements Energy charges?

Q. Yes.

A. I think they probably are, yes. They're possibly on the high side. I think the Exxon charges are probably very reasonable. So --

MR. NUTTER: The Exxon charges are the ones that you paid --

A. Yes.

MR. NUTTER: -- for the well south of here?

A. Right.

MR. NUTTER: That is the $3600 and $360.

MR. KELLAHIN: No, sir.

A. That's correct.

MR. KELLAHIN: That was $3815, wasn't it?

A. Yes, okay, I'm sorry. That was the $3815 and the $381.

MR. NUTTER: Oh.

Q. Okay, and that's Exxon's charges for the State "DB" No. 1 Well in Section 7?

A. Section 7 of 19 South, 24 East.

Q. Okay.

MR. KELLAHIN: That concludes my examination of Mr. Newkumet. We have a geological witness so we can talk about the risk to be recommended.

CROSS EXAMINATION

BY MR. NUTTER:

Q. So actually, Mr. Newkumet, you never had any response from Southland?

A. That's correct, I've had no --

Q. Except for the hearing today; Mr. Carr's here.

A. That's true, except for my -- my telephone conversations, my telephone calls to them.

Q. Now have you ever offered to take the land on a farmout or just asked them to participate?

A. I think in the original letter -- okay, it's not in the letter, but when I did talk to Jerry Young, I requested his comments, you know, would they consider joining, would they consider farming out, what they might do. And I also mentioned that to Darryl James in the July 22nd conversation.

Q. Well now --

A. And I did request their comments, or recommendations on the proposal, which in my opinion is in essence asking for their comments in a joinder or their comments on a farmout.

Q. Well now, this original AFE that you sent with them -- to them on April the 29th was for a 9000 foot Morrow well in Section 33.

A. Yes. I believe that --

Q. Of 15, 27.

A. Correct. I believe Section 33 was a typo. This was a rough AFE that was assembled for the drilling of this well. The recent AFE is in much more detail and --

Q. But it's for a well in Township 14, 26.

A. That has got to be a typo. Better apologize for that, because you can see the Clemnts Energy NM State No. 1-32 Well, that is the name for our proposed well.

That has just got to be a typo error. I don't know --

Q. Okay, so this --

A. It's incorrect.

Q. Okay, so the one has the wrong section and the other one has the wrong township.

A. Correct.

Q. Now what is the depth, 8550 or 9000?

A. 8550.

Q. Okay, and even at that, the AFE that was prepared July the 30th is for $859,000 for a completed well to 8550, but the AFE that was prepared in April is for $691,000 for a well to 9000.

A. That's true.

Q. So the delay has cost an extra couple hundred thousand dollars.

A. I would say so, yes.

Q. Okay.

MR. NUTTER: Are there any further questions of the witness? He may be excused.

JERRY BARNES

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation?

A. My name is Jerry Barnes. I'm a geologist.

Q. Mr. Barnes, have you previously testified before the Division as a geologist?

A. No, I have not.

Q. Would you give Mr. Nutter a brief summary of your educational background and your working experience?

A. Certainly. I received a Bachelor of Science degree in geology from the University of Missouri. I received a Master of Science in geology from the University of Missouri.

I have ten years of petroleum company

experience as an exploration geologist, production geologist, and exploration geophysicist.

Of that approximately 8-1/2 years have been spent in west Texas and southeastern New Mexico.

Q. What is your relationship with Clements Energy?

A. I'm a consultant.

Q. Pursuant to that employment, have you made a study of the geology of this area?

A. Yes.

MR. KELLAHIN: We tender Mr. Barnes as an expert petroleum geologist.

MR. NUTTER: Mr. Barnes is qualified.

Q. Mr. Barnes, let me direct your attention to what we've marked as Applicant Exhibit Number Six, which is your Isopach.

A. Certainly.

Q. And have you identify that for me.

A. That is a net sand Isopach of the Lower Morrow interval that we are drilling the well for. Its scale is one inch to 2000 feet. The contour interval is 20-foot. The area shaded in yellow are areas that we've interpreted where the sand exists. The area that you see shaded in brown is an area where not only do the sands not exist but we feel

that not -- that the Lower Morrow itself is not even present.

The wells that you see highlighted with gas symbols in red are wells that currently produce from the Lower Morrow sands, which is our objective.

The red outline around the east half of Section 32 is our proposed proration unit. The stippled area inside that is Clements Energy's acreage position within the proposed unit. The red dot is the proposed location.

Q. The application when originally filed, Mr. Barnes, requests a pooling of all potentially productive horizons within the east half of Section 32. Can you more specifically identify for us today your anticipated potentially productive horizons?

A. We feel that our major objective, of course, is the Lower Morrow Sands, which is what the map is constructed on. Additionally there are a few wells to the south that produce from what we term a Middle Morrow, which are some sporadic sands that frequently develop within that interval.

There is an outside possibility that we might pick up a Strawn sand, which is what the well you see in Section 31 produces from.

Q. Is there any --

A. And please notice that in that well in

Section 31 our objective interval was not present.

Q. Is there any potential for Wolfcamp production?

A. To my knowledge there is no Wolfcamp production in this area.

Q. In your opinion would a pooling order pooling all the Pennsylvanian formations in the east half of Section 32 be appropriately broad enough to include the potentially productive horizons?

A. Yes, it would.

Q. All right, sir. Now would you identify for us the closest producing well that produces from the target Morrow?

A. That well is in Section 2 of 16 South, 27 East. It is approximately a mile southeast of our proposed location.

Q. You've contoured your Isopach using what kind of -- what percentage porosity cutoff?

A. Okay, it's a net sand Isopach. I've used a 50 percent cutoff generally; however, realizing that occasionally there are Morrow Sands which are radioactive, if I can determine that in additional logs, then I include those in my -- in the net sand that I'm mapping.

The second number that you see behind

the slashes would be the net feet of porosity that's greater than or equal to 8 percent, which we feel is a cutoff for Morrow production.

Q. In your opinion is the proposed location the optimum location within Section 32 to test the Morrow formation?

A. Yes, it is.

Q. All right. Let's go on to Exhibit Number Seven.

All right, sir, would you identify that for us?

A. Yes. Exhibit Number Seven is a north/south stratigraphic cross section that goes through our proposed location. I've attempted to -- it's datumed on the top of the Strawn formation. Our proposed location is shown at the top of the exhibit.

To the south of us is shown the, first of all, below the green shaded area are the sands that we're looking for in our proposed location.

To the south of us, as you can see on the log on the righthand edge of the cross section, these sands are quite well developed.

If you'll refer back to Exhibit Six you can see that in fact these sands thicken to the south.

However, as you come north those sands which are well developed south break up into thinner sands and as you continue to come northward there is a risk that these sands might not be developed at all, and we draw your attention to the well on the lefthand edge of the cross section in which the entire Lower Morrow section is essentially absent.

So not only were there no sands developed, the entire section appears to be absent.

Q. All right, sir.

Turn to Exhibit Number Eight.

A. Exhibit Number Eight is an east/west cross section that runs approximately a half a mile south of our proposed location. You'll see at the top where I have labeled projected proposed location. It's intended to show additionally the correlatable interval that we are looking for in the Lower Morrow.

Please note in the well in Section 31 that I spoke of earlier, not only again are the Morrow sands that we're looking for absent, but in fact the entire Lower Morrow interval itself appears to be absent.

Q. Based upon your study of the geology in this area, Mr. Barnes, do you have an opinion as to what the risk factor is for the drilling of this well?

A. Yes, I do. We feel that it is a very

risky location and we would ask for the maximum penalty.

Q. Have you had an opportunity to review Exhibit Number Five, which is the proposed AFE for this well?

A. Yes, I have. In my --

Q. Yes, sir, based upon your experience in this area in drilling exploratory Morrow wells, is the anticipated charges reasonable and appropriate for this well?

A. In my experience, they're reasonable.

Q. In your opinion, Mr. Barnes, will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. It certainly will.

Q. And were Exhibits Six, Seven, and Eight prepared by you?

A. Yes.

MR. KELLAHIN: If the Examiner please, we move the introduction of Exhibits One through Eight.

MR. NUTTER: Exhibits One through Eight will be admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q. What about Atoka, Mr. Barnes?

A. In theDiamond MOund Field, which is the field just south of us that's prorated in both Morrow and Atoka, it would correlate in what I would call, or we call, Middle Morrow. In other words, I would say all the production in the Diamond Mound Field falls within what we correlate as Morrow, although it is prorated as Atoka as well as Morrow, although we feel that it's all Morrow, as is, for instance, the Buffalo Valley Field. Even though it's prorated as Atoka, we correlate it as Morrow for our -- for our work.

Q. I see.

MR. NUTTER: Are there any further questions of the witness?

MR. KELLAHIN: No, sir.

MR. NUTTER: He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: Not in this case.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7323?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7323 heard by me on 8/12 1981.

Examiner
Oil Conservation Division

Clements Energy, Inc.

P.O. Box 20500
Suite 150
3031 NW 64th St.
Oklahoma City, Ok. 73156
405/840-1983

RECEIVED SEP 10 1981 OIL CONSERVATION DIVISION SANTA FE

September 9, 1981

File

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attention: Mr. Gary Young

Re: Compulsory Pooling - OCD Case 7323
Order No. R-6762
Oil Conservation Division
Energy Conservation Division
State of New Mexico
Lake Arthur I Prospect
E½, Section 32-T15S-R27E
Chaves County, New Mexico

Gentlemen:

Pursuant to Compulsory Pooling Order No. R-6762, effective August 26, 1981, a copy of which is enclosed, we provide you with a copy of the AFE for the test well to be drilled pursuant to same.

If you have any questions in this regard, please advise.

Yours very truly,

CLEMENTS ENERGY, INC.

Dwight N. Johnson

DNJ:jw
Enclosures

Dwight N. Johnson
Vice President - Land

cc: State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501
Attention: Mr. Joe D. Ramey, Director

: Barnes, Eimers & Newkumet
Midland, Texas
Attention: Mr. Wayne Newkumet

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

AFE NUMBER: 81-19A
PROPERTY NUMBER:

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur I (81-)	Clements Energy, Inc.	NM State	1-32

STATE	COUNTY	LOCATION	PROPOSED DEPTH	FORMATION
New Mexico	Chaves	C SE NE Section 32-14S-26E	8550' SANTA	Morrow

PURPOSE OF EXPENDITURE	CONTRACTOR #	RIG TYPE
Drill and test Morrow Sand		

DRILL/COMPL.	[X]	LAND	[X]	SINGLE	[X]	EXPLORATORY	[X]	OIL	[ ]	WATER DISP/INJ.	[ ]
WORKOVER	[ ]	OFFSHORE	[ ]	DUAL	[ ]	DEVELOPMENT	[ ]	GAS	[X]	WATER SUPPLY	[ ]
RE-COMPLETE	[ ]	INLAND WATER	[ ]	OTHER	[ ]		[ ]	SEC. REC.	[ ]	OTHER	[ ]

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
01	RIG MOVE IN AND OUT	30,000.	--	30,000.
02	FOOTAGE OR TURNKEY	--	--	--
03	DAYWORK $6,500 x 38	247,000.	13,000.	260,000.
04	COMPLETION, W.O., SWAB UNIT $1,500 x 10	--	15,000.	15,000.
05	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	40,000.	--	40,000.
06	MUD, ADDITIVES, DIESEL, PKR FLUID	28,000.	--	28,000.
07	CEMENT AND SERVICES	11,000.	4,000.	15,000.
08	FLOAT EQUIP, CENTRALIZER, SCRATCHER	1,500.	1,000.	2,500.
09	OPENHOLE LOGS, F.T.	30,000.	--	30,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	16,000.	--	16,000.
12	EQUIPMENT RENTAL	5,000.	5,000.	10,000.
13	CASING CREW, TONGS, TOOLS	7,000.	3,000.	10,000.
14	MUD LOGGING: CREW AND EQUIPMENT $550 x 35	19,250.	--	19,250.
15	TRANSPORTATION: LAND AND MARINE	5,000.	5,000.	10,000.
16	FUEL, POWER, WATER $700 x 38 + $5,000.	31,600.	--	31,600.
17	BITS: DRILLING AND COMPLETION	21,000.	--	21,000.
18	SUPERVISION	12,000.	4,000.	16,000.
19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	35,000.	35,000.
21	EQUIPMENT INSPECTION AND TESTING	3,000.	2,000.	5,000.
22	WELL TESTING, PROD TEST, BHP TEST	--	2,000	2,000.
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY 10%	51,085.	9,350.	60,435.
26	OTHER Insurance	6,550.	--	6,550.
27	TOTAL INTANGIBLE EXPENSE	$568,485.	$102,850.	$671,335.

TANGIBLE EXPENSE

50	DRIVE CASING		FT.		O.D. AT		S/FT.	--	--	--
51	COND CASING	50	FT.	20	O.D. AT		S/FT.	5,000.	--	5,000.
52	SURF CASING	350	FT.	13-3/8	O.D. AT	24.00	S/FT.	8,400.	--	8,400.
53	INTER CASING	2,000	FT.	8-5/8	O.D. AT	12.00	S/FT.	24,000.	--	24,000.
54	PROD CASING	9,000	FT.	4-1/2	O.D. AT	6.25	S/FT.	--	56,250.	56,250.
55	LINER CASING		FT.		O.D. AT		S/FT.	--	--	--
56	TUBING	9,000	FT.	2-3/8	O.D. AT	3.30	S/FT.		29,700.	29,700.
57	WELLHEAD EQUIPMENT							1,500.	8,500.	10,000.
58	DOWNHOLE EQUIPMENT Packer							--	2,600.	2,600.
59	SURF PROD EQUIPMENT							--	35,000.	35,000.
60	ARTIFICIAL LIFT EQUIPMENT							--	--	--
61	MISC AND CONTINGENCY 10%							3,890.	13,205.	17,095.
62	OTHER							--	--	--
63	TOTAL TANGIBLE EXPENSE							42,790.	145,255.	188,045
	TOTAL WELL COST							$611,275.	$248,105.	$859,380.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL	
PREPARED WEG/WEG	DATE 7/30/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL	
COMPANY	DATE
APPROVED BY	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

August 27, 1981

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 7323
ORDER NO. R-6762

Applicant:

Clements Energy, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other William F. Carr

Clements Energy, Inc.

P.O. Box 20500
Suite 150
3031 NW 64th St.
Oklahoma City, Ok. 73156
405/840-1983

September 9, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

File

Attention: Mr. Gary Young

Re: Compulsory Pooling - OCD Case 7323
Order No. R-6762
Oil Conservation Division
Energy Conservation Division
State of New Mexico
Lake Arthur I Prospect
E½, Section 32-T15S-R27E
Chaves County, New Mexico

Gentlemen:

Pursuant to Compulsory Pooling Order No. R-6762, effective August 26, 1981, a copy of which is enclosed, we provide you with a copy of the AFE for the test well to be drilled pursuant to same.

If you have any questions in this regard, please advise.

Yours very truly,

CLEMENTS ENERGY, INC.

Dwight N. Johnson
Vice President - Land

DNJ:jw
Enclosures

cc: State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501
Attention: Mr. Joe D. Ramey, Director

: Barnes, Eimers & Newkumet
Midland, Texas
Attention: Mr. Wayne Newkumet

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

AFE NUMBER: 81-19A
PROPERTY NUMBER:

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur I (81-)	Clements Energy, Inc.	NM State	1-32

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	C SE NE Section 32-14S-26E	8550'	Morrow

PURPOSE OF EXPENDITURE	CONTRACTOR	RIG TYPE
Drill and test Morrow Sand		

DRILL/COMPL. [X]	LAND [X]	SINGLE [X]	EXPLORATORY [X]	OIL [ ]	WATER DISP/INJ. [ ]
WORKOVER [ ]	OFFSHORE [ ]	DUAL [ ]	DEVELOPMENT [ ]	GAS [X]	WATER SUPPLY [ ]
RE-COMPLETE [ ]	INLAND WATER [ ]	OTHER [ ]		SEC. REC. [ ]	OTHER [ ]

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
01	RIG MOVE IN AND OUT	30,000.	--	30,000.
02	FOOTAGE OR TURNKEY	--	--	--
03	DAYWORK $6,500 x 38	247,000.	13,000.	260,000.
04	COMPLETION, W.O., SWAB UNIT $1,500 x 10	--	15,000.	15,000.
05	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	40,000.	--	40,000.
06	MUD, ADDITIVES, DIESEL, PKR FLUID	28,000.	--	28,000.
07	CEMENT AND SERVICES	11,000.	4,000.	15,000.
08	FLOAT EQUIP, CENTRALIZER, SCRATCHER	1,500.	1,000.	2,500.
09	OPENHOLE LOGS, F.T.	30,000.	--	30,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	16,000.	--	16,000.
12	EQUIPMENT RENTAL	5,000.	5,000.	10,000.
13	CASING CREW, TONGS, TOOLS	7,000.	3,000.	10,000.
14	MUD LOGGING: CREW AND EQUIPMENT $550 x 35	19,250.	--	19,250.
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19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	35,000.	35,000.
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22	WELL TESTING, PROD TEST, BHP TEST	--	2,000	2,000.
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY 10%	51,085.	9,350.	60,435.
26	OTHER Insurance	6,550.	--	6,550.
27	TOTAL INTANGIBLE EXPENSE	$568,485.	$102,850.	$671,335.

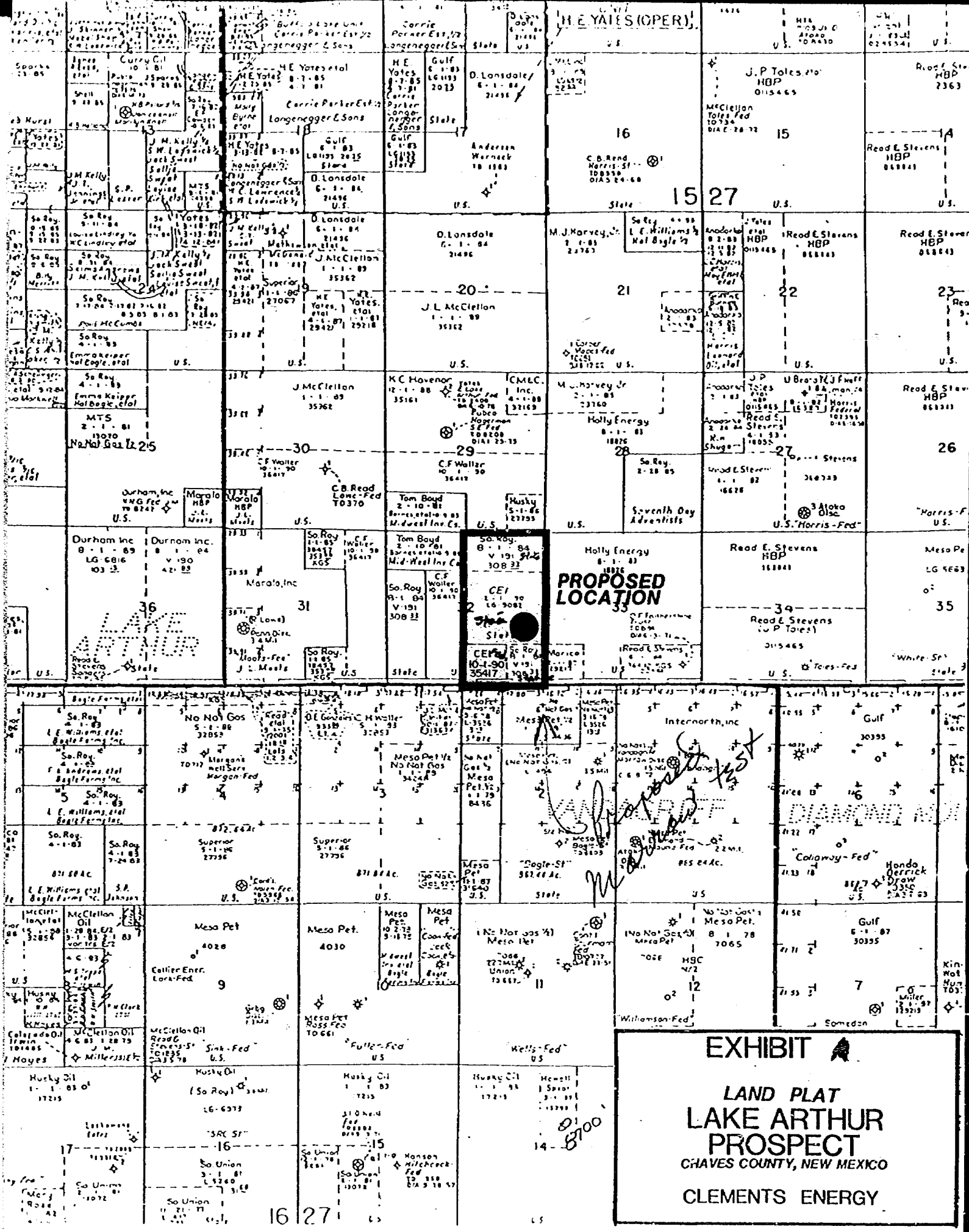
TANGIBLE EXPENSE

50	DRIVE CASING		FT.		O.D. AT		S/FT.	--	--	--
51	COND CASING	50	FT.	20	O.D. AT		S/FT.	5,000.	--	5,000.
52	SURF CASING	350	FT.	13-3/8	O.D. AT	24.00	S/FT.	8,400.	--	8,400.
53	INTER CASING	2,000	FT.	8-5/8	O.D. AT	12.00	S/FT.	24,000.	--	24,000.
54	PROD CASING	9,000	FT.	4-1/2	O.D. AT	6.25	S/FT.	--	56,250.	56,250.
55	LINER CASING		FT.		O.D. AT		S/FT.	--	--	--
56	TUBING	9,000	FT.	2-3/8	O.D. AT	3.30	S/FT.		29,700.	29,700.
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59	SURF PROD EQUIPMENT							--	35,000.	35,000.
60	ARTIFICIAL LIFT EQUIPMENT							--	--	--
61	MISC AND CONTINGENCY 10%							3,890.	13,205.	17,095.
62	OTHER							--	--	--
63	TOTAL TANGIBLE EXPENSE							42,790.	145,255.	188,045
	TOTAL WELL COST							$611,275.	$248,105.	$859,380.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL	
PREPARED: WEG/WEGreer	DATE 7/30/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL	
COMPANY	DATE
APPROVED BY	


PROPOSED LOCATION
EXHIBIT
LAND PLAT
LAKE ARTHUR PROSPECT
CHAVES COUNTY, NEW MEXICO
CLEMENTS ENERGY

J. D. Barnes
O. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

April 29, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico.
Lake Arthur - I Prospect.

Dear Gary:

Barnes, Eimers & Newkumet as representative for Clements Energy, Inc. of Oklahoma City, Oklahoma propose to communitize the E/2 Section 32 for the drilling of a 9000' Morrow test at a location in the NE/4 Section 32. I have attached a land plat of the area reflecting the proposed communitization and well location, along with a copy of Clements Energy's AFE for such well.

Our records indicate that you own 120 acres of the 320 acre proration unit or 37.5%; Clements Energy, Inc. owns the balance. Plans are to commence this well in the third quarter of this year and at the latest, in the fourth quarter, so please consider this matter at your earliest convenience.

For your information we have been in contact with Holly Energy and Read and Stevens concerning a farmout of their acreage in Section 28 and Section 33. We will advise you as soon as we hear.

As mentioned above, please consider this matter at your earliest convenience and advise your comments or questions by telephone so that we may begin preparation of the necessary communitization agreement and operating agreement. Thank you very much for your consideration.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
Enclosure
cc: Dwight Johnson - Clements Energy, Inc.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
CLEMENTS EXHIBIT NO. 2
CASE NO. 7323

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

81-

FIELD OR AREA	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur	Clements Energy, Inc.		

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	Section 32-15S-27E	9,000'	Morrow

PURPOSE OF EXPENDITURE	CONTRACTOR #	RIG TYPE
Drill and test Morrow	Cactus	

DRILL/COMPL.	X	LAND	X	SINGLE	XX	EXPLORATORY	XX	OIL	X	WATER DISP/INJ.	
WORKOVER		OFFSHORE		DUAL		DEVELOPMENT		GAS	X	WATER SUPPLY	
RECOMPLETE		INLAND WATER		OTHER				SEC. REC.		OTHER	

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
1	RIG MOVE IN AND OUT	$ 30,000.	--	$ 30,000.
2	FOOTAGE OR TURNKEY	--	--	--
3	DAYWORK 30 days @ $6,300./day	189,000.	--	189,000.
4	COMPLETION, W.O., SWAB UNIT 12 days @ $1,800./day	--	21,600.	21,600.
5	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	25,000.	--	25,000.
6	MUD, ADDITIVES, DIESEL, PKR FLUID	18,000.	--	18,000.
7	CEMENT AND SERVICES	4,000.	4,000.	8,000.
8	FLOAT EQUIP, CENTRALIZER, SCRATCHER	800.	1,500.	2,300.
9	OPENHOLE LOGS, F.T.	15,000.	--	15,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	8,500)	--	8,500.
12	EQUIPMENT RENTAL	1,500.	2,000.	3,500.
13	CASING CREW, TONGS, TOOLS	2,500.	4,500.	7,000.
14	MUD LOGGING: CREW AND EQUIPMENT 25 days @ $500./day	12,500.	--	12,500.
15	TRANSPORTATION: LAND AND MARINE	--	--	--
16	FUEL, POWER, WATER	33,000.	--	33,000.
17	BITS: DRILLING AND COMPLETION	32,000.	--	32,000.
18	SUPERVISION	8,000.	4,800.	12,800.
19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	40,000.	40,000.
21	EQUIPMENT INSPECTION AND TESTING	--	--	--
22	WELL TESTING, PROD TEST, BHP TEST	--	--	--
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY	56,000.	12,400.	68,400.
26	OTHER			
27	TOTAL INTANGIBLE EXPENSE	$ 439,300.	$ 95,300.	$ 534,600.

LINE	TANGIBLE EXPENSE				CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
28	DRIVE CASING	FT.	O.D. AT	#/FT.	--	--	--
29	COND CASING 60	FT. 20	O.D. AT	#/FT.	5,000.	--	5,000.
30	SURF CASING 800	FT. 8-5/8	O.D. AT 12.00	#/FT.	9,600.	--	9,600.
31	INTER CASING	FT.	O.D. AT	#/FT.	--	--	--
32	PROD CASING 9000	FT. 5-1/2	O.D. AT 7.00	#/FT.	--	63,000.	63,000.
33	LINER CASING	FT.	O.D. AT	#/FT.	--	--	--
34	TUBING 9000	FT. 2-3/8	O.D. AT 3.25	#/FT.	--	29,250.	29,250.
35	WELLHEAD EQUIPMENT				2,500.	6,000.	8,500.
36	DOWNHOLE EQUIPMENT Packer				--	2,500.	2,500.
37	SURF PROD EQUIPMENT				--	18,000.	18,000.
38	ARTIFICIAL LIFT EQUIPMENT				--	--	--
39	MISC AND CONTINGENCY 15%				2,500.	18,000.	20,500.
40	OTHER						
41	TOTAL TANGIBLE EXPENSE				$ 19,600.	$ 136,750.	$ 156,350.
42	TOTAL WELL COST				$ 458,900.	$ 232,050.	$ 690,950.

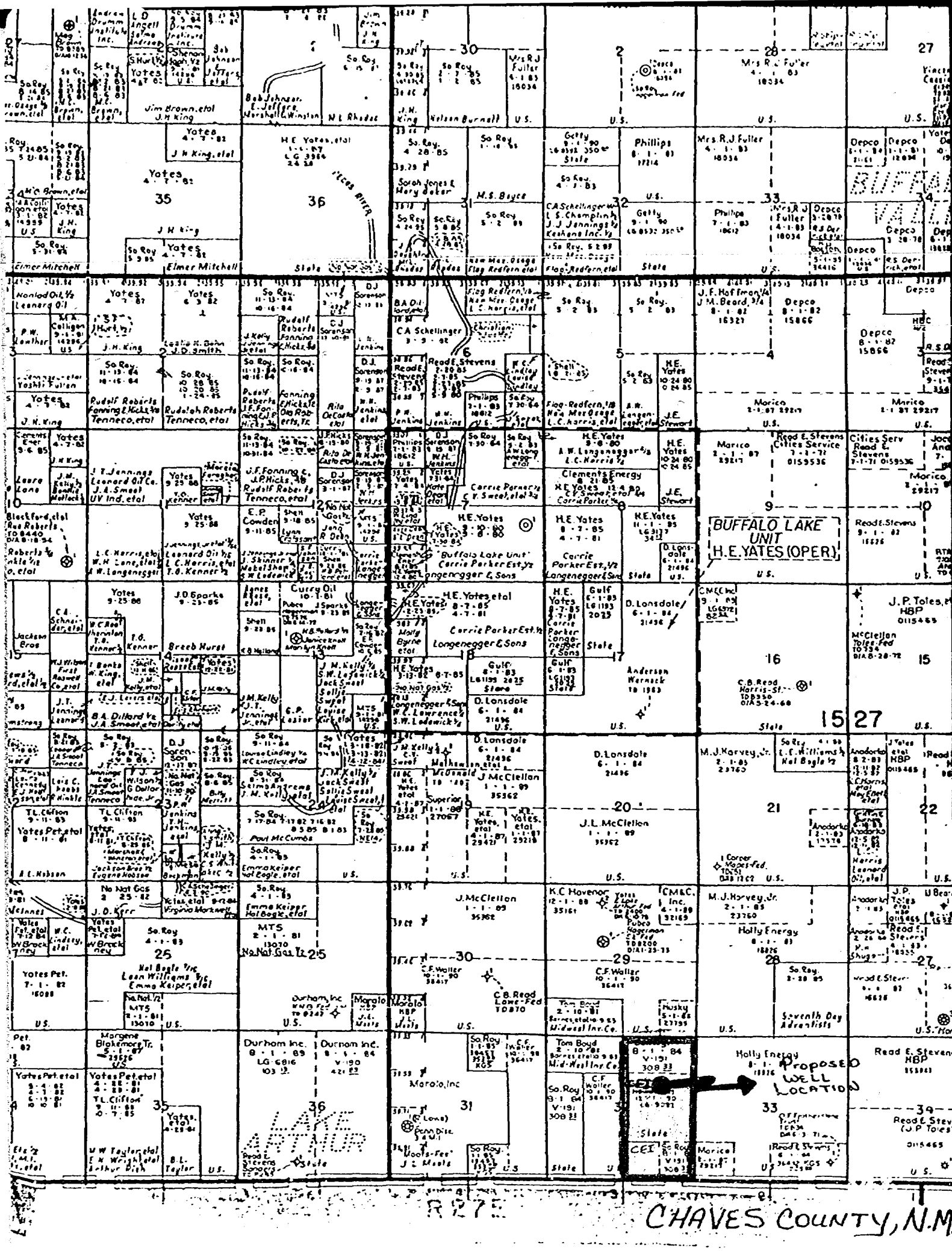
WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL

PREPARED	DATE
WEG WEG	4/14/81
APPROVED	DATE
APPROVED	DATE

JOINT INTEREST APPROVAL

COMPANY	DATE
APPROVED BY	


BUFFALO LAKE UNIT
H.E. YATES (OPER)
Proposed Well Location
CHAVES COUNTY, N.M.

J. D. Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

June 12, 1981

Southland Royalty Company
Wall Towers West
Midland, Texas 79701

Attn: Mr. Gary Young

Re: Proposed Communitization and
Morrow Test. E/2 Sec. 32,
T-15-S, R-27-E, NMPM,
Chaves County, New Mexico
Lake Arthur - I Prospect

Dear Gary:

As per our letter of April 29, 1981, (copy attached) and my telephone conversation with you May 12, 1981, Barnes, Eimers & Newkumet are still waiting on Southland's comments on the above referenced.

We still have very definite plans to commence the well in the third or fourth quarter of this year and your comments or recommendations would be greatly appreciated.

Thank you for your time and consideration in this matter. Your prompt attention to this matter would be appreciated.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

WN:dj
Enclosures

cc: Dwight Johnson - Clements Energy, Inc.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Clements EXHIBIT NO. 3
CASE NO. 7323

P11 4924348
Registered

J. D. Barnes
D. J. Eimers
A. W. Newkumet

BARNES, EIMERS & NEWKUMET
OIL & GAS EXPLORATION
P.O. BOX 3758
MIDLAND, TEXAS 79702

Telephone (915) 682-6231

July 6, 1981

Southland Royalty Company
1100 Wall Towers West
Midland, Texas 79701

Attn: Gary Young

Re: Proposed Communitization
and Morrow Test.
E/2 Sec. 32, T-15-S, R-27-E,
Chaves County, New Mexico.
Lake Arthur I Prospect.

Dear Gary:

Our client, Clements Energy, Inc. of Oklahoma City, Oklahoma has advised that they have secured a rig for the drilling of the proposed Morrow test as outlined in my letter to you of 4/29/81 and 5/12/81 and 6/12/81.

A fourth quarter commencement date is rapidly approaching and we would especially appreciate your comments on our proposed communitization and test well.

Thank you for your consideration in this matter. I have attached copies of the above referred to letters for your assistance in evaluating this proposal.

Very truly yours,

BARNES, EIMERS & NEWKUMET

Wayne Newkumet

Wayne Newkumet

AWN/lfs
cc: Dwight Johnson -- CEI
Enclosures

Darlene hand delivered a copy of this on 7-22-81.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Clements EXHIBIT NO. 4
CASE NO. 7323

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered.....¢
- ☒ Show to whom, date and address of delivery....¢
- ☐ RESTRICTED DELIVERY
  - Show to whom and date delivered.....¢
  - ☐ RESTRICTED DELIVERY.
  - Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
SOUTHLAND ROYALTY CO.
1100 Wall Towers West
Midland, TX 79701

3. ARTICLE DESCRIPTION:
REGISTERED NO. | CERTIFIED NO. P11 4924348 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

PS Form 3811, Jan. 1979 — RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1979-288-848

P11 4924348

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Southland Royalty Co.

STREET AND NO.
1100 Wall Towers West

P.O., STATE AND ZIP CODE
Midland, TX 79701

POSTAGE		$
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	¢
	OPTIONAL SERVICES: SPECIAL DELIVERY	¢
	OPTIONAL SERVICES: RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	¢
	RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$

POSTMARK OR DATE

M. M. Smith

PS Form 3800, Apr. 1976

CLEMENTS ENERGY, INC.

AUTHORITY FOR EXPENDITURE

AFE NUMBER: 81-19A
PROPERTY NUMBER:

PROSPECT OR FIELD	OPERATOR	LEASE NAME OR NUMBER	WELL NUMBER
Lake Arthur I (81-)	Clements Energy, Inc.	NM State	1-32

STATE	COUNTY	LOCATION	PROPOSED T.D.	FORMATION
New Mexico	Chaves	C SE NE Section 32-14S-26E 32-14S-27E	8550'	Morrow

PURPOSE OF EXPENDITURE	CONTRACTOR #	RIG TYPE
Drill and test Morrow Sand		

DRILL/COMPL. [X]	LAND [X]	SINGLE [X]	EXPLORATORY [X]	OIL [ ]	WATER DISP/INJ. [ ]
WORKOVER [ ]	OFFSHORE [ ]	DUAL [ ]	DEVELOPMENT [ ]	GAS [X]	WATER SUPPLY [ ]
RE-COMPLETE [ ]	INLAND WATER [ ]	OTHER [ ]		SEC. REC. [ ]	OTHER [ ]

LINE	INTANGIBLE EXPENSE	CASING POINT COST	COMPLETION COST	COMPLETED WELL COST
01	RIG MOVE IN AND OUT	30,000.	--	30,000.
02	FOOTAGE OR TURNKEY	--	--	--
03	DAYWORK $6,500 x 38	247,000.	13,000.	260,000.
04	COMPLETION, W.O., SWAB UNIT $1,500 x 10	--	15,000.	15,000.
05	LOCATION, ROADS, SURVEY, DAMAGES, RESTORE	40,000.	--	40,000.
06	MUD, ADDITIVES, DIESEL, PKR FLUID	28,000.	--	28,000.
07	CEMENT AND SERVICES	11,000.	4,000.	15,000.
08	FLOAT EQUIP, CENTRALIZER, SCRATCHER	1,500.	1,000.	2,500.
09	OPENHOLE LOGS, F.T.	30,000.	--	30,000.
10	CASEDHOLE LOGS, PERF	--	4,500.	4,500.
11	DST, CORING, SWC, ANALYSIS	16,000.	--	16,000.
12	EQUIPMENT RENTAL	5,000.	5,000.	10,000.
13	CASING CREW, TONGS, TOOLS	7,000.	3,000.	10,000.
14	MUD LOGGING: CREW AND EQUIPMENT $550 x 35	19,250.	--	19,250.
15	TRANSPORTATION: LAND AND MARINE	5,000.	5,000.	10,000.
16	FUEL, POWER, WATER $700 x 38 + $5,000.	31,600.	--	31,600.
17	BITS: DRILLING AND COMPLETION	21,000.	--	21,000.
18	SUPERVISION	12,000.	4,000.	16,000.
19	OVERHEAD	3,500.	--	3,500.
20	STIMULATION SERVICES	--	35,000.	35,000.
21	EQUIPMENT INSPECTION AND TESTING	3,000.	2,000.	5,000.
22	WELL TESTING, PROD TEST, BHP TEST	--	2,000	2,000.
23	DIRECTIONAL DRILLING: SERVICE AND EQUIP	--	--	--
24	FISHING TOOLS AND SERVICES	--	--	--
25	MISC AND CONTINGENCY 10%	51,085.	9,350.	60,435.
26	OTHER Insurance	6,550.	--	6,550.
27	TOTAL INTANGIBLE EXPENSE	$568,485.	$102,850.	$671,335.

TANGIBLE EXPENSE

50	DRIVE CASING		FT.		O.D. AT		S/FT.	--	--	--
51	COND CASING	50	FT.	20	O.D. AT		S/FT.	5,000.	--	5,000.
52	SURF CASING	350	FT.	13-3/8	O.D. AT	24.00	S/FT.	8,400.	--	8,400.
53	INTER CASING	2,000	FT.	8-5/8	O.D. AT	12.00	S/FT.	24,000.	--	24,000.
54	PROD CASING	9,000	FT.	4-1/2	O.D. AT	6.25	S/FT.	--	56,250.	56,250.
55	LINER CASING		FT.		O.D. AT		S/FT.	--	--	--
56	TUBING	9,000	FT.	2-3/8	O.D. AT	3.30	S/FT.		29,700.	29,700.
57	WELLHEAD EQUIPMENT							1,500.	8,500.	10,000.
58	DOWNHOLE EQUIPMENT	Packer						--	2,600.	2,600.
59	SURF PROD EQUIPMENT							--	35,000.	35,000.
60	ARTIFICIAL LIFT EQUIPMENT							--	--	--
61	MISC AND CONTINGENCY 10%							3,890.	13,205.	17,095.
62	OTHER							--	--	--
63	TOTAL TANGIBLE EXPENSE							42,790.	145,255.	188,045
	TOTAL WELL COST							$611,275.	$248,105.	$859,380.

WORKING INTEREST OWNER	PER CENT W.I.	CASING POINT COST	COMPLETED WELL COST

OPERATOR APPROVAL	
PREPARED WEC/MG Gallan	DATE 7/30/81
APPROVED	DATE
APPROVED	DATE

Ex 5 Ap 7323

JOINT INTEREST APPROVAL	
COMPANY current	DATE AFE
APPROVED BY	

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

July 22, 1981

Mr. Joe D. Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RECEIVED
JUL 23 1981
OIL CONSERVATION DIVISION
SANTA FE

Case 7323

RE: Clements Energy Inc.

Dear Mr. Ramey:

Please set the enclosed Compulsory Pooling Application for the Examiner Hearing scheduled for August 12, 1981.

Very truly yours,

W. Thomas Kellahin

WTK:jm
Enclosures
cc: Mr. Wayne Newkumet
Clements Energy Inc.
Southland Royalty

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY & MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF CLEMENTS ENERGY INC., FOR COMPULSORY POOLING, ~~LEA~~ CHAVES COUNTY NEW MEXICO.

RECEIVED
JUL 23 1981
OIL CONSERVATION DIVISION
SANTA FE

A P P L I C A T I O N Case 7323

Comes now Clements Energy Inc., and applies to the Oil Conservation Division of New Mexico for an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Chaves County, New Mexico, at a standard location, and in support thereof would show the Commission:

1. Applicant is the owner of the right to drill and develop the 320 acre tract composed of the E/2 of Section 32, Township 15 South, Range 27 East at standard location within said Section 32.

2. Applicant proposes to drill a Morrow test at a standard location in the E/2 of Said Section 32, but in the event production is obtained in a formation other than of Pennsylvanian age, Applicant desires to pool such portion of the E/2 of said Section 32 as is necessary to form a standard proration and spacing unit for the production from that particular depth.

3. Applicant has sough to obtain the cooperation of all parties.

4. In order to obtain their just and equitable share of the production underlying the above lands, Applicant needs an order pooling the mineral interest involved.

5. Those who have not consented to join in the drilling of the well, with their addresses, to the best of applicant's information and belief, are as follows:

NAME	ADDRESS	INTEREST
Southland Royalty Company Attn: Mr. Gary Young	1100 Walls Towers West Midland, Texas 79701	Sec 32: N/2NE/4 SE/4SE/4

WHEREFORE applicant prays that this application be set for hearing before the Division's duly appointed examiner, and that after notice and hearing as required by law, the Division enter its order pooling all of the mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM. Applicant further prays that it be named operator of the well, and that the order make provision for applicant to recover out of production its costs of drilling the subject well, completing and equipping it, costs of operation, including costs of supervision, and a risk factor in the amount of 200% for the drilling or recompletion of the well, for such other and further relief as may be proper.

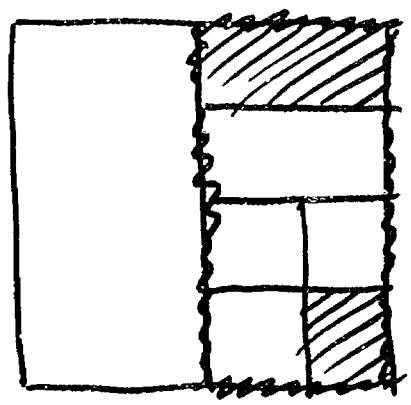
Respectfully submitted,

CLEMENTS ENERGY INC.

By _____

Kellahin & Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

Attorneys for Applicant



STATE OF NEW MEXICO

DEPARTMENT OF ENERGY & MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF CLEMENTS ENERGY INC., FOR COMPULSORY POOLING, LEA COUNTY NEW MEXICO.

RECEIVED
JUL 23 1981
OIL CONSERVATION DIVISION
SANTA FE

Case 7323

A P P L I C A T I O N

Comes now Clements Energy Inc., and applies to the Oil Conservation Division of New Mexico for an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Chaves County, New Mexico, at a standard location, and in support thereof would show the Commission:

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NAME	ADDRESS	INTEREST
Southland Royalty Company Attn: Mr. Gary Young	1100 Walls Towers West Midland, Texas 79701	Sec 32: N/2NE/4 SE/4SE/4

WHEREFORE applicant prays that this application be set for hearing before the Division's duly appointed examiner, and that after notice and hearing as required by law, the Division enter its order pooling all of the mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM. Applicant further prays that it be named operator of the well, and that the order make provision for applicant to recover out of production its costs of drilling the subject well, completing and equipping it, costs of operation, including costs of supervision, and a risk factor in the amount of 200% for the drilling or recompletion of the well, for such other and further relief as may be proper.

Respectfully submitted,

CLEMENTS ENERGY INC.

By _____

Kellahin & Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

Attorneys for Applicant

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY & MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION
OF CLEMENTS ENERGY INC., FOR
COMPULSORY POOLING, LEA COUNTY
NEW MEXICO.

RECEIVED
JUL 23 1981
OIL CONSERVATION DIVISION
SANTA FE

Case 7323

A P P L I C A T I O N

Comes now Clements Energy Inc., and applies to the Oil Conservation Division of New Mexico for an order pooling all mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Chaves County, New Mexico, at a standard location, and in support thereof would show the Commission:

1. Applicant is the owner of the right to drill and develop the 320 acre tract composed of the E/2 of Section 32, Township 15 South, Range 27 East at standard location within said Section 32.

2. Applicant proposes to drill a Morrow test at a standard location in the E/2 of Said Section 32, but in the event production is obtained in a formation other than of Pennsylvanian age, Applicant desires to pool such portion of the E/2 of said Section 32 as is necessary to form a standard proration and spacing unit for the production from that particular depth.

3. Applicant has sough to obtain the cooperation of all parties.

4. In order to obtain their just and equitable share of the production underlying the above lands, Applicant needs an order pooling the mineral interest involved.

5. Those who have not consented to join in the drilling of the well, with their addresses, to the best of applicant's information and belief, are as follows:

NAME	ADDRESS	INTEREST
Southland Royalty Company Attn: Mr. Gary Young	1100 Walls Towers West Midland, Texas 79701	Sec 32: N/2NE/4 SE/4SE/4

WHEREFORE applicant prays that this application be set for hearing before the Division's duly appointed examiner, and that after notice and hearing as required by law, the Division enter its order pooling all of the mineral interests underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM. Applicant further prays that it be named operator of the well, and that the order make provision for applicant to recover out of production its costs of drilling the subject well, completing and equipping it, costs of operation, including costs of supervision, and a risk factor in the amount of 200% for the drilling or recompletion of the well, for such other and further relief as may be proper.

Respectfully submitted,

CLEMENTS ENERGY INC.

By _____

Kellahin & Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

Attorneys for Applicant

DRAFT

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7323

Order No. R- 6762

APPLICATION OF CLEMENTS ENERGY, INC. FOR COMPULSORY POOLING, CHAVES COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 19 81, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Clements Energy, Inc., seeks an order pooling all mineral interests ~~in the~~ in the Wolfcamp and Pennsylvanian formations underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico.

(3) That the applicant has the right to drill and proposes to drill a well at a standard location thereon.

(4) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(5) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(6) That the applicant should be designated the operator of the subject well and unit.

(7) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(8) That any non-consenting working interest owner who does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 200 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(9) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(10) That following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(11) That $ 3600.00 per month while drilling and $ 360.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(12) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(13) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before December 1, 1980, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Wolfcamp and Pennsylvanian formations ~~in the xxxxxxxx~~ formation underlying the E/2 of Section 32, Township 15 South, Range 27 East, NMPM, Diamond Mound Field Area, Chaves County, New Mexico, are hereby pooled to form a standard 320 - acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the first day of December, 1981, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Morrow zone of the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the first day of December, 1981, Order (1) of this order shall be null and void and of no effect whatsoever, unless said operator obtains a time extension from the Division for good cause shown.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Division Director and show cause why Order (1) of this order should not be rescinded.

(2) That Clements Energy, Inc. is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 90 days prior to commencing said well, the operator shall furnish the Division and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Division will determine reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs in advance as provided

above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $ 3600.00 per month while drilling and $ 360.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interest's share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall immediately be placed in escrow in Chaves County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 30 days from the date of first deposit with said escrow agent.

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

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

CASE 7324: BENSON-MONTIN-GREER DRILLING CORPORATION FOR A NON-STANDARD GAS PRORATION UNIT, SAN JUAN COUNTY, NEW MEXICO

Case No.

7324

Application

Transcripts.

Small Exhibits

ETC

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico.

CASE 7324

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

ALBERT R. GREER

Direct Examination by Mr. Kellahin 3

Cross Examination by Mr. Nutter 5

E X H I B I T S

Applicant Exhibit One, Map 4

MR. NUTTER: We'll call next Case Number 7324.

MR. PADILLA: Application of Benson-Montin-Greer Drilling Corporation for non-standard gas proration unit, San Juan County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness.

(Witness sworn.)

ALBERT R. GREER

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Greer, for the record would you please state your name and occupation?

A. Albert R. Greer. I'm a petroleum engineer.

Q. Mr. Greer, have you previously testified before the Division and had your qualifications as a petroleum engineer accepted and made a matter of record?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Greer as an expert petroleum engineer.

MR. NUTTER: Mr. Greer is qualified.

Q. Mr. Greer, I direct your attention to what we have marked as Exhibit Number One and ask you to identify it and tell us what you're seeking to accomplish by this application.

A. Exhibit Number One is a plat of a portion of Township 32 North, Range 13 West, San Juan County, and covers a part of the Ute Dome Dakota Gas Pool, and showing here three locations, three wells which have been drilled to the Dakota. The main part of the Dakota Pool is to the west of this area shown on this plat.

The spacing for the Dakota is 160-acres per well. The sections in which these three wells are located, Sections 30 and 31, are short sections, approximately 480 to 500 acres per section, and in the past to -- to allow a proper spacing pattern, we divided Section 30 into a north half and south half and drilled one well in each half with approximately 240-to-50 acres.

And now the standard proration units have already been applied for and approved for those two wells. We're now seeking a non-standard proration unit for

the north half of Section 31, which covers approximately 240 acres.

Q. In your opinion, Mr. Greer, is the approval of this non-standard proration unit in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

Q. And you said that Section 30 is already divided into two non-standard proration units, both of which have been previously approved?

A. Yes, sir.

Q. All right, sir. Was Exhibit One prepared by you?

A. Yes, sir.

MR. KELLAHIN: We move the introduction of Exhibit One.

MR. NUTTER: Exhibit One will be admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Greer, this is not in the Basin Dakota Gas Pool, is it?

A. No, sir, this is a separate pool.

Q. And the spacing rules in this separate pool call for 160-acre units?

A. Yes, sir.

Q. And it would be impractical to make two 160-acre units in the north half of this --

A. Right.

Q. Would be impossible to make in the north half of these sections?

A. That is correct. It would be a question of one well on 240 or two wells on 120 acres, and we feel the reserves don't justify two wells on 120 acres.

MR. NUTTER: Are there any further questions of Mr. Greer? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything to offer in Case 7324?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7324, heard by me on 8/12 1981.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico. CASE **7324**

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: **W. Thomas Kellahin, Esq.**
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

ALBERT R. GREER

Direct Examination by Mr. Kellahin 3

Cross Examination by Mr. Nutter 5

E X H I B I T S

Applicant Exhibit One, Map 4

MR. NUTTER: We'll call next Case Number 7324.

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MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness.

(Witness sworn.)

ALBERT R. GREER

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

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Q Mr. Greer, for the record would you please state your name and occupation?

A Albert R. Greer. I'm a petroleum engineer.

Q Mr. Greer, have you previously testified before the Division and had your qualifications as a petroleum engineer accepted and made a matter of record?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Greer as an expert petroleum engineer.

MR. NUTTER: Mr. Greer is qualified.

Q. Mr. Greer, I direct your attention to what we have marked as Exhibit Number One and ask you to identify it and tell us what you're seeking to accomplish by this application.

A. Exhibit Number One is a plat of a portion of Township 32 North, Range 13 West, San Juan County, and covers a part of the Ute Dome Dakota Gas Pool, and showing here three locations, three wells which have been drilled to the Dakota. The main part of the Dakota Pool is to the west of this area shown on this plat.

The spacing for the Dakota is 160-acres per well. The sections in which these three wells are located, Sections 30 and 31, are short sections, approximately 480 to 500 acres per section, and in the past to -- to allow a proper spacing pattern, we divided Section 30 into a north half and south half and drilled one well in each half with approximately 240-to-50 acres.

And now the standard proration units have already been applied for and approved for those two wells. We're now seeking a non-standard proration unit for

the north half of Section 31, which covers approximately 240 acres.

Q. In your opinion, Mr. Greer, is the approval of this non-standard proration unit in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

Q. And you said that Section 30 is already divided into two non-standard proration units, both of which have been previously approved?

A. Yes, sir.

Q. All right, sir. Was Exhibit One prepared by you?

A. Yes, sir.

MR. KELLAHIN: We move the introduction of Exhibit One.

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BY MR. NUTTER:

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Q. And the spacing rules in this separate pool call for 160-acre units?

A. Yes, sir.

Q. And it would be impractical to make two 160-acre units in the north half of this --

A. Right.

Q. Would be impossible to make in the north half of these sections?

A. That is correct. It would be a question of one well on 240 or two wells on 120 acres, and we feel the reserves don't justify two wells on 120 acres.

MR. NUTTER: Are there any further questions of Mr. Greer? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything to offer in Case 7324?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7329, heard by me on 8/12 1981.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

August 27, 1981

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 7324
ORDER NO. R-6763

Applicant:

Benson-Montin-Greer Drilling Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD x

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7324
Order No. R-6763

APPLICATION OF BENSON-MONTIN-GREER DRILLING CORPORATION FOR A NON-STANDARD GAS PRORATION UNIT, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Benson-Montin-Greer Drilling Corporation, seeks approval of a 240.01-acre non-standard gas proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, NMPM, to be dedicated to a well drilled at a standard location thereon.

(3) That said non-standard gas proration unit results from a correction in the U.S. Public Lands Survey.

(4) That the entire non-standard proration unit may reasonably be presumed productive of gas from the Ute Dome-Dakota Gas Pool and that the entire non-standard gas proration unit can be efficiently and economically drained and developed by the aforesaid well.

(5) That approval of the subject application will afford the applicant the opportunity to produce his just and equitable

share of the gas in the Ute Dome-Dakota Gas Pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That a 240.01-acre non-standard gas proration unit for Benson-Montin-Greer Drilling Corporation in the Ute Dome-Dakota Gas Pool comprising the N/2 of Section 31, Township 32 North, Range 13 West, NMPM, San Juan County, New Mexico, is hereby established and dedicated to a well to be drilled at a standard location thereon.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

SEAL

fd/

CASE 7284: (Continued from July 2, 1981, Examiner Hearing)

Application of Energy Reserves Group, Inc. for an unorthodox gas well location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Cisco location of its Miller Well No. 1 located 660 feet from the South and West lines of Section 12, Township 6 South, Range 33 East, the S/2 of said Section 12 to be dedicated to the well.

CASE 7324: Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 240.01-acre non-standard proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, Ute Dome-Dakota Pool, to be dedicated to a well drilled at a standard location thereon.

CASE 7325: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying Section 32, Township 26 North, Range 1 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well. Applicant further seeks provision for the re-allocation of all costs and charges, and revenues, to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

CASE 7326: Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-4157-C by re-establishing 640-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool with a provision for infill drilling of a second well on each 640-acre spacing unit.

CASE 7327: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying Township 25 North, Range 3 West, containing 23,040 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7328: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and desgianted as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 1
CASE NO. 7324

R 13 W

T 32 N

NM-01 0125-A
NM-0101125-A
NM-0467388
NM-0554173
NM-0553751
NM-0553751
SF-078818-A
NM-4282
NM-0101125-A
NM-0553751
SF-079007
SF-079007
NM-0220792
NM-01 01125-A
NM-0557982
SF-079007

F-30
K-30
F-31

There were two wells approved.

8-81

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BM6 EXHIBIT NO. 1
CASE NO. 7324

R 13 W

T 32 N

7. 43.53 6. 38.92 5. 39.02
8. 43.29 9. 38.82 10. 38.82
13. 42.34 19 12. 38.20 11. 38.70
14. 42.20 15. 38.12 16. 38.62
NM-01 01125-A
20
21
22
SF-078818-A
NM-0101125-A
NM-0467388
NM-0554173
NM-0553751
NM-0553751
7. 43.12 6. 40.50 5. 41.32
8. 43.75 9. 41.01 10. 40.94
F-30
13. 42.79 30 12. 41.59 11. 41.60
K-30
14. 42.32 15. 41.23 16. 41.27
29
NM-0553751
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27
NM-4282
NM-0101125-A
SF-079007
6. 40.76 5. 38.67
SF-079007
7. 42.01 8. 38.57
F-31
10. 43.67 31 9. 39.43
32
33
34
11. 44.99 12. 39.78
NM-0226792
NM-01 01125-A
NM-0557982
SF-079007

8-81

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
B-M-G EXHIBIT NO. 1
CASE NO. 7324

R 13 W

T 32 N

7. 43.53 6. 38.92 5. 39.02
8. 43.29 9. 38.82 10. 38.82
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12. 38.20 11. 38.70
14. 42.20 15. 38.12 16. 38.62
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NM-0554173
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NM-055375I
NM-0553751
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SF-076818-A
7. 43.12 6. 40.50 5. 41.32
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NM-0553751
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10. 43.67 9. 39.43
11. 44.99 12. 39.78
NM- 0226792
SF-079007
32
NM-01 0125-A
NM-0557982
33
34
SF-079007

8-81

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Telephone 982-4285
Area Code 505

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

July 14, 1981

Mr. Joe Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Benson-Montin-Greer
Non-Standard Proration Unit
Ute Dome Dakota
Section 21, T32N, R13W
San Juan County New Mexico

Case 7324

Dear Joe:

Please set the enclosed application for the examiner hearing of August 12, 1981.

Very truly yours,

W. Thomas Kellahin

WTK:jm
Enclosure
cc: Mr. Al Greer

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF BENSON-MONTIN-GREER DRILLING CORPORATION FOR APPROVAL OF A NON STANDARD PRORATION UNIT, UTE DOME DAKOTA POOL, SAN JUAN COUNTY NEW MEXICO.

Case 7324

A P P L I C A T I O N

COMES NOW BENSON-MONTIN-GREER DRILLING CORPORATION, and through its attorneys, KELLAHIN & KELLAHIN, and applies to the New Mexico Oil Conservation Division for an order approving a Non-Standard Proration Unit consisting of the N/2 of Section 31, T32N, R13W, NMPM, Ute Dome Dakota Pool, San Juan County New Mexico and in support thereof would show:

1. Applicant is the owner of the right to drill the proposed Proration unit and has drilled its F-31 well in Lot 7 (SE/4NW/4) of said Section 31.

2. The Ute Dome Dakota Pool is spaced on 160 acres.

3. The proposed unit consists of approximately 240.01 acres and will be the N/2 of said section 31. As a result of governmental surveys this section and others on the Western side of this township are all less than 640 acres.

4. Applicant has previously obtained approval of a non-standard proration unit for Section 30 by dividing it into N/2 and S/2 proration units.

5. That approval of the application will not impair correlative rights or cause waste.

WHEREFORE, applicant requests that this application be set for an examiner hearing and that after notice and hearing, the application be granted as requested.

KELLAHIN & KELLAHIN

By _____

W. Thomas Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

DRAFT

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7324

Order No. R- 6763

APPLICATION OF BENSON-MONTIN-GREER DRILLING CORPORATION
GAS
FOR A NON-STANDARD/PRORATION UNIT,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Benson-Montin-Greer Drilling Corporation, seeks approval of a 240.01 -acre non-standard gas proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, NMPM, to be dedicated to ~~its~~ a well drilled at a standard location ~~xxxxxxxxxxxxxxx~~ thereon/ ~~located in Unit xxxxxxxxxx of said Section xxxxxxxxxxxx~~.

(4) That the entire non-standard proration unit may reasonably be presumed productive of gas from the Ute Dome-Dakota Gas ~~Gas~~ Pool and that the entire non-standard gas proration unit can be efficiently and economically drained and developed by the aforesaid well.

(3) That said non-standard gas proration unit results from a correction in the U.S. Public Lands Survey.

(b) That approval of the subject application will afford the applicant the opportunity to produce his just and equitable share of the gas in the Ute Dome-Dakota ~~Gas~~ Pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That a 240.01 -acre non-standard gas proration unit for Benson-Montin-Greer Drilling Corporation in the Ute Dome-Dakota Gas ~~Gas~~ Pool comprising the N/2 of Section 31, Township 32 North, Range 13 West, NMPM, San Juan County, New Mexico, is hereby established and dedicated to ~~its~~ a well to be drilled at a standard location thereon ~~located in Unit of said Section~~

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

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

CASE 7325: BENSON-MONTIN-GREER DRILLING CORPORATION FOR COMPULSORY POOLING, RIO ARRIBA COUNTY, NEW MEXICO

Case No.

7325

Application

Transcripts.

Small Exhibits

ETC

BENSON-MONTIN-GREER DRILLING CORP.
221 PETROLEUM CENTER BUILDING
FARMINGTON, NEW MEXICO 87401
PHONE: 325-8874

June 26, 1981

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 2
CASE NO. 7325

To: WORKING INTEREST OWNERS
PROPOSED THIRD EXPANSION AREA
CANADA OJITOS UNIT

Re: INVITATION TO POOL INTERESTS IN THE THIRD EXPANSION AREA AND SHARING OF COSTS OF WELLS IN SECTIONS 20 & 32, TOWNSHIP 26 NORTH, RANGE 1 WEST

As earlier indicated (letter of June 10 and other correspondence), we propose the pooling of working interests in the third expansion area and the drilling of exploratory wells on the pooled ownership basis. To effect the pooling, we are sending for your consideration a pooling agreement which may be used if the parties find the agreement acceptable. Currently we propose two wells in the third expansion area.

Also enclosed for each of the two wells are AFEs which we request be executed and returned by those who join in the pooling.

Parties joining in the pooling should also execute the Unit Agreement and Unit Operating Agreement, committing the same lands to the Unit Agreement as are included in the pooling agreement.

The pooling agreement states that each party accepts title to all other parties' interests. It is our thinking here that once we know which of the owners wish to consider joining in the pooling agreement that a mutually acceptable attorney will be selected to check title and report to those involved. Because of the nature of most of the leases, we anticipate a minimum of title problems; but if they should appear, we will deal with them as seems practicable.

One of the apparent title issues is that of expiring leases on which wells may not be drilled by the expiration date. We have asked that the effective date of the third expansion be June 1 of this year regardless of when final approval is requested; and it may be that the USGS would hold in suspension leases which might otherwise expire if the owner is willing to commit them to the Unit Agreement. Such owners may choose to look into this aspect with the USGS. Whether this issue will be of concern in the pooling will depend on the parties who elect to pool and the amount of acreage their interests represents.

...

Each of you has previously been furnished with execution copies of the Unit Agreement and Unit Operating Agreement, so once title has been approved instruments for all parties can be executed - or ratified - in a short span of time.

We anticipate commencement of drilling of the first well during the last week of July.

Attached to this letter are the following:

1. Remarks regarding drilling program and costs.

2. Note regarding sharing of costs for the well in Section 20, Township 26 North, Range 1 West.

3. Note regarding sharing of costs for the well in Section 32, Township 26 North, Range 1 West.

We anticipate the approval of our applications to drill will carry the stipulation that if the USGS determines it proper that the leases under the wells will be required to be committed to the Canada Ojitos Unit.

To the working interest owners under the existing unit, we advise that AFEs will be sent separately for the drillng of the well in Section 22, Township 26 North, Range 1 West. It is Unit Operator's proposal that this well be drilled with the same rig as that used for the two wells in the expansion area. From rig moving cost standpoint the practical sequence is the well in Section 20 first, Section 22 second and Section 32 third.

Upon your review of the enclosed material, we would appreciate hearing from those of you desiring to join in the pooling and drillng of the subject wells, and updating title information so that Exhibit II to the pooling agreement can be prepared and furnished each interested party.

BENSON-MONTIN-GREER DRILLING CORP.

BY: Albert R. Greer
Albert R. Greer, President

ARG/tlp

Enclosures

REMARKS REGARDING DRILLING PROGRAM AND COSTS
(ATTACHED TO LETTER OF JUNE 26, 1981)

You will note that the AFES we are submitting do not make provision for dry hole costs. Our view here is that the entire cost of each well need be expended in order to properly evaluate the formation's potential. If the well results in a dry hole following completing, fracing and testing, then there will only be salvage value of that part of the frac fluid recovered and some of the equipment; and this may or may not exceed the plugging cost.

Part of the completion cost will be testing to attempt to evaluate the potential benefit of pressure maintenance and whether it can be expected to be effective as far west as the subject wells are located. Such testing can involve long periods of time while the frac fluid is still in the formation; and accordingly we are at this time planning on jelled kerosene for the frac fluid, since it should not adversely affect the reservoir rock.

Because of the high surface elevation of the location of the well in section 20, we anticipate problems of loss of circulation here, and possible so too for the well in Section 32; and failing its solution by any other means we believe we should be prepared to aerate the mud if necessary; and are planning on running a satellite string on the surface casing to facilitate this. We propose to drill with mud to the Niobrara; and with gas to TD; running 5-1/2" extreme line liner.

Both wells are projected to the Greenhorn formation. We note here that the existing participating area includes all formations from the Niobrara through the Greenhorn. Because of the

uncertainty of achieving a good cement job through the Niobrara member with a long liner, most of the wells in the unit drilled to date have not been drilled to the Greenhorn. We have in other areas successfully deepened through the Greenhorn wells initially completed in a fashion similar to those in the existing Canada Ojitos Unit in which 5-1/2" liners have been run through the Niobrara; and in the past it has been our thinking that if and when development of the Greenhorn would be warranted, that the existing wells might someday be deepened to the Greenhorn.

We have also, however - through experience in other areas - found that we can successfully cement longer liners by using extreme line casing run in a 6-3/4" hole (requiring the use, as we have in the past, of 7-5/8" intermediate string). Accordingly, we believe it worth experimenting here with drilling to the Greenhorn, if other conditions at the time of drilling make this appear a practicable option.

Further with regard to potential of the Greenhorn formation, we note that only three or four wells have tested the Greenhorn in as many townships in this area; and that in line with our belief that the Niobrara reservoir in this area owes its existence to flexing and resulting fracturing, the same situation, we think, could apply to the Greenhorn. Wherever the Greenhorn has been drilled in this area, it has shown oil saturation; and we believe all it needs to provide a good reservoir is some kind of fracture system. We are

at this time testing one well in the Greenhorn in the nearby East Puerto Chiquito pool which has been treated only with acid wash of the perforations; and to date the well has produced several hundred barrels of oil and is currently producing at the rate of 20 BOPD. It is too early to know if this well will be commercial or if it will respond to stimulation; but it is a significant enough show to warrant serious consideration in our drilling program in this area. Whether a "hinge line" exists in the prospective producing formations in the vicinity of these wells in Sections 20 and 32 (at the west edge of the gray shaded area on the flex maps we have previously furnished you), and whether such a characteristic will allow commercial production can only be determined by drilling.

Total per well costs which the parties should be prepared to bear exceed $1,000M per well; however, if the contingency allocation is not used and the frac fluid is recovered and sold (which has so far occurred on all wells in this area) the net per well cost as shown on the AFE detail will approximate $1,000M.

Absent convincing arguments to the contrary we will proceed as described above; however, we are open to suggestions or discussions with any of the interested parties as to drilling and completion details.

NOTES REGARDING SHARING OF COSTS
FOR THE WELL IN SECTION 20, TOWNSHIP 26 NORTH, RANGE 1 WEST
(ATTACHED TO LETTER OF JUNE 26, 1981)

The well in Section 20 will be on a non-standard proration unit previously approved by the Oil Conservation Division and will consist of the west half of Section 17 and the west half of Section 20.

Under this 640 acre proration unit are 400 acres of leases held by the present unit owners and Southland Royalty Company. Presumably these 400 acres will come under the third expansion pooling agreement and the share of the well costs represented by this 400/640ths will be borne by the parties to the pooling agreement in their respective participating interests.

The remaining 240 acres are either unleased or under appeal such that the ownership is now unknown. It is proposed that the share of well costs represented by this 240/640ths be borne by the existing Canada Ojitos Unit owners (B-M-G Group #1 - see attachment to AFE).

When these 240 acres of leases are issued, the owner will be required to either reimburse those having paid the drilling costs or suffer a penalty. The amount of the penalty will be decided by the Oil Conservation Division under our application for forced pooling of this proration unit, the hearing to be held July 2.

If the well qualifies for admission to the Canada Ojitos Unit Participating Area, we presume that the proration unit, along with other adjoining lands, would be brought into participation, following which there will be an investment adjustment between the existing unit lands and the newly admitted lands.

NOTES REGARDING SHARING OF COSTS
FOR THE WELL IN SECTION 32, TOWNSHIP 26 NORTH, RANGE 1 WEST
(ATTACHED TO LETTER OF JUNE 26, 1981)

All lands under Section 32 are now under lease. The owners are the existing Canada Ojitos Unit owners (B-M-G Group #1 - see attachment to AFE), Southland Royalty Company and Cotton Petroleum Corp.

Presumably the 480 acres represented by B-M-G Group #1 and Southland will be pooled under the third expansion pooling agreement so that 480/640ths of the well costs will be borne by the participants in this pooling, in proportion to their individual participating interests.

As to the 160 acres held by Cotton, as we view it, Cotton has three options:

1. Cotton may join in the third expansion pooling with the other participants such that this 160 acres becomes part of the pooled lands, or
2. Cotton may elect to pay its 25% share of the costs of the well on a joint venture basis without pooling, or
3. Cotton may take no positive action; in which event Unit Operator will ask for forced pooling of the interests in Section 32.

If the well qualifies for admission to the Canada Ojitos Unit Participating Area, we presume that the proration unit, along with other adjoining lands, would be brought into participation, following which there will be an investment adjustment between the existing unit lands and the newly admitted lands.

BENSON-MONTIN-GREER DRILLING CORP.
221 PETROLEUM CENTER BUILDING
FARMINGTON, NEW MEXICO 87401
PHONE: 325-8874

July 28, 1981

Mr. Don E. Paull
Cotton Petroleum Corporation
717 17th Street
Suite 2200
Denver, CO 80264

Re: POOLING OF INTERESTS & DRILLING OF MANCOS FORMATION WELL IN SECTION 32, T-26N, R-1W (PROPOSED THIRD EXPANSION AREA OF CANADA OJITOS UNIT), RIO ARRIBA COUNTY, NEW MEXICO

Dear Mr. Paull:

This will confirm the offer made to you yesterday in our telephone conversation to meet at any convenient time with Cotton's people to discuss the pooling of interests and the drilling of the captioned well. It is a foregone conclusion that Cotton's 160 acres will be pooled with other lands in the drilling of the subject well; the only question is how the lands will be pooled and whether the pooling is voluntary or involuntary. In our view, it is a waste of everyone's time, including that of the Oil Conservation Division, to go through with a forced pooling hearing when the issues can really be best settled through a voluntary pooling.

As you know, we have suggested that Cotton pool its 160 acres over a larger area than just the well spacing unit. Some of the other working interest owners in the third expansion area are pooling their interests over the entire area, and Cotton has been invited to join and share not only with the drilling of the well in Section 32, but also with the drilling of the well in Section 20 in the same township. In addition to this option, we are willing to consider Cotton's pooling its acreage over a smaller area; however we suggest that the area be not smaller than that covered by Sections 29, 30, 31 and 32.

Since our company has a case before the Wyoming Conservation Commission on the 11th, it will be inconvenient for us to work on this matter with you the 10th and 11th; but I will be available all of next week.

Yours truly,

BENSON-MONTIN-GREER DRILLING CORP.

BY: _____
Albert R. Greer, President

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 3
CASE NO. 7325

BENSON-MONTIN-GREER DRILLING CORP.
221 PETROLEUM CENTER BUILDING
FARMINGTON, NEW MEXICO 87401
PHONE: 325-8874

July 3, 1981

BEFORE EXAMINER UTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 4
CASE NO. 735

Cotton Petroleum Corporation
Suite 2200
717 - Seventeenth Street
Denver, Colorado 80202

Attention: Mr. D. E. Paull

Re: PROPOSED THIRD EXPANSION AREA,
CANADA OJITOS UNIT:
PARTICIPATION IN DRILLING OF
CANADA OJITOS UNIT WELL
NO. 21 (G-32), SECTION 32,
TOWNSHIP 26-N, RANGE 1-W,
RIO ARRIBA COUNTY, NEW MEXICO

Gentlemen:

As discussed with Russ Koeniger, and as set out in our letter of June 26, we propose the drilling of the captioned well in the next few weeks. Since Cotton, as well as Southland Royalty, owns 160 acres under the spacing unit on which this well will be located, we will need to know Cotton's position with respect to the drilling of this well. Presumably Southland's interest will be joined in the third expansion pooling agreement, but as yet we do not have an indication that Cotton's interest will likewise be pooled. We want to allow Cotton the maximum amount of time available to us to make its decision; and as best we can figure rig scheduling now, this means we have until mid-August to await Cotton's decision.

Should Cotton elect to take no action we will be required to ask for forced pooling of the proration unit; and in preparation of this event we are asking our attorneys to have a forced pooling case set on the docket for August 15. Hopefully we will have arrived at a different solution by that time and the case can be dismissed. If not, however, we feel we must be prepared to proceed along that course.

I will be unavailable the last half of July, but will be available the first part of August to discuss with you any of the plans and details. As you know, we would like to see Cotton join in the voluntary pooling of all of its interests in the third expansion area as we believe this will give the greatest assurance that risks taken in drilling costs will most closely match ultimate equity. You are, of course, free to make your own decision; and in this respect you can, among other things, choose to pool only the 160 acres in Section 32, leaving the rest to whatever happens.

Also, as you know, you have the right through joint venture communitization to participate in 25% of the cost of the well in Section 32: but in this instance - should additional lands be brought into participation besides the spacing unit - then Cotton's drilling cost risk will considerably exceed its ultimate equity; and because of this we would like to see your interests pooled over a greater area.

We realize that you have many things to consider with respect to this matter, among them being whether you accept your consultants' (Van Poollen's) evaluation that Section 32 will be non-productive. In this event you may wish to consider some other disposition of this lease. If you would like to farm it out, we will pass the farm-out proposal along to those parties joining in the voluntary pooling, for their consideration. We would not be interested in purchasing the lease; but perhaps other who bid at the same lease sale might be willing to consider purchase, if this be your preference.

I expect to be available, should you like to discuss anything earlier than August, through July 13.

Yours very truly,

BENSON-MONTIN-GREER DRILLING CORP.

BY: Albert R. Greer, President

cc: Southland Royalty Company
Suite 1000, 717 - 17th Street
Denver, Colorado 80202
Attention: Mr. Roy Williams

cc: Southland Royalty Company
P.O. Box 578
Farmington, New Mexico
Attention: Mr. L. O. Van Ryan

cc: Southland Royalty Company
1000 Fort Worth Club Building
Fort Worth, Texas 76102
Attention: Mr. Marlan Thompson

cc: Mr. W. Thomas Kellahin

cc: Mr. George L. Verity

ARG:ney

BENSON-MONTIN-GREER DRILLING CORP.
EXHIBITS IN CASE 7325
BEFORE THE OIL CONSERVATION DIVISION
AUGUST 12, 1981
FORCED POOLING, SECTION 32
TOWNSHIP 26 NORTH, RANGE 1 WEST
RIO ARRIBA COUNTY, NEW MEXICO

INDEX OF EXHIBITS
IN CASE 7325
BEFORE THE OIL CONSERVATION DIVISION
OF THE NEW MEXICO DEPARTMENT OF MINES AND MINERALS
AUGUST 12, 1981

FORCED POOLING
SECTION 32
TOWNSHIP 26 NORTH, RANGE 1 WEST
RIO ARRIBA COUNTY, NEW MEXICO

SECTION A

1. PLAT OF EAST AND WEST PUERTO CHIQUITO MANCOS POOLS SHOWING NON-STANDARD SPACING UNITS, WEST PUERTO CHIQUITO POOL.
2. TYPE LOG OF FORMATIONS TO BE POOLED.
3. DEFINITION OF FORMATIONS TO BE POOLED.

SECTION B

1. STRUCTURAL CONTOUR MAP OF CANADA OJITOS UNIT WITH SCHEMATIC CROSS-SECTIONS.
2. GRAPH OF PRODUCTION HISTORIES OF SELECTED WELLS, CANADA OJITOS UNIT AND WEST LINDRITH GALLUP-DAKOTA.

SECTION C

EXHIBIT A OF PROPOSED THIRD EXPANSION AREA, CANADA OJITOS UNIT.

SECTION D

1. AFE FOR CANADA OJITOS UNIT G-32, TOWNSHIP 26 NORTH, RANGE 1 WEST.
2. PAGE 3 OF ACCOUNTING PROCEDURE, CANADA OJITOS UNIT OPERATING AGREEMENT, SHOWING OVERHEAD RATES.
3. OVERHEAD RATES, CANADA OJITOS UNIT, EFFECTIVE APRIL 1, 1981.

UNIT OPERATING AGREEMENT

CANADA OJITOS UNIT AREA

RIO ARRIBA COUNTY, NEW MEXICO

THIS AGREEMENT, made as of the first day of March, 1981, by and among the parties who execute or ratify this agreement or a counterpart hereof,

WITNESSETH:

WHEREAS, the Parties have committed their interests into that certain UNIT AGREEMENT FOR THE DEVELOPMENT AND OPERATION OF THE CANADA OJITOS UNIT AREA, County of Rio Arriba, State of New Mexico, dated as of the 19th day of June, 1963, and hereinafter referred to as the "Unit Agreement", covering the lands described in Exhibit 1 hereto attached, which lands are referred to in the Unit Agreement and in this agreement as the "Unit Area" and which Unit Area may, by the terms of the Unit Agreement, be expanded or contracted, and lands in the Unit Area shall be the lands covered by this agreement, insofar as the oil and gas leases thereunder are committed to the Unit Agreement by the Parties hereto; and

WHEREAS, the Parties enter into this agreement pursuant to Section 7 of the Unit Agreement;

WHEREAS, the Parties currently are considering expanding the Unit Area, but whether or not it is expanded, the Parties nevertheless enter into this Agreement;

NOW THEREFORE, in consideration of the mutual agreements herein set forth, it is agreed as follows:

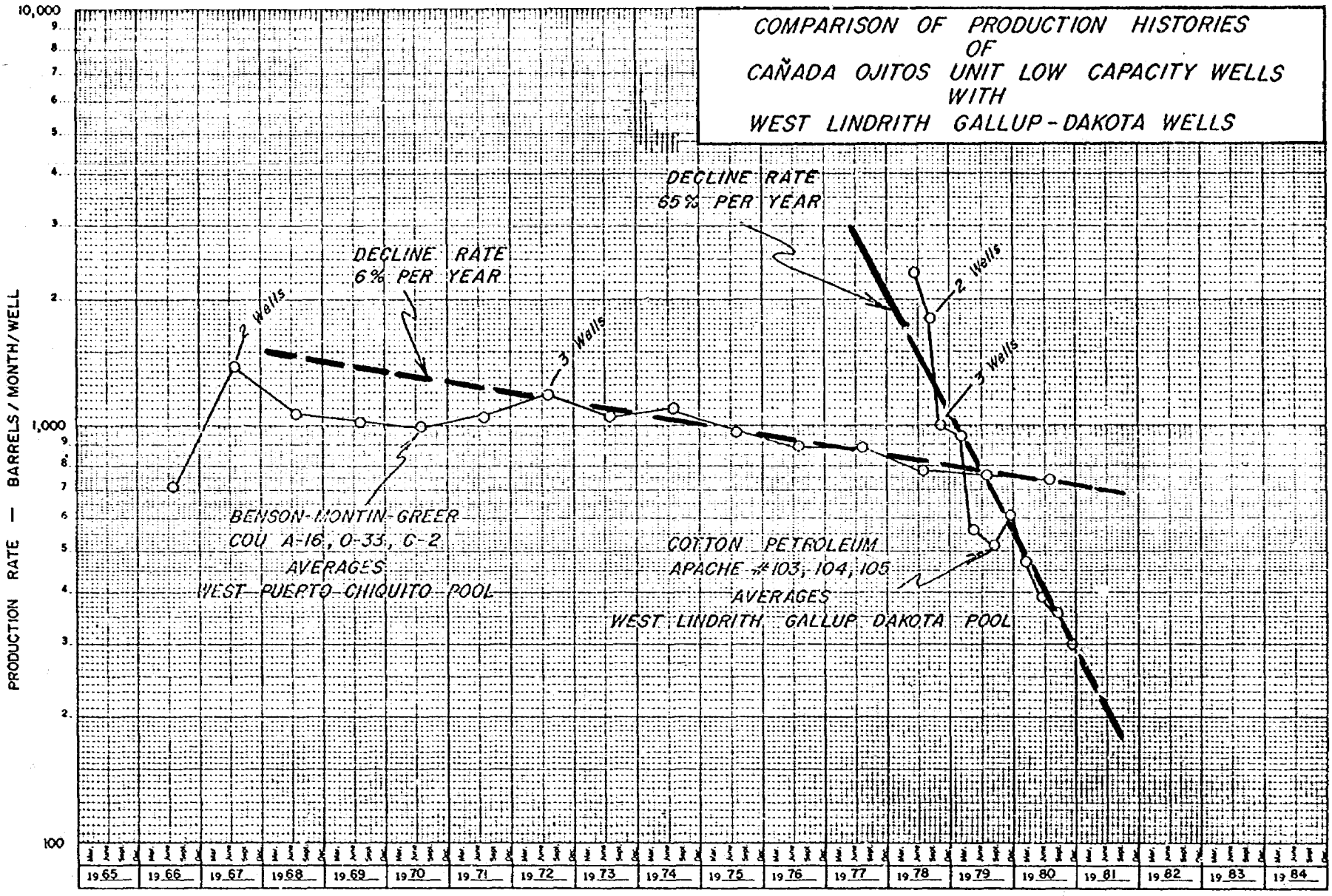
Construction of Regulatory Authorities and Names.

The authority of the Federal Power Commission, as identified herein, has been superseded by that of the Federal Energy Regulatory Commission, and wherever in the following articles (particularly article 37) the words "Federal Power Commission" appear they shall be construed to mean "Federal Energy Regulatory Commission", or such other appropriate succeeding governmental authority; as is proper;

Special Definitions:

Main Mancos formation: as used herein means those members of the Mancos formation from its top to the base of the Greenhorn member; and is equivalent to that stratigraphic interval shown on the Schlumberger electric log of the Canada Ojitos Unit No. O-9 well, located in the southeast quarter of Section 9, Township 26 North, Range 1 West, between the depths of 6155' and 8137'; such reference electric log being the Schlumberger Induction Electric log run June 18, 1963 with well identification of "Bolack-Greer No. 1 Bolack";

COMPARISON OF PRODUCTION HISTORIES OF CAÑADA OJITOS UNIT LOW CAPACITY WELLS WITH WEST LINDRITH GALLUP-DAKOTA WELLS



5/81

BENSON-MONTIN-GREER DRILLING CORP.

AUTHORITY FOR EXPENDITURE

DATE June 26, 1981

Prospect Canada Ojitos Unit (West) Well Canada Ojitos Unit #21 (G-32)

Section 32 Township 26N Range 1W County Rio Arriba State New Mexico

Producing Formation or Formations Niobrara - Greenhorn Projected Depth 8020'

INTANGIBLE COSTS		
Surveying Road and Location	$	1,000
Roads and Location		6,500
Drilling: Type of Bid (Day Work) 28 days @ $7,500/day		210,000
Day Work - Completion Rig - Day Work 20 days @ $1,250/day		25,000
Transportation and Hauling (Including Rig)		25,000
Mud and Water		15,000
Circulating System - Gas Line to Location and Gas		45,000
Equip. Rentals - Drilling - Rotating Head - Blooie Line - Straight Hole		15,000
Bits		15,000
Logging		30,000
Cement and Cementing		25,000
Acidizing, Fracing, Perforating (Two 100M gals jelled diesel frac jobs)		400,000
Engineering & Supervision		3,500
Labor		15,000
Overhead		3,500
Contingencies		135,000
TOTAL INTANGIBLE COSTS	$	969,500
TANGIBLE COSTS		
Well Equipment		
Casing and Tubing: 1000' 10-3/4" + 1-1/4" satellite	$	17,000
7150' 7-5/8" N-80 & K-55		130,000
1000' 5" X-line		7,500
7900' 2-3/8" EUE tubing, plastic lined		25,000
Gas Lift Subsurface Equipment		1,000
Wellhead Equipment - Tubinghead, Valves, etc.		10,000
Well Flow Lines		2,500
Noncontrollable Well Equipment		1,500
Installation Costs		3,000
Lease Equipment		
Tank Battery		4,000
Separators and Treaters		25,000
Processing, Compressing, Measuring & Monitoring Equipment		2,500
Lease Lines: Oil Gathering 8000' 3" fiberglass		19,000
Gas Gathering 8000' 3" steel		25,000
Gas Lift Gas 8000' 2" steel (also to be used for drilling gas)		27,500
Other Controllable Equipment		5,000
Noncontrollable Equipment		2,500
Installation Costs		15,000
Contingencies		5,000
TOTAL TANGIBLE COSTS	$	353,000
TOTAL DRILLING, COMPLETION AND EQUIPMENT COSTS	$	1,322,500
Less: Frac Diesel if recovered		170,000
Less: Contingency costs if not required		140,000
NET COST IF FRAC DIESEL RECOVERED & CONTINGENCIES NOT REQUIRED	$	1,012,500

See Page 2 for participating interests.

SHARING OF COSTS
CANADA OJITOS UNIT NO. 21 (G-32)

ALLOCATION OF DRILLING COSTS ITEMIZED ON PRECEDING PAGE

	If Cotton joins in Pooling Agreement	If Cotton elects to pay 25% share		If Cotton elects to be force pooled	
SHARE	100%	75%	25%	75%	25%
AMOUNT	$1,322M	$992M	$330M	$992M	$330M
EXPENSE BEARING PARTIES	As provided in 3rd expansion Pooling Agreement*	As provided in 3rd expansion Pooling Agreement*	Cotton	As provided in 3rd expansion Pooling Agreement*	B-M-G Group #1 **

* Participating interests will be as shown on Exhibit II of the Canada Ojitos Unit Third Expansion June 1, 1981 Pooling Agreement.

** Owners and percentages of B-M-G Group #1 are:

Stoabs Oil Corp.	2.785237%	Amco, Inc.	7.496125%
Tom Bolack	5.000000%	John R. Anderson Est.	1.294738%
Carpenter Corp.	2.500000%	Albert R. Greer	3.554375%
Bill L. Harbert	.889000%	Greer Enterprises, Ltd.	10.297333%
Jack London, Jr.	2.500000%	Montin-Harbert Constr.	11.663000%
Wm. V. Montin	5.000000%	Jessie Stanley	.379313%
Rocky Mtn. Ltd.	8.804261%	Virgil L. Stoahs	11.237367%
Sun Gas Company	19.990551%	Benson-Montin-Greer	6.608700%

10. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties.

11. Insurance

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Workmen's Compensation and or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

12. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III, and which is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(X) Fixed Rate Basis, Paragraph 1A, or
( ) Percentage Basis, Paragraph 1B.

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 2A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the Overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

ii. The salaries, wages and Personal Expenses of Technical Employees and or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property shall ( ) shall not ( ) be covered by the Overhead rates.

A. Overhead - Fixed Rate Basis

(1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate $ 1,517.00
Producing Well Rate $ 273.00
Compressor Operating Rate $273.00

(2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

[1] Charges for onshore drilling wells shall begin on the date the well is spudded and terminate on the date the drilling or completion rig is released, whichever is later, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days.

[2] Charges for offshore drilling wells shall begin on the date when drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location or rig is released, whichever occurs first, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days

[3] Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig, commence through date of rig release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive days.

(b) Producing Well Rates

[1] An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.

[2] Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.

[3] An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.

[4] A one-well charge may be made for the month in which plugging and abandonment operations are completed on any well.

[5] All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.

(6) An observation well shall be considered an active well.

(3) The well rates shall be adjusted as of the first day of April each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Fields Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

CANADA QUITOS UNIT

OVERHEAD RATES EFFECTIVE 4-1-81

	1980 RATES ($/month)	RATE INCREASE	1981 RATE EFFECTIVE 4-1-81 ($/month)
Drilling well	1517	9.3%	1658
Producing well	273	9.3%	298

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

December 30, 1981

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. W. Thomas Kellahin
Kellahin and Kellahin
P. O. Box 1769
Santa Fe, New Mexico 87501

Re: Extension of Time
Order No. R-6789

Dear Mr. Kellahin:

Reference is made to your letter dated December 15, 1981, requesting an extension of time in which to commence the drilling of the unit well on the lands pooled by the subject order.

The unit well is required by the order to be commenced by January 1, 1982, but it is our understanding that delays in drilling a previous well and the undesirability of drilling the subject well during winter weather in a Forest Service-designated "sensitive soils area" make drilling the well next spring much to be preferred.

Benson-Montin-Greer Drilling Corporation is therefore hereby authorized an extension of time to May 1, 1982, in which to drill the well on the 640-acre unit pooled by Division Order No. R-6789.

Very truly yours,

JOE D. RAMEY,
Division Director

JDR/DSN/dr

cc: Oil Conservation Division - Aztec
George Hunker, Roswell
U. S. Geological Survey - Albuquerque
Case File 7325

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

December 15, 1981

Mr. Joe D. Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Benson-Montin-Greer
OCD Case 7325
Order R-6789

Dear Mr. Ramey:

On September 28, 1981, the Division entered the above referenced pooling order pooling the mineral interests in the Niobrara member of the Mancos formation underlying all of Section 32, T26 North, Range 1 West, NMPM.

That order provided that subject well must be commenced on or before January, 1982. The order further provides that the operator may obtain an extension of time from the Division for good cause shown.

On behalf of Benson-Montin-Greer Drilling Corporation we respectfully request an extension of the order to provide for a well to be commenced on or before May 1, 1982 and as grounds state:

(a) In accordance with another pooling order (R-6750), Benson-Montin-Greer commenced a well in the proration unit consisting of the W/2 of Section 17 and the W/2 of Section 20, T26N, R1W, NMPM. The subject well under Order R-6789 was to be commenced following completion and testing of this first well. However, the first well experienced difficulties in drilling including a fishing job and other unanticipated delays.

(b) The area is designated by the U.S. Forest Service as a sensitive soils area and drilling activities are discouraged during winter weather.

(c) Benson-Montin-Greer is reluctant to commence the subject well at a time that could result in delays occasioned by weather, increased costs, and damage to sensitive soils.

Therefore, we would request an entension of the Order R-6789 for a well to be commenced on or before May 1, 1982.

Very truly yours,

W. Thomas Kellahin

WTK:jm
cc: Mr. Al Greer
Mr. George Hunker

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7325
Order No. R-6789

APPLICATION OF BENSON-MONTIN-GREER DRILLING CORPORATION FOR COMPULSORY POOLING, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of September, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Benson-Montin-Greer Drilling Corporation, seeks an order pooling all mineral interests in the Niobrara member of the Mancos formation underlying all of Section 32, Township 26 North, Range 1 West, NMPM, West Puerto Chiquito-Mancos Oil Pool, Rio Arriba County, New Mexico.

(3) Applicant further seeks a provision that should the pooled lands be capable of producing in paying quantities and pursuant to the provisions of the Canada Ojitos Unit Agreement, be committed to the unit and joined in the participating area of the unit, that there be a re-allocation of all costs and charges, and revenue, to the participants in the well.

(4) That the applicant has the right to drill and proposes to drill a well at a standard location thereon.

(5) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(6) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the hydrocarbons in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(7) That the applicant should be designated the operator of the subject well and unit.

(8) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(9) That any non-consenting working interest owner who does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 200 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(10) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(11) That following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(12) That $1658.00 per month while drilling and $298.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(13) That should the lands pooled herein be capable of producing hydrocarbons in paying quantities and, pursuant to the provisions of the Canada Ojitos Unit Agreement, be committed to the unit and joined in the participating area of the unit, there should be a re-allocation of all costs and charges, and revenue, to the participants in the well.

(14) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(15) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before January 1, 1982, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Niobrara member of the Mancos formation underlying all of Section 32, Township 26 North, Range 1 West, NMPM, West Puerto Chiquito-Mancos Oil Pool, Rio Arriba County, New Mexico, are hereby pooled to form a standard 640-acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the first day of January, 1982, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Niobrara member of the Mancos formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the first day of January, 1982, Order (1) of this order shall be null and void and of no effect whatsoever, unless said operator obtains a time extension from the Division for good cause shown.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Division Director and show cause why Order (1) of this order should not be rescinded.

(2) That Benson-Montin-Greer Drilling Corporation is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 90 days prior to commencing said well, the operator shall furnish the Division and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Division will determine reasonbale well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $1650.00 per month while drilling and $298.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That should the lands pooled herein be capable of producing hydrocarbons in paying quantities and, pursuant to the provisions of the Canada Ojitos Unit Agreement, be committed to the unit and joined in the participating area of the unit, there shall be a re-allocation of all costs and charges, and revenue, to the participants in the well.

(11) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(12) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(13) That all proceeds from production from the subject well which are not disbursed for any reason shall immediately be placed in escrow in Rio Arriba County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 30 days from the date of first deposit with said escrow agent.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Re: CASE NO. 7325
ORDER NO. R-6789

Applicant:

Benson-Montin-Greer Drilling Corporation

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD x

Other George Hunker

CASE 7284: (Continued from July 2, 1981, Examiner Hearing)

Application of Energy Reserves Group, Inc. for an unorthodox gas well location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Cisco location of its Miller Well No. 1 located 660 feet from the South and West lines of Section 12, Township 6 South, Range 33 East, the S/2 of said Section 12 to be dedicated to the well.

CASE 7324: Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 240.01-acre non-standard proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, Ute Dome-Dakota Pool, to be dedicated to a well drilled at a standard location thereon.

CASE 7325: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying Section 32, Township 26 North, Range 1 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well. Applicant further seeks provision for the re-allocation of all costs and charges, and revenues, to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

CASE 7326: Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-4157-C by re-establishing 640-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool with a provision for infill drilling of a second well on each 640-acre spacing unit.

CASE 7327: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying Township 25 North, Range 3 West, containing 23,040 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7328: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and desgianted as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico.

CASE 7325

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

For Cotton Petroleum: George H. Hunker, Jr.
HUNKER, FEDRIC P. A.
P. O. Box 1837
Roswell, New Mexico 88201

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BMG Exhibit Three, Letter 11

BMG Exhibit Four, Letter 12

BMG Exhibit Five, Schedule 62

MR. NUTTER: Call Case Number 7325.

MR. PADILLA: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness.

MR. HUNKER: Mr. Examiner, my name is George H. Hunker, Junior, Hunker, Fedric P. A., Roswell, New Mexico, appearing on behalf of Cotton Petroleum Corporation of Denver, Colorado.

MR. KELLAHIN: With your permission, Mr. Nutter, we'd like to have the record reflect that Mr. Greer has already been sworn, he's currently under oath, in the previous case, and has previously been qualified as an expert petroleum engineer.

MR. NUTTER: Mr. Greer is qualified as an engineer under oath.

ALBERT R. GREER

being called as a witness and being previously sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Greer, I have identified the packet of exhibits that are in the notebook with the yellow cover as your Exhibit Number One. I have not separately identified each of the pages.

Let me direct your attention to the yellow booklet, which is Exhibit Number One, and have you turn to the index portion that is tabbed "A" and have you fold out the map, and using that map as a graphic depiction of this area, I would ask you to generally describe what you're seeking to accomplish by this application.

A. All right, sir. This plat is a plat of both the East and West Puerto Chiquito Mancos Oil Pools. The West Puerto Chiquito Pool is outlined in orange. Within that orange outline are the non-standard proration units which have been approved by the Commission.

In Green is outlined the Canada Ojitos Unit and on the left center part of the plat is outlined in purple color, is the proposed expansion, third expansion of the Canada Ojitos Unit, and within this area in dashed red line, Section 32, Township 26 North, Range 1 WEst, we propose to drill a well to the Niobrara member of the Mancos formation, which is spaced on 640 acres. We've not been able to

obtain the approval of one of the owners of the leasehold rights in this section to the drilling of the well, and we ask that we have this forced pooling.

Q. All right, sir. A well drilled to the Niobrara member of the West Puerto Chiquito Mancos Pool, which is spaced on 640-acres?

A. That's correct.

Q. And you have a voluntary agreement for the drilling of this well from all interests except whose interest?

A. The people that are participating in the well have pooled their interests within all of the west -- proposed third expansion area except Cotton, and Cotton has declined either to join the voluntary pooling in the large area or to give us a response as to joining in a smaller pooled area or to join in drilling of the well and paying their share of the cost.

Q. Within Section 32, Mr. Greer, would you identify for us at this point what portion of Section 32 is under Cotton Petroleum Corporation's control?

A. The southeast quarter, 160 acres.

Q. All right, sir, and that section is outlined by the dashed red line?

A. Yes, sir.

Q. And tell me again what is meant by the outline in pink, which includes Section32?

A. That's the proposed third expansion area to the Canada Ojitos Unit.

Q. Now let's leave this packet of exhibits for a moment and let me direct you to what I have marked as Applicant Exhibit Number Two, and have you identify that exhibit for me.

A. Exhibit Number Two is a cover letter sent to all working interest owners in the proposed third expansion area, inviting them to join in the sharing of costs of two wells to be drilled, one which is the subject of this hearing, and another in Section 20 in the same township.

Q. Was Cotton Petroleum Corporation a recipient of the June 26th, '81 letter?

A. Yes, sir.

Q. All right. Describe in general terms the different proposals that you had outlined in the June 26th letter.

A. In the June 26th letter we set out the plan generally to pool interests within the third expansion area for parties who would like voluntarily to do so, and the reason, of course, for doing this, we had discussed at length with all of the different owners, is the problem that's

brought about by the fact that the spacing of wells to this formation is one well to 640 acres, yet the density of wells within the unit is about one well to five or six sections.

Accordingly, if the well in Section 32 or in Section 20 is a producer, results in a producer, that will produce in paying quantities and meets the requirements to join -- be joined in the participating area of the unit, there will be an investment adjustment so that the costs of all wells are borne by each party in proportion to his interest in the unit.

And if a well is drilled only on one section in the standard spacing for this pool, and is brought into participation, then -- and say another four or five sections are brought in with it, and this is a very good possibility, then in a sense the people who are in the other four or five sections that come in with this well reimburse the parties who drilled the well for their respective costs which could be 3/4ths to 80 percent or even higher. Then the people that took the risk in drilling the well will have a disproportionate interest in the unit, as compared to their risk.

Now their income or rate of return on their adjusted investment will be the same. It doesn't make any difference whether you drill a well on 640 acres or a

pooled area of five or six sections or the entire west part of the unit, an adjustment investment is made. That rate of return will be roughly 40 percent. In other words whoever invests a million dollars, the first year their return will be about $400,000. It makes no difference what the well itself produces. It would actually have to produce 60 - 70 barrels a day in order to do that. But if it would produce as much as like 20 barrels a day it probably will qualify and in a sense, then, the third expansion area people would realize that benefit.

So in order to avoid the problem of -- of investment adjustment, it makes sense, then, to drill in the expansion area on a pooled interest basis where the owners have pooled their interest on at least four or five or six sections. Then when the well is drilled and the costs are borne by each of the parties and the well is brought into the unit, there's a minimum of investment adjustment, a minimum of adverse income tax impact, which results if it is a large investment adjustment.

So the people who have agreed to participate in the drilling of this well, other than partners, have agreed on a voluntary basis to pool their interests and avoid this problem.

Q. Let me make sure I understand. The June

26th letter was the proposal that outlines what you've just told us.

A. Yes, sir.

Q. About a participation for the working interest owners --

A. Right.

Q. -- as you've outlined for the area shaded in pink.

A. Right.

Q. All right, sir. What was the response from the working interest owners within that pink-outlined third expansion area?

A. Some of them have elected to join in the -- in this pooling, and have agreed to pay their share of the cost. We submitted AFE's along with this first letter and they've agreed to participate on that basis.

Not all of the people in the expansion area, but several of them.

Q. I understand. What, if any, response did you receive from Cotton Petroleum Corporation for this letter?

A. No response. I called them the week before that we were writing a letter to give them an idea and give them a little advance notice that it was coming, but

we got no response.

Q. All right,sir. While we still have this plat in front of us, would you identify for me any of the other acreage within the third expansion that has been the subject of a compulsory pooling by your company?

A. Yes, sir. The non-standard proration unit in the west half of Section 17 and west half of 20, Township 26 North, Range 1 West, we asked for forced pooling on that about a month ago and I believe the order has been issued on that.

Q. Yes, sir, what is the order number for that non-standard proration unit?

A. Order R-6750.

Q. Now before we leave the expansion area, can you identify for me if there are any well locations in which wells have been commenced or for which locations have been permitted?

A. Well, we have the location in Section 8, Township 25 North, Range 1 West, that Koch staked about a year ago. We have some acreage in that section. They sent us an AFE on it.

Q. This is 1 West, 24 North, is it?

A. 25 North.

Q. 25 North.

A. 1 West, Section 8.

Q. All right.

A. It's my understanding since that time, we suggested when Koch sent us the AFE for our participating and joining in that well, that they consider doing what we're doing now, namely pooling several sections, and we went from there with further negotiations with Koch, and my understanding at this point is that Koch has -- has elected not to do anything at this time.

MR. NUTTER: And the well has never been drilled, then?

A. No, sir, that well has never been drilled.

In Sections 5 and I believe 8 in 24 North, 1 West, I believe that Cotton has staked locations.

Q. Let me direct your attention now, Mr. Greer, to a July 28th letter, which is marked as Exhibit Three, and have you identify that for me.

A. This is the letter we wrote to Cotton to confirm that we're ready at any time to discuss how Cotton might participate in the drilling of this well and to point out that we felt it was a waste of their time and the time of the Oil Conservation Division and our time, to go through with a forced pooling hearing, when all the issues could be

more readily settled if we would just sit down and work -- try to work them out.

Q. What, if any, response did you receive from Cotton Petroleum Corporation to the July 28th letter?

A. No response.

Q. All right, sir, what's the next thing that took place?

A. That would be July 3rd that we wrote them again.

Q. All right, sir, that's Exhibit Number Four?

A. Exhibit Number Four, and we had in the meantime discussed with -- with Mr. Koeniger, Cotton's landman, again reviewing all the issues which we've discussed here, which we've reviewed just briefly today, and advised that we would ask for a forced pooling hearing and hopefully that we could settle the matter before -- before the hearing came up. In fact, at that time I thought the hearing would be August 15th, I believe. I had my dates confused.

Q. Did you talk on the telephone to Mr. Paull?

A. Later I talked to Mr. Paull. I think about ten days or two weeks ago.

Q. All right, sir, let me direct your at-

tention to page two of the letter, to the second to last paragraph, which says, "We realize that ..." and it makes reference to a consultant by name of Van Poollen?

A. Yes, sir, we talked to --

Q. How did you come to know that information?

A. On June 5th, I believe it was, the United States Geological Survey, in their Albuqueque office, invited -- at the Albuquerque office, had invited people interested in this proposed third expansion to -- to meet with USGS representatives and present their views, and at that time Cotton was represented among other people by Van Poollen, consultant, and at that time he stated that in his opinion an area west of the line, which he drew, which included this Section 32, would be nonproductive.

In view of that, then, of course, it occurs to us that perhaps Cotton may have changed its mind after buying this lease as to whether it would be productive and might not want to risk their funds in taking a share in drilling the well, and perhaps they would want to farm-out. So I mentioned that in here, that if they would like to farm it out, that we would pass that on to the other parties in the pooled area to review.

Q. All right, sir, after the July 3rd letter was sent by you to Mr. Paull at Cotton, what, if any, response

did you receive from Cotton or any of their employees?

A. I didn't receive a response but I called, as I indicated just a minute ago, ten days or two weeks ago, and discussed with Mr. Paull that we would like to meet with them before this hearing, that we could save the time and such in the hearing, and Mr. Paull advised me at that time that had our -- our correspondence and would be reviewing it and when they had decided their position they would let us know, but I did not -- I haven't heard anything since.

Q. As of the date of this hearing have you received any indication from Cotton Petroleum Corporation what the position was with regards to the drilling of the well to this depth, dedicating this acreage to it?

A. No, sir, I have no idea.

Q. All right, sir. All right, let's commence, then, with the -- back with the exhibits in the booklet, and have you turn to the portions of a log, which are the next exhibit in the packet, and have you identify that for us.

A. This shows generally the -- the markers of the formations in which we are interested, particularly the Upper Mancos, the Niobrara member, the Carlile, and the Greenhorn.

We have three different depth considerations here, which you need to understand in order to properly

review these, what we're discussing today.

The Canada Ojitos Unit, the participating area within it is the -- defined as the Niobrara - Greenhorn. It includes the Niobrara member, the Carlile, and the Greenhorn.

Q. Those three members are in the existing Canada Ojitos Unit?

A. Participating area.

Q. All right, sir.

A. The Unit itself is an all formations unit.

Q. Okay.

A. The pooling, voluntary pooling of the parties who are voluntarily pooling, and the section that's included, in a sense, in the third expansion, or the proposed third expansion, covers formations from the top of the Mancos to the base of the Greenhorn. We refer to it as the main Mancos.

The West Puerto Chiquito Pool, I believe, on which the 640-acre spacing applies, I believe the vertical limits are just the Niobrara member of the Mancos. That being the case, of course, all we're concerned with in this forced pooling today is the Niobrara member of the Mancos.

Now we have proposed to drill the well

to the Greenhorn and so this brings up a possible problem if we get production in the Greenhorn, as to what we'd do, and in our plans we indicated in the last hearing last month in Case 7287, was that if the Greenhorn is dry we have no problem other than, of course, the allocation of costs that it takes to drill from the -- the Niobrara to the -- to the Greenhorn.

Q. Let me make sure I understand this, Mr. Greer.

What would be the spacing if there is production in the Greenhorn, then?

A. Presently I think it's 40 acres a well.

Q. So for Cotton Petroleum's interest in Section 32, in order to form a spacing and proration unit consisting of 640 acres, then it is only necessary to pool the Niobrara member of the --

A. The Mancos.

Q. -- Mancos?

A. Yes, sir.

Q. And in the Bolack-Greer No. 1 Bolack Well, the well on the left of this section, you show it at an interval of 6968 to 7865.

A. Yes, sir.

Q. All right, sir, so that's what we're talking about here today?

A. Yes, sir.

Q. All right, sir.

A. Other than we also need to talk about the fact we may spend a little more money going to the Greenhorn, and we'd have to separately account for that if there's a forced pooling.

Q. All right, sir. Run through that for me quickly now. I understand what you intend to do with the different formations. How would you propose to allocate the costs?

A. We'd keep track of them by the rig time and material.

Q. So in the event Cotton's interest is pooled, they would be accountable only for those costs involved in drilling and testing through the Niobrara member?

A. Yes, sir, except, of course, they've been invited to join if they want to join in drilling to the Greenhorn, they're welcome to join us.

Q. I see. All right, sir. Is there anything else you'd like to refer to before we leave this -- exhibit?

All right, let's go to the next exhibit under Section A and have you tell us what that is.

A. This is page one of the unit operating agreement for the Canada Ojitos Unit in which we have identified by Main Mancos formation.

And perhaps I should point out here that again, since the Canada Ojitos Unit is an all formations unit, if the third expansion takes place all formations would be unitized, but we have a provision in the unit agreement for segregating the working interest to different formations and since a number of the working interest owners did not want to be -- who do want to join in the unit, do not want to unitize all formations, we've made the provision that formations other than the Main Mancos can be operated independently by -- by the owners.

Q. All right, sir.

Let's turn to the Section B of the Exhibit One and have you fold out the next exhibit and tell me what this is.

A. The plat and the vertical schematic cross section show our interpretation of the structure of the Niobrara member of the Mancos in this area, and the coloring shows generally the change in flex of the formation as a change in dip occurs from -- from its outcrop, which is two or three miles east of the colored area shown on the map. It dips to the west, dips at varying rates, flattening -- a

steep dip at the outcrop, flattening to the west, and we've colored on there the generally different flexes the way we interpret them.

Our interpretation is that there is a minimum of flex west of the gray-shaded area and we believe that the reservoir in the unit is related principally to flexure of the formation and as such as we move west in the drilling of wells, we have found tighter formation, lower productivity wells, and we presume that in time, or in distance, rather, moving farther west from the unit, that the formation will exhibit the rather poorer producing characteristics that's found in the West Lindrith Gallup Dakota Pool, and a comparison of production history of three of the wells in each of these areas is shown on the pink sheet, pink graph of production rate versus time. The rather steep decline of the wells in the West Lindrith Gallup Dakota Pool compared with the flat decline of the wells in the Canada Ojitos Unit. Just how much of the production from the commingled Gallup and Dakota in the West Lindrith Pool comes from the Gallup, which the Gallup, incidentally, is correlative with the Niobrara member here, which we call the Niobrara, we don't know, but some estimates by some companies have indicated the Gallup to contribute from a half to 15 percent of the total production. If that's the case, then, wells with a steep decline,

shown here as Cotton's Wells 103, 104, and 105, where the production rate is now something like 300 barrels a month per well, about 10 barrels a day, then from 2 to 5 barrels of that on an average would be from the Gallup, which would be rather poor production.

All this is that as we move west from the existing unit, the risk becomes greater in obtaining a commercial well, and because of this we feel that this location is entitled to the maximum penalty allowed for a nonconsent operator or forced pooling in which the owner takes no risk in the cost of drilling the well.

Q. You're familiar, then, with the statutory authority of the Division to assess a risk factor penalty of 200 percent against the nonconsenting working interest owners in a force pooled unit?

A. Yes, sir.

Q. And based upon that 200 percent maximum, what is your opinion as to an appropriate penalty to be assessed against the nonconsenting working interest owners?

A. I think it should be 200 percent.

Q. All right, sir. Any more comments before we leave Section B of the exhibit?

A. No, sir.

Q. All right, let's go to Section C and

have you identify that plat for me.

A. Section C is -- is a plat of the proposed third expansion area, and colored on this plat is the section in which we seek the forced pooling, and we colored there the different leases by record title owners, Southland, our company, and Cotton.

The Southland lease and our lease, of course, is part of the voluntary pooling of the parties who have joined in the voluntary pooling in the third expansion -- or the proposed third expansion area.

Q. Where is the subject well to be located in Section 32?

A. In the northeast quarter; it would be on the yellow lease.

Q. It will be a standard location for the pool rules?

A. I believe it's a standard location, yes, sir.

Q. All right,sir, and this plat conforms, then, to the interest ownerships in the third expansion as identified in the pink-outlined area in the first plat we looked at?

A. Yes, sir.

Q. All right, sir. Turn now to the portion

of the exhibit that is indexed "D" and identify for us the next exhibit.

A. Well, this is the AFE which we submitted and has been approved by the parties who are going to participate in the cost of the well, with the exception of Cotton. We estimate approximately a gross cost of $1,300,000, with probably $140,000 -- $170,000 which represents recoverable frac oil. We plan on using jelled diesel. On recovering it, we'd sell it for the crude oil price.

And then if our contingency costs are not required, why, the net well cost would be approximately $1,000,000.

We realize that there are, perhaps, cheaper ways to drill -- drill these wells and we've reviewed those, and in our opinion the risks involved in trying to go a cheaper way are not warranted. The people who so far have agreed to join us, they feel the same way.

The second page under Section "D" shows the allocation of the costs of the well. We show there three columns, three options which Cotton has as we see it, and there may be some other options Cotton has, but at least they have the option of joining in the pooling agreement, the voluntary pooling agreement with the other parties, or they, Cotton can elect to pay its 25 percent share of the well, or

Cotton can elect to be force pooled.

The division of the costs under each of those three options afforded Cotton, are shown here on this page.

Q. All right, sir, before we leave the AFE, I want to direct your attention back to Exhibit Number Two, which is the June 26th letter. There was an attachment to that letter which I show you. That is your remarks concerning the drilling program and costs involved. Was that attachment furnished to Cotton Petroleum Corporation in that particular letter?

A. Yes, sir, uh-huh.

Q. And that attachment outlines your reasons for believing that you would go ahead and have to stimulate the proposed well in order to determine whether it was going to be a successful well or not?

A. Yes, sir. We feel like in this area it doesn't make sense to -- to adopt the industry custon of estimating a dry hole cost and a producing well cost because the total costs need to be -- need to be paid and the well needs to be fraced, needs to be equipped for production. All the costs that are involved in producing a well have to be incurred before you even know whether you got a producer, and there will be some salvage or tangible equipment, but that

would be all for a dry hole, and so we don't show the dry hole cost.

Q. What, if any, response did you receive from Cotton Petroleum Corporation with regards to theestimated cost of this well?

A. No response.

Q. All right, sir. Let me show you what was introduced at the Case 7287 on July, '81, as the AFE for the well for which the west halves of Sections 17 and 20 were force pooled, and ask you how the costs compare between the proposed well and the other well immediately to the north in the expansion area?

A. Well, our estimated costs are almost the same. We have about $10-or-12,000 difference in the two. I believe that's we've estimated one day less of rig time on the well in Section 20.

Q. My question is -- my question is whether or not the estimated charges for the costs of the subject well are consistent and compatible with the charges you are making to other individuals in similar situations within the third expansion area?

A. Yes, sir, they're quite similar.

Q. All right. Are -- do you have available any other estimated costs for other wells drilled to the

Niobrara member in the third expansion area?

A. I don't recall exactly Koch's AFE. I believe it was -- Koch, as I recall, was about $800,000, was their estimato. They did not have as large a frac treatment, however, as we have.

Q. To the best of your knowledge, information, and belief, Mr. Greer, are the estimated well costs for the subject well consistent with charges for similar wells in the area?

A. Yes, sir, as I said before, they could be drilled cheaper, and we think it's best not to take the cheap route.

Q. In your opinion is the cost reasonable and appropriate?

A. Yes, sir.

Q. All right. Now, let me direct your attention back to the second page, then, in which you show several ways in which the costs might be shared. Would you run through that again for us so that we'll understand what you intend to accomplish?

A. All right. Under the first column, which we titled it if Cotton joins in the pooling agreement, and by there we mean the voluntary pooling agreement which the other parties have joined --

Q. Now this would be a pooling agreement for the third expansion?

A. No, just select parties within the third expansion area, just whoever wants to join in drilling this well in the third expansion area, we've invited them to join and to join on the basis of the acreage they have in that expansion area, and so if they join on that basis, then the entire cost, 100 percent cost of the well, would be paid by the parties in that agreement in proportion to their interest within -- of their pooled interest.

Q. All right, if Cotton should join that agreement, then, they could avoid the triggering of a penalty factor or charges against their interest in this well?

A. Well, yeah, they could avoid the problem of the investment adjustment in the event the well comes into participation.

Q. All right, I think I understand. What's the second column, then? What is that option?

A. That option is if Cotton would like to join in drilling this well based only on the 640-acre spacing unit, and pay its 25 percent share of the cost, then Cotton's share would be about $300,000.

Q. All right, sir, and then if Cotton should -- I guess you mean to say if they are force pooled --

A. Right.

Q. -- is that the third column?

A. The third column is they're force pooled. In the second column the 75 percent of the cost would be provided by the third expansion pooling agreement parties; 25 percent by Cotton.

If Cotton elects to be force pooled, then the share of the costs that will go to the -- to Cotton's share, to pay Cotton's share of the well, we think should be by the owners of the leases in the existing unit, and their interests are set out in the bottom schedule. So these would be the parties who would bear Cotton's share of the cost if Cotton elects to be force pooled.

Q. These are the costs of the well and Cotton's share does not indicate the value of the penalty factor, does it?

A. No, sir.

Q. All right. And then you've indicated down in the bottom of this exhibit, the owners and percentages of the Benson-Montin-Greer Group?

A. No. 1.

Q. Yes, sir.

A. Yes, sir.

Q. All right. All right, if you'll turn to

the next page and identify that one for me.

A. This is a copy of the section out of the accounting procedure attached to the unit operating agreement, which shows the drilling well rate and the producing well rate, compressor operating rate, for the unit operation.

We've suggested we use those rates and they were increased April 1, as shown on the next page, in the figures shown there; about $1500 a month for a drilling well and $273 for a producing well.

Q. All right, sir, and what is -- what if any recommendation do you have to the Examiner for the overhead charge to be included in a pooling order against non-consenting owners?

A. I would recommend that these figures, this same figures be used.

MR. NUTTER: Which ones --

Q. Which ones are --

MR. NUTTER: -- the new ones or the old ones?

A. It's the one that went into effect April 1 of this year, $1517 a month --

Q. No, sir, that's been adjusted upwards as --

A. Oh, $1658.

Q. All right, sir, that is the drilling well rate?

A. Right, and $298 is the producing well rate effective April 1, yes, sir.

Q. Per month?

A. Per month.

Q. All right. Mr. Greer, were Exhibits One through Four prepared by you or compiled under your direction and supervision?

A. Yes, sir.

Q. Let me direct your attention to the application in this case and show you page two and direct your attention to paragraph six of the application. Also, the advertisement in this case contains on the last line of the advertisement, saying that you as the applicant have requested a provision for the re-allocation of costs and charges and revenues to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

Would you describe briefly how you would propose to have that accomplished by this pooling order?

A. Well, of course, this would be a separate thing which just automatically, I believe, would come about in the event the well is determined by the USGS as being pro-

perly -- or it would be proper to include it in the -- in the participating area of the Canada Ojitos Unit. Then these things just automatically take place, which is an investment adjustment.

Q. What, if any, opportunity will Cotton have to object to the investment adjustment should it take place?

A. Well, the -- the application for permit to drill will carry the stipulation that -- that the USGS will require the royalty committed to the unit agreement, if they deem it proper, and it's my understanding that the -- Cotton has appealed that stipulation of USGS, and I presume by the same token they could appeal this part of the same -- of the same stipulation. This in a sense is just a part of that stipulation.

Q. My point is whether or not Cotton will have an opportunity at such time as the equity adjustment is made to voice an objection and determine whether that adjustment is equitable and fair to all parties.

A. I presume they do.

Q. It's not an election that they have to make today?

A. I believe they can object any time they want to. I believe any -- any owner has that right, but aside

from objection, of course, the investment adjustment would be made in accordance with the terms of the unit agreement.

MR. NUTTER: Now, what adjustment are --

A. Are we talking about?

MR. NUTTER: -- we talking about? I realize you're talking about if the land should come into the unit, then there would be an adjustment of the cost to the unit owners.

A. Right.

MR. NUTTER: Including Cotton, if they were in the unit.

A. That's --

MR. KELLAHIN: That's the point I was attempting to make.

MR. NUTTER: Right. You're not talking about the portion of our statute that says that -- that they could have a right of objection, you're not talking about that portion of the statute that says if there's a disagreement as to costs, are you?

MR. KELLAHIN: That's my next question.

MR. NUTTER: Oh.

Q. The -- once the well is drilled and the actual cost of the well is known, you have no disagreement with the typical pooling order that requires you to furnish

Cotton a copy of the actual costs and also provides a period of time in which the Commission can, as a result of an objection, have another hearing on the actual reasonable costs?

A. No, sir, we have no objection with that.

Q. All right, sir.

MR. NUTTER: But would that be part of the allocation of costs or is that a determination of costs?

MR. KELLAHIN: That's a determination of the actual costs of the well.

MR. NUTTER: There's no provision for making a further and having a further hearing for the determination of the allocation of costs, is there?

MR. KELLAHIN: No, sir, there is not.

MR. NUTTER: That would be the terms under which they come into the unit or don't come into the unit.

MR. KELLAHIN: My point was that, if I understood Mr. Greer correctly, that outside of the order, that Cotton will still have an opportunity to determine for themselves whether that allocation if fair and appropriate for them.

MR. NUTTER: And that would be when they determine whether they were going to come into the unit or not with their lands, I think.

MR. KELLAHIN: That's right.

MR. NUTTER: And wouldn't be the subject for further hearing of the compulsory pooling.

MR. KELLAHIN: That's right.

That concludes my examination of Mr. Greer.

We move the introduction of Exhibits One through Four.

MR. NUTTER: Exhibits One through Four will be admitted in evidence.

Are there any questions?

MR. HUNKER: Yes, I'd like to cross examine --

MR. NUTTER: Mr. Hunker.

MR. HUNKER: -- Mr. Greer.

CROSS EXAMINATION

BY MR. HUNKER:

Q. Mr. Greer, have you filed an application for permit to drill the well in the northeast quarter of Section 32?

A. I believe it's been filed.

Q. Do you know whether it has been approved or not?

A. I don't believe they've had time to approve it.

Q. You mentioned the fact that a well was planned in Sections 17 and 20.

A. Yes, sir.

Q. In 26 North, 1 West.

A. Yes, sir.

Q. Has a well been commenced in either of those sections?

A. Yes, sir, we're drilling a well in Section 20 now.

Q. And what's the footage location of that well?

A. I believe that it is at an orthodox location and although I don't have the exact figures here, I'm fairly certain that it's close to 1980 from the north line -- between 1650 and 1980 from the north line and 660 from the center of the section, so that would be --

Q. That would be about 16 --

A. Yeah, 1980 from the west line, I believe and that could be the figures, 1980 from the north and 1980 from the west.

MR. NUTTER: In 20?

A. In Section 20, Township 26 North, 1 West.

Q. That would put it within 660 feet of the east line of the proration unit, is that correct?

A. Yes, sir, uh huh, that -- which is a standard location for these nonstandard proration units.

Q. Was your application for permit to drill approved by the USGS?

A. Yes, sir.

Q. Do you have a copy of the approval?

A. I don't have it with me today, but we have a copy.

Q. Was a stipulation attached to that approval?

A. Yes, sir. I presume you mean a stipulation that if the USGS determined it proper to include it in the Canada Ojitos Unit, that it would be included in the unit, committed to it.

MR. HUNKER: Excuse me a minute, Mr. Examiner. I'm looking for the specific language that the USGS has incorporated in the stipulation because I think specific mention is made in that stipulation with regard to the Greenhorn, and --

Q. Mr. Greer, in connection with Cotton's application for permit to drill in Section 5, to which you made reference, the following stipulation was appended to

their approval. This approval is granted with the stipulation that after drilling operations cease the well be tested to the satisfaction of the Deputy Conservation Manager, Oil and Gas, USGS, to determine if the well is in communication with the Niobrara Greenhorn reservoir that exists in the original Canada Ojitos Unit area.

It is further stipulated that if such communication is shown all lands proven productive or necessary for unit operations in this lease within the designated expanded Canada Ojitos Unit area be committed to the Canada Ojitos Unit agreement and unit operating agreement.

This stipulation is attached pursuant to the provisions of Section 2-B of the lease instrument.

Does the application for permit to drill which you filed on Section 20 contain the precise stipulation that I have just read?

A. I read the stipulation and I can't say that it was precise, worded precisely the same, but the intent or the substance is the same.

Q. We're talking about the West Puerto Chiquito Pool and you have made a distinction between the Main Mancos Oil Pool and the Greenhorn. Now tell me whether or not this stipulation is going to require you to drill your well in Section 32 to the Greenhorn formation?

A. No, sir.

Q. And -- but you do contemplate drilling the well to the Greenhorn formation, is that correct?

A. Yes, sir.

MR. NUTTER: The one in 20?

MR. HUNKER: The one in -- no, not in 20.

MR. NUTTER: This one?

Q. 32. Do you anticipate that when your application for permit to drill the well in Section 32, that it will contain a similar stipulation, is that correct?

A. Yes, sir. But that does not mean that we have to drill to the Greenhorn.

The USGS defined the participating area vertical limits to be the Niobrara, Carlile, and Greenhorn. So far we have developed principally the Niobrara.

There are reasons that I set out in my letter of June 26th that makes it appear prudent under certain conditions to carry these wells to the Greenhorn, and one of the conditions would be if in drilling the Niobrara we have not picked up enough oil to make drilling difficult, and we're still dusting with gas, we can drill on down to the Greenhorn at a very minimum additional cost, and for that reason we want to have it as an option and to have the parti-

cipants agree to the additional cost in the event at the time we drill the well it appears practical and prudent to go to the Greenhorn.

And the Greenhorn, I might -- as I set out in my letter of June 26th, in the several townships in this area, there's only been probably the same number of wells that have drilled to the Greenhorn, namely four or five, or tested the Greenhorn.

Q. Is it your understanding of the stipulation that the USGS has imposed that if the Greenhorn is tested and appears to be in communication with the Greenhorn production in the Canada Ojitos Unit, that the owner of the lease is going to have to commit his lease to the Canada Ojitos Unit? Is that your understanding?

A. The Greenhorn is not now productive in the unit. The USGS, the intent of their provision is to protect the formation which is currently under pressure maintenance in the unit, which is the Niobrara.

Now, the participating area when it was designated initially, covers the Greenhorn.

MR. NUTTER: How about the Carlile? Is it productive?

A. So far we have only one well in the East or West Puerto Chiquito Pool that I recall that produces from

the Carlile.

MR. NUTTER: And none from the Greenhorn?

A. And none -- it's just recently we have completed a well in the East Puerto Chiquito Pool and we are testing the Greenhorn in it. It's been on production about two months. It's producing now, I think, about 10 or 15 barrels a day. We have not yet stimulated it, and we will continue to produce it for, I imagine, a long period of time to determine what it's going to do natural before we attempt to stimulate it.

The -- the reason that we have, and the thoughts that we've had with regard to the Greenhorn, are simply that the -- wherever it's been drilled in this area it's saturated with oil. What it needs to be commercially productive, we think, is a fracture system. Well, we found a fracture system in the main Canada Ojitos Unit in the Niobrara, we think it's due to flexing. The well we're testing now in East Puerto Chiquito is on a part of the -- where there's slight flexing, not the maximum amount of flexing, in the east pool, and these things lead us to believe that -- that where it's practical, then, in drilling these wells, where we have the flexure that we have in Canada Ojitos, and of course it's tending to fade out to the west, but still it's possible that there's a little incline right

in this area, but if we're not having trouble drilling and we can drill on down from the Niobrara to the Greenhorn at a minimum cost, then it's only prudent to do it.

And this is our reason for taking these two wells, in fact, we probably will take the third well, we're planning on three wells at this time, the one we just mentioned in Case 7287, this well in Section 32, and then we're planning on drilling another well in Section 22. In the past we haven't considered it prudent to test the Greenhorn. The only shows that we'd had were rather small. The price of oil was low. And in some of the wells it appeared there could be a problem in getting a good cement job up through the Niobrara if we had a longer liner than what we'd been running in completing wells in the Niobrara. But since we drilled the wells here 10 or 15 years ago in the Canada Ojitos Unit, in other areas we've found that by -- by drilling a large enough hole, setting 7-5/8ths inch casing and running extreme line liners, that we can get a good cement job over longer sections. And that being the case, we think it's worth trying in at least a few of these wells to extend them to the Greenhorn, unless at the time that we drill the Niobrara we've picked up so much oil that it's difficult to continue drilling.

MR. NUTTER: The well that you're testing

now in the Niobrara over in the east side, is it -- is it perforated in any other zone except that -- that you're testing in the Greenhorn, --

A. Yes, sir.

MR. NUTTER: -- are you perforating anything but the Greenhorn?

A. No, it's only the Greenhorn.

MR. NUTTER: I see.

Q. Mr. Greer, you drifted just a little bit from my question, and I appreciate the education, but --

MR. NUTTER: I lead him astray from your question.

MR. HUNKER: I beg your pardon?

MR. NUTTER: I lead him astray from your question.

MR. HUNKER: I think you did.

Q. Were you instrumental in Having the USGS promulgate this stipulation in connection with applications for permits to drill on the west side of the unit agreement?

A. Oh, I think we wrote them a letter, which I'm sure Cotton has a copy of, I don't remember when it was, that we asked, yes, that they do just exactly that. We didn't know that they would do it, but we thought it proper

for them to do it.

Q. You attended the meeting in the USGS offices in June of 1981, didn't you?

A. Yes, sir.

Q. And isn't it made rather manifestly clear at that time that Cotton did not choose to join the standard unit?

A. Yes, sir, that's the impression I got.

Q. Have you submitted to Cotton a counterpart of the type of agreement that you made with Southland for their consideration to see whether or not they would choose to participate on the same basis that Southland is going to participate?

A. Not only did we submit them a copy, we told them we would consider any other suggestions that they might have; any other areas to be pooled, and any other --

Q. Have you -- have you offered them a 25 percent interest in this well on a participating basis without the restriction that they join the Canada Ojitos Unit?

A. Yes, sir.

Q. And you're willing today to let them participate in the cost of drilling this particular well without any obligation on their part to join the unit, is

that correct?

A. Without any obligation other than the stipulation which the USGS has placed on the permit to drill.

Q. It's only been imposed on your lease. It hasn't been imposed on Cotton's lease. Would you force them to join your unit?

A. I believe you're drawing a pretty fine distinction here, Mr. Hunker. When -- when these leases are pooled for the -- for the drilling of this well, it would seem to me rather impractical to attempt to segregate one lease out and -- and in fact I don't know how, in all conscience we could -- could do this with the USGS.

Q. You're making a deliberate attempt to get the Oil Conservation Division to put pressure on Cotton to join the unit, isn't that the whole purpose of this case today?

A. Oh, no. What we want to do is get the well drilled. Not at all. You have the right to participate in the cost of this well. You have no obligation to join -- to voluntarily join the unit, but if the well tests as required -- is tested as required by the USGS, and the USGS determines that the well should come into the unit, then of course, you're -- you're obligated.

Q. Well, let me ask you this question. Just

let's be practical. You've presented an exhibit here that shows that if Cotton pays its way, its cost would be $330,000.

A. Right.

Q. How much is Cotton's cost going to be if there is a re-allocation and costs, expenses, penalties, and everything else that you mention in your application?

A. Of course, if Cotton pays its way there is no penalty.

Q. All right.

A. We need to understand that.

Q. All right.

A. If there's a re-allocation, we --

Q. How soon will they get their money back and how much will they get back?

A. Well, immediately on the -- the investment adjustment, they get that part of their money back. Then --

Q. And what is that? How much money is that?

A. Well, we provided months ago each of the participants with a schedule showing just what that is. Would you like to see another copy of it? It's, I think --

MR. NUTTER: Why don't you put that as an Exhibit, Tom, because I was going to ask some questions

along this same line?

MR. KELLAHIN: Be glad to.

A. We discussed this at a meeting in Denver, I believe, the last of February or the first of March. We also mailed each of the participants in the -- in the proposed third expansion area this same schedule. The meat of it is that for the adjusted investment of all parties who would participate in the drilling of the well in the third expansion area and it's brought into participation, an investment adjustment is made on the adjusted investment. There would be roughly a 40 percent rate of return. If, for instance, a million dollars is invested, the first year there will be a $400,000 return.

The production has a slow rate of decline and it looks like it could be that way for a number of years.

The problem, and one which we mentioned earlier, and why we think it makes sense to pool larger than 640 acres, is showing in this first column, where we show a one section drilling party, with one section added to the participating area. In round numbers the weighted acres in the participating area now is 35-to-40,000. We used 40,000 on this example.

You drill one well, in line two we show

the acreage added is 640 acres, then the value for the total weighted acres is 40,640.

The equity then of one section in the participating area is 1.57 percent. Now that's the share of total cost that a party who drills on this 640 acres will be -- it will be his share. That's total cost inside and outside the existing unit.

If the well cost $1,000,000 then the drilling party's share in the total well investment then is about $180,000. The risk capital, then, that's returned to the drilling party is $821,000. The drilling party's initial rate of income is $71,000 and $71,000 for an investment under line seven of $179,000 is 40 percent.

But the drilling party's rate of return on their risk investment, $71,000 out of a $1,000,000 risked is only 7 percent.

Then in the second column we show a one section drilling party with six sections added to the participating area and there the figures are just about the same. The significant difference comes in is if you have six sections pooled, shown in the third column, and six sections added to the participating area with the drilling of a well, then the equity of one section in the resulting participating area is 1.46 percent. The equity with six sections is 8.76

percent. If the well cost is $1,000,000 then the investment adjustment, and this is based on the total investment of roughly $10,000,000 plus this new well, then comes out to about $1,000,000. So there is no -- no investment adjustment in line eight; then there's no risk money returned.

The drilling party's, then, initial income rate is $397,000 the first year, which is 40 percent, in round numbers.

So, this is the -- in answer to your question, if -- if the party participates in only one section and the well is drilled on that section, then he shares in proportion to the number of acres he has in that section with this kind of a return of investment, $1,000,000 spent, $6-or-7-or-8,000 return in investment adjustment. His net investment then is on the order of $200,000.

And this, of course, is the problem that is brought about that we have to drill wells on a lower density than the State spacing sets, and it's impractical in our view to try to set a wider spacing than 640 acres. We need the flexibility of location our wells and so it's just a happenstance, a problem, of this particular formation that we feel needs to be recognized, and why we have urged Cotton to sit down and discuss it with us and review these things and understand what we're talking about.

Q. I think that we're confused, Mr. Greer, by your figures, and we realize that you're very well acquainted with your unit and its operation, but we know that the basic unit agreement, all of which is in a participating area, covers 53,000 acres plus.

A. Right.

Q. We know that your expanded area, the area that the USGS has said that they would approve as an expanded area given certain ratifications and joinders by necessary parties, that that contains 16,000 acres.

So we're talking about a great number of acres and you talk about weighted acres here and we don't quite understand those things, and that's why I asked you the questions that I -- that I do.

Would Cotton, for example, share in the production from the unit,presently drilled unit wells at the rate that you specify here on this exhibit?

A. Yes, sir. That's why --

Q. Would there be a cross assignment to them showing their interest, their participating interest in the -- in the unit?

A. No, sir. That's one of the virtues, of course, of unitization, is it saves a tremendous amount of title work and legal work, that I consider a benefit. The

attorneys, perhaps, may not.

There is no need to make cross-assignments. Just by virtue of bringing the land into participation, the allocation of -- of income and expenses, this just follows automatically through and you're spared the -- the time and legal expense and the clearing of the records by cross-assignments.

Q. We would like to see how your deal with Southland is actually structured, wherein Benson-Montin-Greer Drilling Corporation has made an agreement with Southland for their participation. Maybe if we saw that sort of an agreement, we could -- we could come to terms with you, Mr. Greer. We're really not the fellows in the black hats that you've made us out to be.

Now would you be good enough to furnish us with a copy of the instrument that you used with Southland to arrive at a participation?

A. Well, you have a copy of it there that you referred to awhile ago, and as I indicated earlier, we're willing to enter into a new pooling agreement, a separate pooling agreement. We've already started this well in Section 20. We think it would have been best if Cotton had joined us in -- in drilling this well, and of course, we might be able to back up and bring Cotton into this one, but if not,

we're willing to consider a separate pooling, a different number of sections, whatever. And it seems to me, of course, that all these things are best handled in our office or Cotton's office rather than taking up everybody's time here at this -- this kind of a hearing.

Q. Are you satisfied with the order that was issued by the Commission in Case Number 7287?

A. Yes, sir.

Q. It makes no provision for the inclusion of those two half sections within the confines of the Canada Ojitos Unit, do you realize that?

A. I didn't realize the distinction was -- was there. As I read it, it makes no difference. That's just an automatic function of the -- of the stipulation, and I think it's good that it was included in this notice so that there's no question that --

Q. In this case you've asked for an order that directs Cotton to participate on the basis of unitization.

A. Well --

Q. Ultimately, ultimately on the basis of unitization, is that correct?

A. Only if it's brought into the unit. We don't say that you're obligated to join in the unit. It's

only if it comes into the unit.

We're not obligating Cotton -- or not trying to obligate Cotton to do that. The USGS has taken that position and --

MR. NUTTER: Mr. Greer, let me, excuse me, Mr. Hunker.

MR. HUNKER: Yes, sir.

MR. NUTTER: Mr. Greer, under the terms of this stipulation by the GS, which admittedly you proposed to them and didn't know they would accept, but they did, but under the terms of that is it essential that if this well is drilled and say Cotton participates to the tune of 25 percent either voluntarily or under compulsory pooling order, is it essential under the provisions of that USGS stipulation that their interest has to be brought into the unit?

A. Well, yes, sir. I don't see any practical way to do it otherwise. You see, how --

MR. NUTTER: I realize the 640 would have to be considered as part of the participating area under that.

A. Right.

MR. NUTTER: But can't they have -- the participating area, I mean the 640 would participate in the unit, but isn't is possible for them to have their working

interest carved out of the participating area's share so that they still have a quarter of the well?

A. Well, the problem there if you try to do something like that is the same problem as if you try to carve any well out, whether you carve a part of a well or all of a well, and the problem is that should gas channel to that well then we as unit operator might shut the well in, restrict the production, or whatever, and in a well that any part of it has to be a part of the unit so that it can be operated efficiently --

MR. NUTTER: But what we're doing here today, we're considering not a compulsory pooling case for 640 acres, we're considering a compulsory pooling case that's putting 160 acres in 53,000 acres.

A. No, and I'm sorry if that's what it appears to be, but all we're interested in this hearing today, and I believe that -- well, certainly it's not our intent to do that. All we're trying to do today is to arrive at how this well can be drilled, who's going to share in the cost of it, and then if it meets certain requirements of the USGS it will automatically go into the unit.

MR. NUTTER: Right, and so --

A. So we're not asking --

MR. NUTTER: -- if the well is -- and the

terms of the stipulation are that you test the well and if it's in communication with the main body of the pool, then it has to come in.

A. Right.

MR. NUTTER: So we're compulsorily pooling 160 acres into 53,000, if it's in communication with the pool.

A. No, not the Commission. We're not asking the Oil Conservation Division to do that, no, sir.

MR. NUTTER: But if the lands are pooled it's the same effect whether you ask us to or not.

MR. KELLAHIN: That's a function of the stipulation of the USGS --

MR. NUTTER: Right.

MR. KELLAHIN: -- and not of the pooling order. All we're asking you to do is pool the 640.

MR. NUTTER: Right.

MR. KELLAHIN: But we want Cotton to understand at this hearing what the net effect is going to be of the entire process. We don't want them to come back six months from now and say we were surprised in some way, and that's the purpose of the disclosure in the notice, is what eventually may happen to their interest.

MR. NUTTER: Well, I realize it's a

combination of two things, a compulsory pooling order plus the stipulation that brings this about, but without the compulsory pooling order Cotton's not going to be in that 53,000 acre unit.

MR. KELLAHIN: Nor will any well be drilled in that section at all.

MR. NUTTER: Well, you could drill a 480-acre non-standard unit.

MR. HUNKER: Let me ask Mr. Greer a question, Mr. Examiner.

Q. You have permitted some of the working interest owners to exclude certain formations, which they don't choose to put into the unit.

A. Right.

Q. Would you permit Cotton to exclude all of the Mancos and the Greenhorn from participation and then let them take their 25 percent of the cost of drilling the well?

A. No, certainly not. There's no way to do that. That's what we're drilling.

Q. It's very simple to do.

MR. NUTTER: That would leave the Carlile, then, George.

A. Well, I'm sorry, Mr. Examiner, that you

have the feeling that if you force pool Cotton, that you're force pooling them into a unit, entire unit. This is not the case whatsoever. All we're talking about is force pooling of just one well in this 640 acres, and to bring that section into the unit by an action of this Conservation Division would require a statutory unitization hearing. There's no way that this forced pooling, and the way I understand the statutes, there's no way that it can be construed as forcing Cotton into the unit.

MR. NUTTER: Well, isn't the end result the same as being a statutory unitization?

A. Well, no, sir. The end result is the same as if Cotton, Cotton has the right now to go down and drill a well on Section 5 and another one on Section 8, and there's no difference in Cotton's drilling those wells, they have the same provision, the same possible requirement to join the unit on those wells as on this one that's being force pooled, no difference whatsoever, and if Cotton is successful in its appeal from that stipulation, then they won't have to join the unit under the USGS order. At that time, then we would probably come back to the Conservation Division and ask for statutory unitization, but there's no way under this force pooling that Cotton is obligated by the actions of the Division to join the Canada Ojitos Unit. I'm not asking

that at all.

Q. I have just --

MR. NUTTER: Well, I --

MR. HUNKER: Yeah, go ahead.

MR. NUTTER: -- realize that, that under the order of the Division it's only talking about 640 acres.

A. Right.

MR. NUTTER: But the combined effect of the order of the Division plus the stipulation --

A. Except that the stipulation has been appealed, not on this well, perhaps, but in principle, and their appeal may be upheld, in which event they don't have to join and then this will not automatically take place.

Q. In connection with your well in Section 20, Mr. Greer, you have moved a large rotary rig on that -- that location at the present time. Is that correct?

A. Well, it's not what I'd consider a large rotary rig. It's --

Q. It's sufficient.

A. -- sufficient, the contractor tells us to drill to 8000 feet, and he's a good contractor and I believe his word.

Q. And you estimate it will take about 20 days to -- to drill that well, is that correct?

A. Yes, sir, if we don't have a lot of lost circulation problems and that's one of the --

Q. And how long will it take you to test it?

A. It could take -- it's very difficult to put a time on it. We have found in drilling and testing these other wells that once the pressure has reached the bubble point, and it's very nearly to that now in this area, then the reaction time is roughly ten times as long as -- as it is when the pressures are above the bubble point, and -- and we have seen a reasonably good test in 60 to 90 days at pressures below the bubble point, but also we've seen it take as long as five or six months.

Q. In other words, you don't think that the well can be drilled and tested in the next 30 days, is that correct?

A. Oh, there's no way to practically test it in 30 days.

Q. 40 days?

A. I -- well, let me point out some of the things that enter into this. For instance, we'll want to test the Greenhorn separately. That in itself could take 30 to 40 days. Then when we get to the Niobrara, we're planning on testing -- the Niobrara has three, three zones that we

recognize that can be separately stimulated and -- and we feel need to be treated separately, if possible, and so we could test the Zone C, for instance, the bottom zone, and that can easily take another 60 to 90 days.

Q. What I'm getting at is, you show the location of the well in Section 32 to be a gray area, and you've talked about this gray area on a number of occasions previously and you've indicated that it may not be a -- it may not be productive, is that correct?

A. Oh, I think that's entirely possible.

Q. Don't you think it's a little premature to ask the Commission to give you a 200 risk penalty at this time when you're drilling another well and you could have some additional information for the Commission?

A. I don't think the drilling of this other well will have any bearing on the risk. Any time you drill a well, any time one drills a well in that third expansion area, it's a risk which in my opinion warrants the 200 percent penalty.

Q. Well, why are you drilling the well in Section 32?

A. At this time?

Q. Yes, sir.

A. As we indicated in our correspondence to

all the participants, our initial preference for the drilling of wells would be one well this year and perhaps another one next year, and then depending on the outcome, two or three wells after that a year, until we have all of the land in the third expansion area in -- in the unit, if it justified to bring it in the unit.

Now the problem with -- that's been brought about now is that that was a good plan. I think it would have been a good plan, particularly because moving west the formation is tighter. We're going to have to experiment with frac treatments. It would make sense, I think, to do it one at a time, one well at a time.

Q. You feel that there will be communication between the wells in the pool and the new well in Section 32, isn't that correct?

A. Well, I think there's a possibility of it, yes, sir; that's the reason for the proposed third expansion area and why we --

Q. How far along are you on the third expansion area? Has it been submitted for final approval by the USGS?

A. No, sir. I think you have our correspondence in that regard.

Q. How many parties have ratified it, per-

centagewise?

A. I don't have a figure for it. As you know, when Cotton and the other parties hired the Van Poolen to -- to make a study of the reservoir, and in our opinion the Van Poolen study is highly flawed. The other participants who joined in supporting Van Poolen's costs, apparently have accepted his -- his analyses. We're set back in recognizing this an area that needed to be unitized and as a result, we felt like it was only proper to -- to take the time and try and work out with the individual parties the reasons all over again as to why the area should be unitized and not try and force it down somebody's throat.

Q. You realize that if Cotton's lease is pooled, that there is a distinct chance that the Cotton lease will be forced into the unit, isn't that correct?

A. Well, I think any well will in the third expansion area if it's found to be in communication with the main reservoir, will be brought into the unit one way or another, either through the USGS ordering it in or if that fails, we'll ask for a statutory unitization to bring them in, so I think that any well drilled in the third expansion area, if in communication with the reservoir, yes, sir, I think it will be unitized.

Q. In connection with the well that Cotton

wants to drill then in Section 5, if they're forced into the unit what kind of a penalty, risk factor penalty, do you think that they would be entitled to from the unit owners if they're forced to come into the unit? Do you think they'd be entitled to 200 percent?

A. Not at all. Not at all.

Q. Their location geologically is substantially the same as your -- your Section 20 well and your Section 32 well. But you don't think they would be entitled to any penalty if they were forced into the unit?

A. No, sir.

MR. HUNKER: I don't have any further questions.

MR. NUTTER: Do you think that the GS would put a similar stipulation on their drilling permit?

MR. HUNKER: They did.

A. They already have.

MR. HUNKER: We'll have some testimony on that.

I don't have any --

MR. NUTTER: Do you have any further questions?

MR. HUNKER: I don't have anything further.

MR. NUTTER: Any further questions of the witness? He may be excused. Tom, you wanted to offer Exhibit Five, didn't you?

MR. KELLAHIN: Yes, sir, if you --

MR. NUTTER: Exhibit Five will be admitted in evidence.

MR. HUNKER: At this time I'd like to call Mr. Donald Paull.

DONALD E. PAULL

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HUNKER:

Q. For the record, will you identify yourself, Mr. Paull, and tell us where you're from?

A. I'm Donald Paull, Division Exploration Manager for Cotton Petroleum Corporation, Denver, Colorado.

Q. Have you testified previously before the Oil Conservation Division?

A. Yes, sir.

Q. And as what professional qualifications -- as to what professional qualifications do you have?

A. I have a Bachelor's degree from the University of Wisconsin in 1957 in Geology; 20 years of exploration with Amoco Production Corporation in exploration geology and development geology; and four years with Cotton Petroleum Corporation as Division Exploration Manager.

MR. HUNKER: Are his qualifications acceptable, Mr. Nutter?

MR. NUTTER: Yes, they are.

Q. Mr. Paull, as Exploration Manager how did you become acquainted with the West Puerto Chiquito Pool and under what circumstances?

A. We became interested in it in 1979 on the basis of Pictured Cliffs production and Gallup production in the subject area and acquired a lease from Mr. Thomas Fales in 1979 and started to build an acreage position as best we could.

Q. Did you obtain a farmout from an adjoining lease owner in connection with that prospect?

A. Yes, sir. Mr. Fales (sic) owned the west half of a section and we went to Mountain Fuel Corporation and got a farmout of the east half, and this is Section 5 of 24 North, 1 West, Rio Arriba County, New Mexico.

In addition to that we have obtained the options to drill on Mountain Fuel lands in Sections 8 and 17.

Q. Have you also bought some KGS leases in this area?

A. Yes, sir, we have, in 1980, in September of 1980, we went and acquired a KGS lease in Section 32 of 26 North, 1 West. We were in competition with six other companies. We were the high bidder, bidding $338.15. Our gross acquisition price of that 160-acres was $54,104.

Q. What happened to the first location that you made on that --

A. May I -- may I --

Q. Yes, excuse me.

A. We subsequently have required an additional KGS lease, 320 acres, located in Section 7, of 24 North, 1 West. Our acquisition price was $377.77, for a total price of $120,886.

So to date in acreage acquisition Cotton Petroleum has expended over $200,000 in acreage in the proposed West Canada Ojitos Unit area.

Q. Did you spud a location in connection with the Mountain Fuel Supply farmout that you obtained?

A. We did, yes, sir. We initiated our efforts in the summer of 1980 to stake a location and drill a well in Section 5.

Q. And did you hear about a hearing that

was held in Santa Fe about that time wherein the Benson-Montin-Greer Drilling Corporation wanted to change the spacing rules?

A. Yes, sir, we did. We -- our initial location was located in the approximate center of the southeast of Section 5 of 24 North, 1 WEst, and the initial application by Mr. Greer proposed a location that would be in the interior section, interior 40 of any section within the proposed unit expansion. That caused us some delay, but did not really cause us any great concern, and we moved the location with expectation that that would be approved. We moved the location, spent additional money in preparation for it. Subsequently, Mr. Greer changed that application and made a request before the Commission that a well would have to be located on the west side of the section, and our location was on an interior 40 on the east side.

We had a hearing before the Commission in November of 1980 and ultimately the Commission did rule that a location within the interior 40 would be acceptable, so our initial location and expenditure there was salvaged, but we were delayed some three to four months with this action.

Q. Meanwhile was your application for permit to drill pending before the USGS?

A. Yes, sir, and until the spacing requirements were ruled on, the USGS would not handle our application

nor issue a permit to drill.

Q. Ultimately a permit was approved with a stipulation, and you heard me read that stipulation, is that correct?

A. That is correct. We -- we ultimately received the approval for the location with the stipulation that you read.

Q. Has a notice of appeal and appeal been filed in connection with Cotton's position with respect to that stipulation?

A. The appeal has been filed. That's correct.

Q. Is it still pending?

A. It is pending.

Q. What happened next, Mr. Paull, in this ongoing situation? Do you recall, for example, Mr. Greer changing his mind about whether to expand the unit or whether to have a unit, a second unit, on the west side?

A. Mr. Greer has been trying for some period of time to get a unit expansion in the area. We have been opposed to it all along and have been in communication with Mr. Greer, stating our opposition to unitization, and ultimately we hired an outside consulting group,that Van Poolen and Associates, to do a complete reservoir analysis of the

area. Our sole intent here was to make a determination that there is insufficient data to affect an expanded unit. The existing unit is some 52,992 acres. The proposed expansion is 6000 --

Q. 16,000.

A. 16,644 acres. Ultimately, if approved, this Federal unit would be 69,600 acres in size. We have acquired our acreage through KGS sales with the idea that we would be able to analyze the risk/reward situation with the acreage acquisition.

Q. Why did you choose not to join the unit?

A. The -- Cotton participation in the -- in the Federal unit would be so dwarfed that we lose -- we lose all control of our destiny. We are a relatively young, aggressive oil and gas exploration company. The way we do business is to become involved in potentially attractive areas, New Mexico is one of them, the San Juan Basin particularly, we are very heavily involved in. We do risk-weighted economics on all our prospects, and the way we viewed this was a risk-weighted situation where we were going to drill our well in Section 5 with the idea that if we could produce 110,000 barrels out of that, we could get our minimum economics for Cotton Petroleum Corporation; with the Pictured Cliffs production in the area and the Niobrara production in

the area, we felt that we did have that opportunity.

If we turn things around and take Cotton's minimal amount of acreage and put it into a Federal unit of this size, it so dwarfs us that we ultimately do not have a position.

For example, the Section 32 lease that we are talking about here today, if we could drill that well with Mr. Greer and with Southland on 640-acre spacing without the cloud of unitization hanging over our heads, we would be more than happy to do so. That would fit Cotton's risk analysis very, very well.

Our problem is that our costs by Mr. Greer's AFE are $330,000. If that well is a dry hole, Cotton Petroleum is out $330,000. If that well is a producer the threat of being forced into the unit, as it now stands, would dilute Cotton Petroleum Corporation so that rather than 25 percent in the well we would be down to a .2 percent in the Federal Unit. Now we would get reallocation of our expenses but .2 percent, the bookkeeping is not worth it for Cotton. The unit is very slow in developing. There has not been a well drilled in the unit for nine years. It just does not fit with Cotton's operations.

We are really not trying to be obstructionists in getting wells drilled and we are not opposed to

Mr. Greer drilling wells, and if -- if the proposed unit expansion would be withdrawn, and I think it should be withdrawn, because after a year there still is not support for the unit within the -- within the expanded unit from the participants.

But we cannot make a risk-weighted decision on drilling a well at that location with the -- with the potential of the dilution hanging over our head.

Q. Do you have any quarrel with Mr. Greer's administrative overhead charges with respect to the well in Section 32?

A. No, sir.

Q. Do you have a judgment with regard to the risk factor that should be applied as related to the well that is currently being drilled up in Section 20?

A. Yes, sir, I do. That and the proposed unit expansion, both. I feel that a well that is going -- that is being drilled that is within two miles of the -- of the subject well in Section 32, would have a great impact on the -- on the risk that should be awarded to a driller, in this case, Mr. Greer. If that well is capable of production on the basis of logs and on the basis of initial tests, then I think clearly the risk should be a minimal amount awarded to Mr. Greer.

In addition, I think that Mr. Greer is

asking to have it both ways, and this is the dilemma that Cotton is in. On the one hand he is saying that the acreage in the proposed unit expansion is part of the existing field and therefor should be pooled into the -- into the existing field, and he's been saying that for a year.

If that's the case, and he feels so strongly that that is the case, then he is drilling a very low risk well.

But what is happening here is the State of New Mexico, the Federal government, and Cotton Petroleum is seeing drilling opportunities go down the drain because this has drug on so long and we're into different disciplines between the State and between the USGS. Mr. Greer has stated that Koch Exploration has pulled down their well. They are going to be unable to drill that well. In all probability the acreage will expire and the Federal government and the State will receive no income.

Cotton Petroleum's lease in Section 5, we also cannot drill that well. We cannot drill it and pay 100 percent of the risk dollars and be looking at the dilution of the being pulled into the unit and having no reward for those risk dollars, or dropping down to the minor percentages of less than one percent.

I feel that our acreage in all probability

will expire, and I think that that's a shame. Under -- under a different situation we would drill that well within the month.

Q. Have you any other comments to make with respect to the exhibits that Mr. Greer introduced, or any other comments that you'd like to make in reference to the well involved?

A. Well, I think that Mr. Greer has indicated that we are not communicative with him. I would disagree with that. We -- we don't agree with him. He is very confident that all of this acreage will ultimately go into the unit and if that's the case, Cotton has no position in this play. We have wasted $200,000 already and to put another $330,000 in it is not practical for our corporation.

So we're -- we're looking at it differently and I think we both understand one another from that standpoint.

He made a statement that Mr. Van Poolen on our behalf has made the -- has decided that this acreage is not productive, and that is not my interpretation of what Mr. Van Poolen did. What he did was use Mr. Greer's own map and showed that the area in the proposed expansion had not been proven to be probably productive, and should be left in a risk wildcat domain, and I agree with that. But I think

that it is a risk well that under different terms we would participate in.

Another thing that -- that I would like to object to, I guess, is in Mr. Greer's Exhibit Number One, he shows some wells that are operated by Cotton Petroleum Corporation on our West Lindrith prospect. It is in portion "B" of his Exhibit One. He has done a number of things here. One, he's gone 20 miles away to a totally different reservoir where we do not have fracture enhancement. We have a very, very poor reservoir rock that is not fractured and secondly, he has elected the earliest wells that were drilled in that pool. If I'm not mistaken, the 103 was not drilled by Cotton Petroleum. We took it over. And the 104 and the 105 were the first two wells that we drilled and we did not stimulate these wells as well as we could have and as we learned to do in the -- in the subsequent years since 1957 when those wells were drilled, we have drilled -- and I'm close because this is not an exact number -- an additional 25 Dakota wells in that field, and we have come to understand it better and stimulate it differently.

So the selection of these wells is not germane either to the subject here today nor the reservoir of Lindrith.

And I think that his Exhibit "D" where

he shows the various options of Cotton Petroleum Corporation, these are true, these are the options that Cotton has, and I won't go back through it again, but what this doesn't take into consideration is the dilution if you're successful, and another thing that he did not discuss at all is where you stand if you're unsuccessful. And if we're unsuccessful, we--it would cost us $330,000, and if we're successful, we become diluted.

So it's a no-win situation for Cotton Petroleum Corporation and that is the reason that we came before you today, Mr. Examiner, is to point out that we're not obstructive to drilling wells, but we just cannot find an economic means to participate in any way in this particular venture and we do not feel that the maximum penalty should be imposed.

MR. HUNKER: I have no further questions of Mr. Paull.

MR. NUTTER: Are there any questions of him?

MR. KELLAHIN: Yes, sir, Mr. Nutter.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Paull, am I correct in understanding

that you've received all the letters and correspondence and communications that Mr. Greer has testified that he has forwarded to Cotton Petroleum Corporation?

A. That is correct.

Q. And you would be the individual that takes that information and makes the decision for Cotton as to whether they would participate in this well or in the expansion of the unit? Is it --

A. No.

Q. -- principally your decision?

A. No, I have a -- I have a corporate management in Tulsa that we in the Division office, in production land and exploration evaluate the data and make recommendations, but the final decision is -- is a corporate decision.

Q. Has Cotton made a final decision about whether or not they will voluntarily participate with Mr. Greer in the drilling of this well in Section 32?

A. We will not voluntarily participate in the subject well.

Q. I believe, if I understood your testimony, the principal concern you have is the impact of the USGS stipulation on the lease, that in the event there is production from the Niobrara, that this acreage would have to be committed

to the third expansion; it is that problem that most concerns you?

A. That, and the continuing efforts of Mr. Greer to bring this acreage into the existing unit, and the fact that by studying the land map, if Mr. Greer so elected to break the proposed unit into two pieces, he would have control of the northern portion and could pull us in even without the stipulation of the USGS. What I'm saying is that the proposed expansion, he cannot get 85 percent. He has not been able to get 85 percent at this point in time, which is kind of a number that the USGS would like to see, but if he were just to take the northern portion, which would include Cotton's 160 acres, he does control well over 85 percent and we would be drug along once again.

Q. I understand your concern, Mr. Paull. Am I correct in understanding that those concerns are drastic problems outside of the question of forced pooling of this 640-acre unit?

A. I -- I cannot separate the two. I realize we're dealing with 640-acre spacing here today, but as a manager for Cotton I have got to look at the total picture and -- and the risk/reward potential. So I cannot separate the actions of the unit expansion and the 640 acres that we're discussing today.

Q. You referred to a risk-weighted economics, and I'll pick that up as a catch phrase in your testimony, and I think you were talking about the expanded unit including, am I correct, some 26,000 acres, is that the number? What was the number you mentioned?

A. The proposed expansion is 16,644 acres.

Q. All right, sir, 16,000, and is it your understanding that that would be included in a participating area of how many acres? What are we talking about?

A. If that were included, then we would have a unit size, if I understand your question, of 69,636 acres.

Q. All right, I'm -- I'm having trouble understanding what the .2 percent was that you mentioned.

A. That would be if Cotton's acreage were pulled into the unit, and what I took there was our 160, I took 160 acres over 52,900 acres. That is -- that is Cotton's participation in the Federal unit.

Q. All right, that's the percentage relationship between your acreage and the 52,900, is that true?

A. That's correct, yes, sir.

Q. All right. And what you're telling me is that you would rather have a 25 percent participation in a 640-acre proration unit as opposed to a .2 percent partici-

pation in production from some 52,940 acres.

A. That is correct.

Q. Have you made a study of what the economics are from wells to be produced on 52,900 acres?

A. I have an idea of the reserves that Mr. Greer feels ultimately could be in that unit, yes.

Q. Now you're prepared to drill a well using a 640-acre unit in Section 5 to the Niobrara, and you've not commenced that well because of your appeal on the stipulation?

A. That is correct. The -- the same reasoning has prevented us from drilling that well. We started over a year ago as a wildcat prospect to drill that well and we have run into one hurdle after another but now that acreage falls in the same jeopardy that if we drill a well and in this case it would be 100 percent Cotton Petroleum Well, at $1,000,000 risk cost, but if we drill that well and it's a dry hole, we have risked $1,000,000 and have no reward whatsoever. If we drill that well and are successful, then we are -- we are under the cloud of being force pooled into the unit, facing the same dilution, and we get back our million dollars and have a minor percentage in the unit that will take us forever to get our money back.

If you take it risk to return, when we

get down to 1 percent or less than the 1 percent figure, the economic -- we just cannot stand it economically.

Q. Is Mr. Greer correct in his testimony that Cotton has not responded to any of his requests that he sent you concerning the pooling of this unit?

A. We have --

MR. HUNKER: May I interrupt you, Mr. -- before he answers the question?

He may not be aware of a letter which I have in my file that I'd like to have him look at.

Now you can answer the question.

A. Yeah, I think that -- that the letters that you're making reference to, one dated June 26th, another dated July 3rd, and another dated July 28th, on June 3rd, 1981, Cotton Petroleum Corporation wrote a letter to Benson-Montin-Greer and if I may, I would like to read the letter in that it is brief.

Gentlemen: Please be advised Cotton is opposed to the proposed third expansion of the Canada Ojitos Unit. This objection is based on the following facts:

One, the leases were originally awarded on a competitive exploration basis and until Cotton's proposed test in Section 5, Township 24 North, Range 1 West, the operator had not proposed any drilling activities in

almost eight years.

Two, Cotton's interest in the proposed unit by virtue of expansion would be so small as to render Cotton a non-aggressor and not in control of its own destiny.

Three, the geology and engineering developed by Cotton and the operator do not justify the size of the expansion.

Four, the acreage in the unit at its present size does not appear reasonably proven to be productive or necessary to unit operations.

Cotton feels that a competitive exploration approach in this area will best serve the working interests, overriding royalty and royalty owners in the area.

We look forward to our meeting with USGS on June 5th, 1981, to further elaborate on these points.

We feel that that letter sets our position, that our meeting with the USGS established it with maps and with our data. The correspondence that we have from Mr. Greer, there really wasn't anything additional that we could say to the man.

Q. I listened carefully as you read that letter. I had not heard it before, Mr. Paull, and I understood it to be addressed to the unitization. It makes no specific reference to the forced pooling.

A. Well, this was --

Q. Am I correct?

A. This was before the forced pooling, that is correct.

Q. All right, sir. Have you communicated your concerns to Mr. Greer with regards to this compulsory pooling case?

A. I talked to Mr. Greer on the telephone and he indicated what he wanted to do. I am very aware of his letters, and at that particular time we were still working the econmics to determine where and exactly what our stand would be. As I told you earlier, I'm aware of the reserves that he feels ultimately might be in the field, and we had to work that kind of an economic picture, too.

Q. And you've done that study?

A. Yes.

Q. And at this point you have no specific recommendations to Mr. Greer as a proposal for this 640-acre unit?

A. If -- if Mr. Greer would withdraw all further and future efforts for unit expansion, I would go to our management and recommend that we pay our proportionate share of this well and have a very high level of confidence that we would join in the well immediately, and we would

drill a well in Section 5.

Q. Have you attended any of the hearings with regards to the pressure maintenance of the unit in the -- Mr. Greer's unit to the east?

A. Yes, sir.

Q. You understand that's a pressure maintenance project?

A. Yes, sir.

Q. All right, do you concur with him in his geological conclusions with regards to the location of those wells insofar as one well is able to drain a great number of acres?

A. No, sir.

Q. You don't agree with that?

A. In a limited area I do, but in a number of wells Mr. Greer has not shown to my satisfaction any communication whatsoever.

Q. You agree, don't you, that if wells that are located in the eastern side of the third proposed expansion, there is a substantial risk that they will be down structure from the pressure maintenance project, in communication with that project, and thereby pose a substantial risk to depleting the effectiveness of the pressure maintenance project?

A. I do not feel that that has been sufficiently indicated by any data whatsoever.

Q. Isn't that the reason behind the stipulation imposed by the USGS on its leases?

A. That is correct.

MR. KELLAHIN: We have nothing further, thank you, Mr. Paull.

MR. NUTTER: Are there any other questions of Mr. Paull?

MR. HUNKER: I have one other question, Mr. Nutter.

MR. NUTTER: Mr. Hunker.

REDIRECT EXAMINATION

BY MR. HUNKER:

Q. Was Cotton consulted with regard to the imposition by the USGS of the stipulation? Did you ever participate in any discussions with the USGS prior to the imposition of the stipulation?

A. No, sir.

MR. HUNKER: That's the only question I have.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Well, do you have any idea when your appeal regarding the stipulation would be ruled on?

A. No, sir, Mr. Examiner, and that is cause of grave concern in that our lease does expire in 10-31, and we -- we cannot drill that well under that cloud, and unless it is clarified, I'm afraid that that well will not be drilled.

Q. Now that's the lease that's shown to be a Mountain Fuels lease on the exhibit there, isn't it?

A. That is correct. We --

Q. I mean it's in Section 8.

A. We have -- we have Section 5 and Section 8, yes, sir.

Q. Is part of that in 5 also?

A. Yes. It's -- there are two leases. We had -- the initial well would be in Section -- in Section 5. Cotton owns the west half of Section 5, 100 percent, and we have an option to drill and earn with a back-in from Mountain Fuel on the east half of Section 5, and then a continuing option in Section 8.

Q. Oh, you're talking about down here in

MR. HUNKER: Yes.

A. Yes, sir, yes.

Q. Well, I've been looking at Section 5 and 8 --

A. I'm sorry, that's in 24 North, 1 West.

Q. Yeah, okay. They all have a 10-31 date on them.

A. Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Paull? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. HUNKER: Correction, I have nothing further.

MR. PAULL: Mr. Examiner, could I make another statement?

MR. NUTTER: If your attorney will let you, you can.

MR. HUNKER: Yes, if you will, Mr. Paull.

MR. PAULL: The question was asked on, you know, under what terms could we -- could we drill a well in here, and I think Mr. Hunker stated it that we could back to our management if we could -- if we could get a penalty imposed on the unit of 200 percent risk for drilling a well in Section 5, so that we could have some opportunity of recovering our -- our risk, and this is what Mr. Hunker directed to Mr. Greer before and it was refused.

MR. NUTTER: I'll call for closing statements. Mr. Kellahin, you may go last.

Do you have any statement, Mr. Hunker?

MR. HUNKER: It's late in the day, Mr. Examiner.

MR. NUTTER: I know it is.

MR. HUNKER: And I'm tired and I'm sure everybody else is tired. I think that Mr. Paull has stated our case as cogently as possible.

Mr. Greer has already told Cotton that it's a foregone conclusion that this 640-acre tract is going to be force pooled in one of the exhibits that was introduced today, and I'm sure that he's made your mind up for you, but be that as it may, we all recognize that forced pooling is a good thing and in its place -- and it has its place in the State of New Mexico, and we think that the risk factor should be a lot less than he would want to impose.

But basically Mr. Paull has stated our position and made it manifestly clear that we're opposed to unitization. We want to develop our interest competitively. We don't want to be forced into a very, very large unit where our interest will be considerably diluted.

Thank you very much for your good attention.

MR. NUTTER: Thank you. Mr. Kellahin?

MR. KELLAHIN: We have brought up the potential that this tract could be included in the unit so that Cotton would know exactly what we propose happens with this area and so that the Commission would know.

However, to be absolutely correct with you, that is really of no material concern in the question of forced pooling. We have demonstrated substantial evidence on all the esential elements of a forced pooling case. You have seen Mr. Paull's concern here is one as to unitization. If we chose to argue the unitization before you today in an appropriate case, there are fifteen or twenty different compelling reasons on Mr. Greer's side. We have not chosen to enter into that type of discussion.

The point is that Mr. Paull and Cotton are -- have appealed the stipulation. They have a full number and course of legal remedies before them with regards to that unit problem. Its outcome is undetermined at this point but it should be no impediment to the forced pooling of this 640-acre tract.

One further point. The question, this red herring about a penalty against the operator of the unit is absolutely ridiculous. It's not permitted under our forced pooling statute and Mr. Greer and the unit would not have a

participation in the well in Section 5, it's ludicrous to suggest that there is some quid pro quo that the unit be penalized in some way. It's just inconceivable. But be that as it may, we have demonstrated to you that there is an operator ready and willing to drill a well to the particular depth, using the spacing requirements as required. There is no reason to spread this out and drill unnecessary wells by the creation of non-standard proration units.

We believe that we have demonstrated all the facts necessary for you to grant this application.

MR. NUTTER: Thank you.

Does anyone else have anything to offer in Case 7325?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing transcript of hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7325 heard by me on 8/12 19 81.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico. CASE **7325**

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

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MR. NUTTER: Call Case Number 7325.

MR. PADILLA: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness.

MR. HUNKER: Mr. Examiner, my name is George H. Hunker, Junior, Hunker, Fedric P. A., Roswell, New Mexico, appearing on behalf of Cotton Petroleum Corporation of Denver, Colorado.

MR. KELLAHIN: With your permission, Mr. Nutter, we'd like to have the record reflect that Mr. Greer has already been sworn, he's currently under oath, in the previous case, and has previously been qualified as an expert petroleum engineer.

MR. NUTTER: Mr. Greer is qualified as an engineer under oath.

ALBERT R. GREER

being called as a witness and being previously sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Greer, I have identified the packet of exhibits that are in the notebook with the yellow cover as your Exhibit Number One. I have not separately identified each of the pages.

Let me direct your attention to the yellow booklet, which is Exhibit Number One, and have you turn to the index portion that is tabbed "A" and have you fold out the map, and using that map as a graphic depiction of this area, I would ask you to generally describe what you're seeking to accomplish by this application.

A. All right, sir. This plat is a plat of both the East and West Puerto Chiquito Mancos Oil Pools. The West Puerto Chiquito Pool is outlined in orange. Within that orange outline are the non-standard proration units which have been approved by the Commission.

In Green is outlined the Canada Ojitos Unit and on the left center part of the plat is outlined in purple color, is the proposed expansion, third expansion of the Canada Ojitos Unit, and within this area in dashed red line, Section 32, Township 26 North, Range 1 WEst, we propose to drill a well to the Niobrara member of the Mancos formation, which is spaced on 640 acres. We've not been able to

obtain the approval of one of the owners of the leasehold rights in this section to the drilling of the well, and we ask that we have this forced pooling.

Q. All right, sir. A well drilled to the Niobrara member of the West Puerto Chiquito Mancos Pool, which is spaced on 640-acres?

A. That's correct.

Q. And you have a voluntary agreement for the drilling of this well from all interests except whose interest?

A. The people that are participating in the well have pooled their interests within all of the west -- prpposed third expansion area except Cotton, and Cotton has declined either to join the voluntary pooling in the large area or to give us a response as to joining in a smaller pooled area or to join in drilling of the well and paying their share of the cost.

Q. Within Section 32, Mr. Greer, would you identify for us at this point what portion of Section 32 is under Cotton Petroleum Corporation's control?

A. The southeast quarter, 160 acres.

Q. All right, sir, and that section is outlined by the dashed red line?

A. Yes, sir.

Q And tell me again what is meant by the outline in pink, which includes Section32?

A. That's the proposed third expansion area to the Canada Ojitos Unit.

Q Now let's leave this packet of exhibits for a moment and let me direct you to what I have marked as Applicant Exhibit Number Two, and have you identify that exhibit for me.

A. Exhibit Number Two is a cover letter sent to all working interest owners in the proposed third expansion area, inviting them to join in the sharing of costs of two wells to be drilled, one which is the subject of this hearing, and another in Section 20 in the same township.

Q Was Cotton Petroleum Corporation a recipient of the June 26th, '81 letter?

A. Yes, sir.

Q All right. Describe in general terms the different proposals that you had outlined in the June 26th letter.

A. In the June 26th letter we set out the plan generally to pool interests within the third expansion area for parties who would like voluntarily to do so, and the reason, of course, for doing this, we had discussed at length with all of the different owners, is the problem that's

brought about by the fact that the spacing of wells to this formation is one well to 640 acres, yet the density of wells within the unit is about one well to five or six sections.

Accordingly, if the well in Section 32 or in Section 20 is a producer, results in a producer, that will produce in paying quantities and meets the requirements to join -- be joined in the participating area of the unit, there will be an investment adjustment so that the costs of all wells are borne by each party in proportion to his interest in the unit.

And if a well is drilled only on one section in the standard spacing for this pool, and is brought into participation, then -- and say another four or five sections are brought in with it, and this is a very good possibility, then in a sense the people who are in the other four or five sections that come in with this well reimburse the parties who drilled the well for their respective costs which could be 3/4ths to 80 percent or even higher. Then the people that took the risk in drilling the well will have a disproportionate interest in the unit, as compared to their risk.

Now their income or rate of return on their adjusted investment will be the same. It doesn't make any difference whether you drill a well on 640 acres or a

pooled area of five or six sections or the entire west part of the unit, an adjustment investment is made. That rate of return will be roughly 40 percent. In other words whoever invests a million dollars, the first year their return will be about $400,000. It makes no difference what the well itself produces. It would actually have to produce 60 - 70 barrels a day in order to do that. But if it would produce as much as like 20 barrels a day it probably will qualify and in a sense, then, the third expansion area people would realize that benefit.

So in order to avoid the problem of -- of investment adjustment, it makes sense, then, to drill in the expansion area on a pooled interest basis where the owners have pooled their interest on at least four or five or six sections. Then when the well is drilled and the costs are borne by each of the parties and the well is brought into the unit, there's a minimum of investment adjustment, a minimum of adverse income tax impact, which results if it is a large investment adjustment.

So the people who have agreed to participate in the drilling of this well, other than partners, have agreed on a voluntary basis to pool their interests and avoid this problem.

Q. Let me make sure I understand. The June

26th letter was the proposal that outlines what you've just told us.

A. Yes, sir.

Q. About a participation for the working interest owners --

A. Right.

Q. -- as you've outlined for the area shaded in pink.

A. Right.

Q. All right, sir. What was the response from the working interest owners within that pink-outlined third expansion area?

A. Some of them have elected to join in the -- in this pooling, and have agreed to pay their share of the cost. We submitted AFE's along with this first letter and they've agreed to participate on that basis.

Not all of the people in the expansion area, but several of them.

Q. I understand. What, if any, response did you receive from Cotton Petroleum Corporation for this letter?

A. No response. I called them the week before that we were writing a letter to give them an idea and give them a little advance notice that it was coming, but

we got no response.

Q. All right,sir. While we still have this plat in front of us, would you identify for me any of the other acreage within the third expansion that has been the subject of a compulsory pooling by your company?

A. Yes, sir. The non-standard proration unit in the west half of Section 17 and west half of 20, Township 26 North, Range 1 West, we asked for forced pooling on that about a month ago and I believe the order has been issued on that.

Q. Yes, sir, what is the order number for that non-standard proration unit?

A. Order R-6750.

Q. Now before we leave the expansion area, can you identify for me if there are any well locations in which wells have been commenced or for which locations have been permitted?

A. Well, we have the location in Section 8, Township 25 North, Range 1 West, that Koch staked about a year ago. We have some acreage in that section. They sent us an AFE on it.

Q. This is 1 West, 24 North, is it?

A. 25 North.

Q. 25 North.

A. 1 West, Section 8.

Q. All right.

A. It's my understanding since that time, we suggested when Koch sent us the AFE for our participating and joining in that well, that they consider doing what we're doing now, namely pooling several sections, and we went from there with further negotiations with Koch, and my understanding at this point is that Koch has -- has elected not to do anything at this time.

MR. NUTTER: And the well has never been drilled, then?

A. No, sir, that well has never been drilled.

In Sections 5 and I believe 8 in 24 North, 1 West, I believe that Cotton has staked locations.

Q. Let me direct your attention now, Mr. Greer, to a July 28th letter, which is marked as Exhibit Three, and have you identify that for me.

A. This is the letter we wrote to Cotton to confirm that we're ready at any time to discuss how Cotton might participate in the drilling of this well and to point out that we felt it was a waste of their time and the time of the Oil Conservation Division and our time, to go through with a forced pooling hearing, when all the issues could be

more readily settled if we would just sit down and work -- try to work them out.

Q. What, if any, response did you receive from Cotton Petroleum Corporation to the July 28th letter?

A. No response.

Q. All right, sir, what's the next thing that took place?

A. That would be July 3rd that we wrote them again.

Q. All right, sir, that's Exhibit Number Four?

A. Exhibit Number Four, and we had in the meantime discussed with -- with Mr. Koeniger, Cotton's landman, again reviewing all the issues which we've discussed here, which we've reviewed just briefly today, and advised that we would ask for a forced pooling hearing and hopefully that we could settle the matter before -- before the hearing came up. In fact, at that time I thought the hearing would be August 15th, I believe. I had my dates confused.

Q. Did you talk on the telephone to Mr. Paull?

A. Later I talked to Mr. Paull. I think about ten days or two weeks ago.

Q. All right, sir, let me direct your at-

tention to page two of the letter, to the second to last paragraph, which says, "We realize that ..." and it makes reference to a consultant by name of Van Poollen?

A. Yes, sir, we talked to --

Q. How did you come to know that information?

A. On June 5th, I believe it was, the United States Geological Survey, in their Albuqueque office, invited -- at the Albuquerque office, had invited people interested in this proposed third expansion to -- to meet with USGS representatives and present their views, and at that time Cotton was represented among other people by Van Poollen, consultant, and at that time he stated that in his opinion an area west of the line, which he drew, which included this Section 32, would be nonproductive.

In view of that, then, of course, it occurs to us that perhaps Cotton may have changed its mind after buying this lease as to whether it would be productive and might not want to risk their funds in taking a share in drilling the well, and perhaps they would want to farm-out. So I mentioned that in here, that if they would like to farm it out, that we would pass that on to the other parties in the pooled area to review.

Q All right, sir, after the July 3rd letter was sent by you to Mr. Paull at Cotton, what, if any, response

did you receive from Cotton or any of their employees?

A. I didn't receive a response but I called, as I indicated just a minute ago, ten days or two weeks ago, and discussed with Mr. Paull that we would like to meet with them before this hearing, that we could save the time and such in the hearing, and Mr. Paull advised me at that time that had our -- our correspondence and would be reviewing it and when they had decided their position they would let us know, but I did not -- I haven't heard anything since.

Q. As of the date of this hearing have you received any indication from Cotton Petroleum Corporation what the position was with regards to the drilling of the well to this depth, dedicating this acreage to it?

A. No, sir, I have no idea.

Q. All right, sir. All right, let's commence, then, with the -- back with the exhibits in the booklet, and have you turn to the portions of a log, which are the next exhibit in the packet, and have you identify that for us.

A. This shows generally the -- the markers of the formations in which we are interested, particularly the Upper Mancos, the Niobrara member, the Carlile, and the Greenhorn.

We have three different depth considerations here, which you need to understand in order to properly

review these, what we're discussing today.

The Canada Ojitos Unit, the participating area within it is the -- defined as the Niobrara - Greenhorn. It includes the Niobrara member, the Carlile, and the Greenhorn.

Q. Those three members are in the existing Canada Ojitos Unit?

A. Participating area.

Q. All right, sir.

A. The Unit itself is an all formations unit.

Q. Okay.

A. The pooling, voluntary pooling of the parties who are voluntarily pooling, and the section that's included, in a sense, in the third expansion, or the proposed third expansion, covers formations from the top of the Mancos to the base of the Greenhorn. We refer to it as the main Mancos.

The West Puerto Chiquito Pool, I believe, on which the 640-acre spacing applies, I believe the vertical limits are just the Niobrara member of the Mancos. That being the case, of course, all we're concerned with in this forced pooling today is the Niobrara member of the Mancos.

Now we have proposed to drill the well

to the Greenhorn and so this brings up a possible problem if we get production in the Greenhorn, as to what we'd do, and in our plans we indicated in the last hearing last month in Case 7287, was that if the Greenhorn is dry we have no problem other than, of course, the allocation of costs that it takes to drill from the -- the Niobrara to the -- to the Greenhorn.

Q. Let me make sure I understand this, Mr. Greer.

What would be the spacing if there is production in the Greenhorn, then?

A. Presently I think it's 40 acres a well.

Q. So for Cotton Petroleum's interest in Section 32, in order to form a spacing and proration unit consisting of 640 acres, then it is only necessary to pool the Niobrara member of the --

A. The Mancos.

Q. -- Mancos?

A. Yes, sir.

Q. And in the Bolack-Greer No. 1 Bolack Well, the well on the left of this section, you show it at an interval of 6968 to 7865.

A. Yes, sir.

Q. All right, sir, so that's what we're talking about here today?

A. Yes, sir.

Q. All right, sir.

A. Other than we also need to talk about the fact we may spend a little more money going to the Greenhorn, and we'd have to separately account for that if there's a forced pooling.

Q. All right, sir. Run through that for me quickly now. I understand what you intend to do with the different formations. How would you propose to allocate the costs?

A. We'd keep track of them by the rig time and material.

Q. So in the event Cotton's interest is pooled, they would be accountable only for those costs involved in drilling and testing through the Niobrara member?

A. Yes, sir, except, of course, they've been invited to join if they want to join in drilling to the Greenhorn, they're welcome to join us.

Q. I see. All right, sir. Is there anything else you'd like to refer to before we leave this -- exhibit?

All right, let's go to the next exhibit under Section A and have you tell us what that is.

A. This is page one of the unit operating agreement for the Canada Ojitos Unit in which we have identified by Main Mancos formation.

And perhaps I should point out here that again, since the Canada Ojitos Unit is an all formations unit, if the third expansion takes place all formations would be unitized, but we have a provision in the unit agreement for segregating the working interest to different formations and since a number of the working interest owners did not want to be -- who do want to join in the unit, do not want to unitize all formations, we've made the provision that formations other than the Main Mancos can be operated independently by -- by the owners.

Q. All right, sir.

Let's turn to the Section B of the Exhibit One and have you fold out the next exhibit and tell me what this is.

A. The plat and the vertical schematic cross section show our interpretation of the structure of the Niobrara member of the Mancos in this area, and the coloring shows generally the change in flex of the formation as a change in dip occurs from -- from its outcrop, which is two or three miles east of the colored area shown on the map. It dips to the west, dips at varying rates, flattening -- a

steep dip at the outcrop, flattening to the west, and we've colored on there the generally different flexes the way we interpret them.

Our interpretation is that there is a minimum of flex west of the gray-shaded area and we believe that the reservoir in the unit is related principally to flexure of the formation and as such as we move west in the drilling of wells, we have found tighter formation, lower productivity wells, and we presume that in time, or in distance, rather, moving farther west from the unit, that the formation will exhibit the rather poorer producing characteristics that's found in the West Lindrith Gallup Dakota Pool, and a comparison of production history of three of the wells in each of these areas is shown on the pink sheet, pink graph of production rate versus time. The rather steep decline of the wells in the West Lindrith Gallup Dakota Pool compared with the flat decline of the wells in the Canada Ojitos Unit. Just how much of the production from the commingled Gallup and Dakota in the West Lindrith Pool comes from the Gallup, which the Gallup, incidentally, is correlative with the Niobrara member here, which we call the Niobrara, we don't know, but some estimates by some companies have indicated the Gallup to contribute from a half to 15 percent of the total production. If that's the case, then, wells with a steep decline,

shown here as Cotton's Wells 103, 104, and 105, where the production rate is now something like 300 barrels a month per well, about 10 barrels a day, then from 2 to 5 barrels of that on an average would be from the Gallup, which would be rather poor production.

All this is that as we move west from the existing unit, the risk becomes greater in obtaining a commercial well, and because of this we feel that this location is entitled to the maximum penalty allowed for a nonconsent operator or forced pooling in which the owner takes no risk in the cost of drilling the well.

Q. You're familiar, then, with the statutory authority of the Division to assess a risk factor penalty of 200 percent against the nonconsenting working interest owners in a force pooled unit?

A. Yes, sir.

Q. And based upon that 200 percent maximum, what is your opinion as to an appropriate penalty to be assessed against the nonconsenting working interest owners?

A. I think it should be 200 percent.

Q. All right, sir. Any more comments before we leave Section B of the exhibit?

A. No, sir.

Q. All right, let's go to Section C and

have you identify that plat for me.

A. Section C is -- is a plat of the proposed third expansion area, and colored on this plat is the section in which we seek the forced pooling, and we colored there the different leases by record title owners, Southland, our company, and Cotton.

The Southland lease and our lease, of course, is part of the voluntary pooling of the parties who have joined in the voluntary pooling in the third expansion -- or the proposed third expansion area.

Q. Where is the subject well to be located in Section 32?

A. In the northeast quarter; it would be on the yellow lease.

Q. It will be a standard location for the pool rules?

A. I believe it's a standard location, yes, sir.

Q. All right,sir, and this plat conforms, then, to the interest ownerships in the third expansion as identified in the pink-outlined area in the first plat we looked at?

A. Yes, sir.

Q. All right, sir. Turn now to the portion

of the exhibit that is indexed "D" and identify for us the next exhibit.

A. Well, this is the AFE which we submitted and has been approved by the parties who are going to participate in the cost of the well, with the exception of Cotton. We estimate approximately a gross cost of $1,300,000, with probably $140,000 -- $170,000 which represents recoverable frac oil. We plan on using jelled diesel. On recovering it, we'd sell it for the crude oil price.

And then if our contingency costs are not required, why, the net well cost would be approximately $1,000,000.

We realize that there are, perhaps, cheaper ways to drill -- drill these wells and we've reviewed those, and in our opinion the risks involved in trying to go a cheaper way are not warranted. The people who so far have agreed to join us, they feel the same way.

The second page under Section "D" shows the allocation of the costs of the well. We show there three columns, three options which Cotton has as we see it, and there may be some other options Cotton has, but at least they have the option of joining in the pooling agreement, the voluntary pooling agreement with the other parties, or they, Cotton can elect to pay its 25 percent share of the well, or

Cotton can elect to be force pooled.

The division of the costs under each of those three options afforded Cotton, are shown here on this page.

Q. All right, sir, before we leave the AFE, I want to direct your attention back to Exhibit Number Two, which is the June 26th letter. There was an attachment to that letter which I show you. That is your remarks concerning the drilling program and costs involved. Was that attachment furnished to Cotton Petroleum Corporation in that particular letter?

A. Yes, sir, uh-huh.

Q. And that attachment outlines your reasons for believing that you would go ahead and have to stimulate the proposed well in order to determine whether it was going to be a successful well or not?

A. Yes, sir. We feel like in this area it doesn't make sense to -- to adopt the industry custon of estimating a dry hole cost and a producing well cost because the total costs need to be -- need to be paid and the well needs to be fraced, needs to be equipped for production. All the costs that are involved in producing a well have to be incurred before you even know whether you got a producer, and there will be some salvage or tangible equipment, but that

would be all for a dry hole, and so we don't show the dry hole cost.

Q. What, if any, response did you receive from Cotton Petroleum Corporation with regards to theestimated cost of this well?

A. No response.

Q. All right, sir. Let me show you what was introduced at the Case 7287 on July, '81, as the AFE for the well for which the west halves of Sections 17 and 20 were force pooled, and ask you how the costs compare between the proposed well and the other well immediately to the north in the expansion area?

A. Well, our estimated costs are almost the same. We have about $10-or-12,000 difference in the two. I believe that's we've estimated one day less of rig time on the well in Section 20.

Q. My question is -- my question is whether or not the estimated charges for the costs of the subject well are consistent and compatible with the charges you are making to other individuals in similar situations within the third expansion area?

A. Yes, sir, they're quite similar.

Q. All right. Are -- do you have available any other estimated costs for other wells drilled to the

Niobrara member in the third expansion area?

A. I don't recall exactly Koch's AFE. I believe it was -- Koch, as I recall, was about $800,000, was their estimate. They did not have as large a frac treatment, however, as we have.

Q. To the best of your knowledge, information, and belief, Mr. Greer, are the estimated well costs for the subject well consistent with charges for similar wells in the area?

A. Yes, sir, as I said before, they could be drilled cheaper, and we think it's best not to take the cheap route.

Q. In your opinion is the cost reasonable and appropriate?

A. Yes, sir.

Q. All right. Now, let me direct your attention back to the second page, then, in which you show several ways in which the costs might be shared. Would you run through that again for us so that we'll understand what you intend to accomplish?

A. All right. Under the first column, which we titled it if Cotton joins in the pooling agreement, and by there we mean the voluntary pooling agreement which the other parties have joined --

Q. Now this would be a pooling agreement for the third expansion?

A. No, just select parties within the third expansion area, just whoever wants to join in drilling this well in the third expansion area, we've invited them to join and to join on the basis of the acreage they have in that expansion area, and so if they join on that basis, then the entire cost, 100 percent cost of the well, would be paid by the parties in that agreement in proportion to their interest within -- of their pooled interest.

Q. All right, if Cotton should join that agreement, then, they could avoid the triggering of a penalty factor or charges against their interest in this well?

A. Well, yeah, they could avoid the problem of the investment adjustment in the event the well comes into participation.

Q. All right, I think I understand. What's the second column, then? What is that option?

A. That option is if Cotton would like to join in drilling this well based only on the 640-acre spacing unit, and pay its 25 percent share of the cost, then Cotton's share would be about $300,000.

Q. All right, sir, and then if Cotton should -- I guess you mean to say if they are force pooled --

A. Right.

Q. -- is that the third column?

A. The third column is they're force pooled. In the second column the 75 percent of the cost would be provided by the third expansion pooling agreement parties; 25 percent by Cotton.

If Cotton elects to be force pooled, then the share of the costs that will go to the -- to Cotton's share, to pay Cotton's share of the well, we think should be by the owners of the leases in the existing unit, and their interests are set out in the bottom schedule. So these would be the parties who would bear Cotton's share of the cost if Cotton elects to be force pooled.

Q. These are the costs of the well and Cotton's share does not indicate the value of the penalty factor, does it?

A. No, sir.

Q. All right. And then you've indicated down in the bottom of this exhibit, the owners and percentages of the Benson-Montin-Greer Group?

A. No. 1.

Q. Yes, sir.

A. Yes, sir.

Q. All right. All right, if you'll turn to

the next page and identify that one for me.

A. This is a copy of the section out of the accounting procedure attached to the unit operating agreement, which shows the drilling well rate and the producing well rate, compressor operating rate, for the unit operation.

We've suggested we use those rates and they were increased April 1, as shown on the next page, in the figures shown there; about $1500 a month for a drilling well and $273 for a producing well.

Q. All right, sir, and what is -- what if any recommendation do you have to the Examiner for the overhead charge to be included in a pooling order against non-consenting owners?

A. I would recommend that these figures, this same figures be used.

MR. NUTTER: Which ones --

Q. Which ones are --

MR. NUTTER: -- the new ones or the old ones?

A. It's the one that went into effect April 1 of this year, $1517 a month --

Q. No, sir, that's been adjusted upwards as --

A. Oh, $1658.

Q. All right, sir, that is the drilling well rate?

A. Right, and $298 is the producing well rate effective April 1, yes, sir.

Q. Per month?

A. Per month.

Q. All right. Mr. Greer, were Exhibits One through Four prepared by you or compiled under your direction and supervision?

A. Yes, sir.

Q. Let me direct your attention to the application in this case and show you page two and direct your attention to paragraph six of the application. Also, the advertisement in this case contains on the last line of the advertisement, saying that you as the applicant have requested a provision for the re-allocation of costs and charges and revenues to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

Would you describe briefly how you would propose to have that accomplished by this pooling order?

A. Well, of course, this would be a separate thing which just automatically, I believe, would come about in the event the well is determined by the USGS as being pro-

perly -- or it would be proper to include it in the -- in the participating area of the Canada Ojitos Unit. Then these things just automatically take place, which is an investment adjustment.

Q. What, if any, opportunity will Cotton have to object to the investment adjustment should it take place?

A. Well, the -- the application for permit to drill will carry the stipulation that -- that the USGS will require the royalty committed to the unit agreement, if they deem it proper, and it's my understanding that the -- Cotton has appealed that stipulation of USGS, and I presume by the same token they could appeal this part of the same -- of the same stipulation. This in a sense is just a part of that stipulation.

Q. My point is whether or not Cotton will have an opportunity at such time as the equity adjustment is made to voice an objection and determine whether that adjustment is equitable and fair to all parties.

A. I presume they do.

Q. It's not an election that they have to make today?

A. I believe they can object any time they want to. I believe any -- any owner has that right, but aside

from objection, of course, the investment adjustment would be made in accordance with the terms of the unit agreement.

MR. NUTTER: Now, what adjustment are --

A. Are we talking about?

MR. NUTTER: -- we talking about? I realize you're talking about if the land should come into the unit, then there would be an adjustment of the cost to the unit owners.

A. Right.

MR. NUTTER: Including Cotton, if they were in the unit.

A. That's --

MR. KELLAHIN: That's the point I was attempting to make.

MR. NUTTER: Right. You're not talking about the portion of our statute that says that -- that they could have a right of objection, you're not talking about that portion of the statute that says if there's a disagreement as to costs, are you?

MR. KELLAHIN: That's my next question.

MR. NUTTER: Oh.

Q. The -- once the well is drilled and the actual cost of the well is known, you have no disagreement with the typical pooling order that requires you to furnish

Cotton a copy of the actual costs and also provides a period of time in which the Commission can, as a result of an objection, have another hearing on the actual reasonable costs?

A. No, sir, we have no objection with that.

Q. All right, sir.

MR. NUTTER: But would that be part of the allocation of costs or is that a determination of costs?

MR. KELLAHIN: That's a determination of the actual costs of the well.

MR. NUTTER: There's no provision for making a further and having a further hearing for the determination of the allocation of costs, is there?

MR. KELLAHIN: No, sir, there is not.

MR. NUTTER: That would be the terms under which they come into the unit or don't come into the unit.

MR. KELLAHIN: My point was that, if I understood Mr. Greer correctly, that outside of the order, that Cotton will still have an opportunity to determine for themselves whether that allocation if fair and appropriate for them.

MR. NUTTER: And that would be when they determine whether they were going to come into the unit or not with their lands, I think.

MR. KELLAHIN: That's right.

MR. NUTTER: And wouldn't be the subject for further hearing of the compulsory pooling.

MR. KELLAHIN: That's right.

That concludes my examination of Mr. Greer.

We move the introduction of Exhibits One through Four.

MR. NUTTER: Exhibits One through Four will be admitted in evidence.

Are there any questions?

MR. HUNKER: Yes, I'd like to cross examine --

MR. NUTTER: Mr. Hunker.

MR. HUNKER: -- Mr. Greer.

CROSS EXAMINATION

BY MR. HUNKER:

Q. Mr. Greer, have you filed an application for permit to drill the well in the northeast quarter of Section 32?

A. I believe it's been filed.

Q. Do you know whether it has been approved or not?

A. I don't believe they've had time to approve it.

Q. You mentioned the fact that a well was planned in Sections 17 and 20.

A. Yes, sir.

Q. In 26 North, 1 West.

A. Yes, sir.

Q. Has a well been commenced in either of those sections?

A. Yes, sir, we're drilling a well in Section 20 now.

Q. And what's the footage location of that well?

A. I believe that it is at an orthodox location and although I don't have the exact figures here, I'm fairly certain that it's close to 1980 from the north line -- between 1650 and 1980 from the north line and 660 from the center of the section, so that would be --

Q. That would be about 16 --

A. Yeah, 1980 from the west line, I believe and that could be the figures, 1980 from the north and 1980 from the west.

MR. NUTTER: In 20?

A. In Section 20, Township 26 North, 1 West.

Q. That would put it within 660 feet of the east line of the proration unit, is that correct?

A. Yes, sir, uh huh, that -- which is a standard location for these nonstandard proration units.

Q. Was your application for permit to drill approved by the USGS?

A. Yes, sir.

Q. Do you have a copy of the approval?

A. I don't have it with me today, but we have a copy.

Q. Was a stipulation attached to that approval?

A. Yes, sir. I presume you mean a stipulation that if the USGS determined it proper to include it in the Canada Ojitos Unit, that it would be included in the unit, committed to it.

MR. HUNKER: Excuse me a minute, Mr. Examiner. I'm looking for the specific language that the USGS has incorporated in the stipulation because I think specific mention is made in that stipulation with regard to the Greenhorn, and --

Q. Mr. Greer, in connection with Cotton's application for permit to drill in Section 5, to which you made reference, the following stipulation was appended to

their approval. This approval is granted with the stipulation that after drilling operations cease the well be tested to the satisfaction of the Deputy Conservation Manager, Oil and Gas, USGS, to determine if the well is in communication with the Niobrara Greenhorn reservoir that exists in the original Canada Ojitos Unit area.

It is further stipulated that if such communication is shown all lands proven productive or necessary for unit operations in this lease within the designated expanded Canada Ojitos Unit area be committed to the Canada Ojitos Unit agreement and unit operating agreement.

This stipulation is attached pursuant to the provisions of Section 2-B of the lease instrument.

Does the application for permit to drill which you filed on Section 20 contain the precise stipulation that I have just read?

A. I read the stipulation and I can't say that it was precise, worded precisely the same, but the intent or the substance is the same.

Q. We're talking about the West Puerto Chiquito Pool and you have made a distinction between the Main Mancos Oil Pool and the Greenhorn. Now tell me whether or not this stipulation is going to require you to drill your well in Section 32 to the Greenhorn formation?

A. No, sir.

Q. And -- but you do contemplate drilling the well to the Greenhorn formation, is that correct?

A. Yes, sir.

MR. NUTTER: The one in 20?

MR. HUNKER: The one in -- no, not in 20.

MR. NUTTER: This one?

Q. 32. Do you anticipate that when your application for permit to drill the well in Section 32, that it will contain a similar stipulation, is that correct?

A. Yes, sir. But that does not mean that we have to drill to the Greenhorn.

The USGS defined the participating area vertical limits to be the Niobrara, Carlile, and Greenhorn. So far we have developed principally the Niobrara.

There are reasons that I set out in my letter of June 26th that makes it appear prudent under certain conditions to carry these wells to the Greenhorn, and one of the conditions would be if in drilling the Niobrara we have not picked up enough oil to make drilling difficult, and we're still dusting with gas, we can drill on down to the Greenhorn at a very minimum additional cost, and for that reason we want to have it as an option and to have the parti-

cipants agree to the additional cost in the event at the time we drill the well it appears practical and prudent to go to the Greenhorn.

And the Greenhorn, I might -- as I set out in my letter of June 26th, in the several townships in this area, there's only been probably the same number of wells that have drilled to the Greenhorn, namely four or five, or tested the Greenhorn.

Q Is it your understanding of the stipulation that the USGS has imposed that if the Greenhorn is tested and appears to be in communication with the Greenhorn production in the Canada Ojitos Unit, that the owner of the lease is going to have to commit his lease to the Canada Ojitos Unit? Is that your understanding?

A The Greenhorn is not now productive in the unit. The USGS, the intent of their provision is to protect the formation which is currently under pressure maintenance in the unit, which is the Niobrara.

Now, the participating area when it was designated initially, covers the Greenhorn.

MR. NUTTER: How about the Carlile? Is it productive?

A So far we have only one well in the East or West Puerto Chiquito Pool that I recall that produces from

the Carlile.

MR. NUTTER: And none from the Greenhorn?

A. And none -- it's just recently we have completed a well in the East Puerto Chiquito Pool and we are testing the Greenhorn in it. It's been on production about two months. It's producing now, I think, about 10 or 15 barrels a day. We have not yet stimulated it, and we will continue to produce it for, I imagine, a long period of time to determine what it's going to do natural before we attempt to stimulate it.

The -- the reason that we have, and the thoughts that we've had with regard to the Greenhorn, are simply that the -- wherever it's been drilled in this area it's saturated with oil. What it needs to be commercially productive, we think, is a fracture system. Well, we found a fracture system in the main Canada Ojitos Unit in the Niobrara, we think it's due to flexing. The well we're testing now in East Puerto Chiquito is on a part of the -- where there's slight flexing, not the maximum amount of flexing, in the east pool, and these things lead us to believe that -- that where it's practical, then, in drilling these wells, where we have the flexure that we have in Canada Ojitos, and of course it's tending to fade out to the west, but still it's possible that there's a little incline right

in this area, but if we're not having trouble drilling and we can drill on down from the Niobrara to the Greenhorn at a minimum cost, then it's only prudent to do it.

And this is our reason for taking these two wells, in fact, we probably will take the third well, we're planning on three wells at this time, the one we just mentioned in Case 7287, this well in Section 32, and then we're planning on drilling another well in Section 22. In the past we haven't considered it prudent to test the Greenhorn. The only shows that we'd had were rather small. The price of oil was low. And in some of the wells it appeared there could be a problem in getting a good cement job up through the Niobrara if we had a longer liner than what we'd been running in completing wells in the Niobrara. But since we drilled the wells here 10 or 15 years ago in the Canada Ojitos Unit, in other areas we've found that by -- by drilling a large enough hole, setting 7-5/8ths inch casing and running extreme line liners, that we can get a good cement job over longer sections. And that being the case, we think it's worth trying in at least a few of these wells to extend them to the Greenhorn, unless at the time that we drill the Niobrara we've picked up so much oil that it's difficult to continue drilling.

MR. NUTTER: The well that you're testing

now in the Niobrara over in the east side, is it -- is it perforated in any other zone except that -- that you're testing in the Greenhorn, --

A. Yes, sir.

MR. NUTTER: -- are you perforating anything but the Greenhorn?

A. No, it's only the Greenhorn.

MR. NUTTER: I see.

Q. Mr. Greer, you drifted just a little bit from my question, and I appreciate the education, but --

MR. NUTTER: I lead him astray from your question.

MR. HUNKER: I beg your pardon?

MR. NUTTER: I lead him astray from your question.

MR. HUNKER: I think you did.

Q. Were you instrumental in having the USGS promulgate this stipulation in connection with applications for permits to drill on the west side of the unit agreement?

A. Oh, I think we wrote them a letter, which I'm sure Cotton has a copy of, I don't remember when it was, that we asked, yes, that they do just exactly that. We didn't know that they would do it, but we thought it proper

for them to do it.

Q. You attended the meeting in the USGS offices in June of 1981, didn't you?

A. Yes, sir.

Q. And isn't it made rather manifestly clear at that time that Cotton did not choose to join the standard unit?

A. Yes, sir, that's the impression I got.

Q. Have you submitted to Cotton a counterpart of the type of agreement that you made with Southland for their consideration to see whether or not they would choose to participate on the same basis that Southland is going to participate?

A. Not only did we submit them a copy, we told them we would consider any other suggestions that they might have; any other areas to be pooled, and any other --

Q. Have you -- have you offered them a 25 percent interest in this well on a participating basis without the restriction that they join the Canada Ojitos Unit?

A. Yes, sir.

Q. And you're willing today to let them participate in the cost of drilling this particular well without any obligation on their part to join the unit, is

that correct?

A. Without any obligation other than the stipulation which the USGS has placed on the permit to drill.

Q. It's only been imposed on your lease. It hasn't been imposed on Cotton's lease. Would you force them to join your unit?

A. I believe you're drawing a pretty fine distinction here, Mr. Hunker. When -- when these leases are pooled for the -- for the drilling of this well, it would seem to me rather impractical to attempt to segregate one lease out and -- and in fact I don't know how, in all conscience we could -- could do this with the USGS.

Q. You're making a deliberate attempt to get the Oil Conservation Division to put pressure on Cotton to join the unit, isn't that the whole purpose of this case today?

A. Oh, no. What we want to do is get the well drilled. Not at all. You have the right to participate in the cost of this well. You have no obligation to join -- to voluntarily join the unit, but if the well tests as required -- is tested as required by the USGS, and the USGS determines that the well should come into the unit, then of course, you're -- you're obligated.

Q. Well, let me ask you this question. Just

let's be practical. You've presented an exhibit here that shows that if Cotton pays its way, its cost would be $330,000.

A. Right.

Q. How much is Cotton's cost going to be if there is a re-allocation and costs, expenses, penalties, and everything else that you mention in your application?

A. Of course, if Cotton pays its way there is no penalty.

Q. All right.

A. We need to understand that.

Q. All right.

A. If there's a re-allocation, we --

Q. How soon will they get their money back and how much will they get back?

A. Well, immediately on the -- the investment adjustment, they get that part of their money back. Then --

Q. And what is that? How much money is that?

A. Well, we provided months ago each of the participants with a schedule showing just what that is. Would you like to see another copy of it? It's, I think --

MR. NUTTER: Why don't you put that as an Exhibit, Tom, because I was going to ask some questions

along this same line?

MR. KELLAHIN: Be glad to.

A. We discussed this at a meeting in Denver, I believe, the last of February or the first of March. We also mailed each of the participants in the -- in the proposed third expansion area this same schedule. The meat of it is that for the adjusted investment of all parties who would participate in the drilling of the well in the third expansion area and it's brought into participation, an investment adjustment is made on the adjusted investment. There would be roughly a 40 percent rate of return. If, for instance, a million dollars is invested, the first year there will be a $400,000 return.

The production has a slow rate of decline and it looks like it could be that way for a number of years.

The problem, and one which we mentioned earlier, and why we think it makes sense to pool larger than 640 acres, is showing in this first column, where we show a one section drilling party, with one section added to the participating area. In round numbers the weighted acres in the participating area now is 35-to-40,000. We used 40,000 on this example.

You drill one well, in line two we show

the acreage added is 640 acres, then the value for the total weighted acres is 40,640.

The equity then of one section in the participating area is 1.57 percent. Now that's the share of total cost that a party who drills on this 640 acres will be -- it will be his share. That's total cost inside and outside the existing unit.

If the well cost $1,000,000 then the drilling party's share in the total well investment then is about $180,000. The risk capital, then, that's returned to the drilling party is $821,000. The drilling party's initial rate of income is $71,000 and $71,000 for an investment under line seven of $179,000 is 40 percent.

But the drilling party's rate of return on their risk investment, $71,000 out of a $1,000,000 risked is only 7 percent.

Then in the second column we show a one section drilling party with six sections added to the participating area and there the figures are just about the same. The significant difference comes in is if you have six sections pooled, shown in the third column, and six sections added to the participating area with the drilling of a well, then the equity of one section in the resulting participating area is 1.46 percent. The equity with six sections is 8.76

percent. If the well cost is $1,000,000 then the investment adjustment, and this is based on the total investment of roughly $10,000,000 plus this new well, then comes out to about $1,000,000. So there is no -- no investment adjustment in line eight; then there's no risk money returned.

The drilling party's, then, initial income rate is $397,000 the first year, which is 40 percent, in round numbers.

So, this is the -- in answer to your question, if -- if the party participates in only one section and the well is drilled on that section, then he shares in proportion to the number of acres he has in that section with this kind of a return of investment, $1,000,000 spent, $6-or-7-or-8,000 return in investment adjustment. His net investment then is on the order of $200,000.

And this, of course, is the problem that is brought about that we have to drill wells on a lower density than the State spacing sets, and it's impractical in our view to try to set a wider spacing than 640 acres. We need the flexibility of location our wells and so it's just a happenstance, a problem, of this particular formation that we feel needs to be recognized, and why we have urged Cotton to sit down and discuss it with us and review these things and understand what we're talking about.

Q. I think that we're confused, Mr. Greer, by your figures, and we realize that you're very well acquainted with your unit and its operation, but we know that the basic unit agreement, all of which is in a participating area, covers 53,000 acres plus.

A. Right.

Q. We know that your expanded area, the area that the USGS has said that they would approve as an expanded area given certain ratifications and joinders by necessary parties, that that contains 16,000 acres.

So we're talking about a great number of acres and you talk about weighted acres here and we don't quite understand those things, and that's why I asked you the questions that I -- that I do.

Would Cotton, for example, share in the production from the unit,presently drilled unit wells at the rate that you specify here on this exhibit?

A. Yes, sir. That's why --

Q. Would there be a cross assignment to them showing their interest, their participating interest in the -- in the unit?

A. No, sir. That's one of the virtues, of course, of unitization, is it saves a tremendous amount of title work and legal work, that I consider a benefit. The

attorneys, perhaps, may not.

There is no need to make cross-assignments. Just by virtue of bringing the land into participation, the allocation of -- of income and expenses, this just follows automatically through and you're spared the -- the time and legal expense and the clearing of the records by cross-assignments.

Q We would like to see how your deal with Southland is actually structured, wherein Benson-Montin-Greer Drilling Corporation has made an agreement with Southland for their participation. Maybe if we saw that sort of an agreement, we could -- we could come to terms with you, Mr. Greer. We're really not the fellows in the black hats that you've made us out to be.

Now would you be good enough to furnish us with a copy of the instrument that you used with Southland to arrive at a participation?

A. Well, you have a copy of it there that you referred to awhile ago, and as I indicated earlier, we're willing to enter into a new pooling agreement, a separate pooling agreement. We've already started this well in Section 20. We think it would have been best if Cotton had joined us in -- in drilling this well, and of course, we might be able to back up and bring Cotton into this one, but if not,

we're willing to consider a separate pooling, a different number of sections, whatever. And it seems to me, of course, that all these things are best handled in our office or Cotton's office rather than taking up everybody's time here at this -- this kind of a hearing.

Q. Are you satisfied with the order that was issued by the Commission in Case Number 7287?

A. Yes, sir.

Q. It makes no provision for the inclusion of those two half sections within the confines of the Canada Ojitos Unit, do you realize that?

A. I didn't realize the distinction was -- was there. As I read it, it makes no difference. That's just an automatic function of the -- of the stipulation, and I think it's good that it was included in this notice so that there's no question that --

Q. In this case you've asked for an order that directs Cotton to participate on the basis of unitization.

A. Well --

Q. Ultimately, ultimately on the basis of unitization, is that correct?

A. Only if it's brought into the unit. We don't say that you're obligated to join in the unit. It's

only if it comes into the unit.

We're not obligating Cotton -- or not trying to obligate Cotton to do that. The USGS has taken that position and --

MR. NUTTER: Mr. Greer, let me, excuse me, Mr. Hunker.

MR. HUNKER: Yes, sir.

MR. NUTTER: Mr. Greer, under the terms of this stipulation by the GS, which admittedly you proposed to them and didn't know they would accept, but they did, but under the terms of that is it essential that if this well is drilled and say Cotton participates to the tune of 25 percent either voluntarily or under compulsory pooling order, is it essential under the provisions of that USGS stipulation that their interest has to be brought into the unit?

A. Well, yes, sir. I don't see any practical way to do it otherwise. You see, how --

MR. NUTTER: I realize the 640 would have to be considered as part of the participating area under that.

A. Right.

MR. NUTTER: But can't they have -- the participating area, I mean the 640 would participate in the unit, but isn't is possible for them to have their working

interest carved out of the participating area's share so that they still have a quarter of the well?

A. Well, the problem there if you try to do something like that is the same problem as if you try to carve any well out, whether you carve a part of a well or all of a well, and the problem is that should gas channel to that well then we as unit operator might shut the well in, restrict the production, or whatever, and in a well that any part of it has to be a part of the unit so that it can be operated efficiently --

MR. NUTTER: But what we're doing here today, we're considering not a compulsory pooling case for 640 acres, we're considering a compulsory pooling case that's putting 160 acres in 53,000 acres.

A. No, and I'm sorry if that's what it appears to be, but all we're interested in this hearing today, and I believe that -- well, certainly it's not our intent to do that. All we're trying to do today is to arrive at how this well can be drilled, who's going to share in the cost of it, and then if it meets certain requirements of the USGS it will automatically go into the unit.

MR. NUTTER: Right, and so --

A. So we're not asking --

MR. NUTTER: -- if the well is -- and the

terms of the stipulation are that you test the well and if it's in communication with the main body of the pool, then it has to come in.

A. Right.

MR. NUTTER: So we're compulsorily pooling 160 acres into 53,000, if it's in communication with the pool.

A. No, not the Commission. We're not asking the Oil Conservation Division to do that, no, sir.

MR. NUTTER: But if the lands are pooled it's the same effect whether you ask us to or not.

MR. KELLAHIN: That's a function of the stipulation of the USGS --

MR. NUTTER: Right.

MR. KELLAHIN: -- and not of the pooling order. All we're asking you to do is pool the 640.

MR. NUTTER: Right.

MR. KELLAHIN: But we want Cotton to understand at this hearing what the net effect is going to be of the entire process. We don't want them to come back six months from now and say we were surprised in some way, and that's the purpose of the disclosure in the notice, is what eventually may happen to their interest.

MR. NUTTER: Well, I realize it's a

combination of two things, a compulsory pooling order plus the stipulation that brings this about, but without the compulsory pooling order Cotton's not going to be in that 53,000 acre unit.

MR. KELLAHIN: Nor will any well be drilled in that section at all.

MR. NUTTER: Well, you could drill a 480-acre non-standard unit.

MR. HUNKER: Let me ask Mr. Greer a question, Mr. Examiner.

Q. You have permitted some of the working interest owners to exclude certain formations, which they don't choose to put into the unit.

A. Right.

Q. Would you permit Cotton to exclude all of the Mancos and the Greenhorn from participation and then let them take their 25 percent of the cost of drilling the well?

A. No, certainly not. There's no way to do that. That's what we're drilling.

Q. It's very simple to do.

MR. NUTTER: That would leave the Carlile, then, George.

A. Well, I'm sorry, Mr. Examiner, that you

have the feeling that if you force pool Cotton, that you're force pooling them into a unit, entire unit. This is not the case whatsoever. All we're talking about is force pooling of just one well in this 640 acres, and to bring that section into the unit by an action of this Conservation Division would require a statutory unitization hearing. There's no way that this forced pooling, and the way I understand the statutes. there's no way that it can be construed as forcing Cotton into the unit.

MR. NUTTER: Well, isn't the end result the same as being a statutory unitization?

A. Well, no, sir. The end result is the same as if Cotton, Cotton has the right now to go down and drill a well on Section 5 and another one on Section 8, and there's no difference in Cotton's drilling those wells, they have the same provision, the same possible requirement to join the unit on those wells as on this one that's being force pooled, no difference whatsoever, and if Cotton is successful in its appeal from that stipulation, then they won't have to join the unit under the USGS order. At that time, then we would probably come back to the Conservation Division and ask for statutory unitization, but there's no way under this force pooling that Cotton is obligated by the actions of the Division to join the Canada Ojitos Unit. I'm not asking

that at all.

Q I have just --

MR. NUTTER: Well, I --

MR. HUNKER: Yeah, go ahead.

MR. NUTTER: -- realize that, that under the order of the Division it's only talking about 640 acres.

A. Right.

MR. NUTTER: But the combined effect of the order of the Division plus the stipulation --

A. Except that the stipulation has been appealed, not on this well, perhaps, but in principle, and their appeal may be upheld, in which event they don't have to join and then this will not automatically take place.

Q In connection with your well in Section 20, Mr. Greer, you have moved a large rotary rig on that -- that location at the present time. Is that correct?

A. Well, it's not what I'd consider a large rotary rig. It's --

Q It's sufficient.

A. -- sufficient, the contractor tells us to drill to 8000 feet, and he's a good contractor and I believe his word.

Q And you estimate it will take about 20 days to -- to drill that well, is that correct?

A. Yes, sir, if we don't have a lot of lost circulation problems and that's one of the --

Q. And how long will it take you to test it?

A. It could take -- it's very difficult to put a time on it. We have found in drilling and testing these other wells that once the pressure has reached the bubble point, and it's very nearly to that now in this area, then the reaction time is roughly ten times as long as -- as it is when the pressures are above the bubble point, and -- and we have seen a reasonably good test in 60 to 90 days at pressures below the bubble point, but also we've seen it take as long as five or six months.

Q. In other words, you don't think that the well can be drilled and tested in the next 30 days, is that correct?

A. Oh, there's no way to practically test it in 30 days.

Q. 40 days?

A. I -- well, let me point out some of the things that enter into this. For instance, we'll want to test the Greenhorn separately. That in itself could take 30 to 40 days. Then when we get to the Niobrara, we're planning on testing -- the Niobrara has three, three zones that we

recognize that can be separately stimulated and -- and we feel need to be treated separately, if possible, and so we could test the Zone C, for instance, the bottom zone, and that can easily take another 60 to 90 days.

Q. What I'm getting at is, you show the location of the well in Section 32 to be a gray area, and you've talked about this gray area on a number of occasions previously and you've indicated that it may not be a -- it may not be productive, is that correct?

A. Oh, I think that's entirely possible.

Q. Don't you think it's a little premature to ask the Commission to give you a 200 risk penalty at this time when you're drilling another well and you could have some additional information for the Commission?

A. I don't think the drilling of this other well will have any bearing on the risk. Any time you drill a well, any time one drills a well in that third expansion area, it's a risk which in my opinion warrants the 200 percent penalty.

Q. Well, why are you drilling the well in Section 32?

A. At this time?

Q. Yes, sir.

A. As we indicated in our correspondence to

all the participants, our initial preference for the drilling of wells would be one well this year and perhaps another one next year, and then depending on the outcome, two or three wells after that a year, until we have all of the land in the third expansion area in -- in the unit, if it justified to bring it in the unit.

Now the problem with -- that's been brought about now is that that was a good plan. I think it would have been a good plan, particularly because moving west the formation is tighter. We're going to have to experiment with frac treatments. It would make sense, I think, to do it one at a time, one well at a time.

Q. You feel that there will be communication between the wells in the pool and the new well in Section 32, isn't that correct?

A. Well, I think there's a possibility of it, yes, sir; that's the reason for the proposed third expansion area and why we --

Q. How far along are you on the third expansion area? Has it been submitted for final approval by the USGS?

A. No, sir. I think you have our correspondence in that regard.

Q. How many parties have ratified it, per-

centagewise?

A. I don't have a figure for it. As you know, when Cotton and the other parties hired the Van Poolen to -- to make a study of the reservoir, and in our opinion the Van Poolen study is highly flawed. The other participants who joined in supporting Van Poolen's costs, apparently have accepted his -- his analyses. We're set back in recognizing this an area that needed to be unitized and as a result, we felt like it was only proper to -- to take the time and try and work out with the individual parties the reasons all over again as to why the area should be unitized and not try and force it down somebody's throat.

Q. You realize that if Cotton's lease is pooled, that there is a distinct chance that the Cotton lease will be forced into the unit, isn't that correct?

A. Well, I think any well will in the third expansion area if it's found to be in communication with the main reservoir, will be brought into the unit one way or another, either through the USGS ordering it in or if that fails, we'll ask for a statutory unitization to bring them in, so I think that any well drilled in the third expansion area, if in communication with the reservoir, yes, sir, I think it will be unitized.

Q. In connection with the well that Cotton

wants to drill then in Section 5, if they're forced into the unit what kind of a penalty, risk factor penalty, do you think that they would be entitled to from the unit owners if they're forced to come into the unit? Do you think they'd be entitled to 200 percent?

A. Not at all. Not at all.

Q. Their location geologically is substantially the same as your -- your Section 20 well and your Section 32 well. But you don't think they would be entitled to any penalty if they were forced into the unit?

A. No, sir.

MR. HUNKER: I don't have any further questions.

MR. NUTTER: Do you think that the GS would put a similar stipulation on their drilling permit?

MR. HUNKER: They did.

A. They already have.

MR. HUNKER: We'll have some testimony on that.

I don't have any --

MR. NUTTER: Do you have any further questions?

MR. HUNKER: I don't have anything further.

MR. NUTTER: Any further questions of the witness? He may be excused. Tom, you wanted to offer Exhibit Five, didn't you?

MR. KELLAHIN: Yes, sir, if you --

MR. NUTTER: Exhibit Five will be admitted in evidence.

MR. HUNKER: At this time I'd like to call Mr. Donald Paull.

DONALD E. PAULL

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HUNKER:

Q. For the record, will you identify yourself, Mr. Paull, and tell us where you're from?

A. I'm Donald Paull, Division Exploration Manager for Cotton Petroleum Corporation, Denver, Colorado.

Q. Have you testified previously before the Oil Conservation Division?

A. Yes, sir.

Q. And as what professional qualifications -- as to what professional qualifications do you have?

A. I have a Bachelor's degree from the University of Wisconsin in 1957 in Geology; 20 years of exploration with Amoco Production Corporation in exploration geology and development geology; and four years with Cotton Petroleum Corporation as Division Exploration Manager.

MR. HUNKER: Are his qualifications acceptable, Mr. Nutter?

MR. NUTTER: Yes, they are.

Q. Mr. Paull, as Exploration Manager how did you become acquainted with the West Puerto Chiquito Pool and under what circumstances?

A. We became interested in it in 1979 on the basis of Pictured Cliffs production and Gallup production in the subject area and acquired a lease from Mr. Thomas Fales in 1979 and started to build an acreage position as best we could.

Q. Did you obtain a farmout from an adjoining lease owner in connection with that prospect?

A. Yes, sir. Mr. Fales (sic) owned the west half of a section and we went to Mountain Fuel Corporation and got a farmout of the east half, and this is Section 5 of 24 North, 1 West, Rio Arriba County, New Mexico.

In addition to that we have obtained the options to drill on Mountain Fuel lands in Sections 8 and 17.

Q. Have you also bought some KGS leases in this area?

A. Yes, six, we have, in 1980, in September of 1980, we went and acquired a KGS lease in Section 32 of 26 North, 1 West. We were in competition with six other companies. We were the high bidder, bidding $338.15. Our gross acquisition price of that 160-acres was $54,104.

Q. What happened to the first location that you made on that --

A. May I -- may I --

Q. Yes, excuse me.

A. We subsequently have required an additional KGS lease, 320 acres, located in Section 7, of 24 North, 1 West. Our acquisition price was $377.77, for a total price of $120,886.

So to date in acreage acquisition Cotton Petroleum has expended over $200,000 in acreage in the proposed West Canada Ojitos Unit area.

Q. Did you spud a location in connection with the Mountain Fuel Supply farmout that you obtained?

A. We did, yes, sir. We initiated our efforts in the summer of 1980 to stake a location and drill a well in Section 5.

Q. And did you hear about a hearing that

was held in Santa Fe about that time wherein the Benson-Montin-Greer Drilling Corporation wanted to change the spacing rules?

A. Yes, sir, we did. We -- our initial location was located in the approximate center of the southeast of Section 5 of 24 North, 1 WEst, and the initial application by Mr. Greer proposed a location that would be in the interior section, interior 40 of any section within the proposed unit expansion. That caused us some delay, but did not really cause us any great concern, and we moved the location with expectation that that would be approved. We moved the location, spent additional money in preparation for it. Subsequently, Mr. Greer changed that application and made a request before the Commission that a well would have to be located on the west side of the section, and our location was on an interior 40 on the east side.

We had a hearing before the Commission in November of 1980 and ultimately the Commission did rule that a location within the interior 40 would be acceptable, so our initial location and expenditure there was salvaged, but we were delayed some three to four months with this action.

Q. Meanwhile was your application for permit to drill pending before the USGS?

A. Yes, sir, and until the spacing requirements were ruled on, the USGS would not handle our application

nor issue a permit to drill.

Q. Ultimately a permit was approved with a stipulation, and you heard me read that stipulation, is that correct?

A. That is correct. We -- we ultimately received the approval for the location with the stipulation that you read.

Q. Has a notice of appeal and appeal been filed in connection with Cotton's position with respect to that stipulation?

A. The appeal has been filed. That's correct.

Q. Is it still pending?

A. It is pending.

Q. What happened next, Mr. Paull, in this ongoing situation? Do you recall, for example, Mr. Greer changing his mind about whether to expand the unit or whether to have a unit, a second unit, on the west side?

A. Mr. Greer has been trying for some period of time to get a unit expansion in the area. We have been opposed to it all along and have been in communication with Mr. Greer, stating our opposition to unitization, and ultimately we hired an outside consulting group,that Van Poolen and Associates, to do a complete reservoir analysis of the

area. Our sole intent here was to make a determination that there is insufficient data to affect an expanded unit. The existing unit is some 52,992 acres. The proposed expansion is 6000 --

Q. 16,000.

A. 16,644 acres. Ultimately, if approved, this Federal unit would be 69,600 acres in size. We have acquired our acreage through KGS sales with the idea that we would be able to analyze the risk/reward situation with the acreage acquisition.

Q. Why did you choose not to join the unit?

A. The -- Cotton participation in the -- in the Federal unit would be so dwarfed that we lose -- we lose all control of our destiny. We are a relatively young, aggressive oil and gas exploration company. The way we do business is to become involved in potentially attractive areas, New Mexico is one of them, the San Juan Basin particularly, we are very heavily involved in. We do risk-weighted economics on all our prospects, and the way we viewed this was a risk-weighted situation where we were going to drill our well in Section 5 with the idea that if we could produce 110,000 barrels out of that, we could get our minimum economics for Cotton Petroleum Corporation; with the Pictured Cliffs production in the area and the Niobrara production in

the area, we felt that we did have that opportunity.

If we turn things around and take Cotton's minimal amount of acreage and put it into a Federal unit of this size, it so dwarfs us that we ultimately do not have a position.

For example, the Section 32 lease that we are talking about here today, if we could drill that well with Mr. Greer and with Southland on 640-acre spacing without the cloud of unitization hanging over our heads, we would be more than happy to do so. That would fit Cotton's risk analysis very, very well.

Our problem is that our costs by Mr. Greer's AFE are $330,000. If that well is a dry hole, Cotton Petroleum is out $330,000. If that well is a producer the threat of being forced into the unit, as it now stands, would dilute Cotton Petroleum Corporation so that rather than 25 percent in the well we would be down to a .2 percent in the Federal Unit. Now we would get reallocation of our expenses but .2 percent, the bookkeeping is not worth it for Cotton. The unit is very slow in developing. There has not been a well drilled in the unit for nine years. It just does not fit with Cotton's operations.

We are really not trying to be obstructionists in getting wells drilled and we are not opposed to

Mr. Greer drilling wells, and if -- if the proposed unit expansion would be withdrawn, and I think it should be withdrawn, because after a year there still is not support for the unit within the -- within the expanded unit from the participants.

But we cannot make a risk-weighted decision on drilling a well at that location with the -- with the potential of the dilution hanging over our head.

Q. Do you have any quarrel with Mr. Greer's administrative overhead charges with respect to the well in Section 32?

A. No, sir.

Q. Do you have a judgment with regard to the risk factor that should be applied as related to the well that is currently being drilled up in Section 20?

A. Yes, sir, I do. That and the proposed unit expansion, both. I feel that a well that is going -- that is being drilled that is within two miles of the -- of the subject well in Section 32, would have a great impact on the -- on the risk that should be awarded to a driller, in this case, Mr. Greer. If that well is capable of production on the basis of logs and on the basis of initial tests, then I think clearly the risk should be a minimal amount awarded to Mr. Greer.

In addition, I think that Mr. Greer is

asking to have it both ways, and this is the dilemma that Cotton is in. On the one hand he is saying that the acreage in the proposed unit expansion is part of the existing field and therefor should be pooled into the -- into the existing field, and he's been saying that for a year.

If that's the case, and he feels so strongly that that is the case, then he is drilling a very low risk well.

But what is happening here is the State of New Mexico, the Federal government, and Cotton Petroleum is seeing drilling opportunities go down the drain because this has drug on so long and we're into different disciplines between the State and between the USGS. Mr. Greer has stated that Koch Exploration has pulled down their well. They are going to be unable to drill that well. In all probability the acreage will expire and the Federal government and the State will receive no income.

Cotton Petroleum's lease in Section 5, we also cannot drill that well. We cannot drill it and pay 100 percent of the risk dollars and be looking at the dilution of the being pulled into the unit and having no reward for those risk dollars, or dropping down to the minor percentages of less than one percent.

I feel that our acreage in all probability

will expire, and I think that that's a shame. Under -- under a different situation we would drill that well within the month.

Q Have you any other comments to make with respect to the exhibits that Mr. Greer introduced, or any other comments that you'd like to make in reference to the well involved?

A Well, I think that Mr. Greer has indicated that we are not communicative with him. I would disagree with that. We -- we don't agree with him. He is very confident that all of this acreage will ultimately go into the unit and if that's the case, Cotton has no position in this play. We have wasted $200,000 already and to put another $330,000 in it is not practical for our corporation.

So we're -- we're looking at it differently and I think we both understand one another from that standpoint.

He made a statement that Mr. Van Poolen on our behalf has made the -- has decided that this acreage is not productive, and that is not my interpretation of what Mr. Van Poolen did. What he did was use Mr. Greer's own map and showed that the area in the proposed expansion had not been proven to be probably productive, and should be left in a risk wildcat domain, and I agree with that. But I think

that it is a risk well that under different terms we would participate in.

Another thing that -- that I would like to object to, I guess, is in Mr. Greer's Exhibit Number One, he shows some wells that are operated by Cotton Petroleum Corporation on our West Lindrith prospect. It is in portion "B" of his Exhibit One. He has done a number of things here. One, he's gone 20 miles away to a totally different reservoir where we do not have fracture enhancement. We have a very, very poor reservoir rock that is not fractured and secondly, he has elected the earliest wells that were drilled in that pool. If I'm not mistaken, the 103 was not drilled by Cotton Petroleum. We took it over. And the 104 and the 105 were the first two wells that we drilled and we did not stimulate these wells as well as we could have and as we learned to do in the -- in the subsequent years since 1957 when those wells were drilled, we have drilled -- and I'm close because this is not an exact number -- an additional 25 Dakota wells in that field, and we have come to understand it better and stimulate it differently.

So the selection of these wells is not germane either to the subject here today nor the reservoir of Lindrith.

And I think that his Exhibit "D" where

he shows the various options of Cotton Petroleum Corporation, these are true, these are the options that Cotton has, and I won't go back through it again, but what this doesn't take into consideration is the dilution if you're successful, and another thing that he did not discuss at all is where you stand if you're unsuccessful. And if we're unsuccessful, we--it would cost us $330,000, and if we're successful, we become diluted.

So it's a no-win situation for Cotton Petroleum Corporation and that is the reason that we came before you today, Mr. Examiner, is to point out that we're not obstructive to drilling wells, but we just cannot find an economic means to participate in any way in this particular venture and we do not feel that the maximum penalty should be imposed.

MR. HUNKER: I have no further questions of Mr. Paull.

MR. NUTTER: Are there any questions of him?

MR. KELLAHIN: Yes, sir, Mr. Nutter.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Paull, am I correct in understanding

that you've received all the letters and correspondence and communications that Mr. Greer has testified that he has forwarded to Cotton Petroleum Corporation?

A. That is correct.

Q. And you would be the individual that takes that information and makes the decision for Cotton as to whether they would participate in this well or in the expansion of the unit? Is it --

A. No.

Q. -- principally your decision?

A. No, I have a -- I have a corporate management in Tulsa that we in the Division office, in production land and exploration evaluate the data and make recommendations, but the final decision is -- is a corporate decision.

Q. Has Cotton made a final decision about whether or not they will voluntarily participate with Mr. Greer in the drilling of this well in Section 32?

A. We will not voluntarily participate in the subject well.

Q. I believe, if I understood your testimony, the principal concern you have is the impact of the USGS stipulation on the lease, that in the event there is production from the Niobrara, that this acreage would have to be committed

to the third expansion; it is that problem that most concerns you?

A. That, and the continuing efforts of Mr. Greer to bring this acreage into the existing unit, and the fact that by studying the land map, if Mr. Greer so elected to break the proposed unit into two pieces, he would have control of the northern portion and could pull us in even without the stipulation of the USGS. What I'm saying is that the proposed expansion, he cannot get 85 percent. He has not been able to get 85 percent at this point in time, which is kind of a number that the USGS would like to see, but if he were just to take the northern portion, which would include Cotton's 160 acres, he does control well over 85 percent and we would be drug along once again.

Q. I understand your concern, Mr. Paull. Am I correct in understanding that those concerns are drastic problems outside of the question of forced pooling of this 640-acre unit?

A. I -- I cannot separate the two. I realize we're dealing with 640-acre spacing here today, but as a manager for Cotton I have got to look at the total picture and -- and the risk/reward potential. So I cannot separate the actions of the unit expansion and the 640 acres that we're discussing today.

Q. You referred to a risk-weighted economics, and I'll pick that up as a catch phrase in your testimony, and I think you were talking about the expanded unit including, am I correct, some 26,000 acres, is that the number? What was the number you mentioned?

A. The proposed expansion is 16,644 acres.

Q. All right, sir, 16,000, and is it your understanding that that would be included in a participating area of how many acres? What are we talking about?

A. If that were included, then we would have a unit size, if I understand your question, of 69,636 acres.

Q. All right, I'm -- I'm having trouble understanding what the .2 percent was that you mentioned.

A. That would be if Cotton's acreage were pulled into the unit, and what I took there was our 160, I took 160 acres over 52,900 acres. That is -- that is Cotton's participation in the Federal unit.

Q. All right, that's the percentage relationship between your acreage and the 52,900, is that true?

A. That's correct, yes, sir.

Q. All right. And what you're telling me is that you would rather have a 25 percent participation in a 640-acre proration unit as opposed to a .2 percent partici-

pation in production from some 52,940 acres.

A. That is correct.

Q. Have you made a study of what the economics are from wells to be produced on 52,900 acres?

A. I have an idea of the reserves that Mr. Greer feels ultimately could be in that unit, yes.

Q. Now you're prepared to drill a well using a 640-acre unit in Section 5 to the Niobrara, and you've not commenced that well because of your appeal on the stipulation?

A. That is correct. The -- the same reasoning has prevented us from drilling that well. We started over a year ago as a wildcat prospect to drill that well and we have run into one hurdle after another but now that acreage falls in the same jeopardy that if we drill a well and in this case it would be 100 percent Cotton Petroleum Well, at $1,000,000 risk cost, but if we drill that well and it's a dry hole, we have risked $1,000,000 and have no reward whatsoever. If we drill that well and are successful, then we are -- we are under the cloud of being force pooled into the unit, facing the same dilution, and we get back our million dollars and have a minor percentage in the unit that will take us forever to get our money back.

If you take it risk to return, when we

get down to 1 percent or less than the 1 percent figure, the economic -- we just cannot stand it economically.

Q. Is Mr. Greer correct in his testimony that Cotton has not responded to any of his requests that he sent you concerning the pooling of this unit?

A. We have --

MR. HUNKER: May I interrupt you, Mr. -- before he answers the question?

He may not be aware of a letter which I have in my file that I'd like to have him look at.

Now you can answer the question.

A. Yeah, I think that -- that the letters that you're making reference to, one dated June 26th, another dated July 3rd, and another dated July 28th, on June 3rd, 1981, Cotton Petroleum Corporation wrote a letter to Benson-Montin-Greer and if I may, I would like to read the letter in that it is brief.

Gentlemen: Please be advised Cotton is opposed to the proposed third expansion of the Canada Ojitos Unit. This objection is based on the following facts:

One, the leases were originally awarded on a competitive exploration basis and until Cotton's proposed test in Section 5, Township 24 North, Range 1 West, the operator had not proposed any drilling activities in

almost eight years.

Two, Cotton's interest in the proposed unit by virtue of expansion would be so small as to render Cotton a non-aggressor and not in control of its own destiny.

Three, the geology and engineering developed by Cotton and the operator do not justify the size of the expansion.

Four, the acreage in the unit at its present size does not appear reasonably proven to be productive or necessary to unit operations.

Cotton feels that a competitive exploration approach in this area will best serve the working interests, overriding royalty and royalty owners in the area.

We look forward to our meeting with USGS on June 5th, 1981, to further elaborate on these points.

We feel that that letter sets our position, that our meeting with the USGS established it with maps and with our data. The correspondence that we have from Mr. Greer, there really wasn't anything additional that we could say to the man.

Q. I listened carefully as you read that letter. I had not heard it before, Mr. Paull, and I understood it to be addressed to the unitization. It makes no specific reference to the forced pooling.

A. Well, this was --

Q. Am I correct?

A. This was before the forced pooling, that is correct.

Q. All right, sir. Have you communicated your concerns to Mr. Greer with regards to this compulsory pooling case?

A. I talked to Mr. Greer on the telephone and he indicated what he wanted to do. I am very aware of his letters, and at that particular time we were still working the econmics to determine where and exactly what our stand would be. As I told you earlier, I'm aware of the reserves that he feels ultimately might be in the field, and we had to work that kind of an economic picture, too.

Q. And you've done that study?

A. Yes.

Q. And at this point you have no specific recommendations to Mr. Greer as a proposal for this 640-acre unit?

A. If -- if Mr. Greer would withdraw all further and future efforts for unit expansion, I would go to our management and recommend that we pay our proportionate share of this well and have a very high level of confidence that we would join in the well immediately, and we would

drill a well in Section 5.

Q. Have you attended any of the hearings with regards to the pressure maintenance of the unit in the -- Mr. Greer's unit to the east?

A. Yes, sir.

Q. You understand that's a pressure maintenance project?

A. Yes, sir.

Q. All right, do you concur with him in his geological conclusions with regards to the location of those wells insofar as one well is able to drain a great number of acres?

A. No, sir.

Q. You don't agree with that?

A. In a limited area I do, but in a number of wells Mr. Greer has not shown to my satisfaction any communication whatsoever.

Q. You agree, don't you, that if wells that are located in the eastern side of the third proposed expansion, there is a substantial risk that they will be down structure from the pressure maintenance project, in communication with that project, and thereby pose a substantial risk to depleting the effectiveness of the pressure maintenance project?

A. I do not feel that that has been sufficiently indicated by any data whatsoever.

Q. Isn't that the reason behind the stipulation imposed by the USGS on its leases?

A. That is correct.

MR. KELLAHIN: We have nothing further, thank you, Mr. Paull.

MR. NUTTER: Are there any other questions of Mr. Paull?

MR. HUNKER: I have one other question, Mr. Nutter.

MR. NUTTER: Mr. Hunker.

REDIRECT EXAMINATION

BY MR. HUNKER:

Q. Was Cotton consulted with regard to the imposition by the USGS of the stipulation? Did you ever participate in any discussions with the USGS prior to the imposition of the stipulation?

A. No, sir.

MR. HUNKER: That's the only question I have.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Well, do you have any idea when your appeal regarding the stipulation would be ruled on?

A. No, sir, Mr. Examiner, and that is cause of grave concern in that our lease does expire in 10-31, and we -- we cannot drill that well under that cloud, and unless it is clarified, I'm afraid that that well will not be drilled.

Q. Now that's the lease that's shown to be a Mountain Fuels lease on the exhibit there, isn't it?

A. That is correct. We --

Q. I mean it's in Section 8.

A. We have -- we have Section 5 and Section 8, yes, sir.

Q. Is part of that in 5 also?

A. Yes. It's -- there are two leases. We had -- the initial well would be in Section -- in Section 5. Cotton owns the west half of Section 5, 100 percent, and we have an option to drill and earn with a back-in from Mountain Fuel on the east half of Section 5, and then a continuing option in Section 8.

Q. Oh, you're talking about down here in --

MR. HUNKER: Yes.

A. Yes, sir, yes.

Q. Well, I've been looking at Section 5 and 8 --

A. I'm sorry, that's in 24 North, 1 West.

Q. Yeah, okay. They all have a 10-31 date on them.

A. Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Paull? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. HUNKER: Correction, I have nothing further.

MR. PAULL: Mr. Examiner, could I make another statement?

MR. NUTTER: If your attorney will let you, you can.

MR. HUNKER: Yes, if you will, Mr. Paull.

MR. PAULL: The question was asked on, you know, under what terms could we -- could we drill a well in here, and I think Mr. Hunker stated it that we could back to our management if we could -- if we could get a penalty imposed on the unit of 200 percent risk for drilling a well in Section 5, so that we could have some opportunity of recovering our -- our risk, and this is what Mr. Hunker directed to Mr. Greer before and it was refused.

MR. NUTTER: I'll call for closing statements. Mr. Kellahin, you may go last.

Do you have any statement, Mr. Hunker?

MR. HUNKER: It's late in the day, Mr. Examiner.

MR. NUTTER: I know it is.

MR. HUNKER: And I'm tired and I'm sure everybody else is tired. I think that Mr. Paull has stated our case as cogently as possible.

Mr. Greer has already told Cotton that it's a foregone conclusion that this 640-acre tract is going to be force pooled in one of the exhibits that was introduced today, and I'm sure that he's made your mind up for you, but be that as it may, we all recognize that forced pooling is a good thing and in its place -- and it has its place in the State of New Mexico, and we think that the risk factor should be a lot less than he would want to impose.

But basically Mr. Paull has stated our position and made it manifestly clear that we're opposed to unitization. We want to develop our interest competitively. We don't want to be forced into a very, very large unit where our interest will be considerably diluted.

Thank you very much for your good attention.

MR. NUTTER: Thank you. Mr. Kellahin?

MR. KELLAHIN: We have brought up the potential that this tract could be included in the unit so that Cotton would know exactly what we propose happens with this area and so that the Commission would know.

However, to be absolutely correct with you, that is really of no material concern in the question of forced pooling. We have demonstrated substantial evidence on all the esential elements of a forced pooling case. You have seen Mr. Paull's concern here is one as to unitization. If we chose to argue the unitization before you today in an appropriate case, there are fifteen or twenty different compelling reasons on Mr. Greer's side. We have not chosen to enter into that type of discussion.

The point is that Mr. Paull and Cotton are -- have appealed the stipulation. They have a full number and course of legal remedies before them with regards to that unit problem. Its outcome is undetermined at this point but it should be no impediment to the forced pooling of this 640-acre tract.

One further point. The question, this red herring about a penalty against the operator of the unit is absolutely ridiculous. It's not permitted under our forced pooling statute and Mr. Greer and the unit would not have a

participation in the well in Section 5, it's ludicrous to suggest that there is some quid pro quo that the unit be penalized in some way. It's just inconceivable. But be that as it may, we have demonstrated to you that there is an operator ready and willing to drill a well to the particular depth, using the spacing requirements as required. There is no reason to spread this out and drill unnecessary wells by the creation of non-standard proration units.

We believe that we have demonstrated all the facts necessary for you to grant this application.

MR. NUTTER: Thank you.

Does anyone else have anything to offer in Case 7325?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing transcript of hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7325 heard by me on 8/12 19 81

Examiner
Oil Conservation Division

BENSON-MONTIN-GREER DRILLING CORP.
EXHIBITS IN CASE 7325
BEFORE THE OIL CONSERVATION DIVISION
AUGUST 12, 1981
FORCED POOLING, SECTION 32
TOWNSHIP 26 NORTH, RANGE 1 WEST
RIO ARRIBA COUNTY, NEW MEXICO

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
_____EXHIBIT NO._____
CASE NO._____

INDEX OF EXHIBITS
IN CASE 7325
BEFORE THE OIL CONSERVATION DIVISION
OF THE NEW MEXICO DEPARTMENT OF MINES AND MINERALS
AUGUST 12, 1981

FORCED POOLING
SECTION 32
TOWNSHIP 26 NORTH, RANGE 1 WEST
RIO ARRIBA COUNTY, NEW MEXICO

SECTION A

1. PLAT OF EAST AND WEST PUERTO CHIQUITO MANCOS POOLS SHOWING NON-STANDARD SPACING UNITS, WEST PUERTO CHIQUITO POOL.
2. TYPE LOG OF FORMATIONS TO BE POOLED.
3. DEFINITION OF FORMATIONS TO BE POOLED.

SECTION B

1. STRUCTURAL CONTOUR MAP OF CANADA OJITOS UNIT WITH SCHEMATIC CROSS-SECTIONS.
2. GRAPH OF PRODUCTION HISTORIES OF SELECTED WELLS, CANADA OJITOS UNIT AND WEST LINDRITH GALLUP-DAKOTA.

SECTION C

EXHIBIT A OF PROPOSED THIRD EXPANSION AREA, CANADA OJITOS UNIT.

SECTION D

1. AFE FOR CANADA OJITOS UNIT G-32, TOWNSHIP 26 NORTH, RANGE 1 WEST.
2. PAGE 3 OF ACCOUNTING PROCEDURE, CANADA OJITOS UNIT OPERATING AGREEMENT, SHOWING OVERHEAD RATES.
3. OVERHEAD RATES, CANADA OJITOS UNIT, EFFECTIVE APRIL 1, 1981.

UNIT OPERATING AGREEMENT

CANADA OJITOS UNIT AREA

RIO ARRIBA COUNTY, NEW MEXICO

THIS AGREEMENT, made as of the first day of March, 1981, by and among the parties who execute or ratify this agreement or a counterpart hereof,

WITNESSETH:

WHEREAS, the Parties have committed their interests into that certain UNIT AGREEMENT FOR THE DEVELOPMENT AND OPERATION OF THE CANADA OJITOS UNIT AREA, County of Rio Arriba, State of New Mexico, dated as of the 19th day of June, 1963, and hereinafter referred to as the "Unit Agreement", covering the lands described in Exhibit 1 hereto attached, which lands are referred to in the Unit Agreement and in this agreement as the "Unit Area" and which Unit Area may, by the terms of the Unit Agreement, be expanded or contracted, and lands in the Unit Area shall be the lands covered by this agreement, insofar as the oil and gas leases thereunder are committed to the Unit Agreement by the Parties hereto; and

WHEREAS, the Parties enter into this agreement pursuant to Section 7 of the Unit Agreement;

WHEREAS, the Parties currently are considering expanding the Unit Area, but whether or not it is expanded, the Parties nevertheless enter into this Agreement;

NOW THEREFORE, in consideration of the mutual agreements herein set forth, it is agreed as follows:

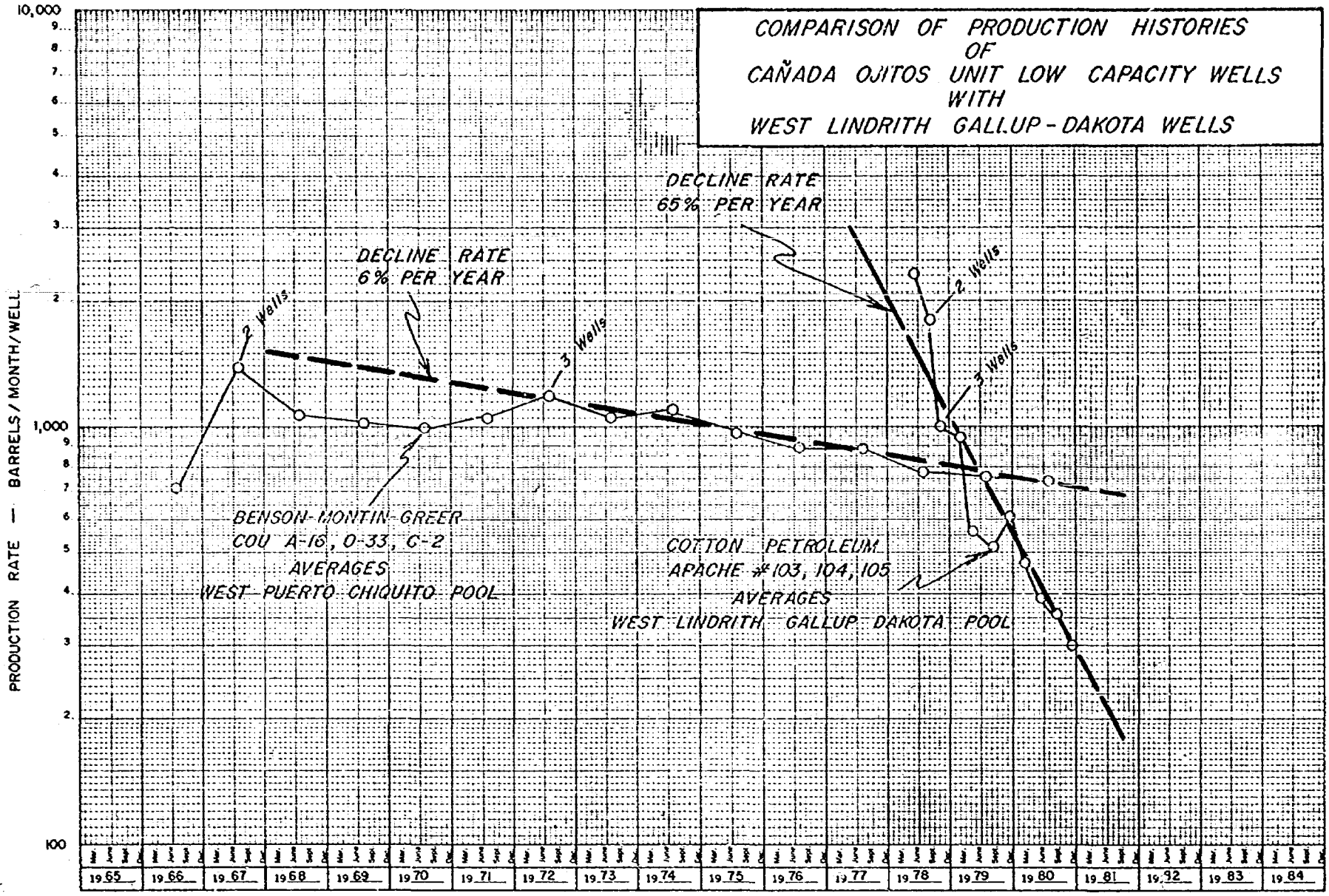
Construction of Regulatory Authorities and Names.

The authority of the Federal Power Commission, as identified herein, has been superseded by that of the Federal Energy Regulatory Commission, and wherever in the following articles (particularly article 37) the words "Federal Power Commission" appear they shall be construed to mean "Federal Energy Regulatory Commission", or such other appropriate succeeding governmental authority; as is proper;

Special Definitions:

Main Mancos formation: as used herein means those members of the Mancos formation from its top to the base of the Greenhorn member; and is equivalent to that stratigraphic interval shown on the Schlumberger electric log of the Canada Ojitos Unit No. O-9 well, located in the southeast quarter of Section 9, Township 26 North, Range 1 West, between the depths of 6155' and 8137'; such reference electric log being the Schlumberger Induction Electric log run June 18, 1963 with well identification of "Bolack-Greer No. 1 Bolack";

COMPARISON OF PRODUCTION HISTORIES OF CAÑADA OJITOS UNIT LOW CAPACITY WELLS WITH WEST LINDRITH GALLUP-DAKOTA WELLS



5/81

BENSON-MONTIN-GREER DRILLING CORP.

AUTHORITY FOR EXPENDITURE

DATE June 26, 1981

Prospect Canada Ojitos Unit (West) Well Canada Ojitos Unit #21 (G-32)

Section 32 Township 26N Range 1W County Rio Arriba State New Mexico

Producing Formation or Formations Niobrara - Greenhorn Projected Depth 8020'

INTANGIBLE COSTS		
Surveying Road and Location	$	1,000
Roads and Location		6,500
Drilling: Type of Bid (Day Work) 28 days @ $7,500/day		210,000
Day Work - Completion Rig - Day Work 20 days @ $1,250/day		25,000
Transportation and Hauling (Including Rig)		25,000
Mud and Water		15,000
Circulating System - Gas Line to Location and Gas		45,000
Equip. Rentals - Drilling - Rotating Head - Blooie Line - Straight Hole		15,000
Bits		15,000
Logging		30,000
Cement and Cementing		25,000
Acidizing, Fracing, Perforating (Two 100M gals jelled diesel frac jobs)		400,000
Engineering & Supervision		3,500
Labor		15,000
Overhead		3,500
Contingencies		135,000
TOTAL INTANGIBLE COSTS	$	969,500
TANGIBLE COSTS		
Well Equipment		
Casing and Tubing: 1000' 10-3/4" + 1-1/4" satellite	$	17,000
7150' 7-5/8" N-80 & K-55		130,000
1000' 5" X-line		7,500
7900' 2-3/8" EUE tubing, plastic lined		25,000
Gas Lift Subsurface Equipment		1,000
Wellhead Equipment - Tubinghead, Valves, etc.		10,000
Well Flow Lines		2,500
Noncontrollable Well Equipment		1,500
Installation Costs		3,000
Lease Equipment		
Tank Battery		4,000
Separators and Treaters		25,000
Processing, Compressing, Measuring & Monitoring Equipment		2,500
Lease Lines: Oil Gathering 8000' 3" fiberglass		19,000
Gas Gathering 8000' 3" steel		25,000
Gas Lift Gas 8000' 2" steel (also to be used for drilling gas)		27,500
Other Controllable Equipment		5,000
Noncontrollable Equipment		2,500
Installation Costs		15,000
Contingencies		5,000
TOTAL TANGIBLE COSTS	$	353,000
TOTAL DRILLING, COMPLETION AND EQUIPMENT COSTS	$	1,322,500
Less: Frac Diesel if recovered		170,000
Less: Contingency costs if not required		140,000
NET COST IF FRAC DIESEL RECOVERED & CONTINGENCIES NOT REQUIRED	$	1,012,500

See Page 2 for participating interests.

SHARING OF COSTS
CANADA OJITOS UNIT NO. 21 (G-32)

ALLOCATION OF DRILLING COSTS ITEMIZED ON PRECEDING PAGE

	If Cotton joins in Pooling Agreement	If Cotton elects to pay 25% share		If Cotton elects to be force pooled	
SHARE	100%	75%	25%	75%	25%
AMOUNT	$1,322M	$992M	$330M	$992M	$330M
EXPENSE BEARING PARTIES	As provided in 3rd expansion Pooling Agreement*	As provided in 3rd expansion Pooling Agreement*	Cotton	As provided in 3rd expansion Pooling Agreement*	B-M-G Group #1 **

* Participating interests will be as shown on Exhibit II of the Canada Ojitos Unit Third Expansion June 1, 1981 Pooling Agreement.

** Owners and percentages of B-M-G Group #1 are:

Stoabs Oil Corp.	2.785237%	Amoco, Inc.	7.496125%
Tom Bolack	5.000000%	John R. Anderson Est.	1.294738%
Carpenter Corp.	2.500000%	Albert R. Greer	3.554375%
Bill L. Harbert	.889000%	Greer Enterprises, Ltd.	10.297333%
Jack London, Jr.	2.500000%	Montin-Harbert Constr.	11.663000%
Wm. V. Montin	5.000000%	Jessie Stanley	.379313%
Rocky Mtn. Ltd.	8.804261%	Virgil L. Stoabs	11.237367%
Sun Gas Company	19.990551%	Benson-Montin-Greer	6.608700%

March 1, 1971 COPAS

10. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties.

11. *Insurance*

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Workmen's Compensation and or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

12. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III, and which is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(X) Fixed Rate Basis, Paragraph 1A, or

( ) Percentage Basis, Paragraph 1B.

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 2A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the Overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

ii. The salaries, wages and Personal Expenses of Technical Employees and or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property shall ( ) shall not ( ) be covered by the Overhead rates.

A. Overhead - Fixed Rate Basis

(1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate $ 1,517.00

Producing Well Rate $ 273.00

Compressor Operating Rate $273.00

(2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

[1] Charges for onshore drilling wells shall begin on the date the well is spudded and terminate on the date the drilling or completion rig is released, whichever is later, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days.

[2] Charges for offshore drilling wells shall begin on the date when drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location or rig is released, whichever occurs first, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days

[3] Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig, commence through date of rig release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive days.

(b) Producing Well Rates

[1] An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.

[2] Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion as considered a separate well by the governing regulatory authority.

[3] An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.

[4] A one-well charge may be made for the month in which plugging and abandonment operations are completed on any well.

[5] All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.

(6) An observation well shall be considered an active well.

(3) The well rates shall be adjusted as of the first day of April each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Fields Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

CANADA QUITOS UNIT

OVERHEAD RATES EFFECTIVE 4-1-81

	1980 RATES ($/month)	RATE INCREASE	1981 RATE EFFECTIVE 4-1-81 ($/month)
Drilling well	1517	9.3%	1658
Producing well	273	9.3%	298

BENSON-MONTIN-GREER DRILLING CORP.
221 PETROLEUM CENTER BUILDING
FARMINGTON, NEW MEXICO 87401
PHONE: 325-8874

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BM 6 EXHIBIT NO. 2
CASE NO. 7325

June 26, 1981

To: WORKING INTEREST OWNERS
PROPOSED THIRD EXPANSION AREA
CANADA OJITOS UNIT

Re: INVITATION TO POOL INTERESTS IN THE THIRD EXPANSION AREA AND SHARING OF COSTS OF WELLS IN SECTIONS 20 & 32, TOWNSHIP 26 NORTH, RANGE 1 WEST

As earlier indicated (letter of June 10 and other correspondence), we propose the pooling of working interests in the third expansion area and the drilling of exploratory wells on the pooled ownership basis. To effect the pooling, we are sending for your consideration a pooling agreement which may be used if the parties find the agreement acceptable. Currently we propose two wells in the third expansion area.

Also enclosed for each of the two wells are AFEs which we request be executed and returned by those who join in the pooling.

Parties joining in the pooling should also execute the Unit Agreement and Unit Operating Agreement, committing the same lands to the Unit Agreement as are included in the pooling agreement.

The pooling agreement states that each party accepts title to all other parties' interests. It is our thinking here that once we know which of the owners wish to consider joining in the pooling agreement that a mutually acceptable attorney will be selected to check title and report to those involved. Because of the nature of most of the leases, we anticipate a minimum of title problems; but if they should appear, we will deal with them as seems practicable.

One of the apparent title issues is that of expiring leases on which wells may not be drilled by the expiration date. We have asked that the effective date of the third expansion be June 1 of this year regardless of when final approval is requested; and it may be that the USGS would hold in suspension leases which might otherwise expire if the owner is willing to commit them to the Unit Agreement. Such owners may choose to look into this aspect with the USGS. Whether this issue will be of concern in the pooling will depend on the parties who elect to pool and the amount of acreage their interests represents.

...

Each of you has previously been furnished with execution copies of the Unit Agreement and Unit Operating Agreement, so once title has been approved instruments for all parties can be executed - or ratified - in a short span of time.

We anticipate commencement of drilling of the first well during the last week of July.

Attached to this letter are the following:

1. Remarks regarding drilling program and costs.

2. Note regarding sharing of costs for the well in Section 20, Township 26 North, Range 1 West.

3. Note regarding sharing of costs for the well in Section 32, Township 26 North, Range 1 West.

We anticipate the approval of our applications to drill will carry the stipulation that if the USGS determines it proper that the leases under the wells will be required to be committed to the Canada Ojitos Unit.

To the working interest owners under the existing unit, we advise that AFEs will be sent separately for the drilling of the well in Section 22, Township 26 North, Range 1 West. It is Unit Operator's proposal that this well be drilled with the same rig as that used for the two wells in the expansion area. From rig moving cost standpoint the practical sequence is the well in Section 20 first, Section 22 second and Section 32 third.

Upon your review of the enclosed material, we would appreciate hearing from those of you desiring to join in the pooling and drilling of the subject wells, and updating title information so that Exhibit II to the pooling agreement can be prepared and furnished each interested party.

BENSON-MONTIN-GREER DRILLING CORP.

BY: Albert R. Greer
Albert R. Greer, President

ARG/tlp

Enclosures

REMARKS REGARDING DRILLING PROGRAM AND COSTS
(ATTACHED TO LETTER OF JUNE 26, 1981)

You will note that the AFES we are submitting do not make provision for dry hole costs. Our view here is that the entire cost of each well need be expended in order to properly evaluate the formation's potential. If the well results in a dry hole following completing, fracing and testing, then there will only be salvage value of that part of the frac fluid recovered and some of the equipment; and this may or may not exceed the plugging cost.

Part of the completion cost will be testing to attempt to evaluate the potential benefit of pressure maintenance and whether it can be expected to be effective as far west as the subject wells are located. Such testing can involve long periods of time while the frac fluid is still in the formation; and accordingly we are at this time planning on jelled kerosene for the frac fluid, since it should not adversely affect the reservoir rock.

Because of the high surface elevation of the location of the well in section 20, we anticipate problems of loss of circulation here, and possible so too for the well in Section 32; and failing its solution by any other means we believe we should be prepared to aerate the mud if necessary; and are planning on running a satellite string on the surface casing to facilitate this. We propose to drill with mud to the Niobrara; and with gas to TD; running 5-1/2" extreme line liner.

Both wells are projected to the Greenhorn formation. We note here that the existing participating area includes all formations from the Niobrara through the Greenhorn. Because of the

uncertainty of achieving a good cement job through the Niobrara member with a long liner, most of the wells in the unit drilled to date have not been drilled to the Greenhorn. We have in other areas successfully deepened through the Greenhorn wells initially completed in a fashion similar to those in the existing Canada Ojitos Unit in which 5-1/2" liners have been run through the Niobrara; and in the past it has been our thinking that if and when development of the Greenhorn would be warranted, that the existing wells might someday be deepened to the Greenhorn.

We have also, however - through experience in other areas - found that we can successfully cement longer liners by using extreme line casing run in a 6-3/4" hole (requiring the use, as we have in the past, of 7-5/8" intermediate string). Accordingly, we believe it worth experimenting here with drilling to the Greenhorn, if other conditions at the time of drilling make this appear a practicable option.

Further with regard to potential of the Greenhorn formation, we note that only three or four wells have tested the Greenhorn in as many townships in this area; and that in line with our belief that the Niobrara reservoir in this area owes its existence to flexing and resulting fracturing, the same situation, we think, could apply to the Greenhorn. Wherever the Greenhorn has been drilled in this area, it has shown oil saturation; and we believe all it needs to provide a good reservoir is some kind of fracture system. We are

at this time testing one well in the Greenhorn in the nearby East Puerto Chiquito pool which has been treated only with acid wash of the perforations; and to date the well has produced several hundred barrels of oil and is currently producing at the rate of 20 BOPD. It is too early to know if this well will be commercial or if it will respond to stimulation; but it is a significant enough show to warrant serious consideration in our drilling program in this area. Whether a "hinge line" exists in the prospective producing formations in the vicinity of these wells in Sections 20 and 32 (at the west edge of the gray shaded area on the flex maps we have previously furnished you), and whether such a characteristic will allow commercial production can only be determined by drilling.

Total per well costs which the parties should be prepared to bear exceed $1,000M per well; however, if the contingency allocation is not used and the frac fluid is recovered and sold (which has so far occurred on all wells in this area) the net per well cost as shown on the AFE detail will approximate $1,000M.

Absent convincing arguments to the contrary we will proceed as described above; however, we are open to suggestions or discussions with any of the interested parties as to drilling and completion details.

NOTES REGARDING SHARING OF COSTS
FOR THE WELL IN SECTION 20, TOWNSHIP 26 NORTH, RANGE 1 WEST
(ATTACHED TO LETTER OF JUNE 26, 1981)

The well in Section 20 will be on a non-standard proration unit previously approved by the Oil Conservation Division and will consist of the west half of Section 17 and the west half of Section 20.

Under this 640 acre proration unit are 400 acres of leases held by the present unit owners and Southland Royalty Company. Presumably these 400 acres will come under the third expansion pooling agreement and the share of the well costs represented by this 400/640ths will be borne by the parties to the pooling agreement in their respective participating interests.

The remaining 240 acres are either unleased or under appeal such that the ownership is now unknown. It is proposed that the share of well costs represented by this 240/640ths be borne by the existing Canada Ojitos Unit owners (B-M-G Group #1 - see attachment to AFE).

When these 240 acres of leases are issued, the owner will be required to either reimburse those having paid the drilling costs or suffer a penalty. The amount of the penalty will be decided by the Oil Conservation Division under our application for forced pooling of this proration unit, the hearing to be held July 2.

If the well qualifies for admission to the Canada Ojitos Unit Participating Area, we presume that the proration unit, along with other adjoining lands, would be brought into participation, following which there will be an investment adjustment between the existing unit lands and the newly admitted lands.

NOTES REGARDING SHARING OF COSTS
FOR THE WELL IN SECTION 32, TOWNSHIP 26 NORTH, RANGE 1 WEST
(ATTACHED TO LETTER OF JUNE 26, 1981)

All lands under Section 32 are now under lease. The owners are the existing Canada Ojitos Unit owners (B-M-G Group #1 - see attachment to AFE), Southland Royalty Company and Cotton Petroleum Corp.

Presumably the 480 acres represented by B-M-G Group #1 and Southland will be pooled under the third expansion pooling agreement so that 480/640ths of the well costs will be borne by the participants in this pooling, in proportion to their individual participating interests.

As to the 160 acres held by Cotton, as we view it, Cotton has three options:

1. Cotton may join in the third expansion pooling with the other participants such that this 160 acres becomes part of the pooled lands, or
2. Cotton may elect to pay its 25% share of the costs of the well on a joint venture basis without pooling, or
3. Cotton may take no positive action; in which event Unit Operator will ask for forced pooling of the interests in Section 32.

If the well qualifies for admission to the Canada Ojitos Unit Participating Area, we presume that the proration unit, along with other adjoining lands, would be brought into participation, following which there will be an investment adjustment between the existing unit lands and the newly admitted lands.

BENSON-MONTIN-GREER DRILLING CORP.
221 PETROLEUM CENTER BUILDING
FARMINGTON, NEW MEXICO 87401
PHONE: 325-8874

July 28, 1981

Mr. Don E. Paull
Cotton Petroleum Corporation
717 17th Street
Suite 2200
Denver, CO 80264

Re: POOLING OF INTERESTS & DRILLING OF MANCOS FORMATION WELL IN SECTION 32, T-26N, R-1W (PROPOSED THIRD EXPANSION AREA OF CANADA OJITOS UNIT), RIO ARRIBA COUNTY, NEW MEXICO

Dear Mr. Paull:

This will confirm the offer made to you yesterday in our telephone conversation to meet at any convenient time with Cotton's people to discuss the pooling of interests and the drilling of the captioned well. It is a foregone conclusion that Cotton's 160 acres will be pooled with other lands in the drilling of the subject well; the only question is how the lands will be pooled and whether the pooling is voluntary or involuntary. In our view, it is a waste of everyone's time, including that of the Oil Conservation Division, to go through with a forced pooling hearing when the issues can really be best settled through a voluntary pooling.

As you know, we have suggested that Cotton pool its 160 acres over a larger area than just the well spacing unit. Some of the other working interest owners in the third expansion area are pooling their interests over the entire area, and Cotton has been invited to join and share not only with the drilling of the well in Section 32, but also with the drilling of the well in Section 20 in the same township. In addition to this option, we are willing to consider Cotton's pooling its acreage over a smaller area; however we suggest that the area be not smaller than that covered by Sections 29, 30, 31 and 32.

Since our company has a case before the Wyoming Conservation Commission on the 11th, it will be inconvenient for us to work on this matter with you the 10th and 11th; but I will be available all of next week.

Yours truly,

BENSON-MONTIN-GREER DRILLING CORP.

BY: _____
Albert R. Greer, President

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 3
CASE NO. 7325

BENSON-MONTIN-GREER DRILLING CORP.
221 PETROLEUM CENTER BUILDING
FARMINGTON, NEW MEXICO 87401
PHONE: 325-8874

July 3, 1981

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 4
CASE NO. 7315

Cotton Petroleum Corporation
Suite 2200
717 - Seventeenth Street
Denver, Colorado 80202

Attention: Mr. D. E. Paull

Re: PROPOSED THIRD EXPANSION AREA,
CANADA OJITOS UNIT:
PARTICIPATION IN DRILLING OF
CANADA OJITOS UNIT WELL
NO. 21 (G-32), SECTION 32,
TOWNSHIP 26-N, RANGE 1-W,
RIO ARRIBA COUNTY, NEW MEXICO

Gentlemen:

As discussed with Russ Koeniger, and as set out in our letter of June 26, we propose the drilling of the captioned well in the next few weeks. Since Cotton, as well as Southland Royalty, owns 160 acres under the spacing unit on which this well will be located, we will need to know Cotton's position with respect to the drilling of this well. Presumably Southland's interest will be joined in the third expansion pooling agreement, but as yet we do not have an indication that Cotton's interest will likewise be pooled. We want to allow Cotton the maximum amount of time available to us to make its decision; and as best we can figure rig scheduling now, this means we have until mid-August to await Cotton's decision.

Should Cotton elect to take no action we will be required to ask for forced pooling of the proration unit; and in preparation of this event we are asking our attorneys to have a forced pooling case set on the docket for August 15. Hopefully we will have arrived at a different solution by that time and the case can be dismissed. If not, however, we feel we must be prepared to proceed along that course.

I will be unavailable the last half of July, but will be available the first part of August to discuss with you any of the plans and details. As you know, we would like to see Cotton join in the voluntary pooling of all of its interests in the third expansion area as we believe this will give the greatest assurance that risks taken in drilling costs will most closely match ultimate equity. You are, of course, free to make your own decision; and in this respect you can, among other things, choose to pool only the 160 acres in Section 32, leaving the rest to whatever happens.

Cotton Petroleum Corporation

Also, as you know, you have the right through joint venture communitization to participate in 25% of the cost of the well in Section 32: but in this instance - should additional lands be brought into participation besides the spacing unit - then Cotton's drilling cost risk will considerably exceed its ultimate equity; and because of this we would like to see your interests pooled over a greater area.

We realize that you have many things to consider with respect to this matter, among them being whether you accept your consultants' (Van Poollen's) evaluation that Section 32 will be non-productive. In this event you may wish to consider some other disposition of this lease. If you would like to farm it out, we will pass the farm-out proposal along to those parties joining in the voluntary pooling, for their consideration. We would not be interested in purchasing the lease; but perhaps other who bid at the same lease sale might be willing to consider purchase, if this be your preference.

I expect to be available, should you like to discuss anything earlier than August, through July 13.

Yours very truly,

BENSON-MONTIN-GREER DRILLING CORP.

BY: Albert R. Greer

Albert R. Greer, President

cc: Southland Royalty Company
Suite 1000, 717 - 17th Street
Denver, Colorado 80202
Attention: Mr. Roy Williams

cc: Southland Royalty Company
P.O. Box 578
Farmington, New Mexico
Attention: Mr. L. O. Van Ryan

cc: Southland Royalty Company
1000 Fort Worth Club Building
Fort Worth, Texas 76102
Attention: Mr. Marlan Thompson

cc: Mr. W. Thomas Kellahin

cc: Mr. George L. Verity

ARG:ney

COMPARISON OF RATE OF RETURN TO DRILLING PARTY

ON ADJUSTED INVESTMENT AND ON "RISK" INVESTMENT

FOR CONDITIONS SHOWN

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BMG EXHIBIT NO. 5
CASE NO. 7326

	One Section Drilling Party One Section added to P.A.	One Section Drilling Party Six Sections added to P.A.	Six Sections Pooled Drilling Party Six Sections added to P.A.
1. Weighted acres, existing P.A.	40,000	40,000	40,000
2. Acreage added	640	3,840	3,840
3. New value total weighted acres	40,640	43,840	43,840
4. Equity of 1 section in resulting P.A.	1.57%	1.46%	1.46%
5. Equity of 6 sections in resulting P.A.	-	8.76%	8.76%
6. Well Cost ($M)	1,000	1,000	1,000
7. Drilling party's share of total well investment ($M)	179	167	1,000
8. "Risk" capital returned to drilling party	821	833	0
9. Drilling Party initial income rate ($M/year)	71	66	397
10. Drilling Party initial rate of return on adjusted investment (%/year)	40%	40%	40%
11. Drilling Party rate of return on "risk" investment (%/year)	7.1%	6.6%	40%

NOTES

1. Above excludes investment adjustment of surface facilities.
2. Assume existing participating area of Canada Ojitos Unit to contain 40,000 weighted acres.
3. Assume well investment in existing participating area = $10,415M.
4. Rate of return based on assumed production rate of 600 BOPD existing unit, 20 BOPD new well and $20/bbl net

COMPARISON OF RATE OF RETURN TO DRILLING PARTY ON ADJUSTED INVESTMENT AND ON "RISK" INVESTMENT FOR CONDITIONS SHOWN

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BMG Ex 5
Ca 7325

3-2-81

COMPARISON OF RATE OF RETURN TO DRILLING PARTY

ON ADJUSTED INVESTMENT AND ON "RISK" INVESTMENT

FOR CONDITIONS SHOWN

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2. Assume existing participating area of Canada Ojitos Unit to contain 40,000 weighted acres.
3. Assume well investment in existing participating area = $10,415M.
4. Rate of return based on assumed production rate of 600 BOPD existing unit, 20 BOPD new well and $20/bbl net

3-2-81

BMG Ex. 5
CS 7325

LAW OFFICES OF
HUNKER-FEDRIC, P. A.
SUITE 210, HINKLE BUILDING
POST OFFICE BOX 1837
ROSWELL, NEW MEXICO 88201

GEORGE H. HUNKER, JR.
DON M. FEDRIC

TELEPHONE 622-2700
AREA CODE 505

August 4, 1981

Mr. Joe D. Ramey, Secretary-Director
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Benson-Montin-Greer
Drilling Corporation
Compulsory Pooling
Rio Arriba County, N.M.
T. 26N, R. 1W
Sec. 32
West Puerto Chiquito-Mancos
Oil Pool
Case No. 7325

RECEIVED
AUG 06 1981
OIL CONSERVATION DIVISION
SANTA FE

Dear Mr. Ramey:

Please enter our appearance in the above styled matter on behalf of Cotton Petroleum Corporation, Denver, Colorado. We are aware of the hearing set for Wednesday, August 12, 1981, and should like very much to be advised in the event there is any change of plan in connection with the hearing. A copy of this letter is being sent to opposing counsel.

Sincerely yours,

HUNKER-FEDRIC, P.A.

George H. Hunker, Jr.

GHH:dd

xc: Mr. E. Russell Koeniger
Cotton Petroleum Corp.
717 - 17th St.
Energy Center One, #2200
Denver, Colorado 80202

xc: W. Thomas Kellahin, Esq.
Kellahin & Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

July 7, 1981

Mr. Joe Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Benson-Montin-Greer
Forced Pooling
Sec 32, T26N, R1W, NMPM

Case 7325

Dear Joe:

Please set the enclosed application for the examiner hearing of August 12, 1981.

Very truly yours,

Tom Kellahin

W. Thomas Kellahin

WTK:jm
Enclosure
cc: Mr. Al Greer
Southland Royalty Company
Cotton Petroleum Corporation

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF
BENSON-MONTIN-GREER DRILLING
CORPORATION FOR COMPULSORY POOLING,
RIO ARRIBA COUNTY, NEW MEXICO.

Case 7325

A P P L I C A T I O N

COMES NOW BENSON-MONTIN-GREER DRILLING CORPORATION, and applies to the New Mexico Oil Conservation Division for an order pooling the mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying the following acreage:

Township 26 North, Range 1 West, NMPM
Section 32: All

consisting of 640 acres,

and in support thereof would show:

1. Applicant is the lessee of certain federal leases located in the above unit, and proposes to drill a well to test the West Puerto Chiquito-Mancos Oil Pool.

2. That Applicant has sought the cooperation of all interested parties involved in the unit and has been unable to obtain the necessary approvals or committments to form a voluntary unit for this well.

3. Those interested parties who have not or who are unable to join in the drilling of the well for this unit are as follows:

Name	Acreage
Cotton Petroleum Corporation Suite 2200 717-Seventeenth Street Denver, Colorado 80202 Attn: Mr. D. E. Paull	SE/4 of Sec 32

4. Copies of this application have been mailed to the parties named in paragraph 3 above.

5. Applicant desires to be designated operator of the pooled unit.

6. That the order further provides that in the event the subject spacing unit is committed to the Canada Ojitos Unit or any expansion thereof, then the costs, expenses, penalties, if any, and revenues shall be reallocated based upon the terms and conditions of the Canada Ojitos Unit Agreement and any amendments thereof.

7. To avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the oil in said unit, all mineral interests, whatever they may be, for the West Puerto Chiquito-Mancos Oil Pool underlying the subject unit, should be pooled.

8. That any non-consenting working interest owner that does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs, plus an additional 200% thereof as a reasonable charge for the risk involved in the drilling of the well.

9. Applicant should be authorized to withhold from production the proportionate share of a reasonable supervision charge for drilling and producing wells attributable to each non-consenting working interest owner.

WHEREFORE, applicant prays that:

A. This application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. Upon hearing the Division enter its order granting the application as requested.

C. And for such other relief as may be just in the premises.

KELLAHIN & KELLAHIN

By _____
W. Thomas Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

Attorneys for Applicant

DRAFT

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7325

Order No. R- 6789

APPLICATION OF BENSON-MONTIN-GREER DRILLING CORPORATION FOR COMPULSORY POOLING, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 19 81, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of August, 19 81, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Benson-Montin-Greer Drilling Corporatio, seeks an order pooling all mineral interests in the ~~West Puerto~~ Niobrara member of the ~~Chiquito Mancos Oil Pool~~ Mancos formation underlying ~~the~~ all of ~~xxxx~~ Section 32, Township 26 North, Range 1 West, NMPM, West Puerto Chiquito Mancos Oil Pool, Rio Arriba County, New Mexico.

(3) Applicant further seeks a provision that should the pooled lands be capable of producing in paying quantities and, pursuant to the provisions of the ~~unit~~ ~~West Puerto~~ Cañada Ojitos Unit Agreement, be committed to the Unit and joined in the participating area of the unit, that there be a re-allocation of all costs and charges, and revenue, to the participants in the well.

(4) That the applicant has the right to drill and proposes to drill a well at a standard location thereon.

(5) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(6) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the ~~gas~~ hydrocarbons in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(7) That the applicant should be designated the operator of the subject well and unit.

(8) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(9) That any non-consenting working interest owner who does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 200 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(10) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(11) That following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(~~11~~ 12) That $ 1658.00 per month while drilling and $ 298.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(~~12~~ 13) That should the lands pooled herein be capable of producing hydrocarbons in paying quantities and, pursuant to the provisions of the Cañada Ojitos Unit Agreement, be committed to the unit and joined in the participating area of the unit, there should be a re-allocation of all costs and charges, and revenue, to the participants in the well.

(~~13~~ 14) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(~~14~~ 15) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before January 1, 1982, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, ~~in the~~ Niobrara Member of the Mancos ~~Pool~~ formation ~~in the West Puerto Chiquito-Mancos Oil formation~~ underlying the ~~xxxxxx~~ all of ~~of~~ Section 32, Township 26 North, Range 1 West, NMPM, West Puerto Chiquito-Mancos Oil Pool, Rio Arriba County, New Mexico, are hereby pooled to form a standard 640- acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the first day of January, 1982, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Niobrara member of the Mancos formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the first day of January, 1982, Order (1) of this order shall be null and void and of no effect whatsoever, unless said operator obtains a time extension from the Division for good cause shown.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Division Director and show cause why Order (1) of this order should not be rescinded.

(2) That Benson-Montin-Greer Drilling Corporation is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 90 days prior to commencing said well, the operator shall furnish the Division and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Division will determine reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner who has paid his share of estimated costs in advance as provided

above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $ 1650.00 per month while drilling and $ 298.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That should the lands pooled herein be capable of producing hydrocarbons in paying quantities and, pursuant to the provisions of the Cañada Ojitos Unit Agreement, be committed to the unit and joined in the participating area of the unit, there shall be a re-allocation of all costs

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interest's share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall immediately be placed in escrow in Rio Arriba County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 30 days from the date of first deposit with said escrow agent.

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

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

CASE 7326: TENNECO OIL COMPANY FOR THE AMENDMENT OF DIVISION ORDER NO. R-4157-C, EDDY COUNTY, NEW MEXICO

Case No.

7326

Application

Transcripts.

Small Exhibits

ETC

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. CASE **7326**

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: **W. Thomas Kellahin, Esq.**
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

DAVID L. MOTLOCH

Direct Examination by Mr. Kellahin 4

Cross Examination by Mr. Nutter 13

E X H I B I T S

Applicant Exhibit One, Map 5

MR. NUTTER: We'll call next Case Number 7326, which is the application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico.

Call for appearances.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness to be sworn.

(Witness sworn.)

DAVID L. MOTLOCH

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

MR. KELLAHIN: Mr. Nutter, as a preliminary matter to this hearing, we would request permission to have the Examiner incorporate by reference Division Case 6751 and Order No. $-4157-C, entered January 9th, 1980. That is the order and last case entered by the Division that reduced the spacing in the Catclaw Draw Morrow Gas Pool from 640 to 320, and it's that order that's giving us some correlative

rights problems.

MR. NUTTER: And you're seeking to rescind that order and return to 640-acre spacing with infill drilling privileges, is that it?

MR. KELLAHIN: That's right, we want to rescind that order insofar as it applies to a provision for 320 spacing and for the well locations.

MR. NUTTER: The record in Case Number 6751 and Order No. R-4157-C will be incorporated by reference in this case today.

Q. Mr. Motloch, would you please state your name and occupation?

A. David Motloch. I'm Division attorney for Tenneco Oil Company, Southwestern Division.

MR. NUTTER: Spell your last name, please.

A. M-O-T-L-O-C-H.

MR. NUTTER: Thank you.

Q. Mr. Motloch, have you had prepared for the applicant an exhibit in this case depicting the Catclaw Draw Morrow Gas Pool?

A. Yes, I have one exhibit prepared.

Q. And is that marked as applicant Exhibit Number One?

A. Marked Applicant's Exhibit Number One.

Q All right, Mr. Motloch, would you identify for us how the plat depicts the boundaries of the Catclaw Draw Morrow Gas Pool?

A. The boundaries of the Catclaw Draw Morrow Gas Pool are outlined in a hachured blue outline on the plat.

Q. Are you familiar with the Division Order entered on July 9th, 1980, by which the Division reduced the spacing from 640 acres to 320 acres?

A. Yes, I am.

Q. Would you summarize briefly why Tenneco is seeking to have certain portions of that order rescinded?

A. After we re-spnced the Morrow gas pool we discovered that Sections 13 and 14, which are outlined in pale blue and green on the plat, this is in Township 21 South, Range 25 East, had been communitized on 640 acres.

Subsequent to the re-spacing we received notice from the New Mexico Land Office, State Land Office, that they felt that due to the re-spacing the 640-acre communitization agreements were -- should have been terminated and that two new 320-acre spacing unitization agreements should be entered into.

This generated a correlative rights problem with Sections 13 and 14 and a potential correlative rights problem with Sections 19 and 20.

Specifically, in Section 14 the southeast quarter of the section is fee owned minerals. The remainder of the section are State minerals.

The well, which is the Catclaw Draw Unit Well No. 7, located in the southeast quarter of the section, was completed in 1972. Since that time the fee mineral owner has been receiving 1/4th of the royalties under the 640-acre unitization and the State of New Mexico has been receiving 3/4ths of the royalties.

If, in fact, the 640-acre communitization agreement were terminated with the re-spacing, then the interest of the fee owner in the well, Catclaw Draw Unit Well No. 7, would increase his royalty interest to 50 percent; however, he would not participate at all in the new well which is proposed to be drilled in the north half of that section.

Q. Approximately how long has the well in the south half of Section 14 been producing?

A. Approximately nine years.

Q. So although the interests under the fee tract would be increased under the existing well, that well has been depleted for some years and the fee ownership would not participate in the second well on the unit.

A. That's correct. And there is also another potential correlative rights problem in that there's no

guarantee that the well in the north half will be a good well and that owner would have participated all this time, and the owners in drilling the well would participate in the cost of drilling the well and they could subsequently be forced out of the well and into a potential dry hole.

Q. Are there any other inequities that have been created as a result of the order entered in January, 1980?

A. We have the same potential in Section 13. It's one more step removed in that Section 13 is an entire State tract; however, as to the royalties the south half of the section is in the Catclaw Draw Federal Unit, and we have the same basic problem in that we have two sets of royalty owners because of that unitization.

Other than those two sections, you'll notice that most of the sections within the red outline, which is the Catclaw Draw Federal Unit, have two wells located on them, but since the entire unit is pooled for royalty overrides and working interests, it will create no hardship whatever we do in that unit.

Q. Would you identify for us any wells that have been drilled or spudded after the January 9th, 1980, date of the order?

A. The only wells drilled in reliance on

the January 9th, 1980, order are ARCO's wells in Section 11, lying immediately to the north of Section 14.

MR. NUTTER: Both of those are new wells?

A. Yes, and they're drilled on 320-acre spacing. I have spoken with ARCO and they've asked that if we have the relief granted which we are requesting that their Section 11 be excluded from that relief and be left on 320-acre spacing.

MR. NUTTER: Well, why wouldn't it be all right for them to have 640-acre spacing like the rest of the pool and have two non-standard 320-acre units?

A. As long as we didn't unsettle the royalty interests or the working interests as they now --

MR. NUTTER: Do you know whether the ownership of those two wells is identical?

A. I do not know that.

MR. NUTTER: Because I don't think it's in the call of the hearing to have partly 320-acre spacing and part 640-acre spacing. They were drilled on 320-acre units.

A. 320-acre communitized,communitization agreements, two separate Federal communitization agreements.

MR. NUTTER: And we would be going back to 640-acre spacing but leaving them on 320 spacing, unless

we put them on 640 and gave them exceptions.

A. That's correct.

MR. NUTTER: As a non-standard unit, which isn't in the call of this hearing today.

MR. KELLAHIN: We did contact ARCO to determine whether or not the reversion back to 640 could cause them any correlative rights problems with regards to that section. The answer was they thought it would not but that it was their preference to simply have the section --

MR. NUTTER: As two 320's.

MR. KELLAHIN: As two 320's. Perhaps it might be appropriate subsequent to the hearing for us to contact them again to make sure they absolutely understand the impact of the order.

MR. NUTTER: If the ownership is identical throughout, it shouldn't make any problem for them at all to go to 640 and have two wells.

MR. KELLAHIN: We unintentionally in January of 1980 created a problem and we don't want to compound it for someone else.

MR. NUTTER: And of course you haven't searched their titles.

MR. KELLAHIN: No, sir.

A. No, sir.

MR. KELLAHIN: If we might just leave the record open with regards to that section, we'll contact them again.

MR. NUTTER: Fine.

Q. Apart from Section 11, Mr. Motloch, are there any other proration or spacing units created after the effective date of this last order which you anticipate would have difficulty if the order is vacated?

A. No, there are none.

Q. All right, sir, would you identify for me any locations that have been spudded or have been permitted which would be exceptions, then, to the well location requirements under the statewide rules for 640-acre units?

A. Right. There are two locations which have been approved, one in the north half of Section 14, and one in the southwest quarter of Section 19.

Q. Let's look at the one in Section 14 and tell me about that.

A. That's an unorthodox location approved under Order R-6709, and we anticipate -- this is a Tenneco operated well, and we anticipate spudding that well within 30 to 60 days.

We ask for that location to be granted an exception location, if you were, under this 640-acre spacing.

MR. NUTTER: Will you give me the date the permit was approved?

A. The permit for the unorthodox location or --

MR. NUTTER: Well, the unorthodox location was approved by R-6709, right?

A. That's correct.

MR. NUTTER: And then have you gotten a drilling permit for the wells?

A. Yes, we have a permit approved for the well. I'm sorry, I don't have that date with me.

MR. KELLAHIN: May we supply that to you?

MR. NUTTER: Okay.

MR. KELLAHIN: In addition there has been a permitted well in what section, Mr. Motloch?

A. The second permitted well is in Section 19. That permit was issued within the last 30 to 45 days.

We anticipate if that well were to be granted an exception location under this order, that we would spud it within the next 14 days.

Q. Apart from those two permitted locations, are you aware of any other locations that have been permitted?

A. No, I am not.

Q. Would you summarize again for us, Mr.

Motloch, what this -- what portions of the existing order you're seeking to rescind and in what particular way?

A. We're requesting the rescission of Division Order R-4157-C, which was effective January 9th, 1980, nunc pro tunc, which the Order 4157-C amended Rules 9 and 2 of the special rules and regulations for the Catclaw Draw Morrow Gas Pool, and we ask that these rules be in effect reinstated, with the provision that each 640-acre spacing unit be allowed a second well.

Q. The change in rule two then is one as to well location?

A. Right. We ask for a 1650 setback.

And the change in rule nine would be for 640-acre units with two wells allowed on each unit.

Q. In your opinion will the rescission of Rule 9 and 12 of Order No. R-4157-C remove the adverse impact upon the correlative rights created by that order?

A. Yes, I believe it will. I think now we have a correlative rights problem and this will correct that problem.

MR. KELLAHIN: That concludes our examination of Mr. Motloch.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Motloch, you're not in any way seeking any change in the findings that we made in the original order here, that one well would not adequately drain 640 acres?

A. No, the engineering testimony and the engineering conclusions remain exactly the same. It takes two wells to drain 640 acres.

And we wish that finding be expressly noted again because of the infill process.

Q. Now the well that's located in Section 19, is it a standard location under the 320-acre spacing rule that is in effect today?

A. Yes, it was a standard location under that rule. That was a laydown 320.

Q. Can you get me the pertinent dates for those two wells that have been permitted?

A. Right, we can submit those to you.

Q. And also the further information on the ARCO acreage in Section 11.

MR. NUTTER: Are there any further questions of Mr. Motloch? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7326?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing was reported by me; that the said transcript if a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7234 heard by me on 8/12, 1981.

Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. CASE 7326

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

DAVID L. MOTLOCH

Direct Examination by Mr. Kellahin 4

Cross Examination by Mr. Nutter 13

E X H I B I T S

Applicant Exhibit One, Map 5

MR. NUTTER: We'll call next Case Number 7326, which is the application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico.

Call for appearances.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness to be sworn.

(Witness sworn.)

DAVID L. MOTLOCH

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

MR. KELLAHIN: Mr. Nutter, as a preliminary matter to this hearing, we would request permission to have the Examiner incorporate by reference Division Case 6751 and Order No. $-4157-C, entered January 9th, 1980. That is the order and last case entered by the Division that reduced the spacing in the Catclaw Draw Morrow Gas Pool from 640 to 320, and it's that order that's giving us some correlative

rights problems.

MR. NUTTER: And you're seeking to rescind that order and return to 640-acre spacing with infill drilling privileges, is that it?

MR. KELLAHIN: That's right, we want to rescind that order insofar as it applies to a provision for 320 spacing and for the well locations.

MR. NUTTER: The record in Case Number 6751 and Order No. R-4157-C will be incorporated by reference in this case today.

Q. Mr. Motloch, would you please state your name and occupation?

A. David Motloch. I'm Division attorney for Tenneco Oil Company, Southwestern Division.

MR. NUTTER: Spell your last name, please.

A. M-O-T-L-O-C-H.

MR. NUTTER: Thank you.

Q. Mr. Motloch, have you had prepared for the applicant an exhibit in this case depicting the Catclaw Draw Morrow Gas Pool?

A. Yes, I have one exhibit prepared.

Q. And is that marked as applicant Exhibit Number One?

A. Marked Applicant's Exhibit Number One.

Q. All right, Mr. Motloch, would you identify for us how the plat depicts the boundaries of the Catclaw Draw Morrow Gas Pool?

A. The boundaries of the Catclaw Draw Morrow Gas Pool are outlined in a hachured blue outline on the plat.

Q. Are you familiar with the Division Order entered on July 9th, 1980, by which the Division reduced the spacing from 640 acres to 320 acres?

A. Yes, I am.

Q. Would you summarize briefly why Tenneco is seeking to have certain portions of that order rescinded?

A. After we re-spaced the Morrow gas pool we discovered that Sections 13 and 14, which are outlined in pale blue and green on the plat, this is in Township 21 South, Range 25 East, had been communitized on 640 acres.

Subsequent to the re-spacing we received notice from the New Mexico Land Office, State Land Office, that they felt that due to the re-spacing the 640-acre communitization agreements were -- should have been terminated and that two new 320-acre spacing unitization agreements should be entered into.

This generated a correlative rights problem with Sections 13 and 14 and a potential correlative rights problem with Sections 19 and 20.

Specifically, in Section 14 the southeast quarter of the section is fee owned minerals. The remainder of the section are State minerals.

The well, which is the Catclaw Draw Unit Well No. 7, located in the southeast quarter of the section, was completed in 1972. Since that time the fee mineral owner has been receiving 1/4th of the royalties under the 640-acre unitization and the State of New Mexico has been receiving 3/4ths of the royalties.

If, in fact, the 640-acre communitization agreement were terminated with the re-spacing, then the interest of the fee owner in the well, Catclaw Draw Unit Well No. 7, would increase his royalty interest to 50 percent; however, he would not participate at all in the new well which is proposed to be drilled in the north half of that section.

Q. Approximately how long has the well in the south half of Section 14 been producing?

A. Approximately nine years.

Q. So although the interests under the fee tract would be increased under the existing well, that well has been depleted for some years and the fee ownership would not participate in the second well on the unit.

A. That's correct. And there is also another potential correlative rights problem in that there's no

guarantee that the well in the north half will be a good well and that owner would have participated all this time, and the owners in drilling the well would participate in the cost of drilling the well and they could subsequently be forced out of the well and into a potential dry hole.

Q. Are there any other inequities that have been created as a result of the order entered in January, 1980?

A. We have the same potential in Section 13. It's one more step removed in that Section 13 is an entire State tract; however, as to the royalties the south half of the section is in the Catclaw Draw Federal Unit, and we have the same basic problem in that we have two sets of royalty owners because of that unitization.

Other than those two sections, you'll notice that most of the sections within the red outline, which is the Catclaw Draw Federal Unit, have two wells located on them, but since the entire unit is pooled for royalty overrides and working interests, it will create no hardship whatever we do in that unit.

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MR. NUTTER: And of course you haven't searched their titles.

MR. KELLAHIN: No, sir.

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MR. KELLAHIN: If we might just leave the record open with regards to that section, we'll contact them again.

MR. NUTTER: Fine.

Q. Apart from Section 11, Mr. Motloch, are there any other proration or spacing units created after the effective date of this last order which you anticipate would have difficulty if the order is vacated?

A. No, there are none.

Q. All right, sir, would you identify for me any locations that have been spudded or have been permitted which would be exceptions, then, to the well location requirements under the statewide rules for 640-acre units?

A. Right. There are two locations which have been approved, one in the north half of Section 14, and one in the southwest quarter of Section 19.

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We ask for that location to be granted an exception location, if you were, under this 640-acre spacing.

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MR. NUTTER: Well, the unorthodox location was approved by R-6709, right?

A. That's correct.

MR. NUTTER: And then have you gotten a drilling permit for the wells?

A. Yes, we have a permit approved for the well. I'm sorry, I don't have that date with me.

MR. KELLAHIN: May we supply that to you?

MR. NUTTER: Okay.

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And the change in rule nine would be for 640-acre units with two wells allowed on each unit.

Q. In your opinion will the rescission of Rule 9 and 12 of Order No. R-4157-C remove the adverse impact upon the correlative rights created by that order?

A. Yes, I believe it will. I think now we have a correlative rights problem and this will correct that problem.

MR. KELLAHIN: That concludes our examination of Mr. Motloch.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Motloch, you're not in any way seeking any change in the findings that we made in the original order here, that one well would not adequately drain 640 acres?

A. No, the engineering testimony and the engineering conclusions remain exactly the same. It takes two wells to drain 640 acres.

And we wish that finding be expressly noted again because of the infill process.

Q. Now the well that's located in Section 19, is it a standard location under the 320-acre spacing rule that is in effect today?

A. Yes, it was a standard location under that rule. That was a laydown 320.

Q. Can you get me the pertinent dates for those two wells that have been permitted?

A. Right, we can submit those to you.

Q. And also the further information on the ARCO acreage in Section 11.

MR. NUTTER: Are there any further questions of Mr. Motloch? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7326?

We'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing was reported by me; that the said transcript if a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7326, heard by me on 8/12 19 8.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

January 15, 1983

Bill Johnson
Kaiser - Francis Oil Company
P. O. Box 35528
Tulsa, OK 74135

RE: New Mexico Oil Conservation Division Case Nos. 7326 and 7404

Dear Mr. Johnson:

Per our telephone conversation last week, enclosed are photocopies for your records of the subject case files. Also enclosed is a large map marked "Exhibit No. 1, Case 7326" and a large stratigraphic cross section marked "Exhibit No. 3, Case 7404". Please return these to me as soon as possible for they are part of said case files.

If you have any further questions, please contact me.

Sincerely,

Michael E. Stogner

Michael E. Stogner
Petroleum Engineer

MES/dp

Enc.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

August 27, 1981

Re: CASE NO. 7326
ORDER NO. R-4157-D

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico 87501

Applicant:

Tenneco Oil Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7326
Order No. R-4157-D

APPLICATION OF TENNECO OIL COMPANY FOR AMENDMENT OF DIVISION ORDER NO. R-4157-C, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-4157, entered June 21, 1971, in Case No. 4548, the Division created and defined the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, and promulgated special pool rules therefor, which included a provision for 640-acre well spacing and proration units and specified well locations.

(3) That by Order No. R-4157-A, entered September 13, 1973, the Division extended said special pool rules, and by Order No. R-4157-B, entered October 22, 1974, continued said special pool rules in full force and effect until further order of the Division.

(4) That by Order No. R-4157-C, entered January 9, 1980, the Division rescinded the aforesaid 640-acre special rules and provided for 320-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool, finding, among other things, that one well

would not drain 640 acres and that 320-acre spacing would prevent waste by permitting the recovery of gas which would otherwise remain unrecoverable.

(5) That the rescission of said special pool rules resulted from testimony and evidence in said case that the existing wells in said pool were not effectively and efficiently draining the 640-acre proration units dedicated to them.

(6) That such evidence is reflected in Fingings Nos. (5), (6), (7), (8), (9), (10), and (11) of said Order No. R-4157-C, which are hereby incorporated herein by reference.

(7) That the applicant in the instant case, Tenneco Oil Company, seeks the amendment of the special pool rules for the Catclaw Draw-Morrow Gas Pool to rescind the previous 320-acre spacing order and revert back to 640-acre spacing, but to also provide for the infill drilling of a second well on the 640-acre tract.

(8) That subsequent to the entry of said Order No. R-4157-C it was determined that the change in spacing unit size would result in loss of some leases formerly dedicated to communitized 640-acre proration units and other disturbances of historical equities under the preexisting proration units within said Catclaw Draw-Morrow Gas Pool.

(9) That the net result of the conditions outlined in Finding No. (8) above would be to deprive owners of their correlative rights within said pool.

(10) That the correlative rights of the owners within said pool may be protected and effective and efficient drainage therefrom may be provided by permitting the infill drilling of addtional wells on each 640-acre proration unit.

(11) That no more than two wells should be permitted to produce from any 640-acre proration unit within said pool.

(12) That the special pool rules for the Catclaw Draw-Morrow Gas Pool should apply only within the boundaries of said pool.

(13) That the location of any well drilling or approved to be drilled within the Catclaw Draw-Morrow Gas Pool which location corresponds to that provided by the special pool rules promulgated by Order No. R-4157-C should be approved.

(14) That approval of the proposed rescission of Order No. R-4157-C, provision for infill drilling, and limitation of special pool rules will prevent waste and will protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That these rules shall be applicable only to lands within the boundaries of the Catclaw Draw-Morrow Gas Pool as now defined or as hereafter contracted or extended by order of the Division.

(2) That Rule 1 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, as promulgated by Division Order No. R-1670-O is hereby amended to read in its entirety as follows:

"RULE 1. Each well completed or recompleted in the Catclaw Draw-Morrow Gas Pool, as defined by the Division, shall be spaced, drilled, operated, and prorated in accordance with the Special Rules for the Catclaw Draw-Morrow Gas Pool as set forth herein."

(3) That Rule 2 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-O is hereby amended to read in its entirety as follows:

"RULE 2(A). The initial well drilled on a proration unit shall be located no nearer than 1650 feet to the outer boundary of the section nor closer than 330 feet to any governmental quarter-quarter section line.

The initial well to be drilled on a proration unit may be drilled in any quarter section of the unit.

"RULE 2(B). The second well drilled on a proration unit shall be located on a quarter section not containing the first well and shall be located no nearer than 1650 feet to the outer boundary of the section, nor closer than 330 feet to any governmental quarter-quarter section line, nor closer than 990 feet to any existing Morrow well on the same proration unit.

The plats (OCD Form C-102) accompanying the Application for Permit to Drill (OCD Form C-101 or Federal

Form 9-331-C) for the second well on a proration unit shall have outlined thereon the boundaries of the unit and shall show the location of the first well on the unit as well as the second well.

"RULE 2(C). In the event a second well is drilled on any proration unit, each well shall be produced for so long as it is economically feasible to do so."

(4) That the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Order No. R-1670-O are hereby amended by the addition of Special Rule 5(A) reading in its entirety as follows:

"RULE 5(A). A standard gas proration unit in the Catclaw Draw-Morrow Gas Pool shall be 640 acres."

(5) That Rule 9(A) of the aforesaid special rules is hereby amended to read in its entirety as follows:

"RULE 9(A). A standard unit consisting of 640 acres shall be assigned an acreage factor of 1.00, provided however, the acreage tolerances provided in General Rule 5(A) shall apply."

(6) That the locations of all wells drilled to and completed in the Catclaw Draw-Morrow Gas Pool, or which were drilling to said pool, or for which valid drilling permits had been issued, or for which the location had been approved by order of the Division as of August 12, 1981, are hereby approved.

(7) That the operator of each well in the Catclaw Draw-Morrow Gas Pool shall have until September 15, 1981, to file with the Artesia District Office of the Division new Forms C-102, Well Location and Acreage Dedication Plat, for each of his wells, showing thereon the location of the well and the acreage dedicated thereto pursuant to this order. Failure to so file such plats will subject the well to cancellation of allowable.

(8) That the Texas Oil and Gas Corporation Catclaw Draw State Com Well No. 1, located 660 feet from the South line and 660 feet from the East line of Section 18, Township 21 South, Range 26 East, NMPM, Eddy County, New Mexico, shall receive an allowable factor of 0.35 effective October 1, 1981.

(9) That the Catclaw Draw-Morrow Gas Pool is hereby defined as comprising the Morrow formation underlying the following described lands in Eddy County, New Mexico:

TOWNSHIP 21 SOUTH, RANGE 25 EAST, NMPM
Section 1: All
Section 2: Lots 9 through 16 and S/2
Sections 11 through 14: All
Sections 23 through 28: All
Sections 34 through 36: All

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Sections 17 through 20: All
Section 30: All

(10) That Division Orders Nos. R-4157, R-4157-A, R-4157-B, and R-4157-C are hereby rescinded.

(11) That the effective date of this Order shall be September 1, 1981.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

SEAL

fd/

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Telephone 982-4285
Area Code 505

RECEIVED
AUG 20 1981
OIL CONSERVATION DIVISION
SANTA FE

August 18, 1981

Mr. Dan Nutter
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Tenneco Oil Company
Catclaw Draw Morrow Pool

Dear Mr. Nutter:

At the hearing held August 12, 1981, Tenneco's application in Case 7326 to re-establish the 640 acre spacing and proration unit for the Carclaw Draw Morrow Gas Pool there were questions left unresolved.

First: We have contacted ARCO concerning the status of their wells in Section 11. They have informed us that the wellas are on the same based federal lease which includes the entire section. Therefore there is no adverse consequences to them if Section 11 reverts back to 640 acre spacing.

Second: In addition to all wells that are already drilled there are three locations that require grandfathering:

(1) The well in N/2 of Section 13 has an approved drilling permit dated April 16, 1981; Order R-6708, June 25, 1981;

(2) The well in S/2 of Section 19 has an approved drilling permit dated July 27, 1981;

(3) The well in N/2 of Section 14 has no permit yet but the location has been approved by Division Order R-6709 entered June 25, 1981.

Third: Mr. Ray Graham of the Land Office has suggested that the 640 acre spacing with infill provision be limited to the horizontal limits of the current pool and not extend to adjoining acreage. If that is still his desire, we have no problem with such a limitation.

Very truly yours,

W. Thomas Kellahin

WTK:jm
cc: Mr. David Motloch
Mr. Ray Graham

CASE 7284: (Continued from July 2, 1981, Examiner Hearing)

Application of Energy Reserves Group, Inc. for an unorthodox gas well location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Cisco location of its Miller Well No. 1 located 660 feet from the South and West lines of Section 12, Township 6 South, Range 33 East, the S/2 of said Section 12 to be dedicated to the well.

CASE 7324: Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico. Applicant; in the above-styled cause, seeks approval of a 240.01-acre non-standard proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, Ute Dome-Dakota Pool, to be dedicated to a well drilled at a standard location thereon.

CASE 7325: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying Section 32, Township 26 North, Range 1 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well. Applicant further seeks provision for the re-allocation of all costs and charges, and revenues, to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

CASE 7326: Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-4157-C by re-establishing 640-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool with a provision for infill drilling of a second well on each 640-acre spacing unit.

CASE 7327: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying Township 25 North, Range 3 West, containing 23,040 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7328: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and desgianted as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

KELLAHIN and KELLAHIN
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Santa Fe, New Mexico 87501

Jason Kellahin
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Area Code 505

RECEIVED
JUL 22 1981
OIL CONSERVATION DIVISION
SANTA FE

July 20, 1981

Mr. Joe Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Catclaw Draw Morrow Gas Pool
Eddy County New Mexico

Case 7326

Dear Joe:

Please set the enclosed application to rescind Division Order R-4157-C in so far as it refers to reducing the pool spacing from 640 acres to 320 acres and to substitute therefore a provision for infill drilling.

Please set this case for the examiner hearing on August 12, 1981.

Very truly yours,

Tom Kellahin

W. Thomas Kellahin

WTK:jm
Enclosure
cc: Mr. David Motloch
Mr. Ray Graham
Mr. Scott Hall

RECEIVED
JUL 22 1981
OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF TENNCO OIL COMPANY FOR RESCISSION OF DIVISION ORDER R-4157-C, EDDY COUNTY NEW MEXICO.

Case 7326

A P P L I C A T I O N

COMES NOW TENNECO OIL COMPANY, by and through its attorneys, KELLAHIN & KELLAHIN, and applies to the New Mexico Oil Conservation Division, for an Order rescinding Division Order R-4157-C, Eddy County New Mexico, and in support thereof state:

1. Applicant is the operator in the Catclaw Draw Morrow Gas Pool in Eddy County New Mexico.

2. The Catclaw Draw Morrow Gas Pool was created and defined by the Division in Order R-4157, entered June 21, 1971, which provided for 640 acre well spacing and proration units.

3. That on December 12, 1979, in Division Case 6751, Applicant sought and obtained Division Order R-4157-C which resulted in the reduction of the size of the spacing and proration units in the subject pool from 640 acres to 320 acres.

4. That at the time of the entry of the Division Order R-4157-C on January 9, 1980, there were a number of Catclaw Draw Morrow Gas Pool communitization agreements

involving 640 acre units approved by the USGS and the Commission of Public Lands of New Mexico.

5. That as a result of Order R-4157-C, the Commissioner of Public Lands has taken the position that said 640 acre Communitization Agreements terminated as of the date of the Division Order.

6. The implementation of Division Order R-4157-C has casued the violation of certain correlative rights in the Catclaw Draw Morrow Gas Pool that were not intended by the Applicant.

7. Applicant seeks the modification of Division Order R-4157-C for the re-establishment of 640 acre spacing and proration units with a provision for infill drilling of a second well on each 640 acre spacing and proration unit.

WHEREFORE, Applicant requests the rescission of Division Order R-4157-C, effective January 9, 1980, NUNC PRO TUNC, which amended Rule 9 and Rule 2 of the Special Rules and Regulations of the Catclaw Draw Morrow Gas Pool, Eddy County New Mexico but retaining the findings of that Order that one well will not adequately drain 640 acres and that a second well on each proration and spacing unit of 640 acres is necessary to effectively and efficiently drain the spacing and proration unit presently assigned to the wells in the pool.

KELLAHIN & KELLAHIN

By _____

W. Thomas Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7295 ~~7320~~
Order No. R-~~2429-D~~ R-4157-D

APPLICATION OF TENNECO OIL CO COMPANY
FOR AMENDMENT OF DIVISION ORDER
NO. R-4157C, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on ~~July 2~~ August 12, 1981, at Santa Fe, New Mexico, before Examiner ~~Richard L. Stamets~~. DSN

NOW, on this ____ day of ____, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-4157, entered June 21, 1971, in Case No. 4548, the Division created and defined the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, and promulgated special pool rules therefor, which included a provision for 640-acre well spacing and proration units and specified well locations.

(3) That by Order No. R-4157-A, entered September 13, 1973, the Division extended said special pool rules, and by Order No. R-4157-B, entered October 22, 1974, continued said special pool rules in full force and effect until further order of the Division.

(4) That by Order No. R-4157-C, entered January 9, 1980, the Division rescinded the aforesaid 640-acre special rules and provided for 320-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool, finding, among other things, that one well would not drain 640 acres and that 320-acre spacing would prevent waste by permitting the recovery of gas which would otherwise remain unrecoverable.

(5) That this rescission of said special pool rules resulted from testimony and evidence in said case that the existing wells in said pool were not effectively and efficiently draining the 640-acre proration units dedicated to them.

2/

(6) That such ~~findings are~~ evidence is reflected contained in Findings Nos. (5), (6), (7), (8), (9), (10), and (11) of said Order No. R-4157-C, which are hereby incorporated herein by reference.

(7) That the applicant in the instant case, Tenneco Oil Company, seeks the amendment of the special pool rules for the Catclaw Draw-Morrow Gas Pool to rescind the previous 320-acre spacing order and revert back to 640-acre spacing, but to also provide for the infill drilling of a second well on the 640-acre tract.

(8) That subsequent to the entry of said Order No. R-4157-C it was determined that the change in spacing unit size would result in loss of some leases formerly dedicated to communitized 640-acre proration units and other disturbances of historical equities under the preexisting proration units within said Catclaw Draw-Morrow Gas Pool.

(9) That the net result of the conditions outlined in Finding No. (8) above would be to deprive owners of their correlative rights within said pool.

(10) That the correlative rights of the owners within said pool may be protected and effective and efficient drainage therefrom may be provided by permitting the infill drilling of additional wells on each 640-acre proration unit.

(11) That no more than two wells should be permitted to produce from any 640-acre proration unit within said pool. ~~without permission of the Director of the Division.~~

(12) That the special pool rules for the Catclaw Draw-Morrow Gas Pool should apply only within the boundaries of said pool.

(13) That the location of any well drilling or approved to be drilled within ~~or within one mile of~~ the Catclaw Draw-Morrow Gas Pool which location corresponds to that provided by ~~said~~ the special pool rules promulgated by Order No. R-4157-C should be approved.

(14) That approval of the proposed rescission of Order No. R-4157-C, provision for infill drilling, and limitation of special pool rules will prevent waste and will protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That these rules shall be applicable only to lands within the boundaries of the Catclaw Draw-Morrow Gas Pool as now defined or as hereafter contracted or extended by order of the Division.

(2) That Rule 1 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, as promulgated by Division Order No. R-1670-O is hereby amended to read in its entirety as follows:

"RULE 1

Each well completed or recompleted in the Catclaw Draw-Morrow Gas Pool, as defined by the Division, shall be spaced, drilled, operated, and prorated in accordance with the ~~Rules~~ Special Rules for the Catclaw Draw ~~Area~~-Morrow Gas Pool as set forth herein."

(3) That Rule 2 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-O is hereby amended to read in its entirety as follows:

"RULE 2(A)

The initial well drilled on a proration unit shall be located no nearer than 1650 feet to the outer boundary of the section nor closer than 330 feet to any governmental quarter-quarter section line.

The initial well to be drilled on a proration unit may be drilled in any quarter section of the unit.

"RULE 2(B)

The second well drilled on a proration unit shall be located on a quarter section not containing the first well and shall be located no nearer than 1650 feet to the outer boundary of the section, nor closer than 330 feet to any governmental quarter-quarter section line, nor closer than 990 feet to any existing Morrow well on the same proration unit.

The plats (OCD Form C-102) accompanying the Application for

Permit to Drill (OCD Form C-101 or Federal Form 9-331-C) for the second well on a proration unit shall have outlined thereon the boundaries of the unit and shall show the location of the first well on the unit as well as the second well

"RULE 2(C)

In the event a second well is drilled on any proration unit, each well shall be produced for so long as it is economically feasible to do so."

(4) That the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Order No. R-1670-O are hereby amended by the addition of Special Rule 5(A) reading in its entirety as follows:

"RULE 5(A)

A standard gas proration unit in the Catclaw Draw-Morrow Gas Pool shall be 640 acres."

(5) That Rule 9(A) of the aforesaid special rules is hereby amended to read in its entirety as follows:

RULE 9(A)

A standard unit consisting of 640 acres shall be assigned an acreage factor of 1.00, provided however, the acreage tolerances provided in General Rule 5(A) shall apply.

5

(6) That the locations of all wells drilled to and completed in the Catclaw Draw Morrow Gas Pool, or which were drilling to said pool, or for which valid drilling permits or for which the location has been approved by order of the Division had been issued, as of August 12, 1981, are hereby approved.

(7) That the operator of each well in the Catclaw Draw-Morrow Gas Pool shall have until September 15, 1981, to file with the Artesia District Office of the Division new Forms C-102, Well Location and Acreage Dedication Plat, for each of his wells, showing thereon the location of the well and the acreage dedicated thereto pursuant to this order. Failure to so file such plats will subject the well to cancellation of allowable.

(8) That the Texas Oil and Gas Corporation Catclaw Draw State Com Well No. 1, located 660 feet from the South line and 660 feet from the East line of Section 18, Township 21 South, Range 26 East, NMPM, Eddy County, New Mexico, shall receive an allowable factor of 0.35 effective October 1, 1981.

(9) That the Catclaw Draw-Morrow Gas Pool is hereby defined as comprising the Morrow formation underlying the following described lands in Eddy County, New Mexico:

TOWNSHIP 21 SOUTH, RANGE 25 EAST, NMPM
Section 1: All
Section 2: Lots 9 through 16 and S/2
Sections 11 through 14: All
Sections 23 through 28: All
Sections 34 through 36: All

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Sections 17 through 20: All
Section 30: All

(10) That Division Orders Nos. R-4157, R-4157-A, ~~and~~ R-4157-B, and R-4157-C are hereby rescinded.

(11) That the effective date of this Order shall be September 1, 1981.

(12) Jurisdiction

~~DONE~~ at . . .

CASE 7327: JOHN E. SCHALK FOR DESIGNATION OF A TIGHT FORMATION, RIO ARRIBA COUNTY, NEW MEXICO

Case No.

7327

Application

Transcripts.

Small Exhibits

ETC

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

December 22, 1982

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 7327
ORDER NO. R-7160

Applicant:

John E. Schalk

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD x

Other _____

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7327
Order No. R-7160

APPLICATION OF JOHN E. SCHALK FOR DESIGNATION OF A TIGHT FORMATION, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 22nd day of December, 1982, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That at the hearing, applicant was requested to furnish additional data and information to substantiate his request for designation of a tight formation.

(3) Due to the death of the applicant, the additional data and information has not been forthcoming.

(4) That this case should be dismissed.

IT IS THEREFORE ORDERED:

(1) That Case No. 7327 is hereby dismissed.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E
fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. CASE 7327

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

A. R. KENDRICK

Direct Examination by Mr. Kellahin 4

Cross Examination by Mr. Nutter 30

E X H I B I T S

Applicant Exhibit One, Plat 5

Applicant Exhibit One-A, Plat 6

Applicant Exhibit Two, List 6

Applicant Exhibit Three, Cross Section 11

Applicant Exhibit Three-A, Type Log 13

Applicant Exhibit Four, Recap 15

Applicant Exhibit Five, Document 16

Applicant Exhibit Six, Meter Charts 17

Applicant Exhibit Seven, Plot 18

Applicant Exhibit Eight, Pressure Build-up 18

Applicant Exhibit Nine, Plot 19

Applicant Exhibit Ten, List 19

Applicant Exhibit Eleven, Calculations 20

E X H I B I T S CONT'D

Applicant Exhibit Twelve, Remarks 21

Applicant Exhibit Thirteen, Cost Statement 21

MR. NUTTER: Call Case Number 7327.

MR. PADILLA: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico.

MR. KELLAHIN: Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the Applicant, and I have one witness to be sworn.

(Witness sworn.)

A. R. KENDRICK

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Kendrick, would you please state your name and occupation?

A A. R. Kendrick, Petroleum Engineer.

Q What is your relationship with the Applicant, John E. Schalk?

A I'm hired as a consultant for this tight formation case.

Q Have you previously testified before

the Oil Conservation Division?

A. Yes, sir.

Q. In what capacity, sir?

A. As a petroleum engineer.

MR. KELLAHIN: We tender Mr. Kendrick as an expert petroleum engineer.

MR. NUTTER: Mr. Kendrick is qualified.

Q. Mr. Kendrick, I'll ask you to turn to what we've marked as Applicant Exhibit Number One and identify that exhibit for us.

A. Exhibit Number One is a copy of the Federal survey plat for Township 25 North, Range 3 West, Rio Arriba County, New Mexico. It's the area of concern in this case, the entire township.

Q. Would you generally summarize for us what the applicant is seeking to accomplish?

A. The applicant has asked that the Mesaverde formation be considered as a tight reservoir, or tight formation reservoir, under the Natural Gas Policy Act, because of its producing characteristics.

Q. And this will be for the entire township?

A. Yes, sir.

Q. And this is pursuant to Section 107 of

the Natural Gas Policy Act?

A. Yes, sir.

Q. And pursuant to your examination of this area for tight sands designation, Mr. Kendrick, have you prepared certain exhibits to introduce in this case?

A. Yes, sir.

Q. And have each of these exhibits previously been submitted to the USGS and the Oil Conservation Division with a statement of the meaning and purpose of each exhibit in accordance with Commission Order R-6388-A?

A. No, sir, most of the exhibits have been submitted prior to the USGS and to the OCD. I have some surprises today.

Q. All right, we'll talk about your surprises when they happen.

Let's go to Exhibit Number Two.

A. Exhibit One-B.

Q. All right, I'm sorry.

A. Exhibit One-A.

Q. What is One-A?

A. One-A is an area plat of the immediate area around Township 25 North, Range 3 West, which shows where the boundary of the Blanco-Mesaverde Pool exists, and shows that it only encompasses about four -- or the equivalent

of about four sections of this township, to give the relative position of this township to the pool to show that most of the wells drilled in this township will not be within the proven Blanco-Mesaverde Pool.

Q. All right, sir, would you give us the Division's definition of the vertical limits of the Blanco-Mesaverde Pool?

A. In this area the Blanco-Mesaverde Pool is defined under Order R-5459, in paragraph B of that order. This entire township lies south and west of the line delineating between Chacra reservoirs and Mesaverde reservoirs, and defines the pool as that south and west of the line described under paragraph A above, the vertical limits of the Blanco-Mesaverde Pool, which shall be from a point 750 feet below said Huerfanito Bentonite marker to a point 500 feet below the top of the Point Lookout sandstone.

MR. NUTTER: And this land lies --

A. South and west --

MR. NUTTER: -- south and west of the line.

A. -- of the line.

Q. Is this entire township subject to the Blanco-Mesaverde Pool rules?

A. No, sir, only that shown on Exhibit A

within the pool and a one-mile perimeter.

Q Except for that area, then, how is the Mesaverde Pool defined in terms of the vertical limits?

A There is no real defined vertical limits of the Mesaverde outside of the Blanco-Mesaverde Pool.

But we would assume that under the operating policies of the Oil Conservation Division that probably the same vertical limits would apply in this area for simplicity and for ease of definition.

Q All right. Am I correct in understanding then for purposes of designating a tight sand formation you propose to use the vertical limits as defined in the Blanco-Mesaverde Pool?

A Yes.

Q All right. Let's go to Exhibit Number Two and have you identify that.

A Exhibit Number Two is a required list of wells within the area of concern of the call of the hearing that have been drilled to or completed in this zone of interest.

This list also shows wells which have been first reported which are not yet completed. The list includes the date of completion of those completed, the date of first delivery into the pipeline, the initial shut-in

pressure for the Commission's observation, the latest shut-in pressure required by the State deliverability tests of those wells producing, which also includes the year that that shut-in pressure was measured. It also shows the dedicated acreage applied to that well; it has an initial, a slash, and the number of acres dedicated to the well, so that if for some reason some of these wells should be deleted from the area of classification as a tight formation, that the Examiner or the staff would have the ability to identify that acreage very readily to delete at their option.

Q. What is meant by the entry in the third column that says "not completed"?

A. That means that the Aztec office of the Oil Conservation Division did not have completion records showing that the well had been completed. No C-105 or Federal Form 9-330 had been filed to identify the type of completion and the potential test.

Q. Would a location that has been permitted for the Mesaverde formation be classified under a "not completed"?

A. Yes.

Q. All right, so that will include all permitted locations?

A. Anything that has been permitted but has

not been finalized.

Q. Let me ask you this with regards to the inclusion of this entire township as a proposed tight sands area. In your opinion is the inclusion of the entire township constitute a reasonable horizontal boundary for this area?

A. Yes, sir. There have been dry holes drilled near the east edge and near the south edge of the township, one being in Section 13, shown in the Exhibit Two, as M-8 -- excuse me, C-13 Skelly Oil Company, a well drilled in 1958 which was plugged and abandoned as dry at that time but it's in the section adjacent to the eastern boundary. And down in Section 30, near the southwest boundary -- or southwest corner of the township, a well drilled -- identified here as N-30 Getty Oil Company, was drilled in 1955 and was declared non-commercial in the Mesaverde and was plugged back to the Pictured Cliffs at that time. So that we are progressing and taking in an area from -- as shown on the Exhibit One-A, from the pool boundary to a place where the Mesaverde probably or possibly would not produce. So that we would include all of the relative area along that portion of the reservoir.

Q. In your opinion, then, has there been a sufficient number of wells drilled to test the Mesaverde formation within the township from which you then can reach

a conclusion that the boundaries of the township constitute a reasonable basis on which to include that area as a tight sand area?

A. Yes. Enough wells have been drilled to show that the wells are of very low productivity, if any, around the eastern and southern boundaries.

Q. Let's turn to Exhibit Three, Mr. Kendrick, and have you tell me what this is.

A. Exhibit Three is a cross section showing the Mesaverde, as identified in the Blanco -- excuse me, as the general Mesaverde geologic area of the Cliffhouse, Menefee, and Point Lookout formations. I cannot define to you the bentonite shale marker referred to the in the order of definition. It is above what's shown on the cross section here, so that all of the area shown here is still classified as Mesaverde, but this shows the Cliffhouse, Menefee, and Point Lookout intervals that are known to be productive in the Mesaverde formation, as would be productive in this area, and the area colored in yellow are the reservoirs within the Point Lookout for wells that have been completed in this area. The index map shows wells in Sections 6, 8, 16, and 34 being trace line from northwest to southeast across the bulk of the township, to show that the Mesaverde formation does exist across the township from northwest to southeast.

Q. You've used the top -- I'm sorry, you've used the Point Lookout as a geological marker across the township to show the continuity of the formation?

Is that the purpose of the cross section?

A. Yes. And the areas colored in yellow would be considered the productive areas within the wells identified here.

Q. And in your opinion does the cross section evidence a continuity of this formation across the township?

A. Yes, sir.

MR. NUTTER: While we're on this exhibit, Mr. Kendrick, this far right well, the Schalk 43-2, I believe that that's the same well that's on your Exhibit Two, which is shown to be plugged back to the Chacra. You didn't mention it awhile ago as being one of the dry holes in the Mesaverde. You mentioned two others, but was it a dry hole?

A. That's true, it was not a dry hole, but it had a non-economic production rate at this time.

MR. NUTTER: Okay, now I made a note on my exhibit that the Getty Well in Section 30 was non-commercial in the Mesaverde. Can I make the same statement regarding this Schalk 43-2?

A. Yes, it's non-commerical at the time of

drilling.

Also, in that regard, on Exhibit Two, the third well from the bottom, the D-35 W. M. Galloway, was drilled to the Dakota and had connection to the pipeline and produced for a short period of time as a Mesaverde well, and it's been plugged back to the Chacra at this time for testing the Chacra formation, but it did have a short time as a producer as a Mesaverde well, so at the southeast corner of the township there is possible production but at this time it's not economic.

Q. I'm going to direct your attention to Exhibit Three-A, which is the type log, Mr. Kendrick. Would you identify what that well is, which one is it?

A. The Exhibit Three-A, I only had one copy of the neutron density log to submit. It's on what we refer to as the type well in this case. It's the John E. Schalk No. 3 Well, located in the southeast quarter of Section 6. It is the left-most well on Exhibit Number Three.

Q. What is the average depth of the Point Lookout through this area, Mr. Kendrick?

A. The average depth to the top of the Point Lookout is 5895 feet for those wells shown on Exhibit Three.

Q. What is the gross thickness of the pay?

A. The gross thickness averages 154 feet.

Q. And would you describe generally the geological description of the Mesaverde formation?

A. The Cliffhouse formation is composed of a usually classed massive sandstone with some sand and shale stringers immediately above it.

The Menefee in the center is a deltaic type of deposit, which is generally shaley with sandstone lenses and some coal beds.

The Point Lookout is identified geologically as a massive sandstone with some thin sands below the massive sandstone, and the top of the Point Lookout is identified as being the top of the next massive sand after the lower Menefee coal. So that there are two massive sandstones that generally occur with thin sand beds above, between, and below them.

Q. What is the average pay porosity in the area?

A. In percentage of porosity or feet or --

Q. In percentage.

A. The pay would have to be 10 percent porosity or better, and the maximum porosity that I find in these wells is slightly over 12 -- I mean, excuse me, in the type well, the Schalk Gulf No. 3, the maximum porosity is about 10-1/2 percent -- excuse me, 12-1/2 percent.

Q. All right, sir, let's turn to Exhibit Number Four and have you identify that.

A. Exhibit Number Four is a short recap of the drilling and completion cycle as a demonstration of the procedure utilized at the time the well was drilled. The hole reached total depth and the production casing was cemented in place on June the 4th, 1980, and remained cemented without perforations or disturbance until August the 7th, 1980, which gave it some 65 days. In the element of conservation --

Q. What's the significance of having the well stabilized for the 65 days?

A. There's several factors involved, one being the hope to utilize a completion unit for completing several wells at the same time, and secondly, the anticipated procedure for testing was to let the reservoir stabilize from any disturbance that might have occurred during drilling operations before the pre-treatment test was applied.

At the time of perforation the well was perforated and a string of tubing was run with a packer and the bottom hole valve in that packer so that the packer was set five feet above the perforations and the tubing was dry. So that immediately upon opening the casing without measuring a shut-in pressure, we proceeded into the pre-treatment test with the stabilized reservoir conditions available imme-

diately outside the perforations because we had let it stabilize for 63 days.

That's the total significance of this, is to get the schedule down to understand how we got into the testing procedure and that the reservoir conditions should be stable outside the wellbore.

Q. All right, let's go to your testing procedure, then. Would you identify Exhibit Number Five for us?

A. Exhibit Number Five is a replacement for the exhibit that was submitted earlier because I asked Mr. Evans, who conducted the test, if he had a factor for his test choke and he gave me a factor but I failed to ask him from what source he had that, so I used the factor that he gave me for the choke and a different factor for the gravity factor, which gave me an erroneous calculation, I believe, of 18 Mcf per day as the pre-treatment rate, when in reality, using the corrected series of factors it turned up being 21 Mcf per day. The effect was not great but we'd like to get the correct information a matter of record.

Q. 21 Mcf a day is the maximum stabilized unstimulated production rate for this well? Completed for production from the Mesaverde at this depth?

A. Yes, sir.

Q. All right, in your opinion is that going

to be typical of the unstipulated pre-treatment for other Mesaverde wells at this depth?

A. It appears to be average for the wells that we have completed at this time in this immediate area.

Q. All right, let's go to Exhibit Six is a series of four meter charts showing the recorded pressures at the time that the test was started, would be at 6:00 p. m. on Friday, near the bottom of the copy, and since we had the 2000 pound pressure recorder on the location, all of the test period recorded at zero pounds, and then on the first page you see the pressure build-up begin and I'll have to say into the record that these are 24-hour charts and not 7-day charts so the charts are identified so there is a confusion of time, but each of these charts was a 24-hour chart, and merely indicates the recorded pressure build-up, which we will identify a little later on other exhibits.

MR. NUTTER: These are 24-hour tests plotted on 7-day charts, is that it?

A. That's right.

MR. NUTTER: Okay.

A. The only chart blanks that were available were 7-day -- or, yeah, 7-day charts but we used them on a 24-hour clock.

Q. Were any liquids produced from this well

prior to treatment?

A. No, sir.

Q. For the Mesaverde wells in this area, Mr. Kendrick, what in your opinion is the maximum daily rate of crude oil production prior to stimulation in these wells? Is it more or less than 5 barrels a day?

A. No, it would be less than one barrel per day. It's considerably less than 5 barrels per day, minimum range as required by the NGPA.

Q. Let's look at Exhibit Number Seven and have you identify that for us.

A. Exhibit Number Seven is a plot of the drawdown curve obtained during the testing to show we did have a usual position of a drawdown curve;the first fifteen minute reading was 19 pounds and the last three readings were at 4 pounds.

Q. What's the purpose of this exhibit?

A. Just to show that we did have normal drawdown conditions during the testing procedure for the 3-hour test that we did on the well.

Q. And Exhibit Eight?

A. Exhibit Eight is a pressure versus time build-up, showing the pressure build-up from the time of the end of the test for the remaining part of four days. It shows

that even though we produced a very small volume of gas, that we did not obtain a large percent of the pressure rejuvenated until after the well had built up for approximately 36 hours, or one and a half days to get back to approximately 1200 pounds.

The gross volume produced during the test was 3542 cubic feet, and by calculating a diameter of drainage this would only be four feet in diameter at each of the 24 perforations, so that we did not void much reservoir, but it still took a substantial time to rebuild the pressure.

Q. All right, sir, Exhibit Number Nine.

A. Exhibit Number Nine is the usual pressure versus time plus delta T over delta T plot obtained for pressure build-up after a production period to determine the maximum pressure.

Unfortunately, at the time a year ago when this was a brand new procedure in pre-treatment testing, we only tested this well for three hours and our pressure build-up curve remains essentially vertical and we did not have the Horner straight line type chart to build up to the maximum pressure, but this is -- was the intent of our test. We just did not produce it for sufficient time to accomplish that end.

Q. Exhibit Ten.

A. Exhibit Ten is a list of the perforated

intervals, where one shot per foot was perforated at each of those positions within the wellbore.

Q Exhibit Eleven?

A. Exhibit Eleven is the permeability calculations to apply back to the order which sets out a maximum for the Section 107 classification. The Horner -- or the reservoir permeability formally shown at the top of the page with each of the unknown factors identified to substitute into that. Down in the middle of the page we come to an M, which is slope of the line characteristics and I applied that to this Exhibit Number Nine factor based on the last 24 hours of production under Horner's equation that M equals the difference in pressures divided by the difference in the logs of T plus delta T over delta T, and M factor wound up to be 6267. In a normal plot like this I would anticipate that number to be somewhere under 100, but with this calculation we wind up with a permeability of .000156.

Q In your opinion can the average in situ gas permeability throughout the pay section be expected to be 0.1 millidarcies or less?

A. Yes.

Q Was the method you used to establish and demonstrate the permeability a customary and accepted method acceptable to the oil and gas industry?

A. Yes, sir.

Q. All right, sir, if you'll identify Exhibit Twelve for us.

A. Exhibit Number Twelve is a, identified as the remarks regarding fresh water, wherein I have stated that the present Federal and State regulations allow the use of any aquifer for either domestic or agricultural purposes without any impairment caused by the petroleum industry. The casing and cementing programs currently require the oil, gas, and water to be confined to the formation in which it is found, thus preventing waste or contamination.

Temperature and/or cement bond logs can be run to indicate the position of the cement sheath outside the casing to prove that adequate protection exists prior to fracture treatment or other types of well stimulation.

Q. In your opinion will fresh water sources and aquifers not be impaired by wells stimulated in this area?

A. In my opinion the fresh waters will not be affected by the petroleum industry's drilling and completion techniques.

Q. All right, let's turn to Exhibit Number Thirteen and have you identify this.

A. Exhibit Number Thirteen is an actual

cost statement or identity showing the costs broken down into the different types of costs necessary to drill and complete this well ready for production from spud to wellhead installation. This does not include separators or tanks or anything outside the wellhead conditions at the location.

It shows a maximum, or the total cost of drilling and completing the well at wellhead conditions as $218,413.91. I consider this a very conservative cost for a well of this depth. The completion treatment or stimulation of fracturing was a very conservative number because this well is one mile off the pavement and apparently was on a dry day because the costs are very minimal.

Q. In your opinion is the 107 price incentive necessary to provide an incentive for the additional drilling of Mesaverde wells in the area?

A. Yes, sir.

Q. Would you generally describe for us the type and extent of enhanced production techniques which are expected to be necessary?

Is this fracture treatment you've identified a typical way to stimulate these wells?

A. Yes, sir, fracture treating is essential in the area, proven to be the most economical and effective way to obtain the product from underground.

Q. You indicated this $25,000 figure as a minimum amount necessary in order to use this stimulation technique.

A. I think that in this location, this remote from the service center, that this is a very minimal number, cost for this operation.

Q. Do you have an opinion, Mr. Kendrick, as to the increase in production from the use of such techniques?

A. The increase in productivity of the well in Section 6 was from 21 Mcf to more than 2100 Mcf by the stimulation by fracture treating.

Q. Per day.

A. Yes, as an open flow test similar to this one that produced to atmosphere, the initial potential test on the well was in excess of 2100 Mcf per day after treatment.

Q. Has the Mesaverde formation in this township been authorized for development under an infill program, Mr. Kendrick?

A. Only that within the Blanco-Mesaverde Pool. That more than a mile from the pool would be classed as wildcat wells under the existing pool rules, and therefor spaced on 160-acre spacing, which would not be classed as infill well, even though it be drilled in the same pattern.

Q. For those wells, then, within the Blanco-

Mesaverde Pool there within this township, are you asking the tight sand designation for those infill locations?

A. For all those that qualify, yes, sir.

Q. In your opinion will granting of this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

Q. Mr. Kendrick, I have been submitted a list of questions to ask you by the USGS. Some of them we have discussed already, but we'll take them in order so that you'll have an opportunity to comment on them.

The first question is can you submit evidence to show that the stabilized production rate of wells completed in the formation without stimulation is not expected to exceed 163 Mcf a day?

Now that was the calculation, was it not, in Exhibit Number Eleven --

A. Calculation on our exhibit --

Q. Exhibit Number Eleven for this Schalk well?

A. No, it would be our potential, our pre-treatment test, Exhibit Number Five showed that this well did not produce in excess of that.

Q. My follow-up question to that question

is whether or not that will be typical for Mesaverde wells completed in this area for this township.

A. In my opinion it will be typical but I have no way to submit evidence to that effect because none of the other wells had pre-treatment tests, as far as we know.

Q. You've made a study of the other wells and you have not found pre-treatment tests?

A. I've found no evidence of pre-treatment tests.

Q. All right, why is that? Is that typical of the way these wells are completed?

A. The time involved would be very expensive to run a test when the operator knows in advance that he is going to fracture treat the well, and some of the wells were drilled prior to the time that the incentive rule was made available, so that there was no reason to spend the time to take the test that was of absolutely no value to the operator at that time.

Q. So the record is clear on this point, Mr. Kendrick, it is not a customary practice of the oil and gas industry to run the pre-treatment tests for these types of wells prior to the 107 incentive?

A. That is correct.

Q. The second question is can you submit

evidence to show that the estimated average in situ permeability throughout the pay section is expected to be 0.1 millidarcy or less?

Now that is Exhibit Eleven.

A. Yes, sir.

Q All right. Question three is what is the basis for the boundaries of the proposed tight sand gas area designation? I believe we covered that point earlier when I asked you about the well locations and whether or not you felt they adequately developed and tested the Mesaverde so as to define the section as being logical for inclusion in an enhanced --

A. We -- with the acreage that we covered, we covered all the acreage in which we have an interest plus a bunch of additional acreage, and there has to be a quitting place somewhere.

MR. NUTTER: So you rounded it off in a square.

A. Yes, sir, rounded it off in a square.

Q The third question asks, could you provide the following information: A, structure and Isopachous insert map of the formation for the tight gas application area? Does structure play any significance in the production from the Mesaverde in this township?

A. No, sir. Structure is not a relevant consideration. Structure is not a relevant consideration for Mesaverde production in the San Juan Basin, so far as the gas producing characteristics of the Blanco-Mesaverde Pool is concerned. The concern there is stratigraphic trap, and not the structure.

Q. In your opinion would it be necessary to include an Isopachous map of the formation for this township?

A. I see no benefit for it. My Isopach map would be different from anyone else who drew an Isopach map, and they have failed to ask or identify any limits that they would show there, and I'm not sure that there is sufficient porosity logs to identify the porosity that they want shown.

Q. Four-B says geological report containing geographical descriptions of the formation, including specific mention of the formation locations and development, block texture, porosity, homogenity, pore volume, saturation thickness, depth, area limits, and faults or other barriers.

Now we've introduced the cross section. We've got a type log. Is there anything included within that request that you would want to supplement that has not been presented so far today?

A. I think an examination of the gamma ray neutron density log would show them that the sands are not homogenous, or the reservoir is not homogenous and that if they would examine the list of perforations, they'll find that the 24 perforations are scattered from 6001 feet to 6209 feet, which indicates that there is wide diversification in the type and quality of the formation in the wellbore.

Q. Question --

A. We could not have an ideal reservoir in this area.

Q. Question Five, is the application asking for a tight formation designation for infill locations?

We covered that earlier.

A. We covered that earlier, but we would like to cover all of the infill locations that are available under the time sequence from the writing of the order.

Q. Question Six refers to the Exhibit Number Two, which is the tabulation of your wells.

A. All right.

Q. The question is Exhibit Two indicates that two Mesaverde wells were completed in 1980 and two Mesaverde wells were completed in 1981. Is it no longer economical to drill wells such as these which were drilled in 1980-81 under the 103 price?

A. I would say it is no longer economical to drill the wells in this township under the 103 price as an average for all the wells in the township. I have testified that there's a noneconomic well in Section 13; there's a noneconomic well in Section 30; there's a noneconomic well in Section 34, which pretty well sets out about half the township which has noneconomic wells at the time they were drilled. One of those was in 1980. I believe it was completed as a noneconomic well and has now been plugged back to the Chacra.

So that in my opinion more than half the township would be noneconomic under Section 103.

Q. The second portion of that question is, is the 107 price necessary to have an economical well that would be similar in production potential as those drilled in 1980-81?

A. Yes, and for the same reasons that I answered the first part of this question.

MR. KELLAHIN: That concludes my examination of Mr. Kendrick, Mr. Nutter. We move the introduction of Exhibits One through Thirteen.

MR. NUTTER: Exhibits One through Thirteen will be admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Now, Mr. Kendrick, to sum this all up, you stated that -- are we talking about the Mesaverde formation primarily, or the Point Lookout?

A. Well, I think we ought to identify it as Mesaverde, because -- there are some positions on the type log that are in Section 6 based on that one log.

Q. When you gave us the average depth to the Point Lookout as being 5895, what's the average depth to the top of the Mesaverde, then?

A. Well, it's identified on this order. I didn't have the logs to have the shale marker to identify.

Q. I mean in this township,we don't know the average depth in this township, then.

A. I don't have it. I will go to the Commission office and obtain the logs and find that shale marker and identify it. I don't -- I didn't have sufficient logs to -- to give you that today.

If you'd like that, I'll supply that within the week.

Q. Yeah, well, in our findings on these things we have to say what the average depth to the top of the formation we're talking about is.

A. Okay, right.

Q. And then make a comparison with the average, with the average well's productivity in this, and determine whether it falls within that guideline that the FERC has set up.

So this question that the GS submitted mentions would the average well in here without stimulation exceed 163 Mcf. That's for some depth bracket. I don't know right offhand which one that is.

A. 6000 to 6500, I believe, because that's where our top perforation is.

MR. KELLAHIN: It's 5000 to 5500.

MR. NUTTER: 5000 to 5500, okay, that Bentonite Shale is up there somewhere, then.

A. Yes, it probably is.

MR. KELLAHIN: What we did is, we took the shallowest depth which gives us a correspondingly smaller maximum Mcf per day, so we made the rule harder on us, and yet on his type well he only shows unstimulated production of 21 Mcf.

MR. NUTTER: Well, I realize that.

A. See, on one of the wells on Exhibit Three, on the cross section, there would be some shallower than this type well, possibly.

Q. Right. Okay, so we're going to find out what the top of the Mesaverde formation is in this area.

Now, there are three criteria that we have to meet for sure, and that's in situ permeability. You gave me a figure on that. Potential, you gave me a figure on that, 5 barrels of oil, you gave me a figure on that.

A. Right.

Q. Now the next one, in an area that's been approved for infill drilling. Now is this -- is there any reason to believe that the Mesaverde formation in this given area is not part of the Blanco-Mesaverde Pool?

A. We have no reason to show that it's separated. Exhibit Three shows that the formation is continuous and quite likely the pool would be extended throughout part of this township that is commercial.

Q. A number of these wells have been drilled in recent years, '78 or '79, '80, and '81, and a number of the wells on Exhibit Number Two show they are not completed. I don't know if the drilling permits were issued ten years ago and they haven't been completed or if the drilling permits were issued last month and they haven't been completed. But there's a lot of new development in here, apparently, so there would be a reasonable reason to believe that the Blanco-Mesaverde Pool would be extended into this area.

A. We have no reason to doubt that the --

Q. Right.

A. -- pool will extend.

Q. Okay, so then it would be an area that would be covered by an infill drilling order.

A. At the time --

Q. And then we have to meet the fourth criteria of the FERC as to whether the infill drilling -- or if -- whether the incentive price is necessary in an area that has been approved by a jurisdictional agency for infill drilling.

A. Right.

Q. So what have we got to establish that we need the incentive price to justify the drilling of the wells? This one well produced 21 Mcf prior to stimulation; after stimulation it produced 2100 Mcf per day, but I don't know if that was the only day it will ever produce or if it's going to produce 2-billion cubic feet. Do you have anything on reserves for the average well?

A. I don't not have a reserve calculation. I can tell you that this well did produce -- it first delivered during June, and the No. 3 Well produced 4609 Mcf during June of 1981. That's the only month that we have production values.

Q. How many days was it on theline?

A. I do not know.

Q. That would be about 150 Mcf a day if it was on the whole month.

Now, can we find --

A. I do -- excuse me, I do have production figures for some other wells, which have produced for a longer period of time, if that would be of benefit.

Q. How much have they produced?

A. Of the --

Q. And what period of time? Are they wells that are on Exhibit Two?

A. On Exhibit Three.

Q. Or are they --

A. On Exhibit Two and on Exhibit Three.

Q. Well, I think the Exhibit Two would be more appropriate because it shows the completion date and first delivery date, so I can follow them on there.

What, okay, what wells?

A. M-16, Schalk 41 No. 1.

Q. Okay, it's first delivery was 8-10-80.

A. Right.

Q. What's its cum?

A. Cum at the end of '80 was 135783 and 1226 barrels of condensate.

Q. Okay.

A. In M-8, Schalk 41 No. 2.

Q. Okay.

A. Cumulative as of 12-31-80, 160710 Mcf, 1052 barrels.

Q. Okay.

A. E-8, Schalk 41 No. 2-A.

Q. Okay.

A. Cum as of 12-31-80 was 74,868 Mcf and 39 barrels of condensate.

Q. Okay.

A. P-16, Schalk 41 No. 3.

Q. Uh-huh.

A. Cum as of 12-31-80 was 20,130 Mcf and 488 barrels.

Q. And those are the only ones you have cums on?

A. Yes, sir. Excuse me, I can give you a cum for the -- the Delaware Well down in Section 35, being D-35, Myers No. 1.

Q. Yeah, that's the one that was plugged back to the Chacra.

A. No, I'm sorry, my list quits in Section 30, so I don't have Section 35. I thought I had the whole

township.

Q. You don't happen to have these old Getty wells that were connected back in '74 there, do you?

A. Well --

Q. O-18 and A-19?

A. Let's see, what do I have -- O of 18, C. W. Roberts No. 3 during 1980 produced 56,260 Mcf and no oil.

Q. That was its cum or that was the annual --

A. That's annual production.

Q. Read that number again.

A. 56,260. The cum as of 12-31-80 was 414,675 Mcf and 3,728 barrels.

Q. 3,000 --

A. 728.

Q. Okay.

A. And which other one?

Q. The A-19, the Lydia Rentz No. 4.

A. Lydia Rentz No. 4 showed a 1980 annual production of 54,517 Mcf, 542 barrels; a cum of 466,455 and 4,675 barrels.

Q. That was -- those are cums. All these cums you gave me were cums through 12-31-81, right?

A. 12 --

Q. 12-31-80.

A. 12-31-80, from the Oil Commission records.

I might point out that Getty also has wells authorized for instance, the M-17 C. W. Roberts No. 4 Well is completed in the Ojito Gallup-Dakota and they have secured approval for downhole commingling with the Mesaverde, and that order is more than two years old, but they have not elected to perforate the Mesaverde and complete that in that area.

Q. That's why is shows not completed --

A. That's right.

Q. -- here.

A. It's not completed yet in the Mesaverde.

Q. So it's never been completed in the Mesaverde.

A. That's true, but their downhole commingling order has been approved for more than two years.

Q Okay. Well now, I don't think the answer has been sufficient to question six on the GS questionaire, and I think I will ask you, Mr. Kendrick, to give us further evidence to support your answer to question number six, both parts of it, the first question and also the second question, plus the data to support your responses.

We would need to know evidence of reserves,

cost of operation, all the economics involved here, as to why this incentive price is necessary.

MR. KELLAHIN: May we leave the record open in this matter to submit that additional information?

MR. NUTTER: And with your permission, Mr. Kellahin, I'd like to have the opportunity to make reference to the official Commission records on these potentials and cumulative production from the wells in the area.

MR. KELLAHIN: If you please.

MR. NUTTER: Are there any further questions of Mr. Kendrick? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7327?

We'll take the case under advisement.

We'll reopen this case, we've got a telegram from Beartooth Oil and Gas Company supporting the application of Schalk in this case.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said Transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7321, heard by me on 8/12 1981.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. CASE 7327

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
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A. R. KENDRICK

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Applicant Exhibit One-A, Plat 6

Applicant Exhibit Two, List 6

Applicant Exhibit Three, Cross Section 11

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Applicant Exhibit Thirteen, Cost Statement 21

MR. NUTTER: Call Case Number 7327.

MR. PADILLA: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico.

MR. KELLAHIN: Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the Applicant, and I have one witness to be sworn.

(Witness sworn.)

A. R. KENDRICK

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Kendrick, would you please state your name and occupation?

A. A. R. Kendrick, Petroleum Engineer.

Q. What is your relationship with the Applicant, John E. Schalk?

A. I'm hired as a consultant for this tight formation case.

Q. Have you previously testified before

the Oil Conservation Division?

A. Yes, sir.

Q. In what capacity, sir?

A. As a petroleum engineer.

MR. KELLAHIN: We tender Mr. Kendrick as an expert petroleum engineer.

MR. NUTTER: Mr. Kendrick is qualified.

Q. Mr. Kendrick, I'll ask you to turn to what we've marked as Applicant Exhibit Number One and identify that exhibit for us.

A. Exhibit Number One is a copy of the Federal survey plat for Township 25 North, Range 3 West, Rio Arriba County, New Mexico. It's the area of concern in this case, the entire township.

Q. Would you generally summarize for us what the applicant is seeking to accomplish?

A. The applicant has asked that the Mesaverde formation be considered as a tight reservoir, or tight formation reservoir, under the Natural Gas Policy Act, because of its producing characteristics.

Q. And this will be for the entire township?

A. Yes, sir.

Q. And this is pursuant to Section 107 of

the Natural Gas Policy Act?

A. Yes, sir.

Q. And pursuant to your examination of this area for tight sands designation, Mr. Kendrick, have you prepared certain exhibits to introduce in this case?

A. Yes, sir.

Q. And have each of these exhibits previously been submitted to the USGS and the Oil Conservation Division with a statement of the meaning and purpose of each exhibit in accordance with Commission Order R-6388-A?

A. No, sir, most of the exhibits have been submitted prior to the USGS and to the OCD. I have some surprises today.

Q. All right, we'll talk about your surprises when they happen.

Let's go to Exhibit Number Two.

A. Exhibit One-B.

Q. All right, I'm sorry.

A. Exhibit One-A.

Q. What is One-A?

A. One-A is an area plat of the immediate area around Township 25 North, Range 3 West, which shows where the boundary of the Blanco-Mesaverde Pool exists, and shows that it only encompasses about four -- or the equivalent

of about four sections of this township, to give the relative position of this township to the pool to show that most of the wells drilled in this township will not be within the proven Blanco-Mesaverde Pool.

Q. All right, sir, would you give us the Division's definition of the vertical limits of the Blanco-Mesaverde Pool?

A. In this area the Blanco-Mesaverde Pool is defined under Order R-5459, in paragraph B of that order. This entire township lies south and west of the line delineating between Chacra reservoirs and Mesaverde reservoirs, and defines the pool as that south and west of the line described under paragraph A above, the vertical limits of the Blanco-Mesaverde Pool, which shall be from a point 750 feet below said Huerfanito Bentonite marker to a point 500 feet below the top of the Point Lookout sandstone.

MR. NUTTER: And this land lies --

A. South and west --

MR. NUTTER: -- south and west of the line.

A. -- of the line.

Q. Is this entire township subject to the Blanco-Mesaverde Pool rules?

A. No, sir, only that shown on Exhibit A

within the pool and a one-mile perimeter.

Q. Except for that area, then, how is the Mesaverde Pool defined in terms of the vertical limits?

A. There is no real defined vertical limits of the Mesaverde outside of the Blanco-Mesaverde Pool.

But we would assume that under the operating policies of the Oil Conservation Division that probably the same vertical limits would apply in this area for simplicity and for ease of definition.

Q. All right. Am I correct in understanding then for purposes of designating a tight sand formation you propose to use the vertical limits as defined in the Blanco-Mesaverde Pool?

A. Yes.

Q. All right. Let's go to Exhibit Number Two and have you identify that.

A. Exhibit Number Two is a required list of wells within the area of concern of the call of the hearing that have been drilled to or completed in this zone of interest.

This list also shows wells which have been first reported which are not yet completed. The list includes the date of completion of those completed, the date of first delivery into the pipeline, the initial shut-in

pressure for the Commission's observation, the latest shut-in pressure required by the State deliverability tests of those wells producing, which also includes the year that that shut-in pressure was measured. It also shows the dedicated acreage applied to that well; it has an initial, a slash, and the number of acres dedicated to the well, so that if for some reason some of these wells should be deleted from the area of classification as a tight formation, that the Examiner or the staff would have the ability to identify that acreage very readily to delete at their option.

Q. What is meant by the entry in the third column that says "not completed"?

A. That means that the Aztec office of the Oil Conservation Division did not have completion records showing that the well had been completed. No C-105 or Federal Form 9-330 had been filed to identify the type of completion and the potential test.

Q. Would a location that has been permitted for the Mesaverde formation be classified under a "not completed"?

A. Yes.

Q. All right, so that will include all permitted locations?

A. Anything that has been permitted but has

not been finalized.

Q. Let me ask you this with regards to the inclusion of this entire township as a proposed tight sands area. In your opinion is the inclusion of the entire township constitute a reasonable horizontal boundary for this area?

A. Yes, sir. There have been dry holes drilled near the east edge and near the south edge of the township, one being in Section 13, shown in the Exhibit Two, as M-8 -- excuse me, C-13 Skelly Oil Company, a well drilled in 1958 which was plugged and abandoned as dry at that time but it's in the section adjacent to the eastern boundary. And down in Section 30, near the southwest boundary -- or southwest corner of the township, a well drilled -- identified here as N-30 Getty Oil Company, was drilled in 1955 and was declared non-commercial in the Mesaverde and was plugged back to the Pictured Cliffs at that time. So that we are progressing and taking in an area from -- as shown on the Exhibit One-A, from the pool boundary to a place where the Mesaverde probably or possibly would not produce. So that we would include all of the relative area along that portion of the reservoir.

Q. In your opinion, then, has there been a sufficient number of wells drilled to test the Mesaverde formation within the township from which you then can reach

a conclusion that the boundaries of the township constitute a reasonable basis on which to include that area as a tight sand area?

A. Yes. Enough wells have been drilled to show that the wells are of very low productivity, if any, around the eastern and southern boundaries.

Q. Let's turn to Exhibit Three, Mr. Kendrick, and have you tell me what this is.

A. Exhibit Three is a cross section showing the Mesaverde, as identified in the Blanco -- excuse me, as the general Mesaverde geologic area of the Cliffhouse, Menefee, and Point Lookout formations. I cannot define to you the bentonite shale marker referred to the in the order of definition. It is above what's shown on the cross section here, so that all of the area shown here is still classified as Mesaverde, but this shows the Cliffhouse, Menefee, and Point Lookout intervals that are known to be productive in the Mesaverde formation, as would be productive in this area, and the area colored in yellow are the reservoirs within the Point Lookout for wells that have been completed in this area. The index map shows wells in Sections 6, 8, 16, and 34 being trace line from northwest to southeast across the bulk of the township, to show that the Mesaverde formation does exist across the township from northwest to southeast.

Q. You've used the top -- I'm sorry, you've used the Point Lookout as a geological marker across the township to show the continuity of the formation?

Is that the purpose of the cross section?

A. Yes. And the areas colored in yellow would be considered the productive areas within the wells identified here.

Q. And in your opinion does the cross section evidence a continuity of this formation across the township?

A. Yes, sir.

MR. NUTTER: While we're on this exhibit Mr. Kendrick, this far right well, the Schalk 43-2, I believe that that's the same well that's on your Exhibit Two, which is shown to be plugged back to the Chacra. You didn't mention it awhile ago as being one of the dry holes in the Mesaverde. You mentioned two others, but was it a dry hole?

A. That's true, it was not a dry hole, but it had a non-economic production rate at this time.

MR. NUTTER: Okay, now I made a note on my exhibit that the Getty Well in Section 30 was non-commercial in the Mesaverde. Can I make the same statement regarding this Schalk 43-2?

A. Yes, it's non-commerical at the time of

drilling.

Also, in that regard, on Exhibit Two, the third well from the bottom, the D-35 W. M. Galloway, was drilled to the Dakota and had connection to the pipeline and produced for a short period of time as a Mesaverde well, and it's been plugged back to the Chacra at this time for testing the Chacra formation, but it did have a short time as a producer as a Mesaverde well, so at the southeast corner of the township there is possible production but at this time it's not economic.

Q. I'm going to direct your attention to Exhibit Three-A, which is the type log, Mr. Kendrick. Would you identify what that well is, which one is it?

A. The Exhibit Three-A, I only had one copy of the neutron density log to submit. It's on what we refer to as the type well in this case. It's the John E. Schalk No. 3 Well, located in the southeast quarter of Section 6. It is the left-most well on Exhibit Number Three.

Q. What is the average depth of the Point Lookout through this area, Mr. Kendrick?

A. The average depth to the top of the Point Lookout is 5895 feet for those wells shown on Exhibit Three.

Q. What is the gross thickness of the pay?

A. The gross thickness averages 154 feet.

Q. And would you describe generally the geological description of the Mesaverde formation?

A. The Cliffhouse formation is composed of a usually classed massive sandstone with some sand and shale stringers immediately above it.

The Menefee in the center is a deltaic type of deposit, which is generally shaley with sandstone lenses and some coal beds.

The Point Lookout is identified geologically as a massive sandstone with some thin sands below the massive sandstone, and the top of the Point Lookout is identified as being the top of the next massive sand after the lower Menefee coal. So that there are two massive sandstones that generally occur with thin sand beds above, between, and below them.

Q. What is the average pay porosity in the area?

A. In percentage of porosity or feet or --

Q. In percentage.

A. The pay would have to be 10 percent porosity or better, and the maximum porosity that I find in these wells is slightly over 12 -- I mean, excuse me, in the type well, the Schalk Gulf No. 3, the maximum porosity is about 10-1/2 percent -- excuse me, 12-1/2 percent.

Q. All right, sir, let's turn to Exhibit Number Four and have you identify that.

A. Exhibit Number Four is a short recap of the drilling and completion cycle as a demonstration of the procedure utilized at the time the well was drilled. The hole reached total depth and the production casing was cemented in place on June the 4th, 1980, and remained cemented without perforations or disturbance until August the 7th, 1980, which gave it some 65 days. In the element of conservation --

Q. What's the significance of having the well stabilized for the 65 days?

A. There's several factors involved, one being the hope to utilize a completion unit for completing several wells at the same time, and secondly, the anticipated procedure for testing was to let the reservoir stabilize from any disturbance that might have occurred during drilling operations before the pre-treatment test was applied.

At the time of perforation the well was perforated and a string of tubing was run with a packer and the bottom hole valve in that packer so that the packer was set five feet above the perforations and the tubing was dry. So that immediately upon opening the casing without measuring a shut-in pressure, we proceeded into the pre-treatment test with the stabilized reservoir conditions available imme-

diately outside the perforations because we had let it stabilize for 63 days.

That's the total significance of this, is to get the schedule down to understand how we got into the testing procedure and that the reservoir conditions should be stable outside the wellbore.

Q. All right, let's go to your testing procedure, then. Would you identify Exhibit Number Five for us?

A. Exhibit Number Five is a replacement for the exhibit that was submitted earlier because I asked Mr. Evans, who conducted the test, if he had a factor for his test choke and he gave me a factor but I failed to ask him from what source he had that, so I used the factor that he gave me for the choke and a different factor for the gravity factor, which gave me an erroneous calculation, I believe, of 18 Mcf per day as the pre-treatment rate, when in reality, using the corrected series of factors it turned up being 21 Mcf per day. The effect was not great but we'd like to get the correct information a matter of record.

Q. 21 Mcf a day is the maximum stabilized unstimulated production rate for this well? Completed for production from the Mesaverde at this depth?

A. Yes, sir.

Q. All right, in your opinion is that going

to be typical of the unstipulated pre-treatment for other Mesaverde wells at this depth?

A. It appears to be average for the wells that we have completed at this time in this immediate area.

Q. All right, let's go to Exhibit Six is a series of four meter charts showing the recorded pressures at the time that the test was started, would be at 6:00 p. m. on Friday, near the bottom of the copy, and since we had the 2000 pound pressure recorder on the location, all of the test period recorded at zero pounds, and then on the first page you see the pressure build-up begin and I'll have to say into the record that these are 24-hour charts and not 7-day charts so the charts are identified so there is a confusion of time, but each of these charts was a 24-hour chart, and merely indicates the recorded pressure build-up, which we will identify a little later on other exhibits.

MR. NUTTER: These are 24-hour tests plotted on 7-day charts, is that it?

A. That's right.

MR. NUTTER: Okay.

A. The only chart blanks that were available were 7-day -- or, yeah, 7-day charts but we used them on a 24-hour clock.

Q. Were any liquids produced from this well

prior to treatment?

A. No, sir.

Q. For the Mesaverde wells in this area, Mr. Kendrick, what in your opinion is the maximum daily rate of crude oil production prior to stimulation in these wells? Is it more or less than 5 barrels a day?

A. No, it would be less than one barrel per day. It's considerably less than 5 barrels per day, minimum range as required by the NGPA.

Q. Let's look at Exhibit Number Seven and have you identify that for us.

A. Exhibit Number Seven is a plot of the drawdown curve obtained during the testing to show we did have a usual position of a drawdown curve;the first fifteen minute reading was 19 pounds and the last three readings were at 4 pounds.

Q. What's the purpose of this exhibit?

A. Just to show that we did have normal drawdown conditions during the testing procedure for the 3-hour test that we did on the well.

Q. And Exhibit Eight?

A. Exhibit Eight is a pressure versus time build-up, showing the pressure build-up from the time of the end of the test for the remaining part of four days. It shows

that even though we produced a very small volume of gas, that we did not obtain a large percent of the pressure rejuvenated until after the well had built up for approximately 36 hours, or one and a half days to get back to approximately 1200 pounds.

The gross volume produced during the test was 3542 cubic feet, and by calculating a diameter of drainage this would only be four feet in diameter at each of the 24 perforations, so that we did not void much reservoir, but it still took a substantial time to rebuild the pressure.

Q. All right, sir, Exhibit Number Nine.

A. Exhibit Number Nine is the usual pressure versus time plus delta T over delta T plot obtained for pressure build-up after a production period to determine the maximum pressure.

Unfortunately, at the time a year ago when this was a brand new procedure in pre-treatment testing, we only tested this well for three hours and our pressure build-up curve remains essentially vertical and we did not have the Horner straight line type chart to build up to the maximum pressure, but this is -- was the intent of our test. We just did not produce it for sufficient time to accomplish that end.

Q. Exhibit Ten.

A. Exhibit Ten is a list of the perforated

intervals, where one shot per foot was perforated at each of those positions within the wellbore.

Q. Exhibit Eleven?

A. Exhibit Eleven is the permeability calculations to apply back to the order which sets out a maximum for the Section 107 classification. The Horner -- or the reservoir permeability formally shown at the top of the page with each of the unknown factors identified to substitute into that. Down in the middle of the page we come to an M, which is slope of the line characteristics and I applied that to this Exhibit Number Nine factor based on the last 24 hours of production under Horner's equation that M equals the difference in pressures divided by the difference in the logs of T plus delta T over delta T, and M factor wound up to be 6267. In a normal plot like this I would anticipate that number to be somewhere under 100, but with this calculation we wind up with a permeability of .000156.

Q. In your opinion can the average in situ gas permeability throughout the pay section be expected to be 0.1 millidarcies or less?

A. Yes.

Q. Was the method you used to establish and demonstrate the permeability a customary and accepted method acceptable to the oil and gas industry?

A. Yes, sir.

Q. All right, sir, if you'll identify Exhibit Twelve for us.

A. Exhibit Number Twelve is a, identified as the remarks regarding fresh water, wherein I have stated that the present Federal and State regulations allow the use of any aquifer for either domestic or agricultural purposes without any impairment caused by the petroleum industry. The casing and cementing programs currently require the oil, gas, and water to be confined to the formation in which it is found, thus preventing waste or contamination.

Temperature and/or cement bond logs can be run to indicate the position of the cement sheath outside the casing to prove that adequate protection exists prior to fracture treatment or other types of well stimulation.

Q. In your opinion will fresh water sources and aquifers not be impaired by wells stimulated in this area?

A. In my opinion the fresh waters will not be affected by the petroleum industry's drilling and completion techniques.

Q. All right, let's turn to Exhibit Number Thirteen and have you identify this.

A. Exhibit Number Thirteen is an actual

cost statement or identity showing the costs broken down into the different types of costs necessary to drill and complete this well ready for production from spud to wellhead installation. This does not include separators or tanks or anything outside the wellhead conditions at the location.

It shows a maximum, or the total cost of drilling and completing the well at wellhead conditions as $218,413.91. I consider this a very conservative cost for a well of this depth. The completion treatment or stimulation of fracturing was a very conservative number because this well is one mile off the pavement and apparently was on a dry day because the costs are very minimal.

Q. In your opinion is the 107 price incentive necessary to provide an incentive for the additional drilling of Mesaverde wells in the area?

A. Yes, sir.

Q. Would you generally describe for us the type and extent of enhanced production techniques which are expected to be necessary?

Is this fracture treatment you've identified a typical way to stimulate these wells?

A. Yes, sir, fracture treating is essential in the area, proven to be the most economical and effective way to obtain the product from underground.

Q. You indicated this $25,000 figure as a minimum amount necessary in order to use this stimulation technique.

A. I think that in this location, this remote from the service center, that this is a very minimal number, cost for this operation.

Q. Do you have an opinion, Mr. Kendrick, as to the increase in production from the use of such techniques?

A. The increase in productivity of the well in Section 6 was from 21 Mcf to more than 2100 Mcf by the stimulation by fracture treating.

Q. Per day.

A. Yes, as an open flow test similar to this one that produced to atmosphere, the initial potential test on the well was in excess of 2100 Mcf per day after treatment.

Q. Has the Mesaverde formation in this township been authorized for development under an infill program, Mr. Kendrick?

A. Only that within the Blanco-Mesaverde Pool. That more than a mile from the pool would be classed as wildcat wells under the existing pool rules, and therefor spaced on 160-acre spacing, which would not be classed as infill well, even though it be drilled in the same pattern.

Q. For those wells, then, within the Blanco-

Mesaverde Pool there within this township, are you asking the tight sand designation for those infill locations?

A. For all those that qualify, yes, sir.

Q. In your opinion will granting of this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

Q. Mr. Kendrick, I have been submitted a list of questions to ask you by the USGS. Some of them we have discussed already, but we'll take them in order so that you'll have an opportunity to comment on them.

The first question is can you submit evidence to show that the stabilized production rate of wells completed in the formation without stimulation is not expected to exceed 163 Mcf a day?

Now that was the calculation, was it not in Exhibit Number Eleven --

A. Calculation on our exhibit --

Q. Exhibit Number Eleven for this Schalk well?

A. No, it would be our potential, our pre-treatment test, Exhibit Number Five showed that this well did not produce in excess of that.

Q. My follow-up question to that question

is whether or not that will be typical for Mesaverde wells completed in this area for this township.

A. In my opinion it will be typical but I have no way to submit evidence to that effect because none of the other wells had pre-treatment tests, as far as we know.

Q. You've made a study of the other wells and you have not found pre-treatment tests?

A. I've found no evidence of pre-treatment tests.

Q. All right, why is that? Is that typical of the way these wells are completed?

A. The time involved would be very expensive to run a test when the operator knows in advance that he is going to fracture treat the well, and some of the wells were drilled prior to the time that the incentive rule was made available, so that there was no reason to spend the time to take the test that was of absolutely no value to the operator at that time.

Q. So the record is clear on this point, Mr. Kendrick, it is not a customary practice of the oil and gas industry to run the pre-treatment tests for these types of wells prior to the 107 incentive?

A. That is correct.

Q. The second question is can you submit

evidence to show that the estimated average in situ permeability throughout the pay section is expected to be 0.1 millidarcy or less?

Now that is Exhibit Eleven.

A. Yes, sir.

Q. All right. Question three is what is the basis for the boundaries of the proposed tight sand gas area designation? I believe we covered that point earlier when I asked you about the well locations and whether or not you felt they adequately developed and tested the Mesaverde so as to define the section as being logical for inclusion in an enhanced --

A. We -- with the acreage that we covered, we covered all the acreage in which we have an interest plus a bunch of additional acreage, and there has to be a quitting place somewhere.

MR. NUTTER: So you rounded it off in a square.

A. Yes, sir, rounded it off in a square.

Q. The third question asks, could you provide the following information: A, structure and Isopachous insert map of the formation for the tight gas application area? Does structure play any significance in the production from the Mesaverde in this township?

A. No, sir. Structure is not a relevant consideration. Structure is not a relevant consideration for Mesaverde production in the San Juan Basin, so far as the gas producing characteristics of the Blanco-Mesaverde Pool is concerned. The concern there is stratigraphic trap, and not the structure.

Q. In your opinion would it be necessary to include an Isopachous map of the formation for this township?

A. I see no benefit for it. My Isopach map would be different from anyone else who drew an Isopach map, and they have failed to ask or identify any limits that they would show there, and I'm not sure that there is sufficient porosity logs to identify the porosity that they want shown.

Q. Four-B says geological report containing geographical descriptions of the formation, including specific mention of the formation locations and development, block texture, porosity, homogenity, pore volume, saturation thickness, depth, area limits, and faults or other barriers.

Now we've introduced the cross section. We've got a type log. Is there anything included within that request that you would want to supplement that has not been presented so far today?

A. I think an examination of the gamma ray neutron density log would show them that the sands are not homogenous, or the reservoir is not homogenous and that if they would examine the list of perforations, they'll find that the 24 perforations are scattered from 6001 feet to 6209 feet, which indicates that there is wide diversification in the type and quality of the formation in the wellbore.

Q. Question --

A. We could not have an ideal reservoir in this area.

Q. Question Five, is the application asking for a tight formation designation for infill locations?

We covered that earlier.

A. We covered that earlier, but we would like to cover all of the infill locations that are available under the time sequence from the writing of the order.

Q. Question Six refers to the Exhibit Number Two, which is the tabulation of your wells.

A. All right.

Q. The question is Exhibit Two indicates that two Mesaverde wells were completed in 1980 and two Mesaverde wells were completed in 1981. Is it no longer economical to drill wells such as these which were drilled in 1980-81 under the 103 price?

A. I would say it is no longer economical to drill the wells in this township under the 103 price as an average for all the wells in the township. I have testified that there's a noneconomic well in Section 13; there's a noneconomic well in Section 30; there's a noneconomic well in Section 34, which pretty well sets out about half the township which has noneconomic wells at the time they were drilled. One of those was in 1980. I believe it was completed as a noneconomic well and has now been plugged back to the Chacra.

So that in my opinion more than half the township would be noneconomic under Section 103.

Q. The second portion of that question is, is the 107 price necessary to have an economical well that would be similar in production potential as those drilled in 1980-81?

A. Yes, and for the same reasons that I answered the first part of this question.

MR. KELLAHIN: That concludes my examination of Mr. Kendrick, Mr. Nutter. We move the introduction of Exhibits One through Thirteen.

MR. NUTTER: Exhibits One through Thirteen will be admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Now, Mr. Kendrick, to sum this all up, you stated that -- are we talking about the Mesaverde formation primarily, or the Point Lookout?

A. Well, I think we ought to identify it as Mesaverde, because -- there are some positions on the type log that are in Section 6 based on that one log.

Q. When you gave us the average depth to the Point Lookout as being 5895, what's the average depth to the top of the Mesaverde, then?

A. Well, it's identified on this order. I didn't have the logs to have the shale marker to identify.

Q. I mean in this township,we don't know the average depth in this township, then.

A. I don't have it. I will go to the Commission office and obtain the logs and find that shale marker and identify it. I don't -- I didn't have sufficient logs to -- to give you that today.

If you'd like that, I'll supply that within the week.

Q. Yeah, well, in our findings on these things we have to say what the average depth to the top of the formation we're talking about is.

A. Okay, right.

Q. And then make a comparison with the average, with the average well's productivity in this, and determine whether it falls within that guideline that the FERC has set up.

So this question that the GS submitted mentions would the average well in here without stimulation exceed 163 Mcf. That's for some depth bracket. I don't know right offhand which one that is.

A. 6000 to 6500, I believe, because that's where our top perforation is.

MR. KELLAHIN: It's 5000 to 5500.

MR. NUTTER: 5000 to 5500, okay, that Bentonite Shale is up there somewhere, then.

A. Yes, it probably is.

MR. KELLAHIN: What we did is, we took the shallowest depth which gives us a correspondingly smaller maximum Mcf per day, so we made the rule harder on us, and yet on his type well he only shows unstimulated production of 21 Mcf.

MR. NUTTER: Well, I realize that.

A. See, on one of the wells on Exhibit Three, on the cross section, there would be some shallower than this type well, possibly.

Q. Right. Okay, so we're going to find out what the top of the Mesaverde formation is in this area.

Now, there are three criteria that we have to meet for sure, and that's in situ permeability. You gave me a figure on that. Potential, you gave me a figure on that, 5 barrels of oil, you gave me a figure on that.

A. Right.

Q. Now the next one, in an area that's been approved for infill drilling. Now is this -- is there any reason to believe that the Mesaverde formation in this given area is not part of the Blanco-Mesaverde Pool?

A. We have no reason to show that it's separated. Exhibit Three shows that the formation is continuous and quite likely the pool would be extended throughout part of this township that is commercial.

Q. A number of these wells have been drilled in recent years, '78 or '79, '80, and '81, and a number of the wells on Exhibit Number Two show they are not completed. I don't know if the drilling permits were issued ten years ago and they haven't been completed or if the drilling permits were issued last month and they haven't been completed. But there's a lot of new development in here, apparently, so there would be a reasonable reason to believe that the Blanco-Mesaverde Pool would be extended into this area.

A. We have no reason to doubt that the --

Q. Right.

A. -- pool will extend.

Q. Okay, so then it would be an area that would be covered by an infill drilling order.

A. At the time --

Q. And then we have to meet the fourth criteria of the FERC as to whether the infill drilling -- or if -- whether the incentive price is necessary in an area that has been approved by a jurisdictional agency for infill drilling.

A. Right.

Q. So what have we got to establish that we need the incentive price to justify the drilling of the wells? This one well produced 21 Mcf prior to stimulation; after stimulation it produced 2100 Mcf per day, but I don't know if that was the only day it will ever produce or if it's going to produce 2-billion cubic feet. Do you have anything on reserves for the average well?

A. I don't not have a reserve calculation. I can tell you that this well did produce -- it first delivered during June, and the No. 3 Well produced 4609 Mcf during June of 1981. That's the only month that we have production values.

Q. How many days was it on theline?

A. I do not know.

Q. That would be about 150 Mcf a day if it was on the whole month.

Now, can we find --

A. I do -- excuse me, I do have production figures for some other wells, which have produced for a longer period of time, if that would be of benefit.

Q. How much have they produced?

A. Of the --

Q. And what period of time? Are they wells that are on Exhibit Two?

A. On Exhibit Three.

Q. Or are they --

A. On Exhibit Two and on Exhibit Three.

Q. Well, I think the Exhibit Two would be more appropriate because it shows the completion date and first delivery date, so I can follow them on there.

What, okay, what wells?

A. M-16, Schalk 41 No. 1.

Q. Okay, it's first delivery was 8-10-80.

A. Right.

Q. What's its cum?

A. Cum at the end of '80 was 135783 and 1226 barrels of condensate.

Q. Okay.

A. In M-8, Schalk 41 No. 2.

Q. Okay.

A. Cumulative as of 12-31-80, 160710 Mcf, 1052 barrels.

Q. Okay.

A. E-8, Schalk 41 No. 2-A.

Q. Okay.

A. Cum as of 12-31-80 was 74,868 Mcf and 39 barrels of condensate.

Q. Okay.

A. P-16, Schalk 41 No. 3.

Q. Uh-huh.

A. Cum as of 12-31-80 was 20,130 Mcf and 488 barrels.

Q. And those are the only ones you have cums on?

A. Yes, sir. Excuse me, I can give you a cum for the -- the Delaware Well down in Section 35, being D-35, Myers No. 1.

Q. Yeah, that's the one that was plugged back to the Chacra.

A. No, I'm sorry, my list quits in Section 30, so I don't have Section 35. I thought I had the whole

township.

Q. You don't happen to have these old Getty wells that were connected back in '74 there, do you?

A. Well --

Q. O-18 and A-19?

A. Let's see, what do I have -- O of 18, C. W. Roberts No. 3 during 1980 produced 56,260 Mcf and no oil.

Q. That was its cum or that was the annual --

A. That's annual production.

Q. Read that number again.

A. 56,260. The cum as of 12-31-80 was 414,675 Mcf and 3,728 barrels.

Q. 3,000 --

A. 728.

Q. Okay.

A. And which other one?

Q. The A-19, the Lydia Rentz No. 4.

A. Lydia Rentz No. 4 showed a 1980 annual production of 54,517 Mcf, 542 barrels; a cum of 466,455 and 4,675 barrels.

Q. That was -- those are cums. All these cums you gave me were cums through 12-31-81, right?

A. 12 --

Q. 12-31-80.

A. 12-31-80, from the Oil Commission records.

I might point out that Getty also has wells authorized for instance, the M-17 C. W. Roberts No. 4 Well is completed in the Ojito Gallup-Dakota and they have secured approval for downhole commingling with the Mesaverde, and that order is more than two years old, but they have not elected to perforate the Mesaverde and complete that in that area.

Q. That's why is shows not completed --

A. That's right.

Q. -- here.

A. It's not completed yet in the Mesaverde.

Q. So it's never been completed in the Mesaverde.

A. That's true, but their downhole commingling order has been approved for more than two years.

Q Okay. Well now, I don't think the answer has been sufficient to question six on the GS questionaire, and I think I will ask you, Mr. Kendrick, to give us further evidence to support your answer to question number six, both parts of it, the first question and also the second question, plus the data to support your responses.

We would need to know evidence of reserves,

cost of operation, all the economics involved here, as to why this incentive price is necessary.

MR. KELLAHIN: May we leave the record open in this matter to submit that additional information?

MR. NUTTER: And with your permission, Mr. Kellahin, I'd like to have the opportunity to make reference to the official Commission records on these potentials and cumulative production from the wells in the area.

MR. KELLAHIN: If you please.

MR. NUTTER: Are there any further questions of Mr. Kendrick? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7327?

We'll take the case under advisement.

We'll reopen this case, we've got a telegram from Beartooth Oil and Gas Company supporting the application of Schalk in this case.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said Transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7327, heard by me on 8/12 19 81.

, Examiner
Oil Conservation Division

RECAP OF DRILLING AND COMPLETION

John E. Schalk
Schalk-Gulf #3

The production casing was cemented in place on June 4, 1980.

The casing was not perforated until August 7, 1980.

This let the reservoir stabilize for 63 days before the well was perforated.

When the well was perforated, the tubing was run with a packer to set above the perforations to keep the drilling fluid off the perforations. The well was then tested through the tubing.

The shut-in pressure was not measured at that time; because, the pressure would not have been stable after filling the casing.

The 7-day shut-in pressure was measured on August 26, 1980 as follows: SICP 1330 psig and the SITP 1320 psig.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 4
CASE NO. 1327

ENERGY AND MINERALS DEPARTMENT — P. O. BOX 2088 SANTA FE, NEW MEXICO 87501 — Revised 10-1-78

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test			Test Date	
☐ Initial	☐ Annual	☒ Special	8/8/80	

Company	Connection		
John E. Schalk			
Pool	**Formation**		**Unit**
Blanco	Mesaverde		

Completion Date	Total Depth	Plug Back TD	Elevation	Farm or Lease Name
8/12/80	6300		7361	Schalk-Gulf

Csg. Size	Wt.	d	Set At	Perforations:	Well No.
4.500	10.50	4.052	6298	From 6001 To 6209	3
Tbg. Size	**Wt.**	**d**	**Set At**	**Perforations:**	**Unit Sec. Twp. Rge.**
2.375	4.70	1.995	5976	From open ended To	O-6-25N-3W

Type Well – Single – Bradenhead – G.C. or G.O. Multiple	Packer Set At	County
Single	5976	Rio Arriba

Producing Thru	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press. – P_a	State
Tubing				New Mexico

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
		est. .650						

	FLOW DATA					TUBING DATA		CASING DATA		
NO.	Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI										
1.	2"	.250	4		86	4	86	Packer		3 Hrs.
2.										
3.										
4.										
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q-Mcfd
1	1.4030		16	.9759	.9608	1.0000	21
2.							
3.							
4.							
5.							

may stabilized non-stimulated production rate

NO.	P_t	Temp. °R	T_r	Z
1.				
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____

well is capable of producing 2100 MCF/day

P_c _____ P_c^2 _____

NO	P_t	P_w	P_w^2	$P_c^2 - P_w^2$
1				
2				
3				
4				
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2}$ = _____ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]$ = _____

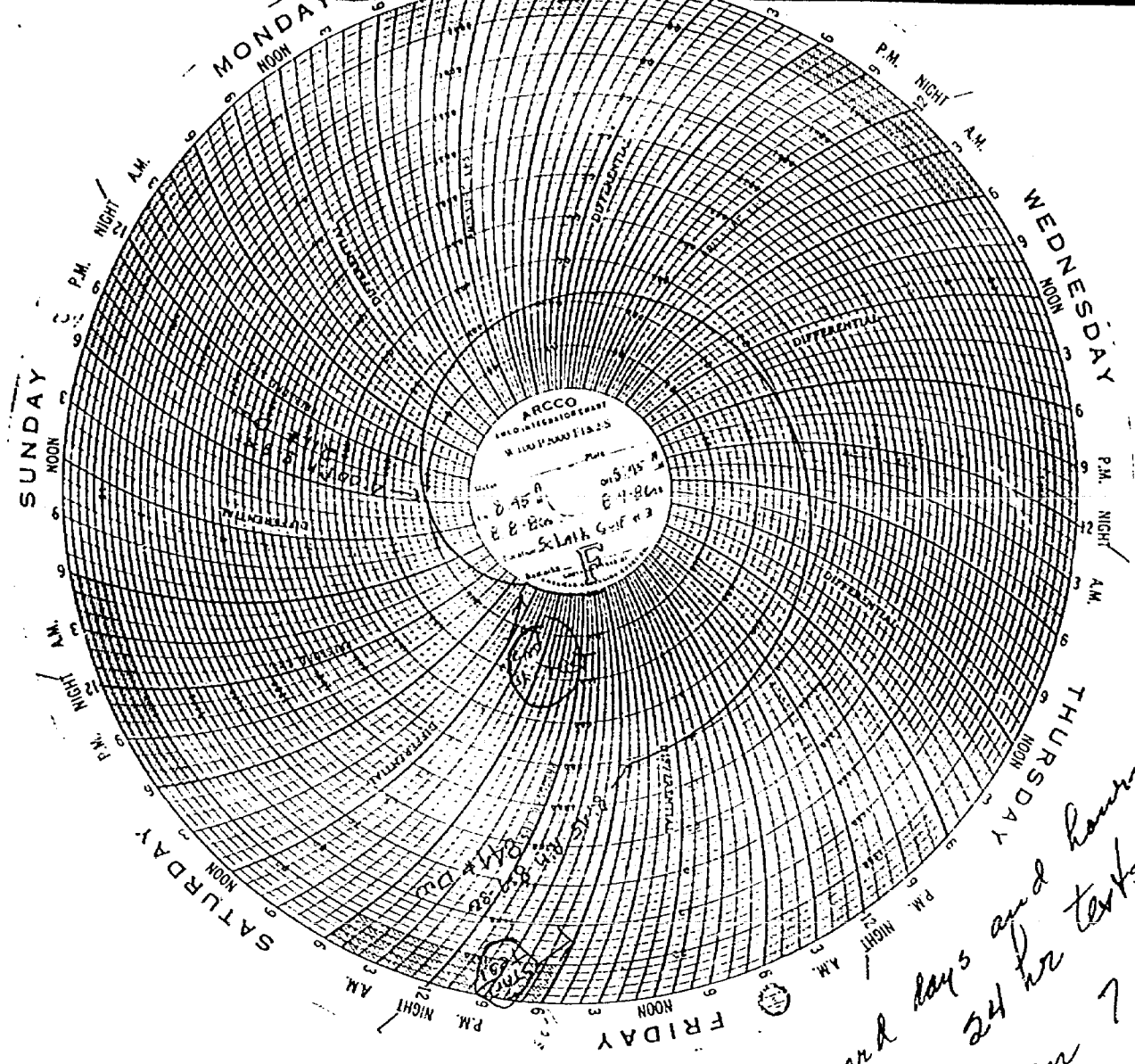
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]$ _____

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 5
CASE NO. 7327

Absolute Open Flow _____ Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n _____

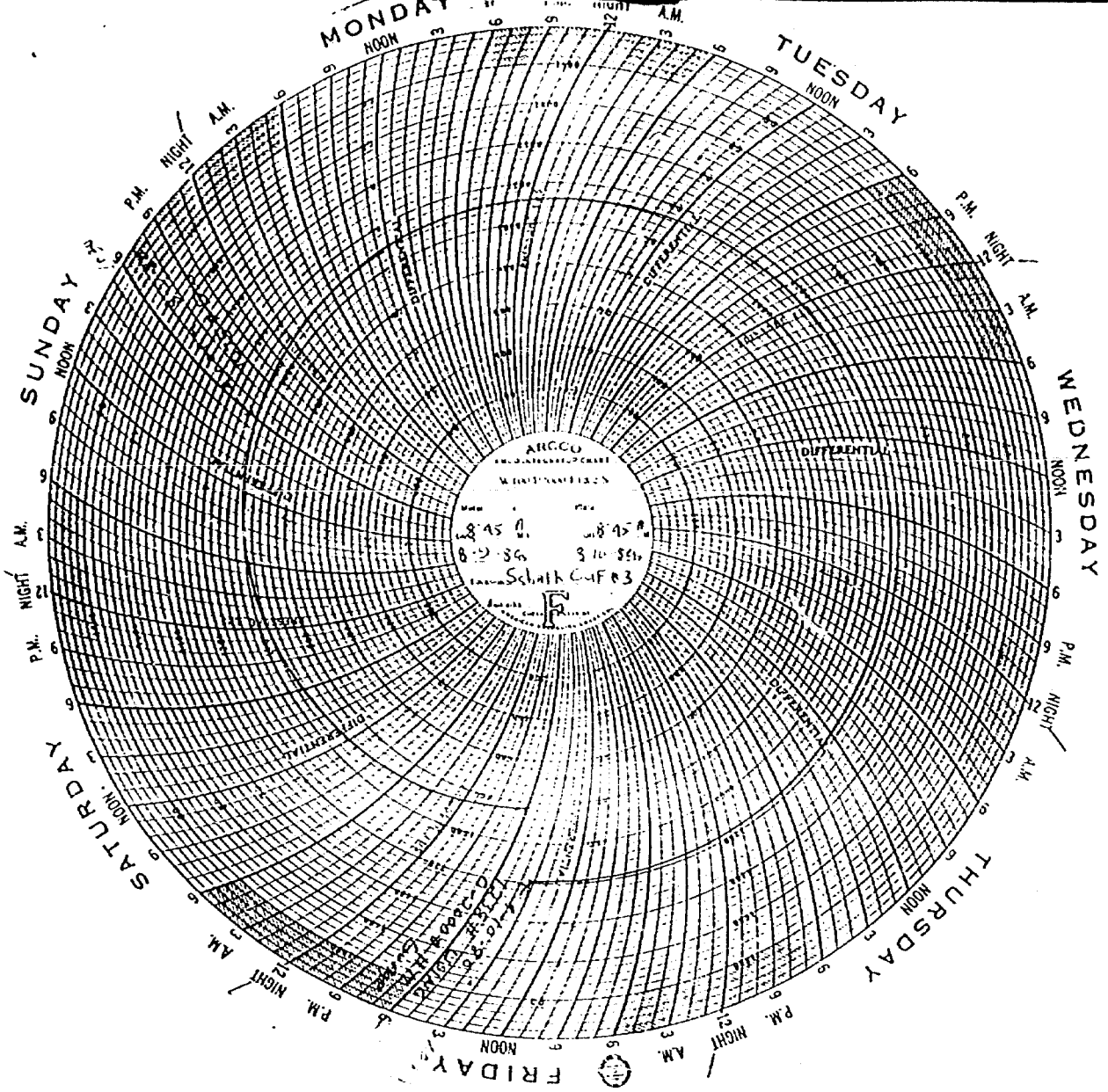
Remarks: _____

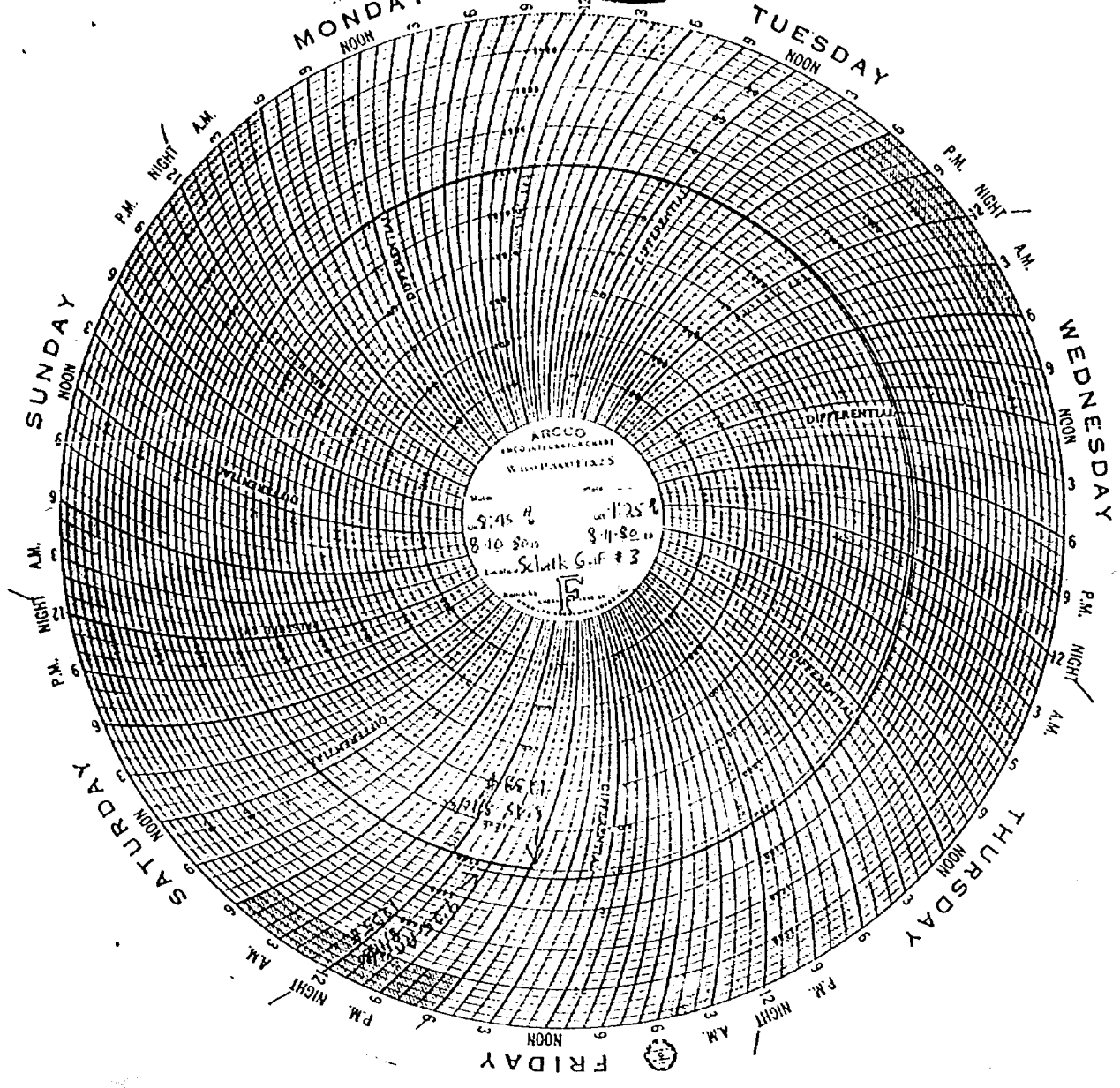
Approved By Division	Conducted By:	Calculated By:	Checked By:
	Jack Evans	A. R. Kendrick	

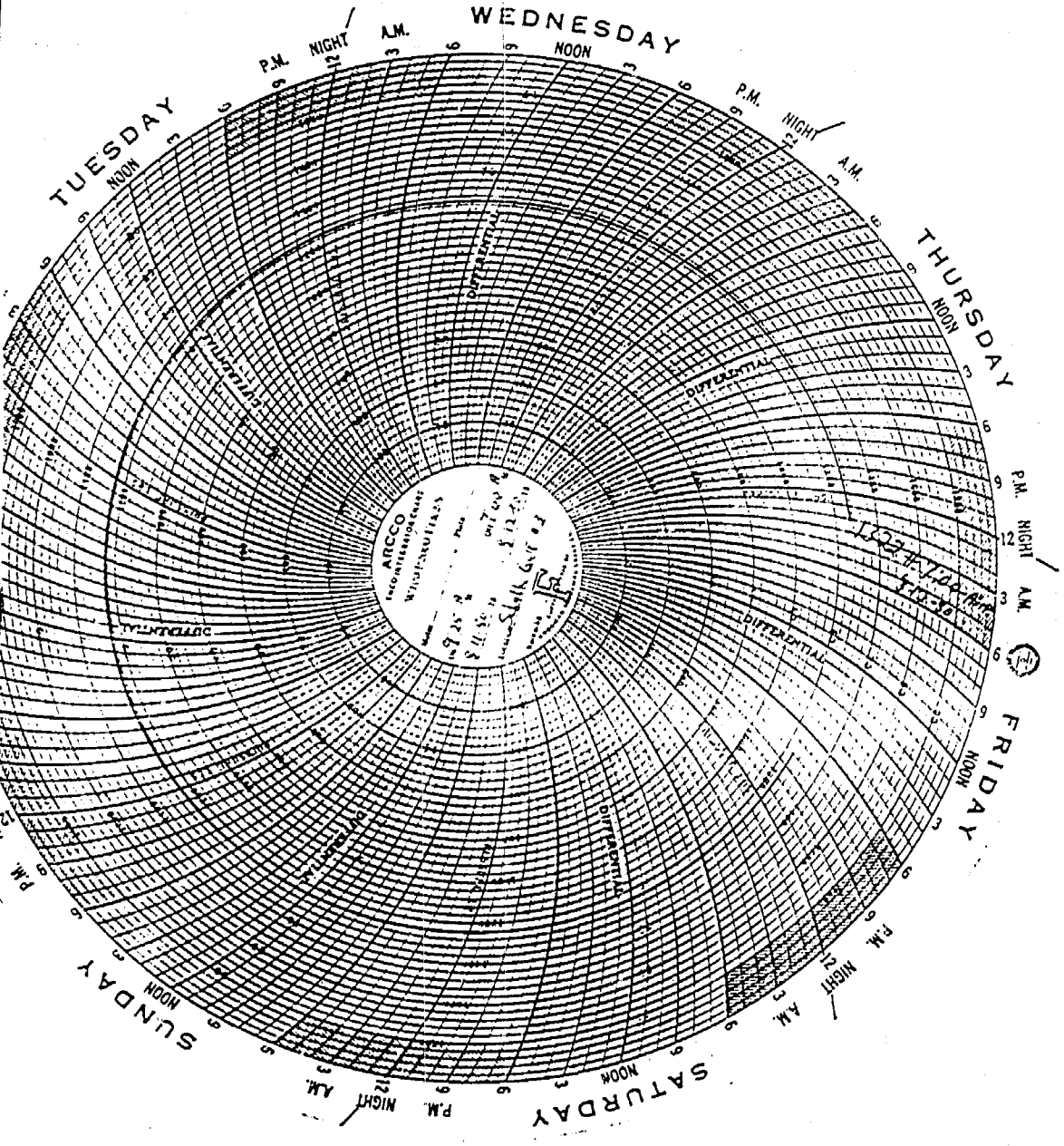


disregard days and hours.
(these are 24 hr tests
plotted on 7 day charts)

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 6
CASE NO. 7329

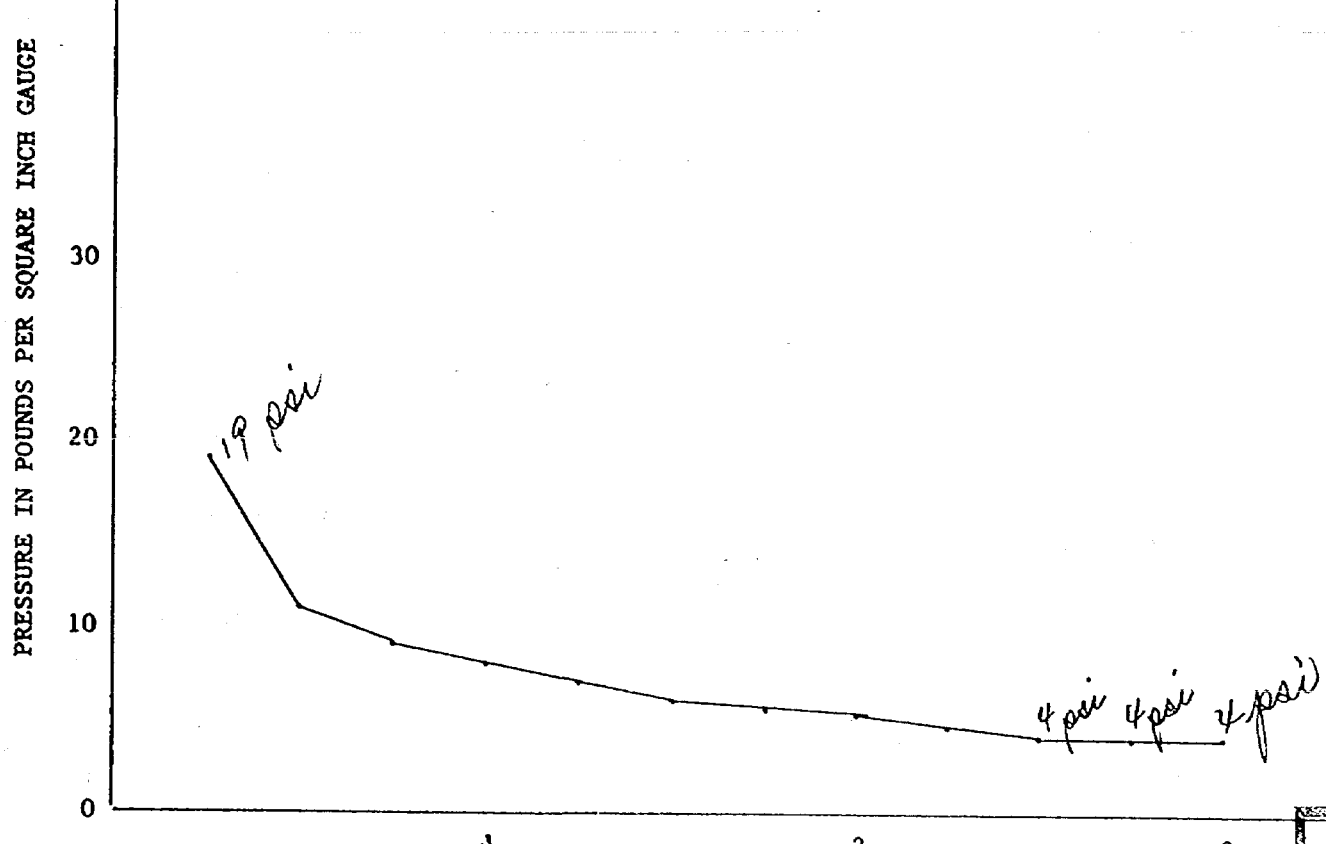

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
NOON
P.M.
NIGHT
A.M.
DIFFERENTIAL
ARGCO
Schalk Chf 83


MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
NOON
P.M.
NIGHT
A.M.
DIFFERENTIAL
ARCO
Sklatk Gulf #3


WEDNESDAY
TUESDAY
THURSDAY
FRIDAY
SUNDAY
SATURDAY
NOON
P.M.
NIGHT
A.M.
DIFFERENTIAL
ARCO

DRAWDOWN DURING PRE-TREATMENT TEST

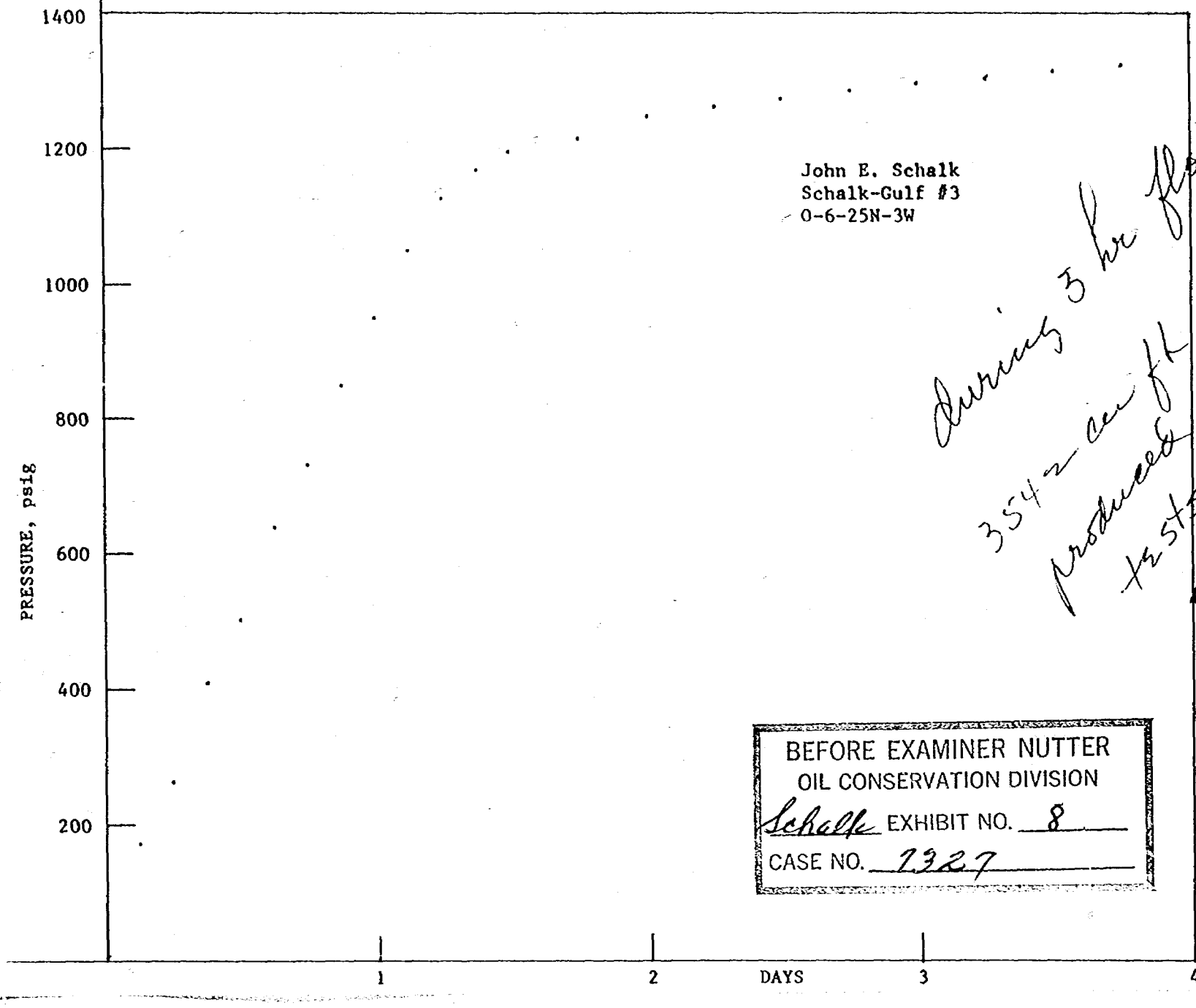
John E. Schalk
Schalk-Gulf #3
O-6-25N-3W



BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 7
CASE NO. 7327

SHUT-IN PRESSURE

AFTER PRE-TREATMENT TEST



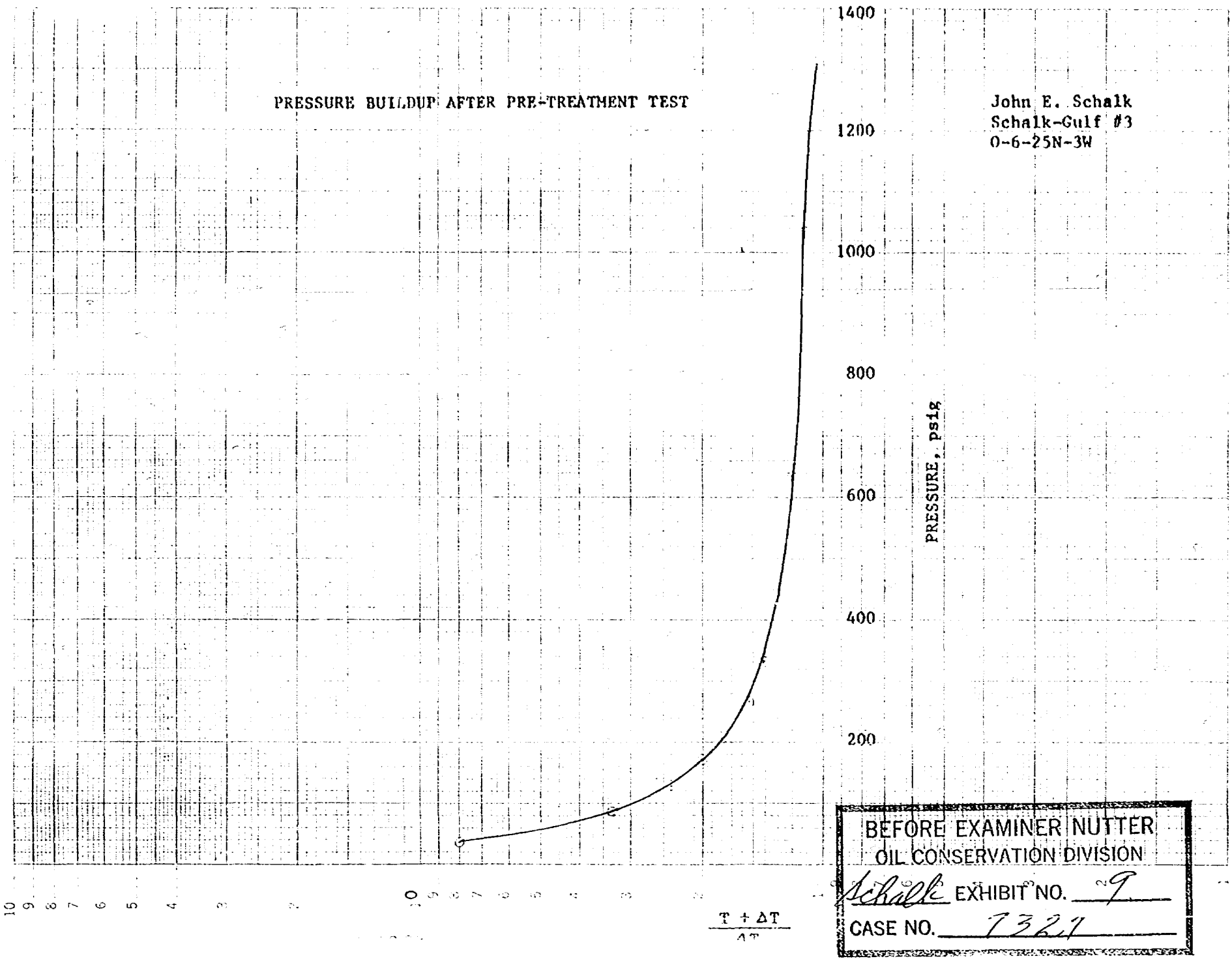
John E. Schalk
Schalk-Gulf #3
O-6-25N-3W

During 3 hr flow
354 MCF
produced
tests (calcs 4 ft
drainage for
each pay

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 8
CASE NO. 7327

PRESSURE BUILDUP AFTER PRE-TREATMENT TEST

John E. Schalk
Schalk-Gulf #3
O-6-25N-3W



BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 9
CASE NO. 7321

JOHN E. SCHALK
P. O. BOX 25825
ALBUQUERQUE, NEW MEXICO 87125

AREA CODE 505
TELEPHONE 247-2294

SUPPLEMENT TO PROPOSED COMPLETION OF THE SCHALK-GULF #3

Actual Perforations:

6001, 6002, 6003, 6007, 6008, 6013, 6014, 6039
6040, 6041, 6048, 6049, 6050, 6051, 6052, 6053
6054, 6068, 6070, 6109, 6111, 6112, 6207, 6209

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 10
CASE NO. 7327

PERMEABILITY CALCULATIONS

$$K = \frac{162.6}{m} \quad \frac{q\ y\ B}{h}$$

$q = 3543 / 5.615 = 631$

$y = .011$ (Katz)

$$B = \frac{Z\ T\ Psc}{Tsc\ \frac{P^* - Pwf}{2}}$$

$$= (.90)\ \left(\frac{546}{526}\right)\ \left(\frac{14.65}{\frac{1330 - 4}{2}}\right)$$

$= (.90)\ (1.050)\ (.0220)$

$= .0208$

$h = 24$

$$m = \frac{\text{Difference in pressures}}{\text{Difference in log } \frac{T + \Delta T}{\Delta T}} \qquad \text{(Horner)}$$

$$= \frac{1322 - 1295}{\log 1.0434 - \log 1.0331}$$

$$= \frac{27}{.0043}$$

$= 6267$

$$K = \frac{162.6\ (631)\ (.011)\ (.0208)}{6267\ (24)}$$

$$= .0001561$$

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 11
CASE NO. 7327

REMARKS REGARDING FRESH WATER

1. The present Federal and State regulations allow the use of any aquifer for either domestic or agricultural purposes without any impairment caused by the petroleum industry.

2. The casing and cementing programs currently require the oil, gas, and water to be confined to the formation in which it is found; thus, preventing waste or contamination.

3. Temperature and/or Cement Bond Logs can be run to indicate the position of the cement sheath outside of the casing to prove that adequate protection exists prior to fracture treatment or other types of well stimulation.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 12
CASE NO. 7327

El Paso Natural Gas Company

WELL COST ESTIMATE ☐ **OR FINAL COST** ☐

Form 22-32 (Rev. 2-62)

LEASE NAME: SCHALK-GULF	WELL NO.: 3	FIELD: Blanco
LOCATION: Sec.6, T-25N, R-3W	COUNTY: Rio Arriba	STATE: New Mexico
FORMATION: Mesa Verde	TOTAL DEPTH: 6300	TOTAL DAYS:

	PRODUCING WELL SUB	PRODUCING WELL TOTAL	DRY HOLE
TUBULAR GOODS:			
Surface Casing ____ Ft. ____ Inch ____ $/Ft.	$ 4,142.78		$
Int. Casing ____ Ft. ____ Inch ____ $/Ft.			
Prod. Casing ____ Ft. ____ Inch ____ $/Ft.	22,746.22		
____ ____ Ft. ____ Inch ____ $/Ft.			
____ ____ Ft. ____ Inch ____ $/Ft.			
Tubing ____ Ft. ____ Inch ____ $/Ft.	15,038.40		
____ ____ Ft. ____ Inch ____ $/Ft.		$ 41,927.40	
WELLHEAD EQUIPMENT	11,113.73	11,113.73	
OTHER EQUIPMENT:			
Surface Production Equipment			
Liner Hangers and Production Packers			
Tubing ~~Accessories~~			
DRILLING COSTS:			
Footage ____ Ft. ____ $/Ft.	50,387.61		
Day Work ____ Days ____ $/Day			
Day Work ____ Days ____ $/Day			
Day Work ____ Days ____ $/Day			
Service Unit ____ Days ____ $/Day	9,585.47		
Rig Rental Tools			
Rig Moving Costs		59,973.08	
CEMENTING: (Cement, Pump Trucks and Drayage)			
Surface	4,072.13		
Intermediate			
Production	6,898.34		
Liner			
Liner			
____			
Sq. Jobs		10,970.47	
FORMATION TREATMENT: NO. ____			
Acidizing ____			
Fracturing - Equipment ____	23,022.27		
Fluid ____ Gal. ____			
Fluid Additives ____			
Propping Agent ____ Lbs. ____			
Tank Rental ____	1,763.96	24,786.23	
SPECIAL SERVICES (Surveys and Tests)			
Perforating ____	3,738.88		
Mud Logging ____			
Electric and Radioactive Logging ____	12,243.48		
Drill Stem Tests ____			
Cores ____		15,982.36	
MATERIALS:			
Drilling Mud and Chemicals	29,938.72		
Drilling Gas or Air			
Water	9,591.34		
Bits	1,201.74		
Fuel	5,771.69		
Hauling	4,157.15		
Tubular Inspection			
Miscellaneous		50,660.64	
ACCESS AND LOCATION AND CLEANUP	3,000.00		
SUPERVISION, LEGAL, ETC.		3,000.00	
Total Direct Cost			
Plus ____ % Contingency			
TOTAL COST	$	$218,413.91	$

Does not include Separator or Tanks

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Schalk EXHIBIT NO. 13
CASE NO. 7327

WORKING INTEREST:

El Paso Natural Gas Company ____

Others ____

ESTIMATED COST ONLY – Each Participating Owner to Pay Proportionate Share of Actual Well Cost Subject to Operating Agreement.

DATE	PARTNER'S APPROVAL:
PREPARED BY	DATE
APPROVED BY	BY

United States Department of the Interior
GEOLOGICAL SURVEY
South Central Region
P. O. Box 26124
Albuquerque, New Mexico 87125

RECEIVED
AUG 28 1981
OIL CONSERVATION DIVISION
SANTA FE

August 25, 1981

Mr. W. Thomas Kellahin
P. O. Box 1769
Santa Fe, New Mexico 87501

Dear Mr. Kellahin:

This letter is in response to your request of August 18, 1981 and to request additional information regarding John E. Schalk's application for tight formation, Case No. 7327.

Enclosed is a copy of the questions pertaining to Case No. 7327.

Economic, detailed engineering and geologic data concerning the pool and the entire area involved that can be shown to have an impact on whether or not incentive pricing is required to develop the specific formation in question would be required.

The Federal Energy Regulatory Commission (FERC) has excluded certain infill areas from a recommended formation in order No. 124 (Colorado-1) and Order No. 137-A (Colorado-3). Specific information regarding this subject would have to be obtained from the FERC as it is not available in this office.

Additional information is needed regarding Question No. 1 and No. 2 on the enclosure as indicated below.

Question No. 1: The applicant must provide some base or data to show that the stabilized production rate of wells completed in the Blanco Mesaverde Pool are not expected to exceed 163 MCF/D. This can be shown by submitting test data and/or by any acceptable engineering methods.

Question No. 2: The calculations submitted for the estimated average in situ permeability are not acceptable. According to our references, the calculations submitted are for an oil well. The requirement is for data on gas wells to show that the average in situ permeability for the Blanco Mesaverde Pool is 0.1 millidarcy or less. Data on one well will not justify the whole pool.

Sincerely yours,

(ORIG. SGD.) ALLEN F. BUCKINGHAM

Allen F. Buckingham
Supervisor, Determination Unit

Enclosure

cc: Mr. Daniel Nutter
NMOCD
P. O. Box 2088
Santa Fe, New Mexico 87501

Date of Hearing: August 12, 1981

Case 7327 - Mesaverde Tight Formation Designation
Application of John E. Schalk (Schalk Development Company).

1. Can you submit evidence to show that the stabilized production rate of wells completed in the formation, without stimulation, is not expected to exceed 163 MCF/D?

Ex 5 - 21 MCF/day for well in Section 6.
Kendrick thinks this 21 would be typical

2. Can you submit evidence to show that the estimated average in situ permeability, throughout the pay section, is expected to be 0.1 millidarcy or less?

Ex 11

3. What is the basis for the boundaries of the proposed tight gas sand area designation?

4. Could you provide the following information?

   a. Structure and isopachous insert map of the formation for the tight gas application area.

Kendrick: structure not relevant; does not think isopach would benefit

   b. Geological report containing geographical descriptions of the formation, including specific mention of the formation's location and development, rock texture, porosity, homogeneity, pore volume, saturation, thickness, dip, aerial limit, and faults and other barriers.

5. Is this application asking for a tight formation designation for infill locations?

Kendrick - yes.

6. Exhibit 2 indicates that 2 Mesaverde wells were completed in 1980 and 2 Mesaverde wells were completed in 1981. Is it no longer economical to drill wells such as these which were drilled in 1980-1981 under the 103 price? Is the 107 price necessary to have an economical well that would be similar in production potential as those drilled in 1980-1981? Provide data to support responses.

Kendrick - would say that as an average it is not economic to drill these wells without the incentive price. (more than half the township would not be economic)

DONALD K ROBERTS PRESIDENT BEART
BOX 2564
BILLINGS MT 59103

western union **Mailgram** ® UNITED STATES POSTAL SERVICE U.S.MAIL

4-039244 9222 08/10/81 ICS IPMMT77 CSP ABQD
4062592451 MGM TDMT BILLINGS MT 118 08-10 0223P EST

JOE RAMEY
OIL CONSERVATION DIVN
BOX 2088
SANTA FE NM 87501

RECEIVED
AUG 11 1981
OIL CONSERVATION DIVISION
SANTA FE

DEAR MR RAMEY

BEARTOOTH OIL AND GAS COMPANY IS AN OPERATOR AND WORKING INTEREST OWNER IN GAS WELLS IN T25N R3W RIO ARRIBA COUNTY. WE WISH TO VOICE OUR SUPPORT OF CAUSE #7086 THE APPLICATION FOR TIGHT GAS SAND DESIGNATION FOR THE MESAVERDE FORMATION SUBMITTED BY JOHN E SCHALK. WE CONCUR WITH SCHALK'S FINDINGS THAT THE MESAVERDE DOES MEET THE GUIDELINES AS SET FORTH BY THE FEDERAL ENERGY REGULATORY COMMISSION TO QUALIFY AS A TIGHT GAS FORMATION. FURTHERMORE, TIGHT GAS PRICE INCENTIVE WILL HELP INSURE DEVELOPMENT OF MARGINAL MESAVERDE WELLS ON THE EDGES OF THE SAN JUAN BASIN
DONALD K ROBERTS PRESIDENT BEARTOOTH OIL AND GAS COMPANY

1424 EST

MGMCOMP MGM

5241 (R1/78)

TO REPLY BY MAILGRAM, SEE REVERSE SIDE FOR WESTERN UNION'S TOLL - FREE PHONE NUMBERS

CASE 7284: (Continued from July 2, 1981, Examiner Hearing)

Application of Energy Reserves Group, Inc. for an unorthodox gas well location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Cisco location of its Miller Well No. 1 located 660 feet from the South and West lines of Section 12, Township 6 South, Range 33 East, the S/2 of said Section 12 to be dedicated to the well.

CASE 7324: Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 240.01-acre non-standard proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, Ute Dome-Dakota Pool, to be dedicated to a well drilled at a standard location thereon.

CASE 7325: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying Section 32, Township 26 North, Range 1 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well. Applicant further seeks provision for the re-allocation of all costs and charges, and revenues, to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

CASE 7326: Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-4157-C by re-establishing 640-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool with a provision for infill drilling of a second well on each 640-acre spacing unit.

CASE 7327: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying Township 25 North, Range 3 West, containing 23,040 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7328: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and desgianted as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

A. R. "Al" Kendrick

P. O. Box 516 • Aztec, New Mexico 87410 • (505) 334-2555

RECEIVED
JUL 29 1981
OIL CONSERVATION DIVISION
SANTA FE

July 27, 1981

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

U. S. Geological Survey
P.O. Box 26124
Albuquerque, New Mexico 87125

Case 7327

Re: Application for a Tight Formation Case

Gentlemen:

Enclosed are copies of the exhibits for the subject case except for the cost sheet.

The cost sheet supplied to me was for the wrong well. When I receive the correct one, a copy will be supplied to each of you.

Meanwhile, I'll be looking forward to seeing you in Santa Fe on August 12th.

If there are questions about the application, please contact me or Tom Kellahin.

Yours very truly,

ARK

A. R. Kendrick

Encls.

Tight Formation Case
August 12, 1981

John E. Schalk
Township 25 North, Range 3 West, NMPM
Rio Arriba County, New Mexico

These exhibits will be presented in the subject case:

1. Map of the area - All of Township 25 North, Range 3 West.

2. List of all wells which have been filed to be drilled in the area of importance. This list shows the completion information and the latest test data of each well and the dedicated acreage.

3. Geologic Cross Section of some of the wells in the area to show that the reservoir exists in the area.

4. Recap of the drilling - completion of the Schalk-Gulf #3 well to show that the reservoir had more than ample time to return to virgin conditions after the disturbance of drilling - if any.

5. Pre-treatment test of the John E. Schalk #3 Schalk-Gulf well. This is to show that the natural completion of the well is below the limit required for a tight formation determination.

6. Copies of recorded pressures as shown in items 7. and 8.

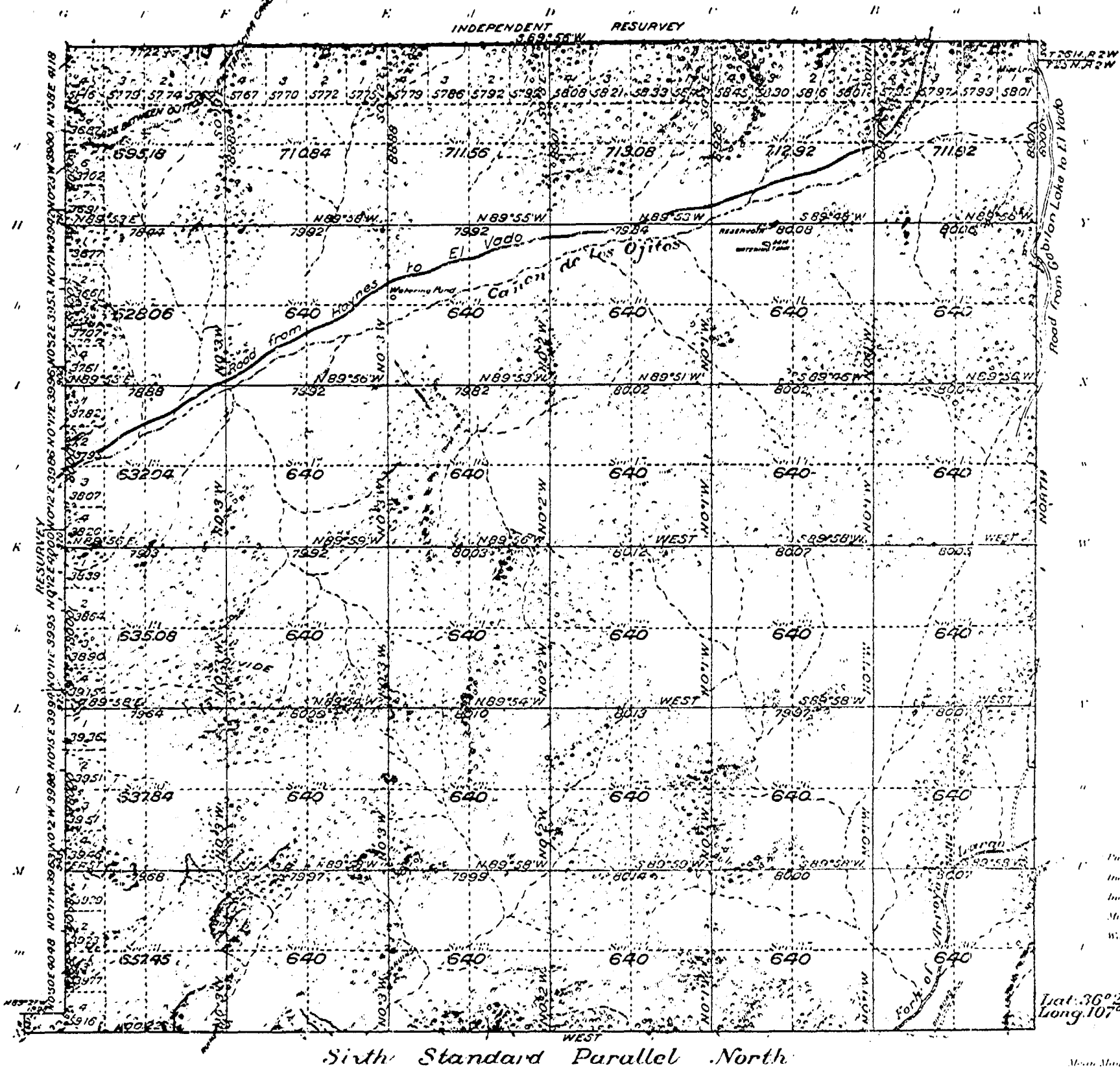
7. Plot of pressures versus time during the pre-treatment test. These are to show that the drawdown was uniform or normal.

8. Plot of pressure buildup after the pre-treatment test to show that the well is in communication with the reservoir and that the pressure reached 90% of the reservoir pressure within 36 hours to show that the well had little if any damage.

9. Remarks regarding the protection of fresh water.

10. Costs of drilling, completing and equiping the well.

Township No. 25 North Range No. 3 West of the New Mexico Prin. Meridian. in New Mexico



Areas in Acres	
Public Land	23,445.97
Indian Reservations	
Indian Allotments	
Mineral Claims	
Water Surface	
Total Area	23,445.97

Lat. 36° 20' 46" N.
Long. 107° 06' 32" W.

Scale, 80 Chains to an inch
Mean Magnetic Declination 13° 45 E.

Surveys Designated	By Whom Surveyed	Transcript No.	Transcript Dated	Transcript Received	Amount of Surveys Mls	Chs	Lks	When Surveyed Begun	When Surveyed Completed
E. Township Line	Chas. W. Devendorf	98	Oct 6	1915	6	09	01	Oct 23, 1915	Oct 25, 1915
W. " Resur.	" " "	"	"	"	5	79	63	July 15, 1916	July 18, 1916
N. " Ind.	" " "	"	"	"	5	77	22	" 13 "	" 14 "
Sixth Stand Par N.	" " "	"	"	"	6	20	22	Oct 26, 1915	Oct 28, 1916
W Township Line Ind Resur.	" " "	"	"	"		9	51	Nov 27 "	Nov 27, 1915
Subdivisions	" " "	"	"	"	60	41	05	July 5, 1916	July 31, 1916
Connections	" " "	"	"	"		19	98	" " "	" " "

The above map of Township No. 25 North Range No. 3 West of the Principal Meridian in New Mexico is strictly conformable to the field notes of the surveys thereof on file in this office which have been examined and approved

U. S. Surveyor General's Office
Santa Fe, N. M., Dec. 28, 1917.

Surveyor General

EXHIBIT 1

MESAVERDE FORMATION

TOWNSHIP 25 NORTH, RANGE 3 WEST

	OPERATOR	WELL NAME AND NUMBER	COMPLETION DATE	1ST DELIVERY DATE	INITIAL SHUT-IN PRESSURE /DAYS	LATEST SHUT-IN PRESSURE /YEAR	DEDICATED ACREAGE
B- 3	Petro-Lewis Corp.	Ruddock #1	12/27/56	Plugged back to Pictured Cliffs			
E- 3	Petro-Lewis Corp.	Ruddock #7	12/29/79	4/11/80	672/9	953/80	N/393.08
E- 4	Petro-Lewis Corp.	Florance #7	7/19/79	6/28/79	1164	704/80	N/391.56
H- 4	Petro-Lewis Corp.	Florance #7A	11/30/79	1/18/80	1141/7	1484/80	N/391.56
K- 4	Supron Energy Corp.	McCroden B #3	2/24/81		1197/7		S/355.52
H- 5	Petro-Lewis Corp.	Florance #8	1/07/80	4/11/80	1097/8	794/80	N/390.84
H- 6	John E. Schalk	Schalk-Gulf #3A	4/10/81		1252		E/320
O- 6	John E. Schalk	Schalk-Gulf #3	8/12/80	10/20/80	1336	974/80	E/320
I- 7	Southland Royalty Co.	Johnson #1	Not completed				
E- 8	Schalk Development Co.	Schalk 41 #2A	11/24/79	3/28/80	1260	901/80	W/320
G- 8	John E. Schalk	Schalk-Gulf #2	Not completed				NE/160
M- 8	Schalk Development Co.	Schalk 41 #2	5/07/79	7/02/79	1300	844/80	W/320
C-13	Skelly Oil Company	W. F. Hurt #1	4/28/58	P & A			
M-16	Schalk Development Co.	Schalk 41 #1	5/07/79	8/10/80	1050	835/80	SW/160
P-16	Schalk Development Co.	Schalk 41 #3	5/08/79	8/13/80	1205	830/80	SE/160
M-17	Getty Oil Co.	C. W. Roberts #4	Not completed				
G-18	Getty Oil Co.	C. W. Roberts #6	Not completed				S/315.77
L-18	Getty Oil Co.	C. W. Roberts #3A	Not completed				S/316.27
O-18	Getty Oil Co.	C. W. Roberts #3	12/13/73	8/27/74	1245/7	854/80	S/316.27
A-19	Getty Oil Co.	Lydia Rentz #4	10/22/73	6/11/74	1264/7	536/80	N/317.03
C-20	Getty Oil Co.	Lydia Rentz #7	Not completed				N/320
E-21	Elliott Oil Co.	ORA #1	Not completed				W/320
O-26	Schalk Development Co.	Schalk 43 #1	Not completed				SE/160
N-30	Getty Oil Co.	L. L. McConnell #1	12/29/55	Plugged back to Pictured Cliffs			
A-34	Schalk Development Co.	Schalk 43 #2	Plugged back to Chacra				
D-35	W. M. Gallaway	Myers #1	7/24/78	10/17/78	1402	T. A.	
G-35	Schalk Development Co.	Schalk 43 #3	Not completed				NE/160
E-36	Schalk Development Co.	Schalk 43 #4	Not completed				NW/160

EXHIBIT 2

RECAP OF DRILLING AND COMPLETION

John E. Schalk
Schalk-Gulf #3

The production casing was cemented in place on June 4, 1980.

The casing was not perforated until August 7, 1980.

This let the reservoir stabilize for 63 days before the well was perforated.

When the well was perforated, the tubing was run with a packer to set above the perforations to keep the drilling fluid off the perforations. The well was then tested through the tubing.

The shut-in pressure was not measured at that time; because, the pressure would not have been stable after filling the casing.

The 7-day shut-in pressure was measured on August 26, 1980 as follows: SICP 1330 psig and the SITP 1320 psig.

EXHIBIT 4

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-122
Revised 10-1-78

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test: ☐ Initial ☐ Annual ☒ Special (XX)			Test Date: 8/8/80
Company: John E. Schalk	Connection		
Pool: Blanco	Formation: Mesaverde		Unit
Completion Date: 8/12/80	Total Depth: 6300	Plug Back TD	Elevation: 7361
Farm or Lease Name: Schalk-Gulf			

Csg. Size	Wt.	d	Set At	Perforations:	Well No.
4.500	10.50	4.052	6298	From 6001 To 6209	3
Tbg. Size	**Wt.**	**d**	**Set At**	**Perforations:**	**Unit Sec. Twp. Rge.**
2.375	4.70	1.995	5976	From To	O-6-25N-3W

Type Well – Single – Bradenhead – G.G. or G.O. Multiple	Packer Set At	County
Single	5976	Rio Arriba

Producing Thru	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press. – P_a	State
Tubing				New Mexico

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
		est. .650						

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI										
1.	2"	.250	4		86	4	86	packer		3 Hrs.
2.										
3.										
4.										
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	1.087		16	1.1022	.9608	1.0000	18
2.							
3.							
4.							
5.							

NO.	P_t	Temp. °R	T_t	Z
1				
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid _____ XXXXX _____
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c _____ P_c^2 _____

NO	P_t	P_w	P_w^2	$P_c^2 - P_w^2$
1				
2				
3				
4				
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} =$ _____ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n =$ _____

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n =$ _____

Absolute Open Flow _____ Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n _____

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:

EXHIBIT 5

1

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin

Karen Aubrey

Telephone 982-4285
Area Code 505

RECEIVED
JUL 27 1981
OIL CONSERVATION DIVISION
SANTA FE

July 23, 1981

Mr. Joe D. Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Case 7727

RE: John E. Schalk

Dear Joe:

Please substitute the enclosed application for the original application.

The original contained a typographical error in paragraph (1) and erroneously referred to the Picture Cliff formation. Please note that the application is for the Mesa Verde formation.

We would appreciate the amended application being heard on August 12, 1981.

Very truly yours,

Tom Kellahin

W. Thomas Kellahin

WTK:jm
Enclosure
cc: Tom Schlak
Al Kendrick
USGS

RECEIVED
JUL 27 1981
OIL CONSERVATION DIVISION
SANTA FE

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION
OF JOHN E. SCHALK, FOR DESIGNATION
OF TIGHT FORMATION, SAN JUAN AND
RIO ARRIBA COUNTIES, NEW MEXICO.

Case 3327

AMENDED APPLICATION

COMES NOW, JOHN E. SCHALK, by and through its undersigned attorneys and as provided in the Oil Conservation Division's Special Rules and Procedures for Tight Formation Designations under Section 107 of the Natural Gas Policy Act of 1978 promulgated by Oil Conservation Division Order No. R-6388-A on February 10, 1981, hereby makes application for an order designating certain protions of the Mesa Verde formation as a tight formation under Section 106 of the Natural Gas Policy Act of 1978 and in support of its application would show the Division:

1. Applicant is the owner and operator of certain interests in the Mesa Verde formation underlying the following described lands situated in Rio Arriba County, New Mexico:

Township 25 North, Range 3 West, N.M.P.M.

"ALL"

containing a total of 23,040 acres, more or less.

2. The Mesa Verde formation is expected to have low permeability characteristics and that the incentive price is necessary all as set forth in the alternate procedure of paragraph and (1) of Special Rules and Procedures appended to

Order R-6388-A, and shall be submitted prior to hearing as Exhibits and incorporated by reference herein.

3. The average depth of the top of the Blanco Mesa Verde Pool formation is 5374 feet and the top of the Pay formation is 5893 feet, and the stabilized production rate, against atmospheric pressure, of wells completed for production in said formation, without stimulation, is not expected to exceed 188 mcf of gas per day.

4. No well drilled into the Mesa Verde formation in the above described area is expected to produce, without stimulation, more than five barrels of crude oil per day.

5. To be submitted prior to hearing and incorporated by reference is a complete set of exhibits which applicant proposes to offer or introduce at the hearing on this application, together with a statement of the meaning and purpose of each exhibit. These exhibits will cover all aspects of the required evidentiary date described in Section D of the Oil Conservation Division's Special Rules and Procedures for Tight Sand Formation Designation under Section 107 of the Natural Gas Policy Act of 1978.

WHEREFORE, Applicant prays that this application be set for hearing before a duly appointed examiner of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order recommending to the Federal Energy Regulatory Commission that pursuant to 18 CFR, Section 271.701-705, that the Mesa Verde formation

underlying the above-described land be designated a tight formation, and making such other and further provisions as may be proper in the premises.

Respectfully submitted,

KELLAHIN & KELLAHIN

By _____

W. Thomas Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

CERTIFICATE OF SERVICE

I hereby certify that a copy of this Application and a complete set of all exhibits which Applicant proposes to offer or introduce at hearing, together with the statement of meaning and purpose of each, has been mailed to the United States Geological Survey at Post Office Box 26124, Albuquerque, New Mexico 87125, on this 24 day of July, 1981.

_____
W. Thomas Kellahin

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

July 14, 1981

Mr. Joe Ramey
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: John E. Schalk
Application for Tight Formation
Designation

Case 7327

Dear Joe:

Please set the enclosed application for the examiner hearing on August 12, 1981. In accordance with Order R-6388-A the exhibits to said application will be submitted to you and to the USGS not later than 15 days prior to the hearing.

Very truly yours,

W. Thomas Kellahin

WTK:jm
Enclosure
cc: Tom Schalk
Al Kendrick

RECEIVED
JUL 17 1981
OIL CONSERVATION DIVISION
SANTA FE

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION
OF JOHN E. SCHALK, FOR DESIGNATION
OF RIGHT FORMATION, SAN JUAN AND
RIO ARRIBA COUNTIES, NEW MEXICO.

Case ~~7327~~

A P P L I C A T I O N

COMES NOW, JOHN E. SCHALK, by and through its undersigned attorneys and as provided in the Oil Conservation Division's Special Rules and Procedures for Tight Formation Designations under Section 107 of the Natural Gas Policy Act of 1978 promulgated by Oil Conservation Division Order No. R-6388-A on February 10, 1981, hereby makes application for an order designating certain portions of the Mesa Verde formation as a tight formation under Section 107 of the Natural Gas Policy Act of 1978 and in support of its application would show the Division:

1. Applicant is the owner and operator of certain interests in the ~~Pictured Cliffs~~ Mesa Verde formation underlying the following described lands situated in Rio Arriba County, New Mexico:

Township 25 North, Range 3 West, N.M.P.M.
"ALL"

containing a total of 23,040 acres, more or less.

2. The Mesa Verde formation is expected to have low permeability characterisitics and that the incentive price is necessary all as set forth in the alternate procedure of

paragraph and (1) of Special Rules and Procedures appended to Order R-6388-A, and shall be submitted prior to hearing as Exhibits and incorporated by reference herein.

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WHEREFORE, Applicant prays that this application be set for hearing before a duly appointed examiner of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order recommending to the Federal Energy Regulatory Commission that pursuant to 18 CFR, Section 271.701-705, that the Mesa Verde formation

underlying the above-described land be designated a tight formation, and making such other and further provisions as may be proper in the premises.

Respectfully submitted,

KELLAHIN & KELLAHIN

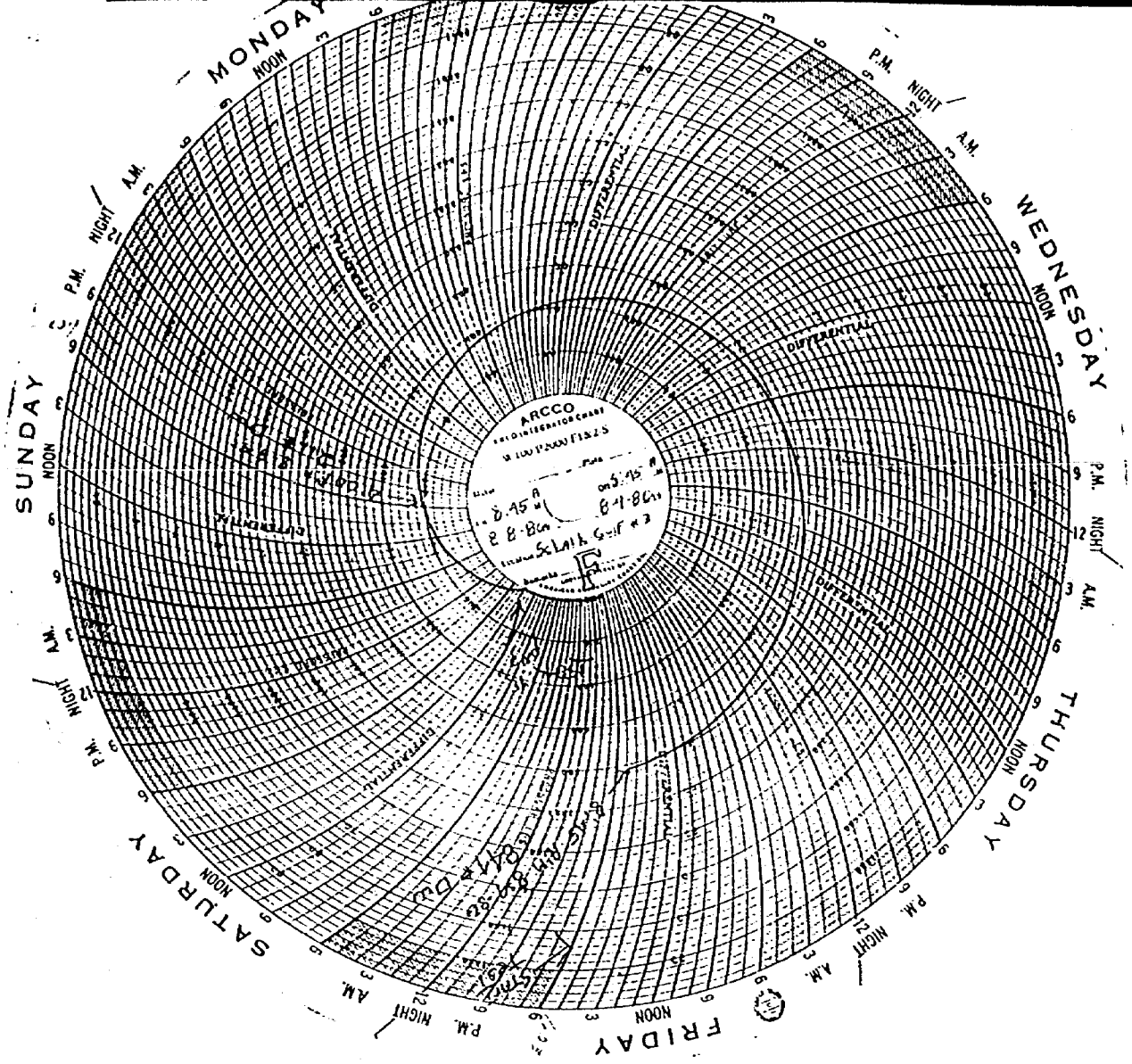
By _____

W. Thomas Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

CERTIFICATE OF SERVICE

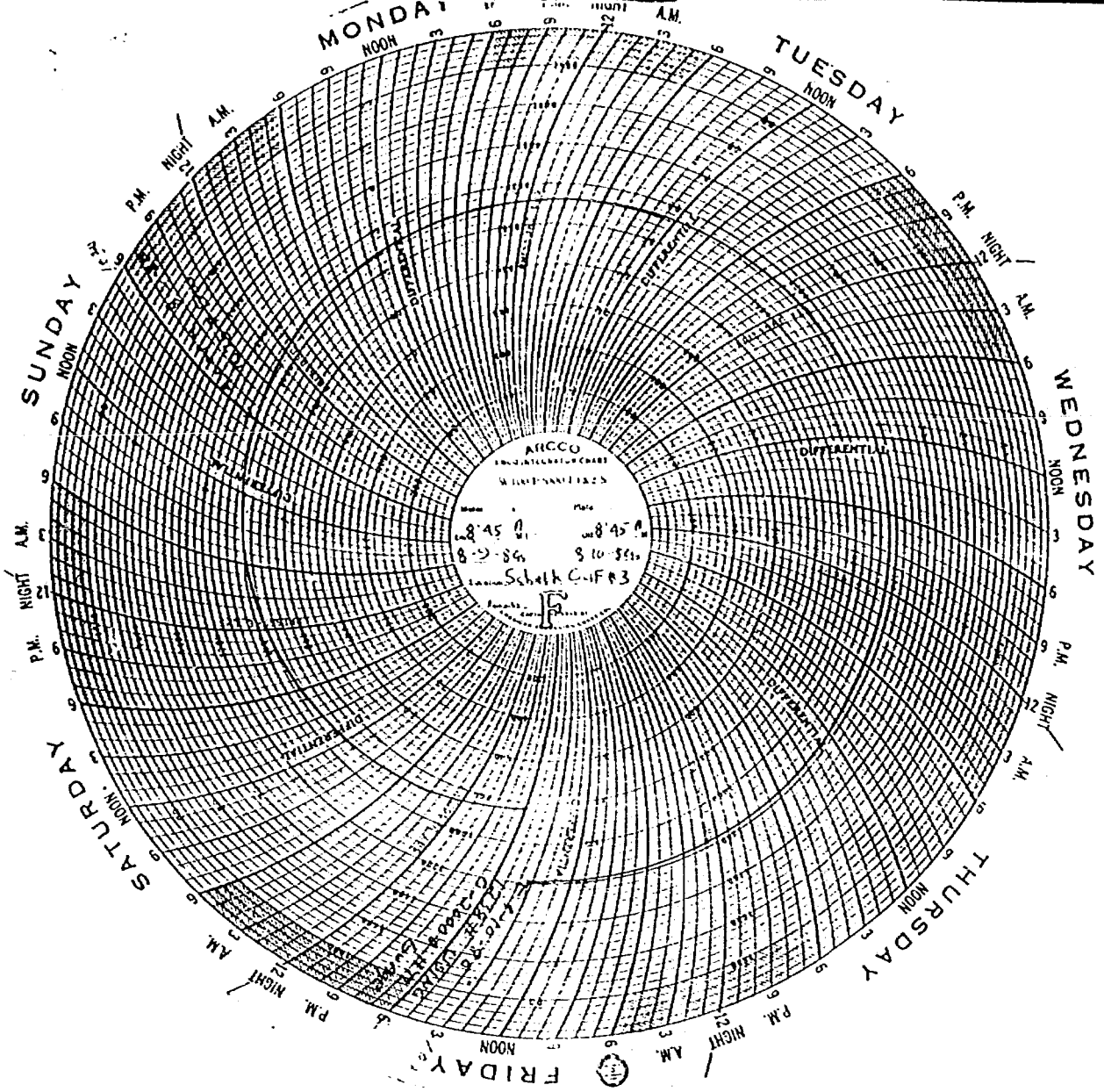
I hereby certify that a copy of this Application and a complete set of all exhibits which Applicant proposes to offer or introduce at hearing, together with the statement of meaning and purpose of each, has been mailed to the United States Geological Survey at Post Office Box 26124, Albuquerque, New Mexico 87125, on this 14 day of July, 1981.

_____
W. Thomas Kellahin



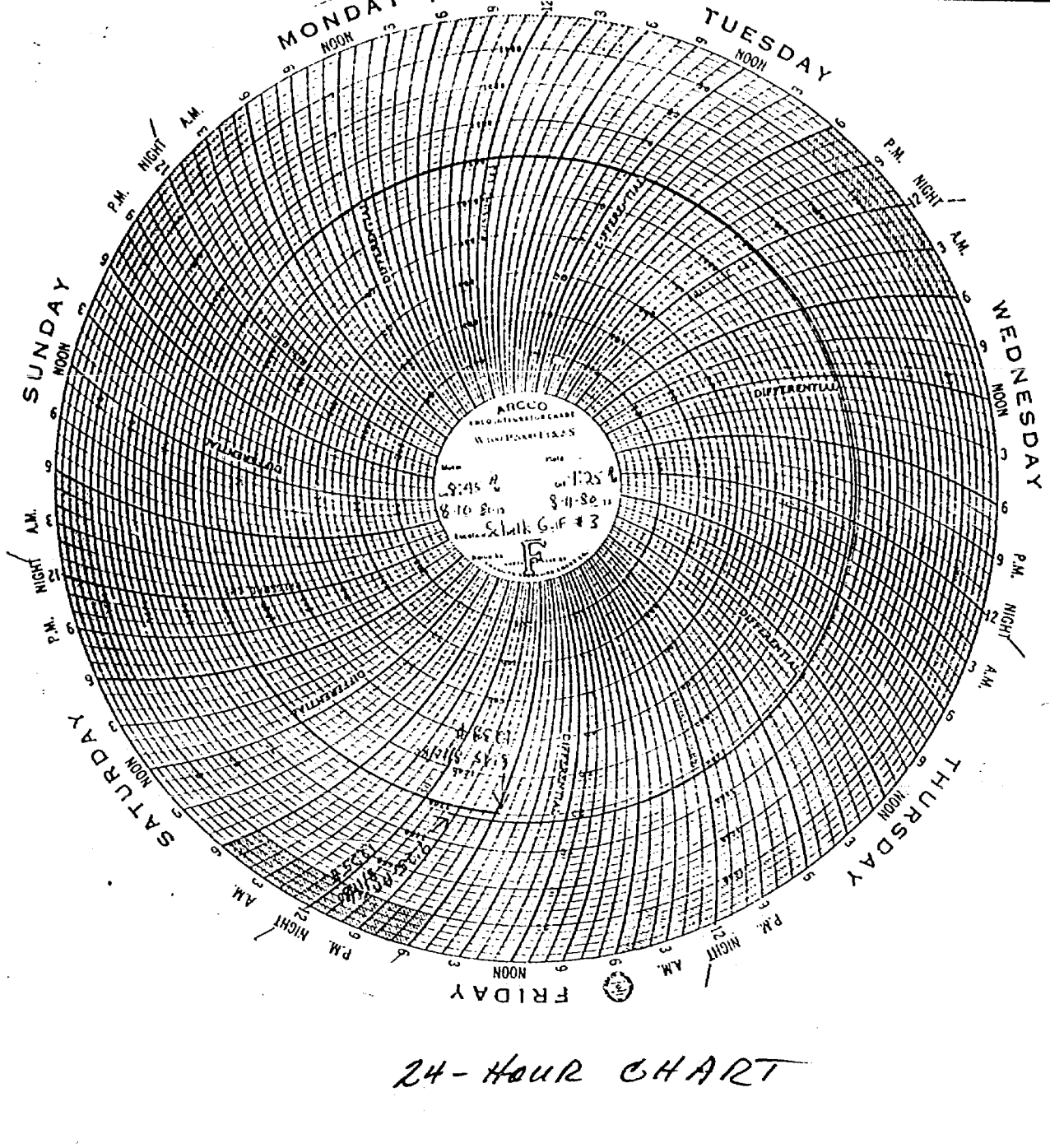
24-HOUR CHART

EXHIBIT 6A



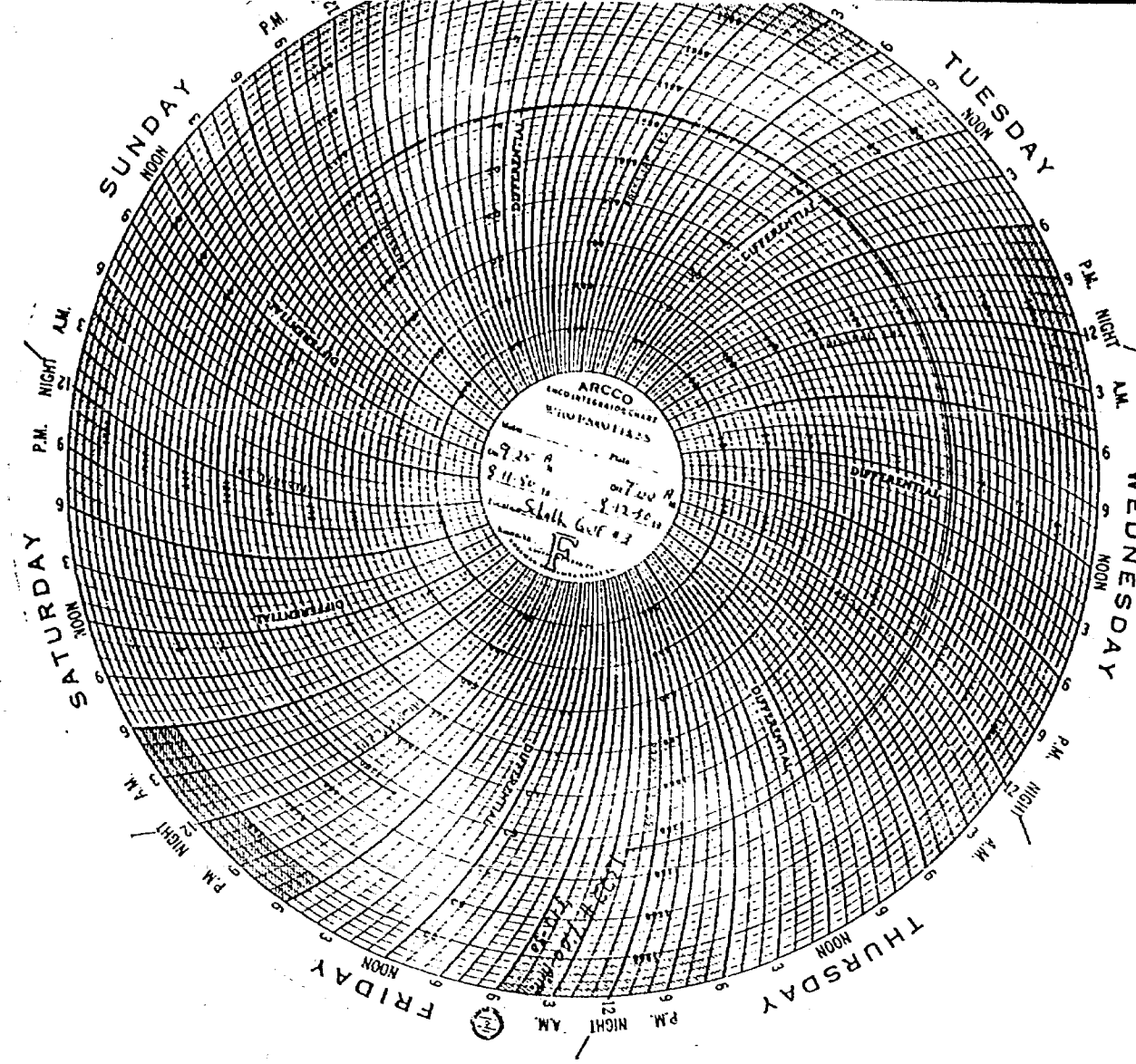
24-HOUR CHART

EXHIBIT 6B



24-HOUR CHART

EXHIBIT 6C



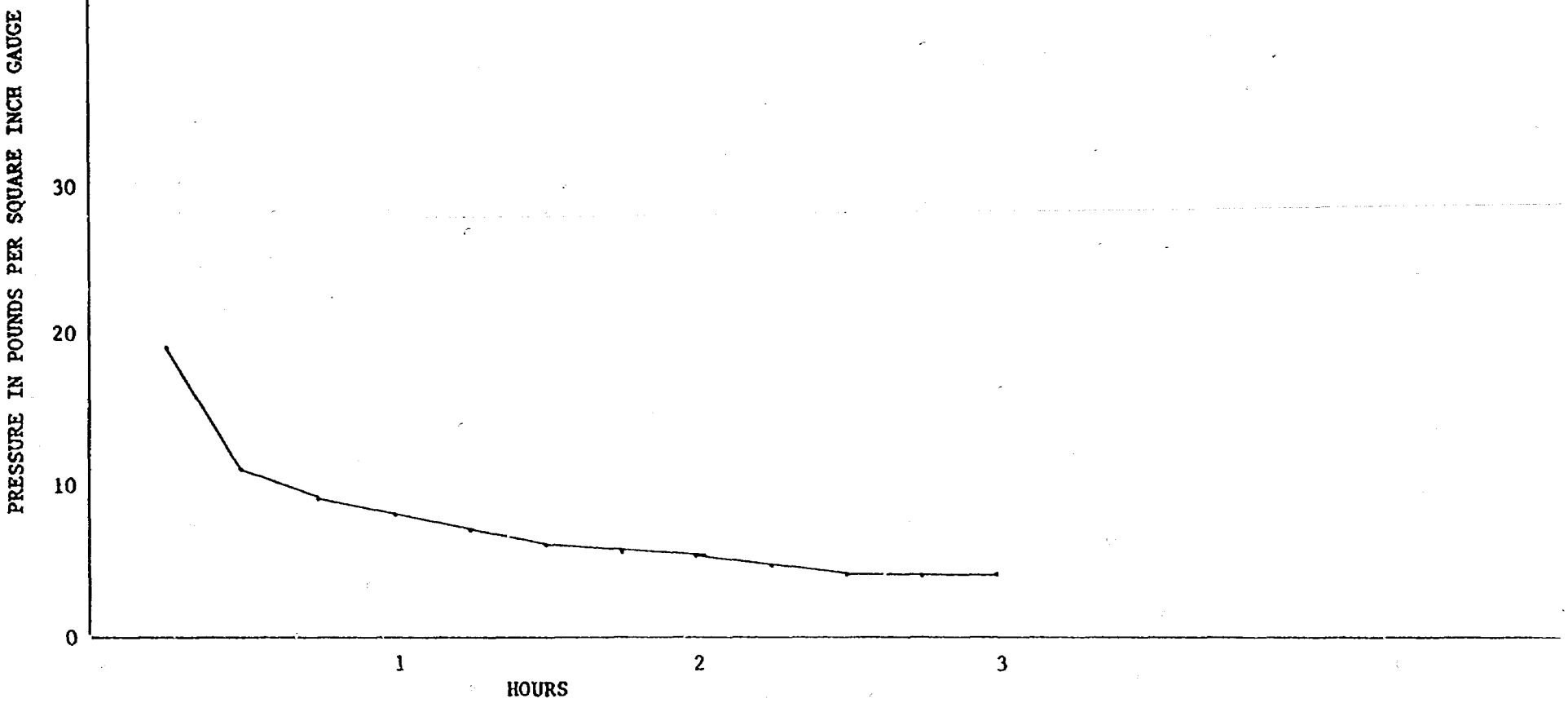
24-HOUR CHART

EXHIBIT 6D

DRAWDOWN DURING PRE-TREATMENT TEST

John E. Schalk
Schalk-Gulf #3
O-6-25N-3W

EXHIBIT 7



SHUT-IN PRESSURE

AFTER PRE-TREATMENT TEST

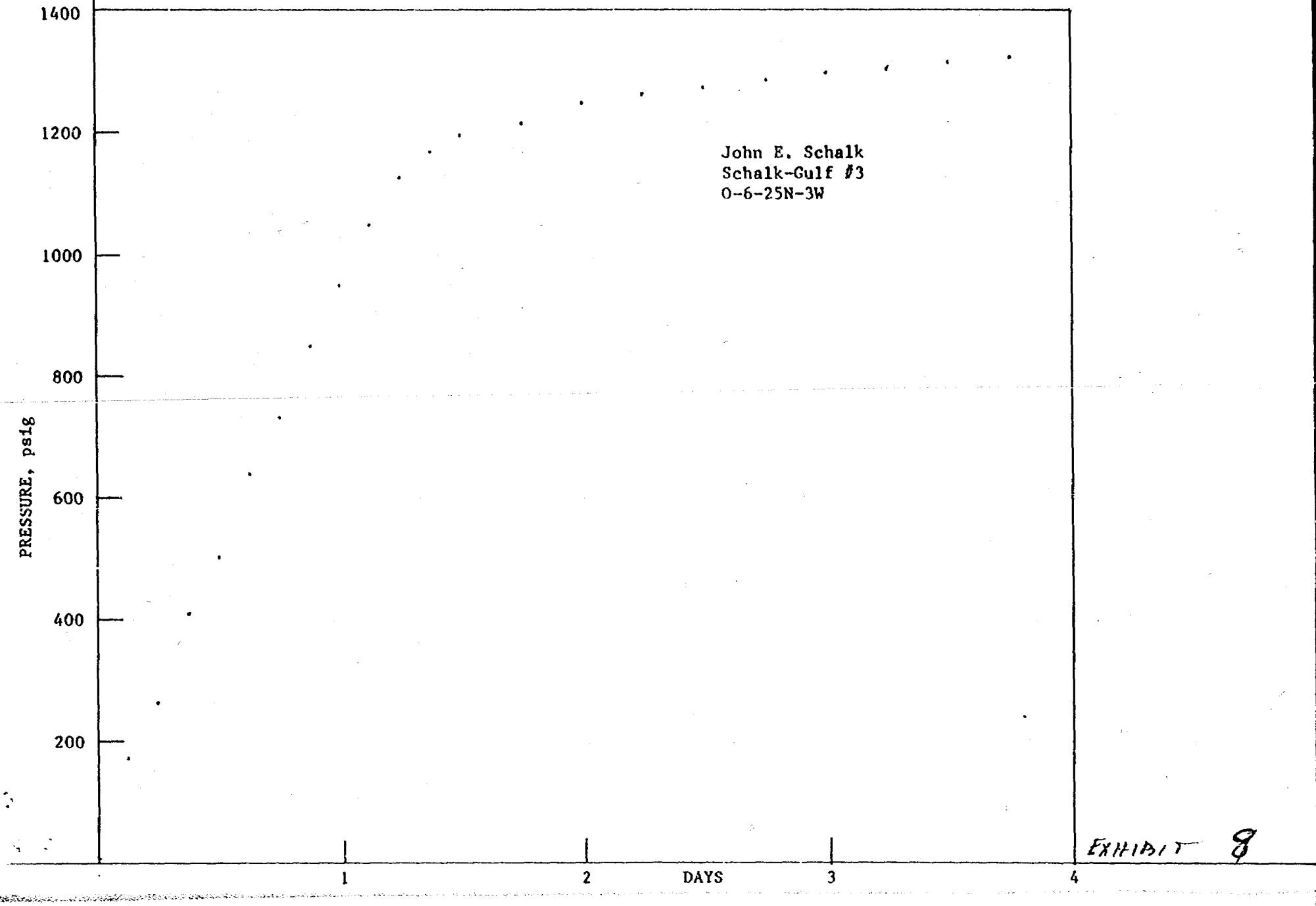


EXHIBIT 8

STATE AND FEDERAL REGULATIONS REGARDING
THE PROTECTION OF FRESH WATER AQUIFERS

STATE:

Rule 106 requires protection of all fresh waters from loss or contamination.

Rule 107 requires isolation of all water-, oil-, and gas-bearing formations by casing to prevent waste and/or pollution of beneficial or potentially beneficial resources.

FEDERAL:

CFR-30, Chapter II, Part 221, Section 221.32 prohibits the pollution of underground waters.

COMMENT:

No written law or rule can protect fresh water from loss or from contamination. The protection will be afforded by the enforcement of reasonable rules and regulations by reasonable employees of the regulatory agency which is supervising the operation.

EXHIBIT 9

A. R. "Al" Kendrick

P. O. Box 516 • Aztec, New Mexico 87410 • (505) 334-2555

August 6, 1981

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

U. S. Geological Survey
P.O. Box 26124
Albuquerque, New Mexico 87125

Re: Application for a Tight Formation Case
Docketed for August 12, 1981
Case No. 7327

Gentlemen:

Enclosed is a copy of Exhibit 10 which was omitted from the information submitted earlier. This is the completion-to-wellhead cost of the Schalk-Gulf #3 well located in the SE/4 of Section 6, Township 25 North, Range 3 West, Rio Arriba County, New Mexico.

Yours very truly,

A. R. Kendrick

A. R. Kendrick

Enclosure

El Paso Natural Gas Company

WELL COST ESTIMATE ☐ **OR FINAL COST** ☐

Form 22-32 (Rev. 2-62)

LEASE NAME	WELL NO.	FIELD
SCHALK-GULF	3	Blanco
LOCATION	**COUNTY**	**STATE**
Sec.6, T-25N, R-3W	Rio Arriba	New Mexico
FORMATION	**TOTAL DEPTH**	**TOTAL DAYS**
Mesa Verde	6300	

	PRODUCING WELL SUB	PRODUCING WELL TOTAL	DRY HOLE
TUBULAR GOODS:			
Surface Casing ____ Ft. ____ Inch ____ $/Ft.	$ 4,142.78		$
Int. Casing ____ Ft. ____ Inch ____ $/Ft.			
Prod. Casing ____ Ft. ____ Inch ____ $/Ft.	22,746.22		
____ ____ Ft. ____ Inch ____ $/Ft.			
____ ____ Ft. ____ Inch ____ $/Ft.			
Tubing ____ Ft. ____ Inch ____ $/Ft.	15,038.40		
____ ____ Ft. ____ Inch ____ $/Ft.		$ 41,927.40	
WELLHEAD EQUIPMENT	11,113.73	11,113.73	
OTHER EQUIPMENT:			
Surface Production Equipment			
Liner Hangers and Production Packers			
Tubing Accessories			
DRILLING COSTS:			
Footage ____ Ft. ____ $/Ft.	50,387.61		
Day Work ____ Days ____ $/Day			
Day Work ____ Days ____ $/Day			
Day Work ____ Days ____ $/Day			
Service Unit ____ Days ____ $/Day	9,585.47		
Rig Rental Tools			
Rig Moving Costs		59,973.08	
CEMENTING: (Cement, Pump Trucks and Drayage)			
Surface	4,072.13		
Intermediate			
Production	6,898.34		
Liner			
Liner			
____			
Sq. Jobs		10,970.47	
FORMATION TREATMENT: NO. ____			
Acidizing ____			
Fracturing - Equipment ____	23,022.27		
Fluid ____ Gal. ____			
Fluid Additives ____			
Propping Agent ____ Lbs. ____			
Tank Rental ____	1,763.96	24,786.23	
SPECIAL SERVICES (Surveys and Tests)			
Perforating ____	3,738.88		
Mud Logging ____			
Electric and Radioactive Logging ____	12,243.48		
Drill Stem Tests ____			
Cores ____		15,982.36	
MATERIALS:			
Drilling Mud and Chemicals	29,938.72		
Drilling Gas or Air			
Water	9,591.34		
Bits	1,201.74		
Fuel	5,771.69		
Hauling	4,157.15		
Tubular Inspection			
Miscellaneous		50,660.64	
ACCESS AND LOCATION AND CLEANUP	3,000.00		
SUPERVISION, LEGAL, ETC.		3,000.00	
Total Direct Cost			
Plus ____ % Contingency			
TOTAL COST	$	$218,413.91	$

WORKING INTEREST:

El Paso Natural Gas Company ____

Others ____

ESTIMATED COST ONLY – Each Participating Owner to Pay Proportionate Share of Actual Well Cost Subject to Operating Agreement.

DATE	PARTNER'S APPROVAL:
PREPARED BY	DATE
APPROVED BY	

ROUGH

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7327

Order No. R- 7160

APPLICATION OF JOHN E. SCHALK FOR DESIGNATION OF A TIGHT FORMATION, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 12, 19 81, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter

NOW, on this _____ day of _____, 19____, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That at the hearing, applicant was requested to furnish additional data and information to substantiate his request for designation of a tight formation.

(3) ~~That subsequent to said hearing, the applicant became deceased, and~~ the additional data and information has not been ~~forthcoming~~.

(4) That this case should be dismissed.

IT IS THEREFORE ORDERED:

(1) That Case No. 7327 is hereby dismissed.

DONE at Santa Fe etc.

CASE 7328: SOUTHEAST NOMENCLATURE FOR
AUGUST, 1981

Case No.

7328

Application

Transcripts.

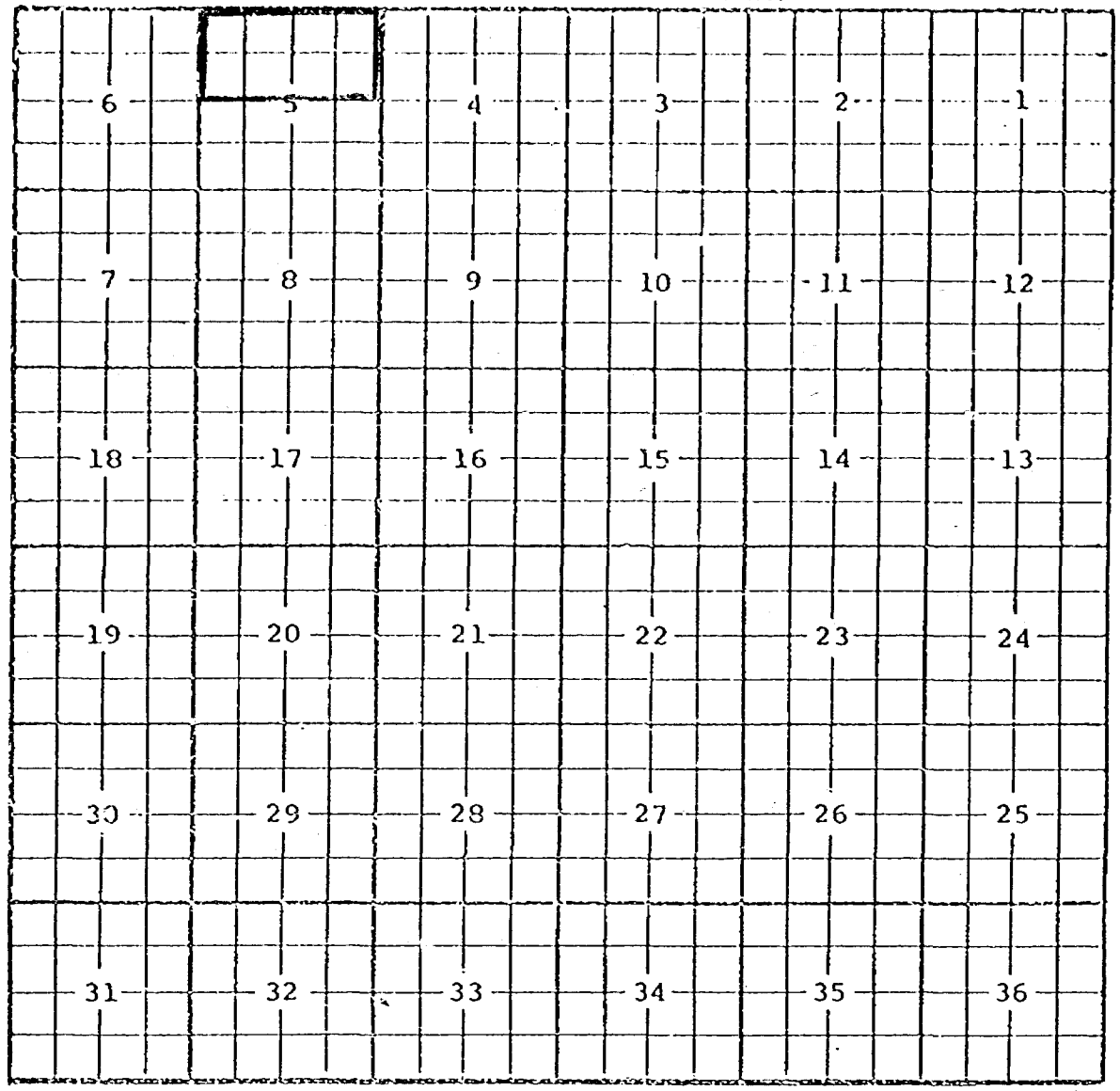
Small Exhibits

ETC

CASE NO. 7328 (a) CREATION OF A NEW GAS POOL

COUNTY Eddy POOL NORTH BURTON FLAT - STRAWN GAS

TOWNSHIP 20 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

R-6758

Disc. Well: Southland Royalty Co., Citgo 5 Federal Com. #1-B-5-20-28

Comp. 4-24-81, thru Strawn perfs 10,135-154.

8-26-81

Proposed pool boundary outlined in blue.

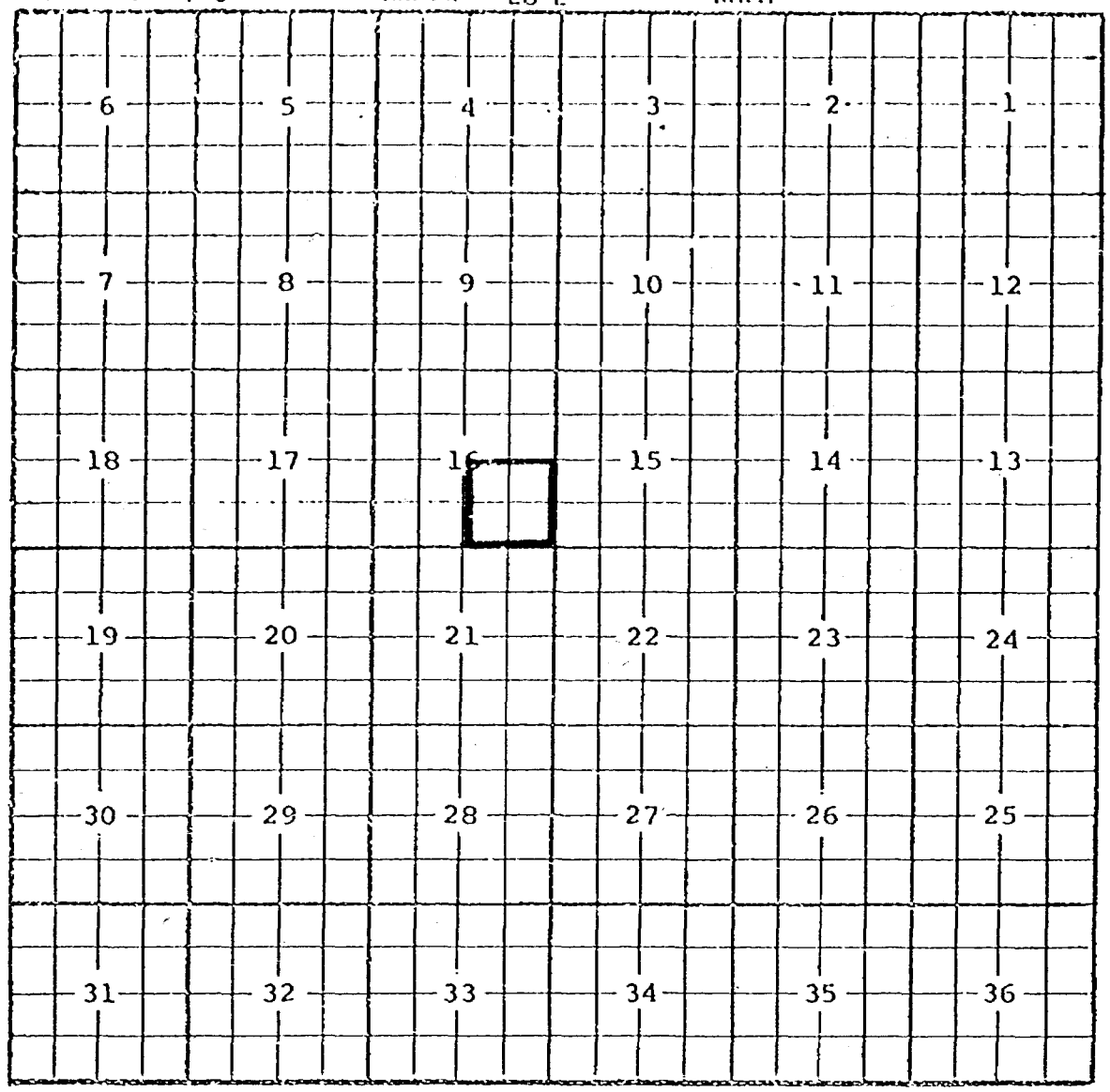
Section 5: N/2

1

CASE NO. 7328 (b) CREATION OF A NEW OIL POOL

COUNTY CHAVES POOL ELKINS - SAN ANDRES

TOWNSHIP 7 S RANGE 28 E NMPM



Purpose: One completed oil well capable of producing.

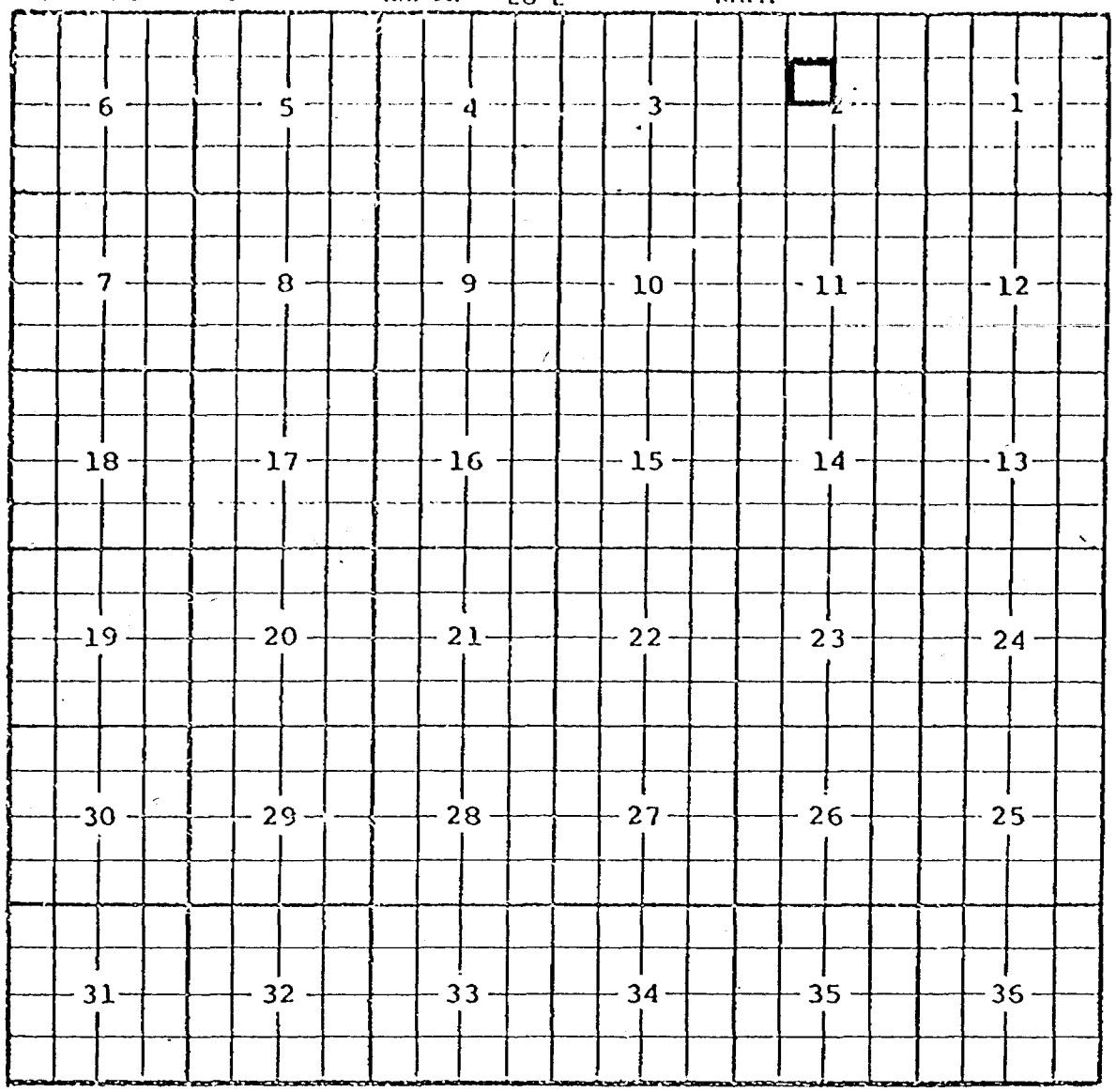
Disc. Well: Tom L. Ingram, Pogo State #1-P-16-7-28
Comp. 5-14-81 thru San Andres Perfs 2293-2341

Proposed pool boundary outlined in blue:
Section 16: SE/4

CASE NO. 7328 (c) CREATION OF A NEW OIL POOL

COUNTY EDDY POOL INDIAN FLATS - BONE SPRING

TOWNSHIP 22 S RANGE 28 E NMPM



Purpose: One completed oil well capable of producing.

Disc. Well: Gulf Oil Corp., Eddy C State #1-F-2-22-28
Comp. 7-16-80 thru Bone Spring Perfs 8804-14

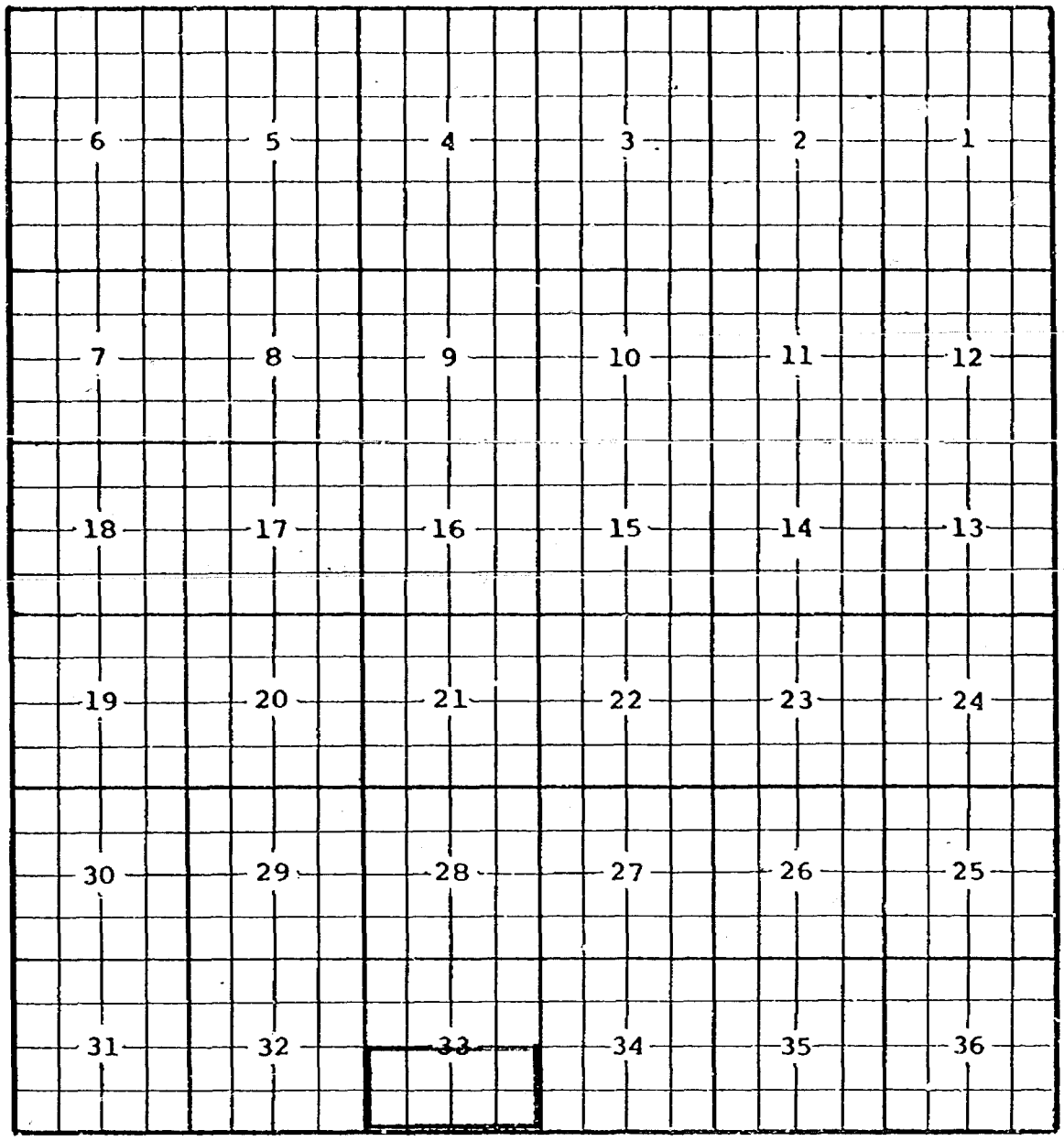
Proposed pool boundary outlined in blue.

Section 2: SE/4 NW/4

CASE NO. 7328 (3) CREATION OF A NEW GAS POOL

COUNTY EDDY POOL WEST INDIAN FLATS - STRAWN GAS

TOWNSHIP 21 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

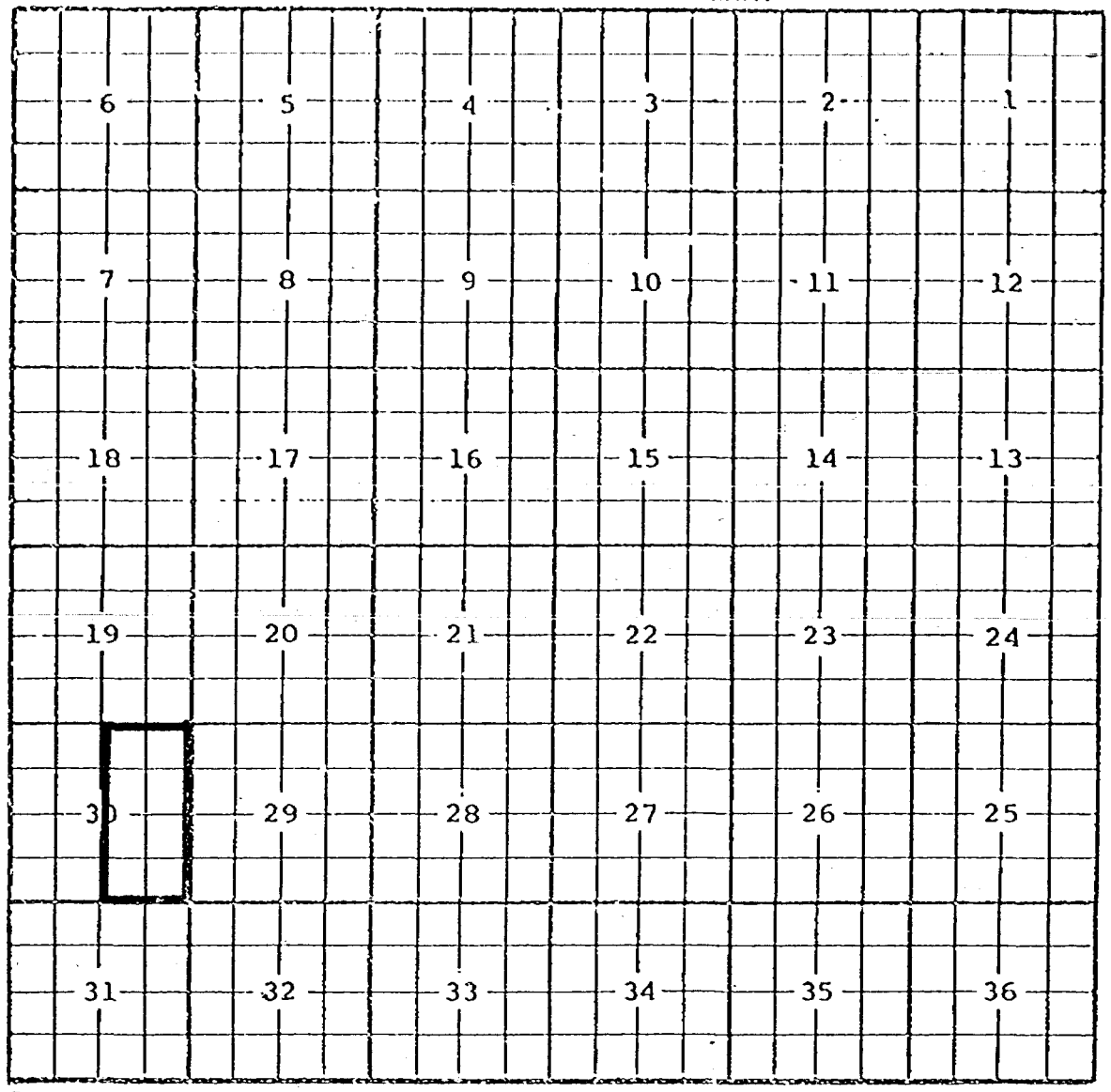
Disc. Well: Perry R. Bass, Big Eddy Unit #64-N-33-21-28
Comp. 7-15-80 thru Strawn Perfs 10,904-910

Proposed pool boundary outlined in blue:
Section 33: S/2

CASE NO. 7328 (e) CREATION OF A NEW GAS POOL

COUNTY EDDY POOL EAST LAKE MCMILLAN - WOLFCAMP GAS

TOWNSHIP 19 S RANGE 27 E NMPM



Purpose: One completed gas well, capable of producing.

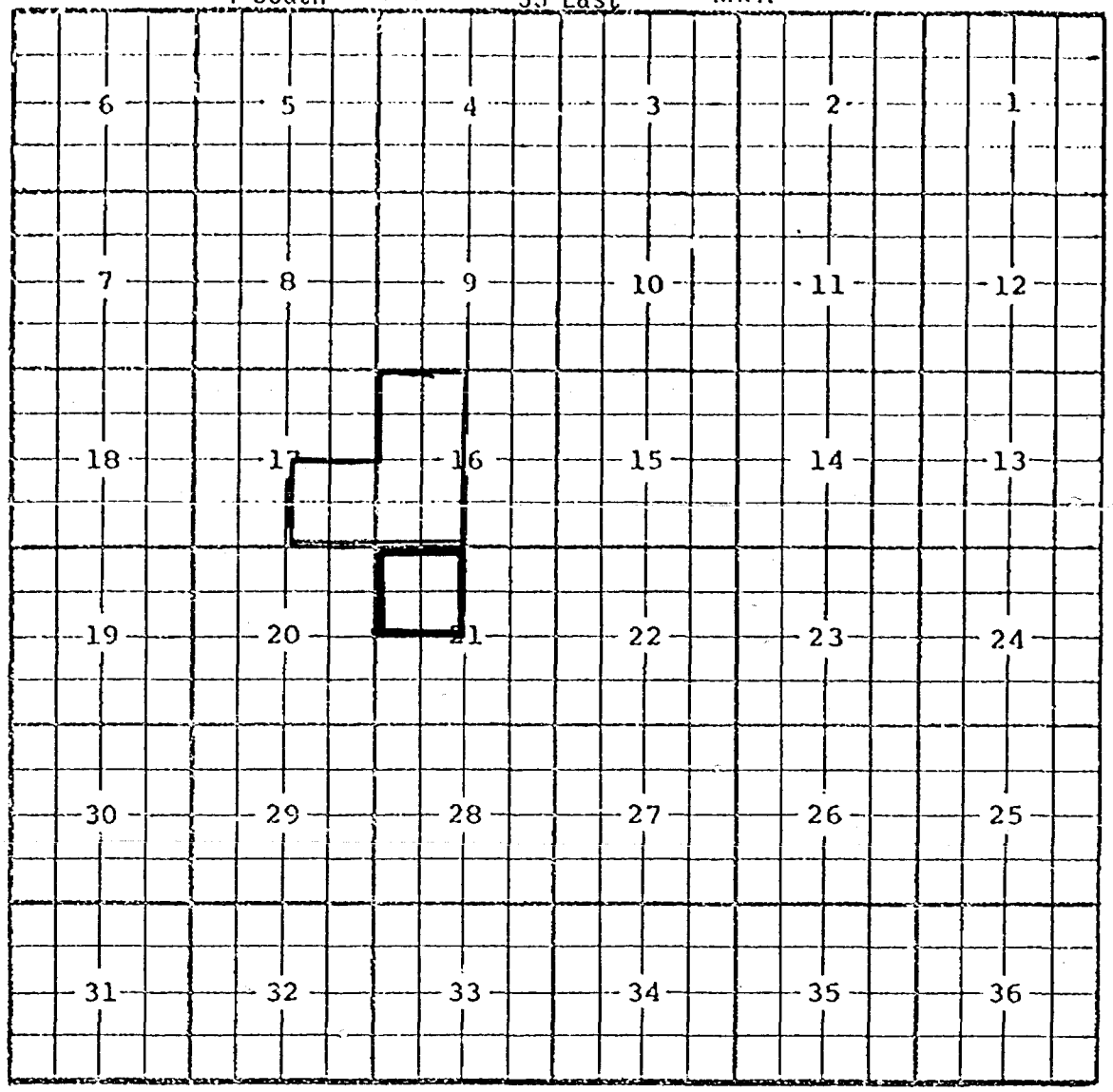
Disc. Well: Gulf Oil Corp., Lake McMillan Federal Unit #1-I-30-19-27
Comp. 11-21-80 thru Wolfcamp Perfs 7870-7896

Proposed Pool boundary outlined in blue.
Section 30: E/2

CASE NO. 7328: v) EXTENSION OF AN EXISTING OIL POOL

COUNTY ROOSEVELT POOL NORTH PETERSON-PENNSYLVANIAN

TOWNSHIP 4 South RANGE 33 East NMPM



PURPOSE: One completed oil well capable of producing.
Enserch Exploration, Inc. Pearl Jordan Well #1-C in 21-4-33, completed May 15, 1981, in the Pennsylvanian formation. Top perf 7804 ft.

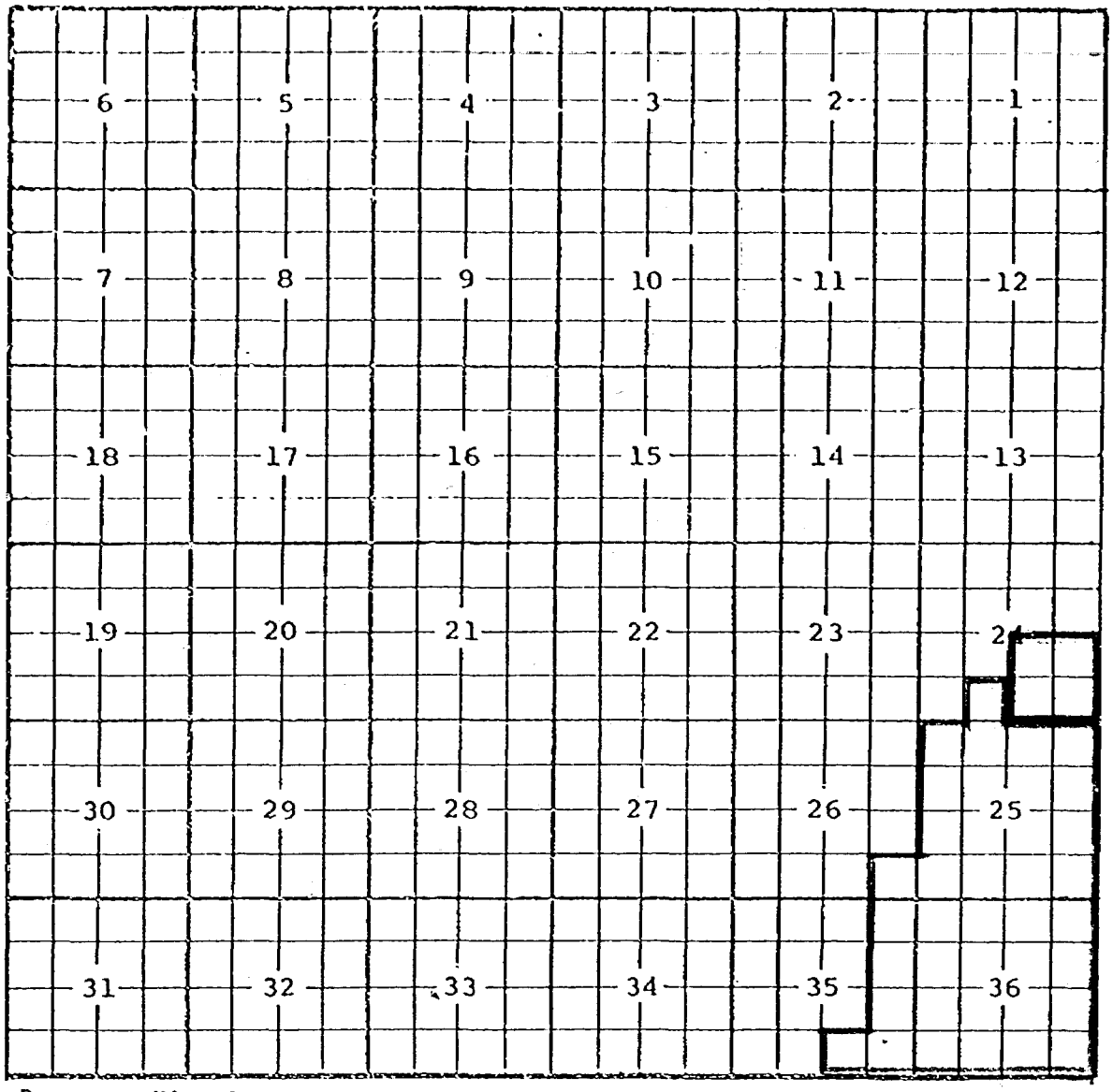
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 21: NW/4

CASE NO. 7328 (cc) EXTENSION OF AN EXISTING ASSOCIATED POOL Page 1 of 3 Exhibit I

COUNTY CHAVES POOL TWIN LAKES - SAN ANDRES ASSOCIATED

TOWNSHIP 8 S RANGE 28 E NMPM



Purpose: Nine Completed oil wells capable of producing.

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
The Harlow Corp.	O'Brien Fee 24	1-I	24-8-28	1-29-81	San Andres	2664

Pool boundary oultined in red.

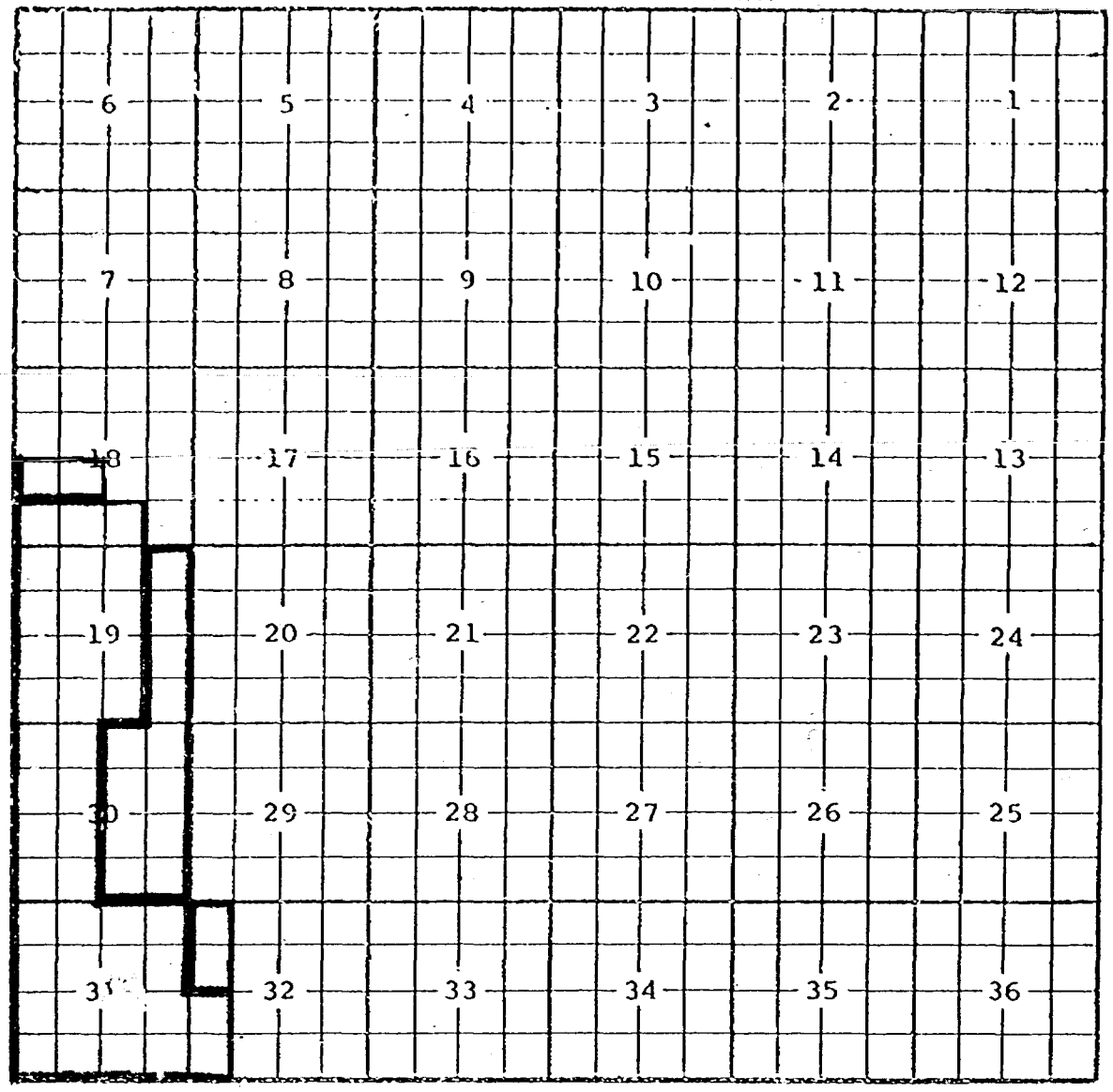
Proposed extension outlined in blue:

Section 24: SE/4

Exhibit II

COUNTY CHAVES POOL TWIN LAKES - SAN ANDRES ASSOCIATED

TOWNSHIP 8 S RANGE 29 E NMPM



Purpose: See Exhibit I

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
The Harlow Corp.	O'Brien Fee 18	4-L	18-8-29	4-28-81	San Andres	2665
The Harlow Corp.	Kuchemann	5-G	30-8-29	5-4-81	San Andres	2688

Pool boundary outlined in red.

Proposed extension outlined in blue:

Section 18: N/2 SW/4

Section 19: E/2 E/2

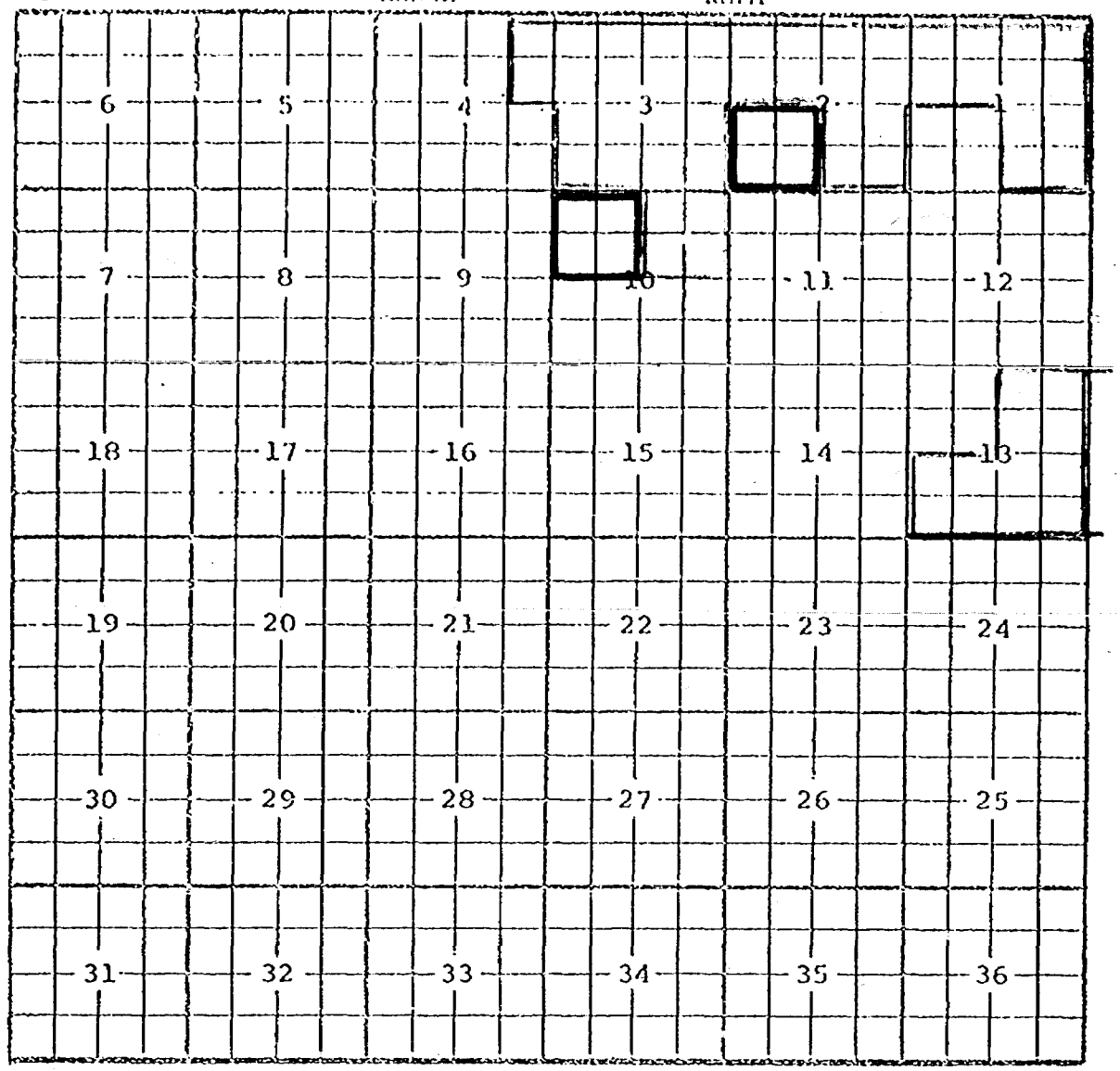
Section 30: E/2

Section 32: W/2 NW/4

CASE NO. 7328 (n) EXTENSION OF AN EXISTING OIL POOL

COUNTY CHAVES POOL CHAVEROO-SAN ANDRES

TOWNSHIP 8 South RANGE 32 East NMPM



PURPOSE: Three completed oil wells capable of producing.

MWJ Prod.Co. Chaveroo State #8-M 2-8-32 completed 7-23-81 in SA - top perf 4202'

MWJ Prod.Co. Chaveroo State #7-K 2-8-32 completed 7-22-81 in SA - top perf 4213'

Adams Expl.Co. Griffin #2-F 10-8-32 completed 5-19-81 in SA - top perf 4151'

Pool boundary outlined in red.

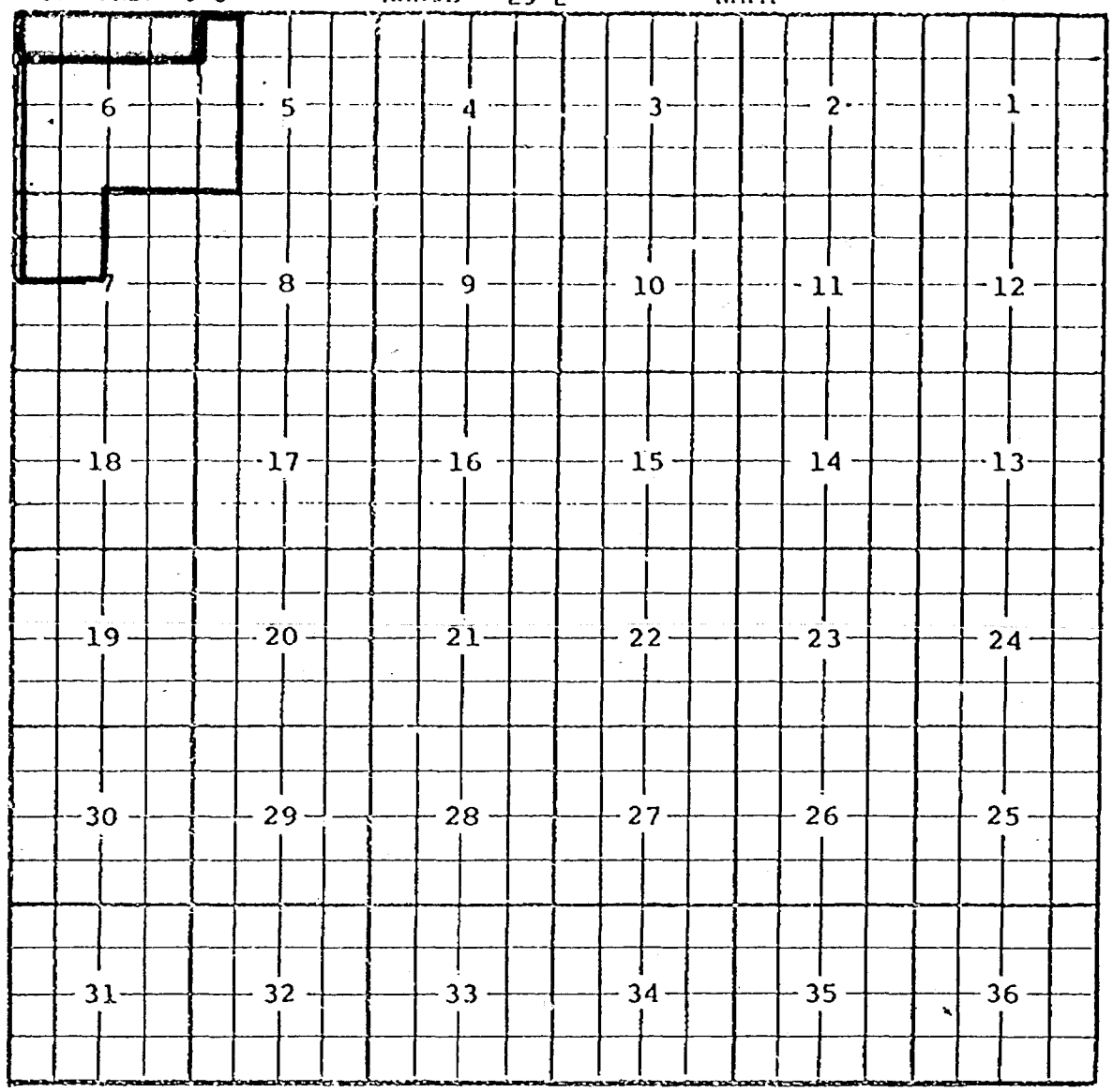
Proposed pool extension outlined in green. SECTION 10: NW/4

Addition ----------SECTION 2: SW/4

Exhibit III

COUNTY CHAVES POOL TWIN LAKES - SAN ANDRES ASSOCIATED

TOWNSHIP 9 S RANGE 29 E NMPM



Purpose: See Exhibit I

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
Stevens Oil Co.	O'Brien L	6-D	5-9-29	6/2/81	San Andres	2780
Stevens Oil Co.	O'Brien L	7-E	5-9-29	6-19-81	San Andres	2769
Stevens Oil Co.	O'Brien FF	1-J	6-9-29	6-23-81	San Andres	2696
Stevens Oil Co.	O'Brien L	4-G	6-9-29	5-25-81	San Andres	2715
Stevens Oil Co.	O'Brien L	5-H	6-9-29	6-8-81	San Andres	2729
Selco,Inc.	Moonshine 7	1-F	7-9-29	3-27-81	San Andres	2653

Pool boundary outlined in red.

Proposed extension outlined in blue:

Section 5: W/2 W/2

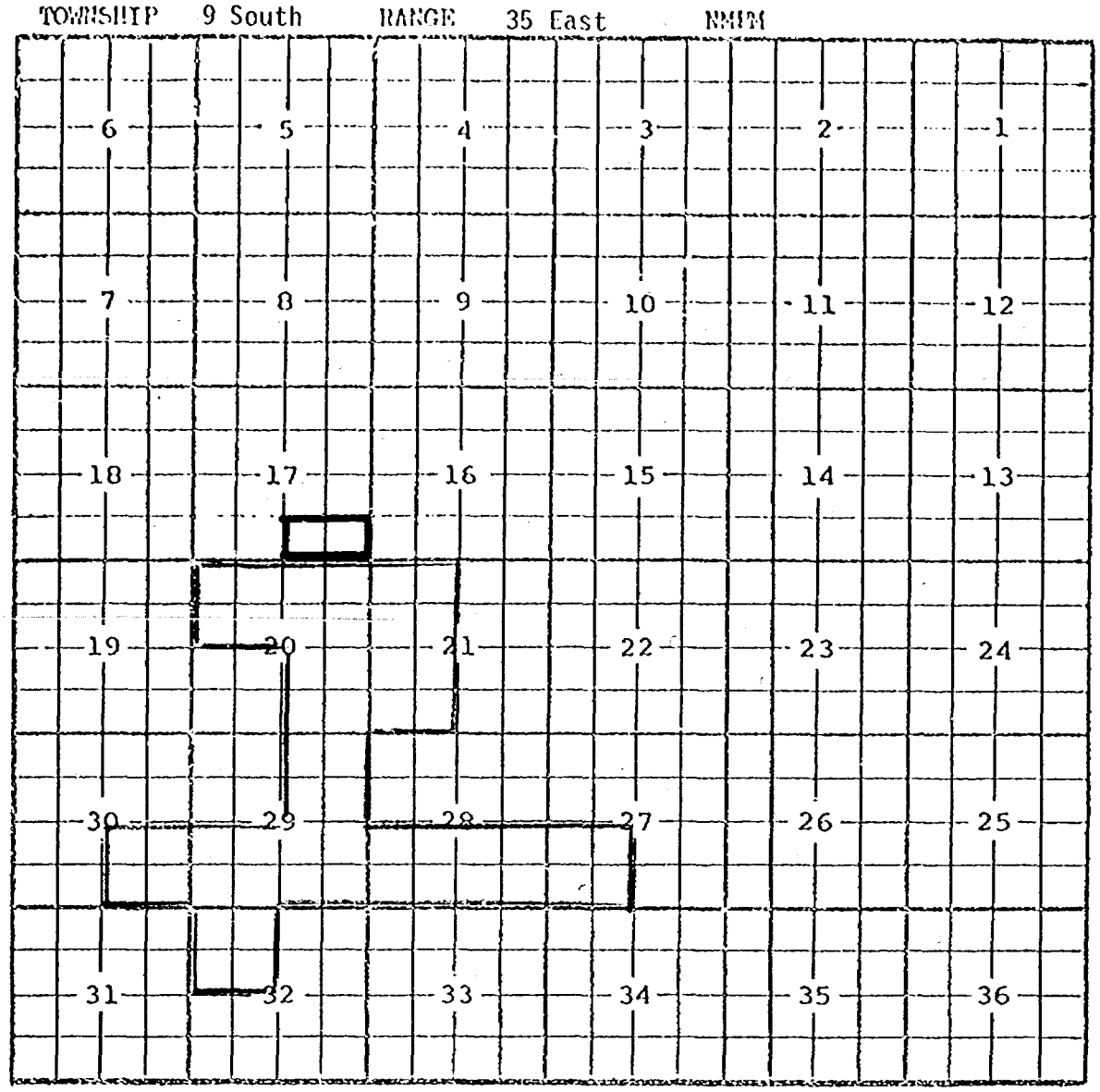
Section 6: S/2 N/2 & S/2

Section 7: NW/4

CASE NO. 7328 (p) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL JENKINS-SAN ANDRES

TOWNSHIP 9 South RANGE 35 East NMPM



PURPOSE: One completed oil well capable of producing.

Yates Petroleum Corporation Hilliard USA Well #1-P in Sec. 17, T9S, R35E, completed May 30, 1981, in the San Andres formation. Top perf 4772 ft.

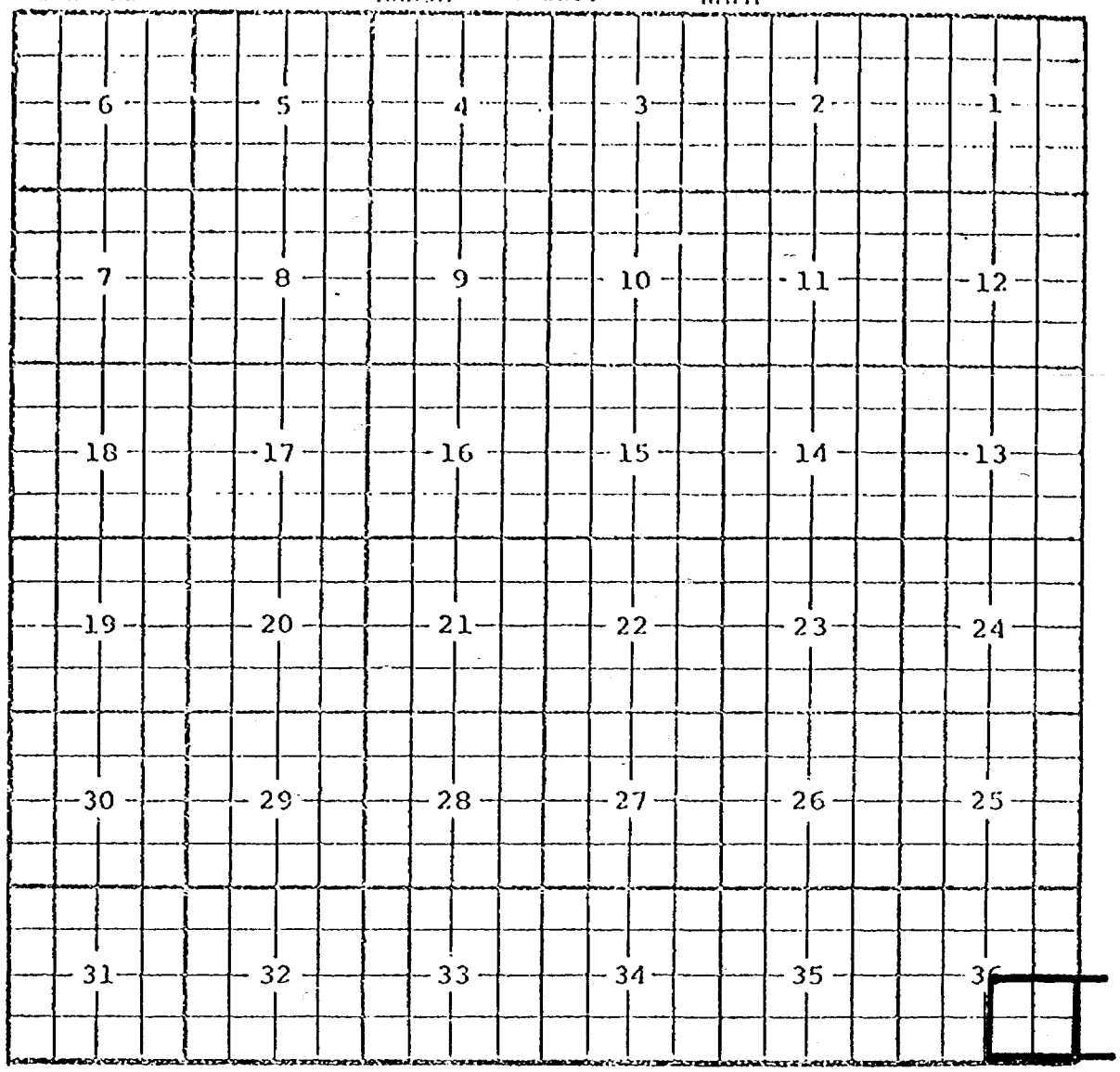
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 17: S/2 SE/4

CASE NO. 7328 (y) EXTENSION OF AN EXISTING ASSOCIATED POOL

COUNTY LEA POOL SAWYER-SAN ANDRES ASSOCIATED

TOWNSHIP 9 South RANGE 37 East NMPM



PURPOSE: One completed oil well capable of producing.

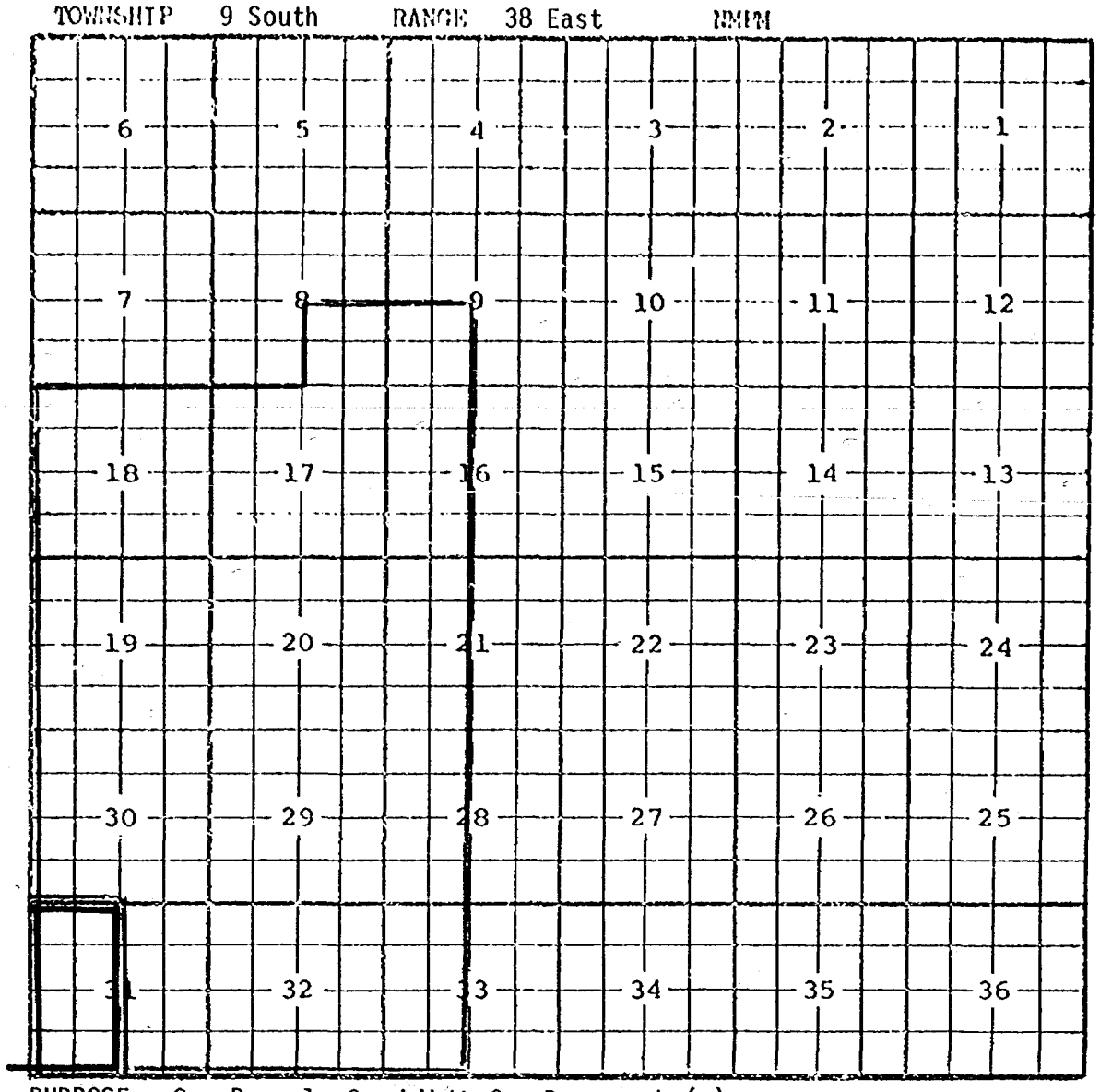
Brazos Petroleum Company Getty State Com Well #1-I in Sec. 36, T9S, R37E, completed April 22, 1981, in the San Andres formation. Top perf 4931 ft.

Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 36: SE/4

COUNTY LEA POOL SAWYER-SAN ANDRES ASSOCIATED

TOWNSHIP 9 South RANGE 38 East NMPM



PURPOSE: See Page 1 of exhibit for Paragraph (y)

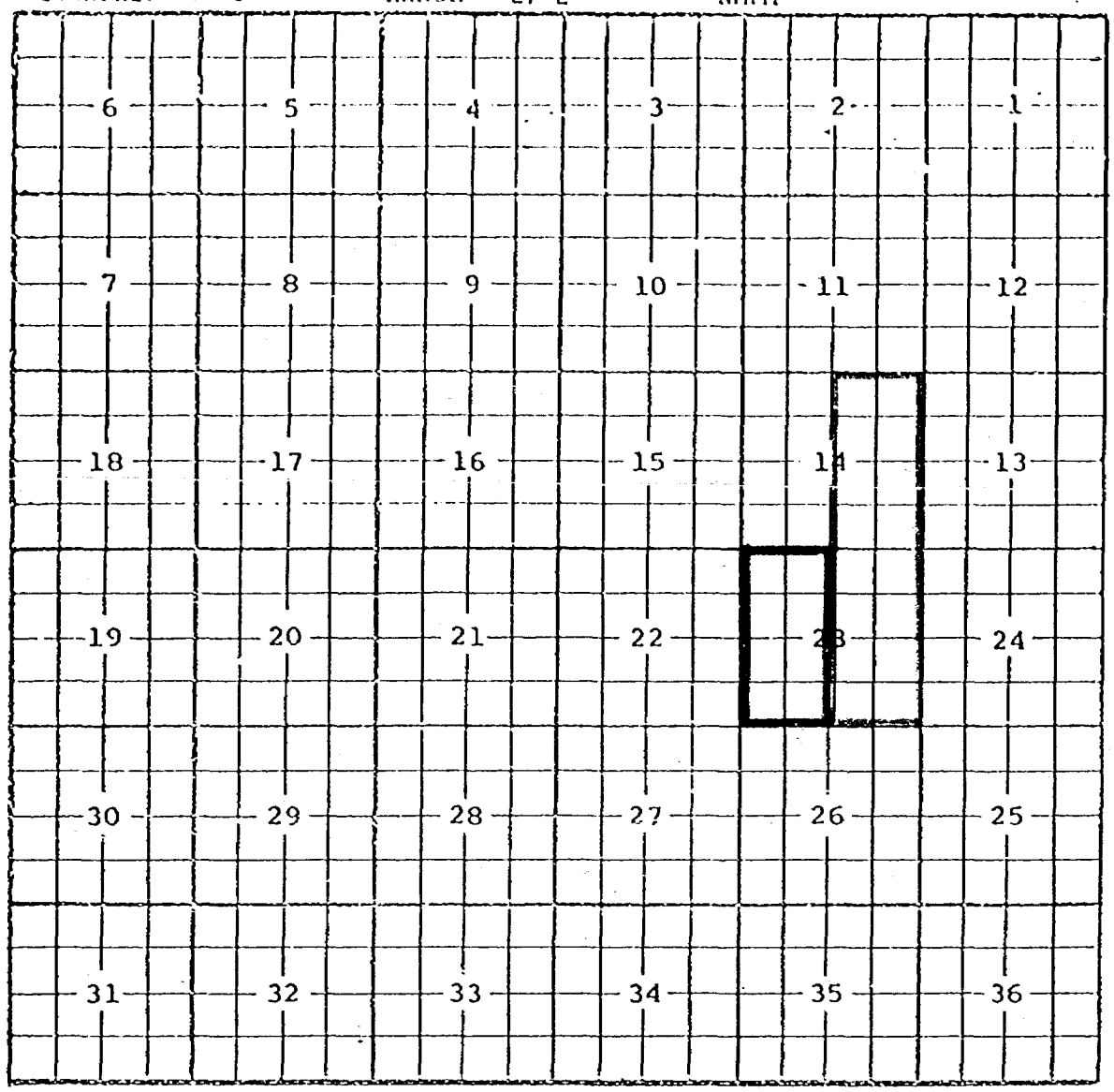
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 31: W/2

CASE NO. 7328 (aa) EXTENSION OF AN EXISTING GAS POOL

COUNTY CHAVES POOL SPRINGER BASIN - MORROW GAS

TOWNSHIP 14 S RANGE 27 E NMPM



Purpose: One completed gas well, capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Yates Pet.Corp.	Long Arroyo OW Fed.	1-K	23-14-27	5-20-81	Morrow	7926

Pool boundary outlined in red.

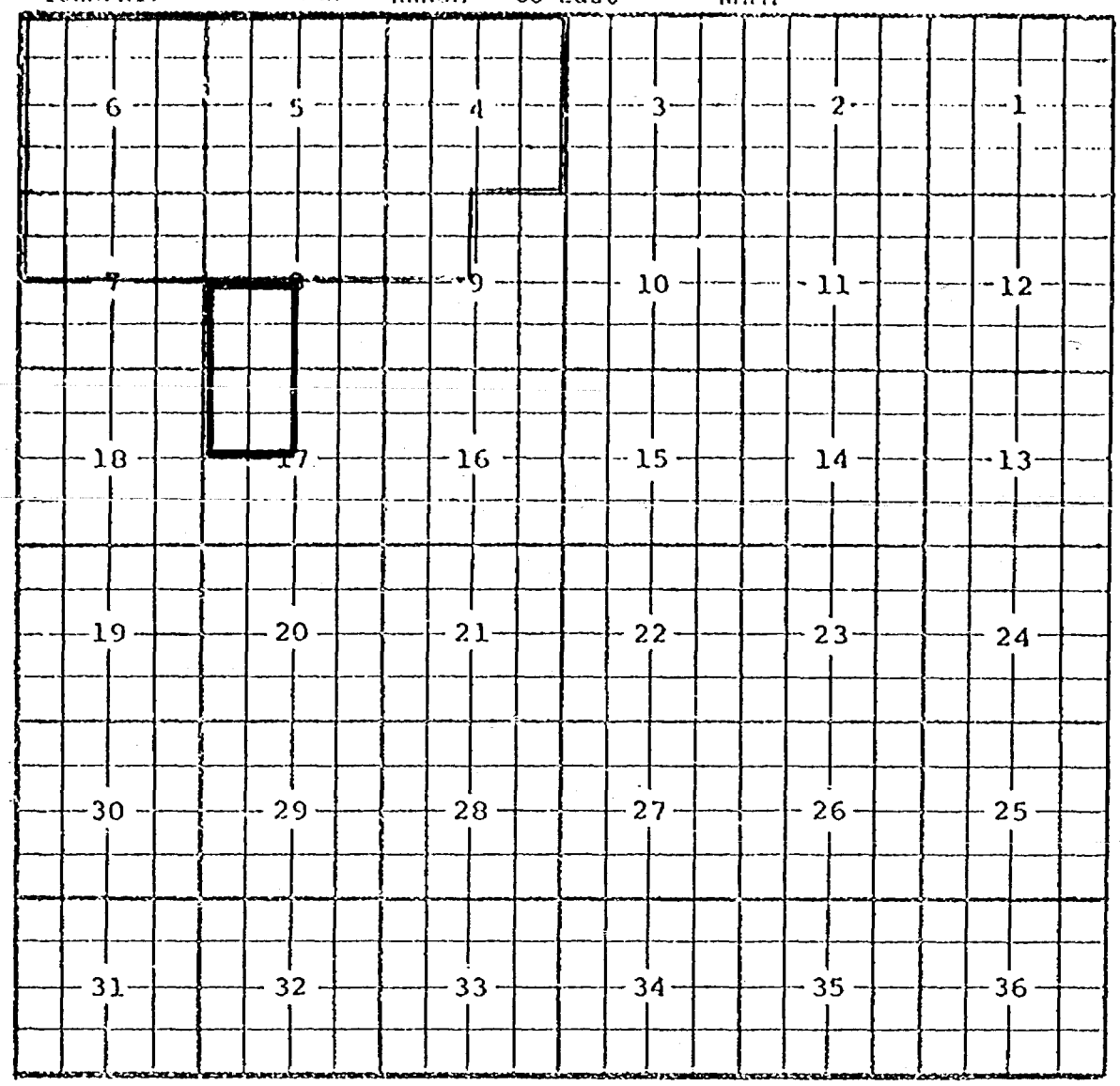
Proposed extension outlined in blue:

Section 23: W/2

CASE NO. 7328 (h) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL BAUM-UPPER PENNSYLVANIAN

TOWNSHIP 14 South RANGE 33 East NMPM



PURPOSE: One completed oil well capable of producing.

MWJ Prod. Co. Baum 17 State Well #1-D in 17-14-33, completed June 29, 1981, in the Upper Pennsylvanian formation. Top perf 9933 ft.

Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 8: SW/4

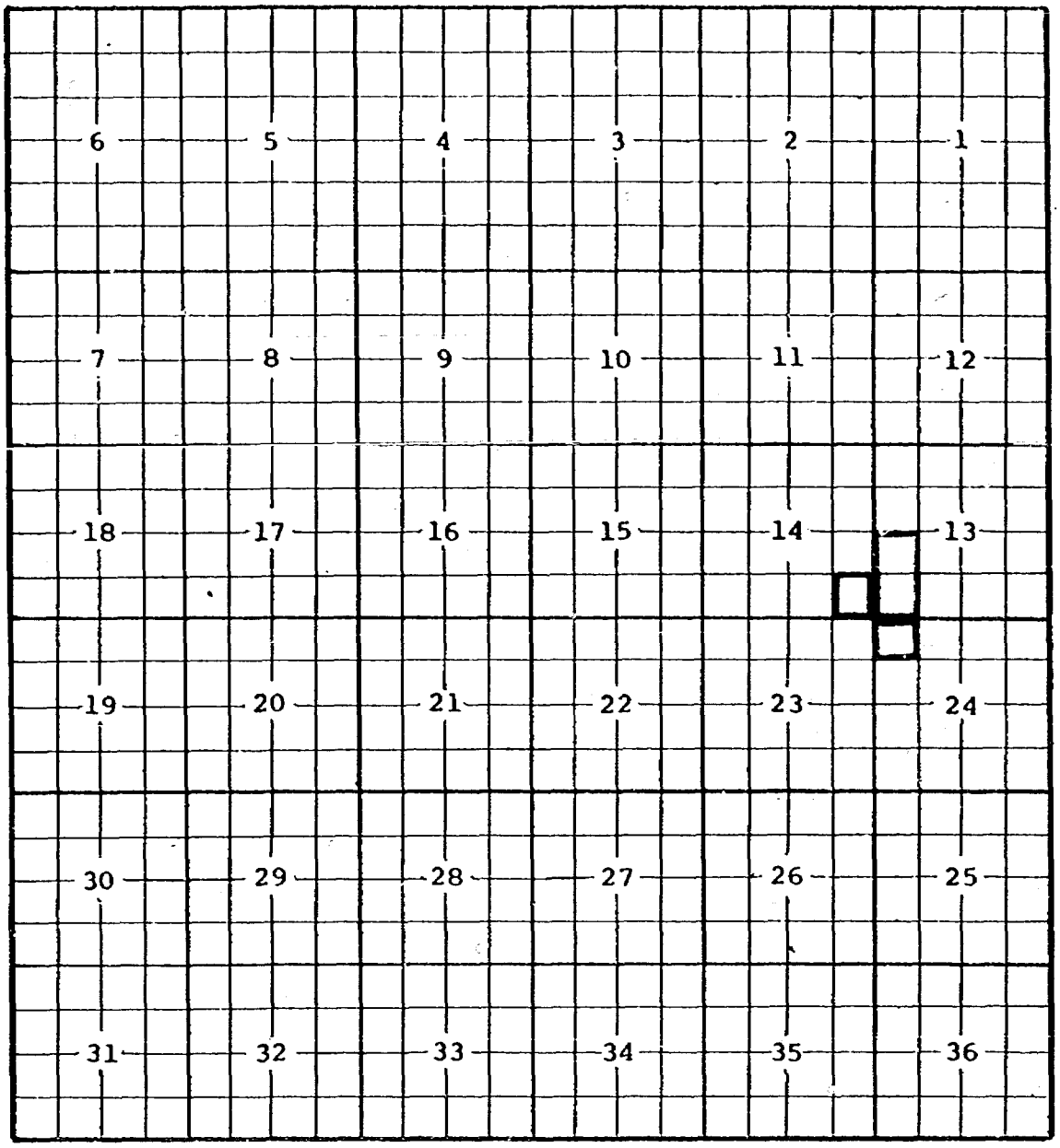
SECTION 17: NW/4

CASE NO. 7328 (J) EXTENSION OF AN EXISTING OIL POOL

4

COUNTY EDDY POOL BUNKER HILL - PENROSE

TOWNSHIP 16S RANGE 31 E NMPM



Purpose: Two completed oil wells capable of producing

Read & Stevens,Inc.	Dartmouth	1-P	14-16-31	5-11-81	Penrose	3602
Read & Stevens,Inc.	Gulf West Mesa	2-D	24-16-31	3-1-81	Penrose	3600

Pool boundary outlined in red.

Proposed extension outlined in blue.

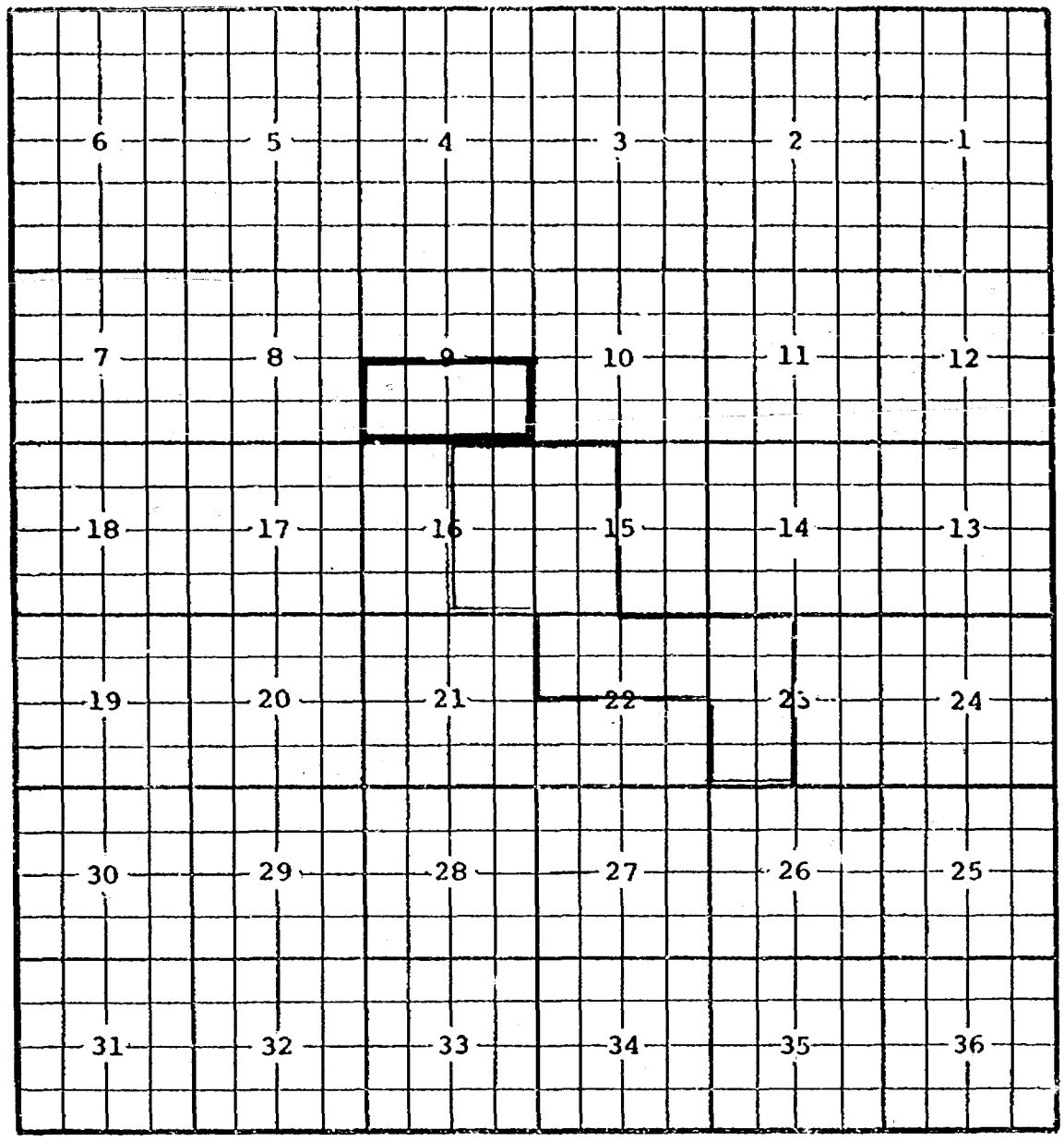
Section 14: SE/4 SE/4

Section 24: NW/4 NW/4

CASE NO. 7328 (q) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL KEMNITZ-MORROW GAS

TOWNSHIP 16 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.

Elk Oil Company N.E. Kemnitz #6-N in Sec. 9, T16S, R34E, completed 5-25-81, in the Morrow formation. Top perf 13,250'.

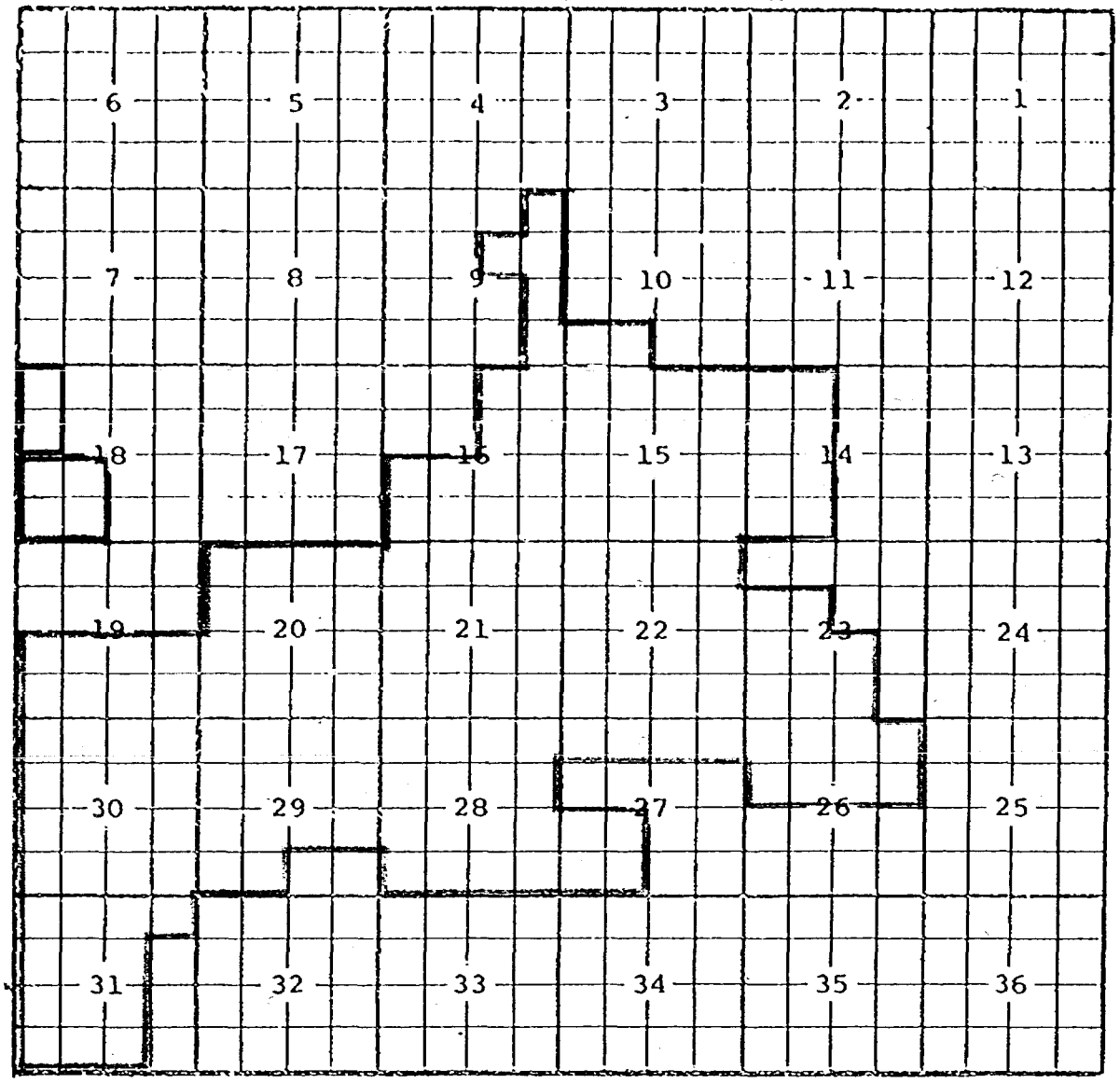
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 9: S/2

CASE NO. 7328 (w) EXTENSION OF AN EXISTING OIL, POOL

COUNTY EDDY POOL RED LAKE - QUEEN-GRAYBURG-SAN ANDRES

TOWNSHIP 17 S RANGE 28 E NMPM



Purpose: Two completed gas well capable of producing to be included in said oil pool.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
H&S Oil Co.	Hastie	19-E	18-17-28	1-9-81	Queen-Grayburg	1222
H&S Oil Co.	Hastie	20-D	18-17-28	1-9-81	Queen-Grayburg	1230

Pool boundary outlined in red..

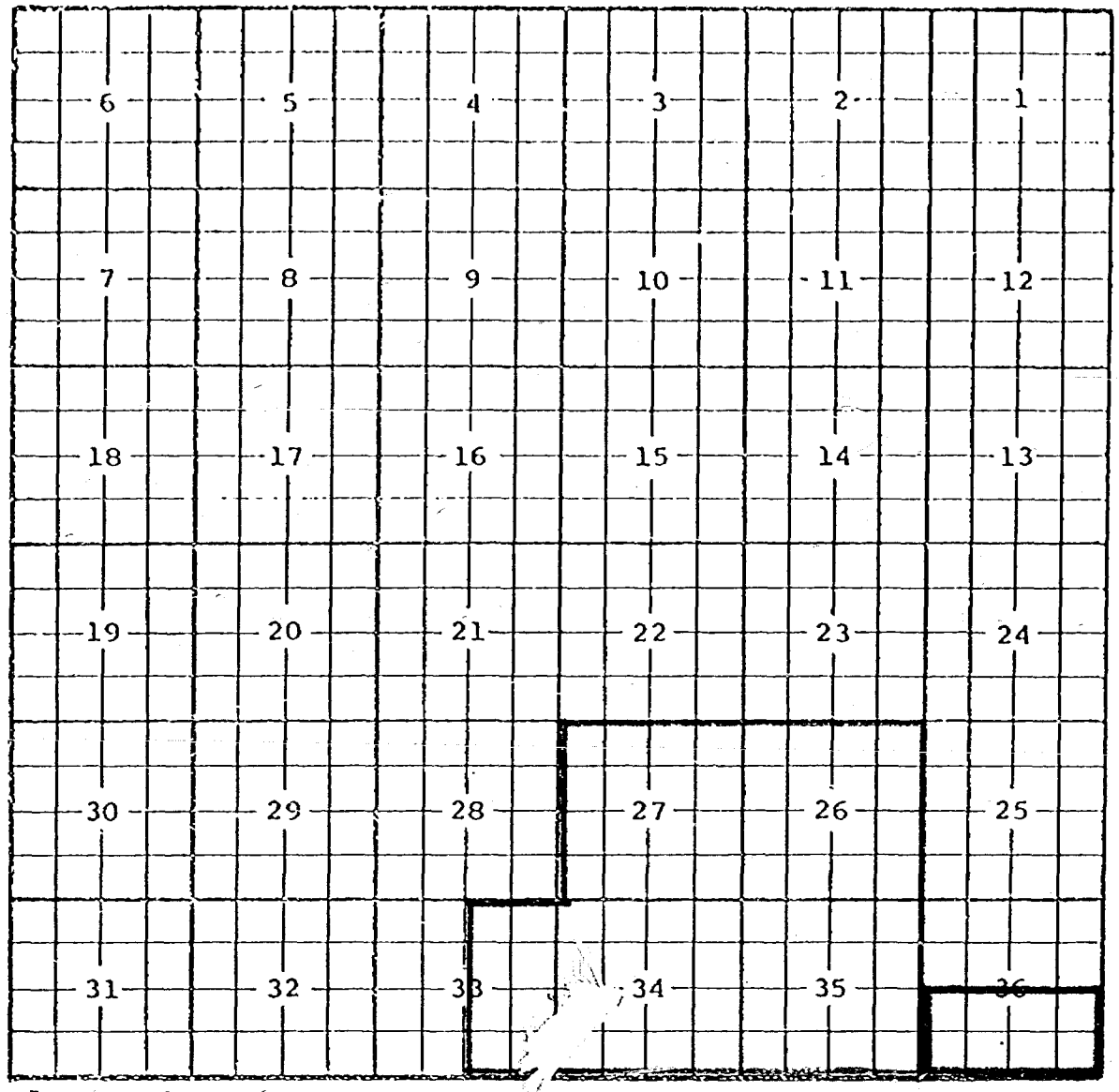
Proposed extension outlined in blue:

Section 18: W/2 NW/4

CASE NO. 7328 (z) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL SHUGART-MORROW GAS

TOWNSHIP 18 S RANGE 31 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Gulf Oil Corp.	Eddy JP St.Com.	1-N	36-18-31	5-18-81	Morrow	11995

Pool boundary outlined in red.

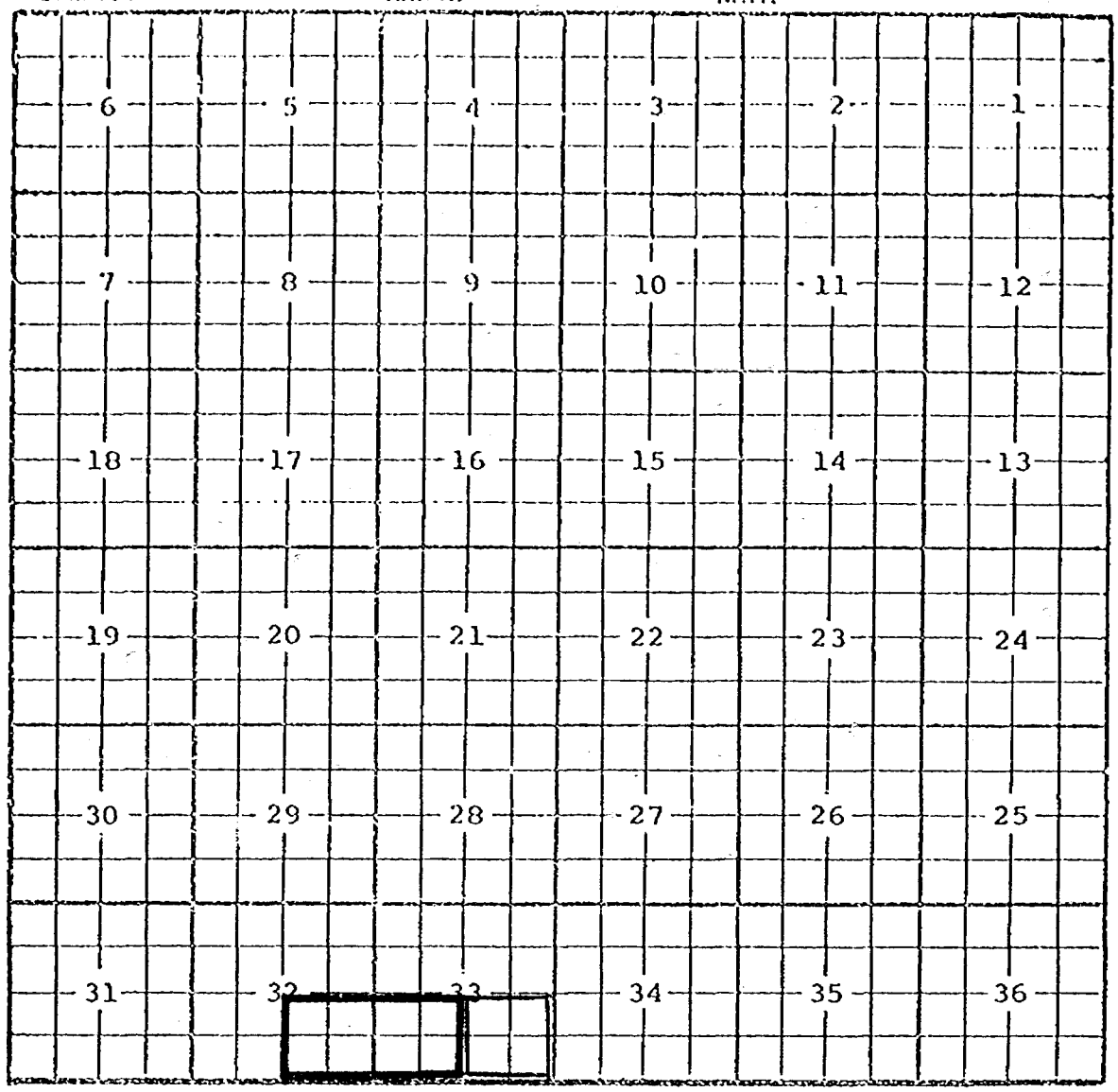
Proposed extension outlined in blue:

Section 36: S/2

CASE NO. 7328 (t) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL NORTH LUSK-WOLFCAMP

TOWNSHIP 18 South RANGE 32 East NMPM



PURPOSE: One completed oil well capable of producing.
Amoco Production Co. State HU Well #1-J in Sec. 32, T18S, R32E, completed May 19, 1981, in the Wolfcamp formation. Top perf 10,674 ft.

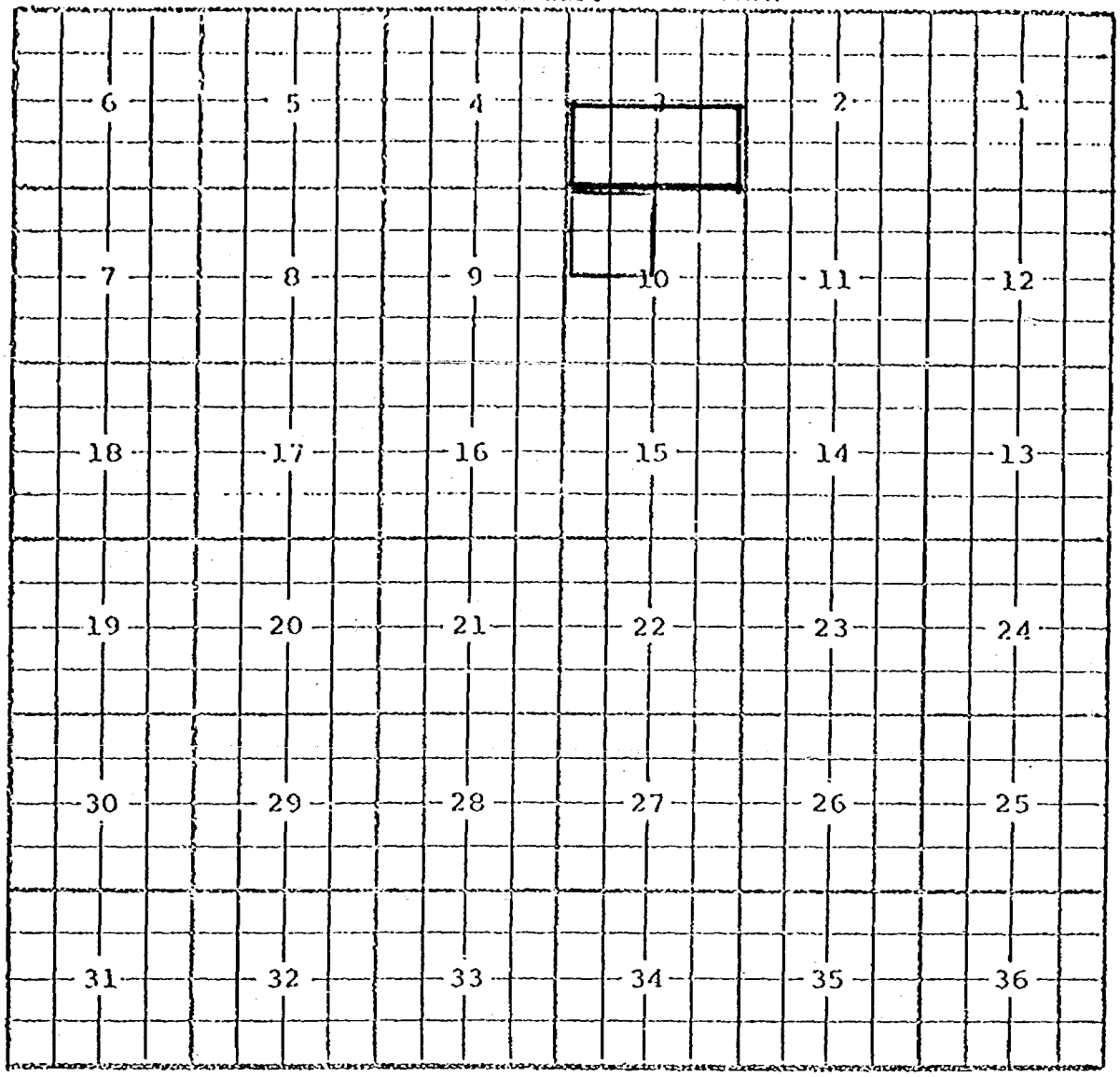
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 32: SE/4
SECTION 33: SW/4

CASE NO. 7328 (ff) EXTENSION OF AN EXISTING OIL POOL.

COUNTY LEA POOL NORTH YOUNG-BONE SPRING

TOWNSHIP 18 South RANGE 32 East NMPM



PURPOSE: One completed oil well capable of producing.

Harvey E. Yates Company Young Deep 3 Federal Well #1-O in Sec. 3, T18S,R32E, completed June 22, 1981, in the Bone Spring formation. Top perf 8469 ft.

Pool boundary outlined in red.

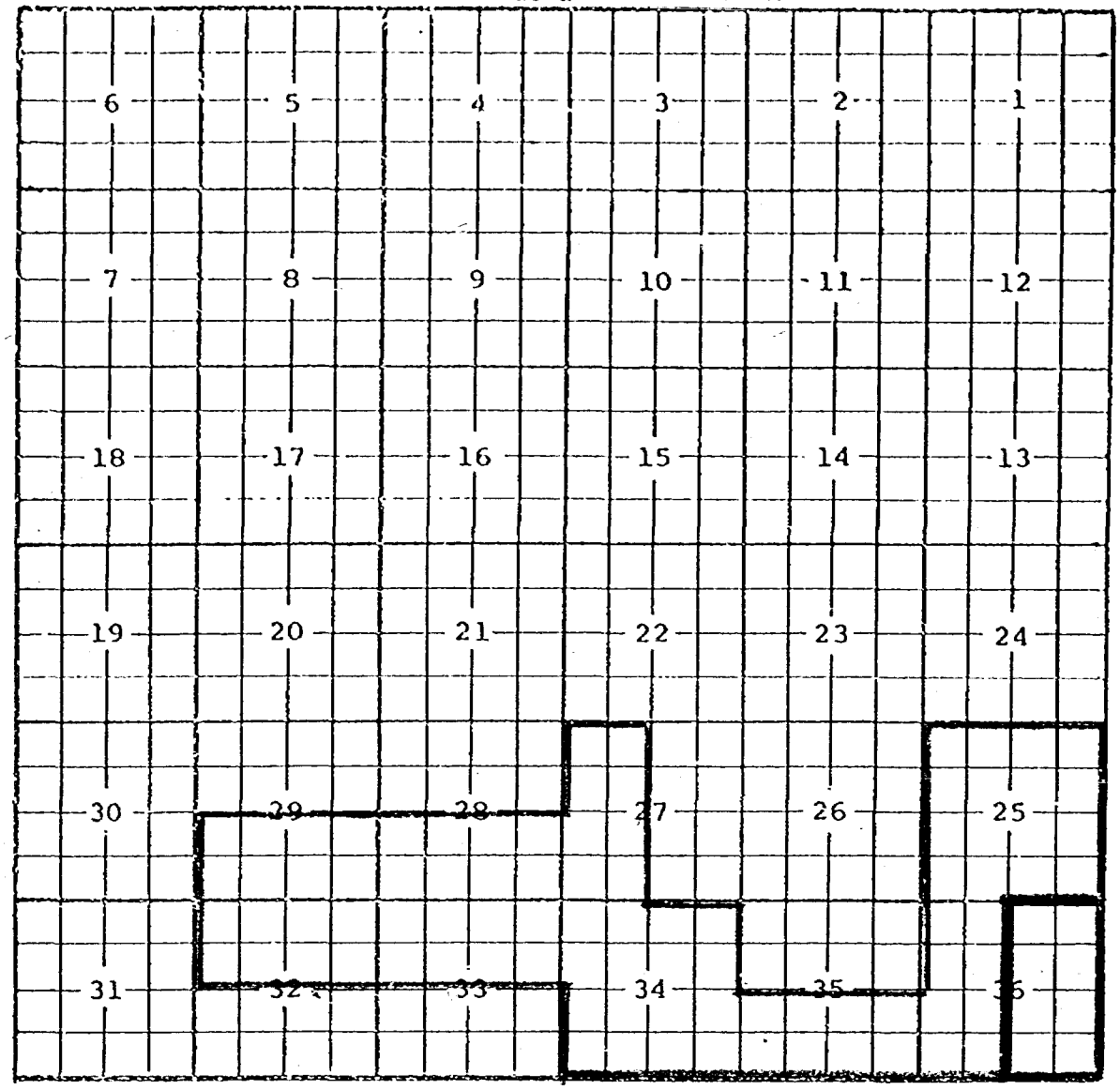
Proposed pool extension outlined in green. SECTION 3: S/2

CASE NO.7326 (ee) EXTENSION OF A.I EXISTING GAS POOL Page 1 of 2 pages

EXHIBIT I

COUNTY EDDY POOL WINCHESTER - MORROW GAS

TOWNSHIP 19 S RANGE 28 E NMPM



Purpose: One Completed Gas Well Capable of Producing.

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
Marathon Oil Co.	Martinez 31 Fed.	1-F	31-19-29	5-7-81	Morrow	11238

Pool boundary outlined in red.

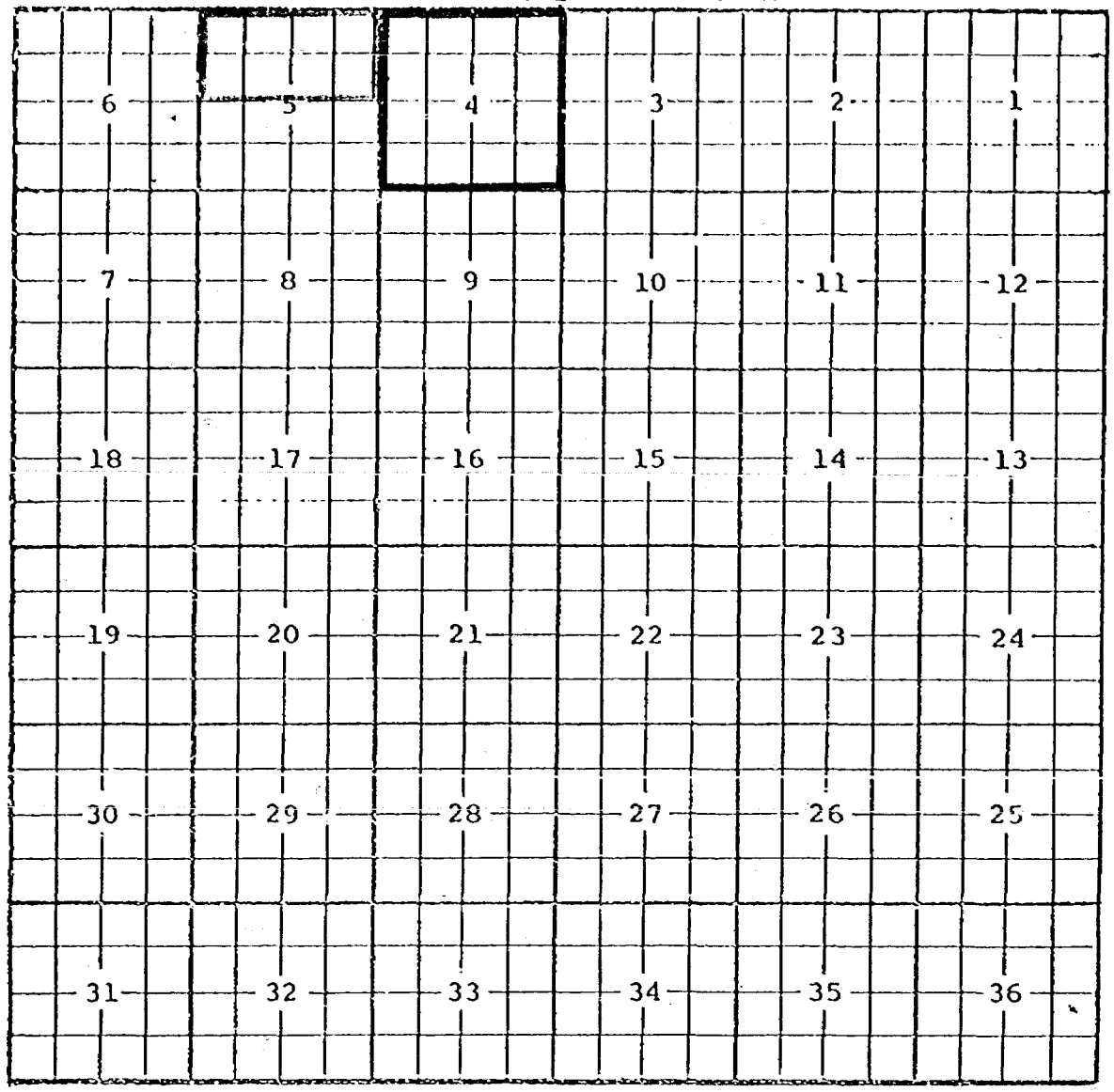
Proposed boundary outlined in blue:

Section 36: E/2

CASE NO. 7328 (hb) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL NORTH TURKEY TRACK - MORROW GAS

TOWNSHIP 19 S RANGE 29 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	FORM.	TOP
Cities Service Co.	State CZ Com.	1-H	4-19-29	3-16-81	Morrow	11340

Pool boundary outlined in red.

Proposed extension outlined in blue:

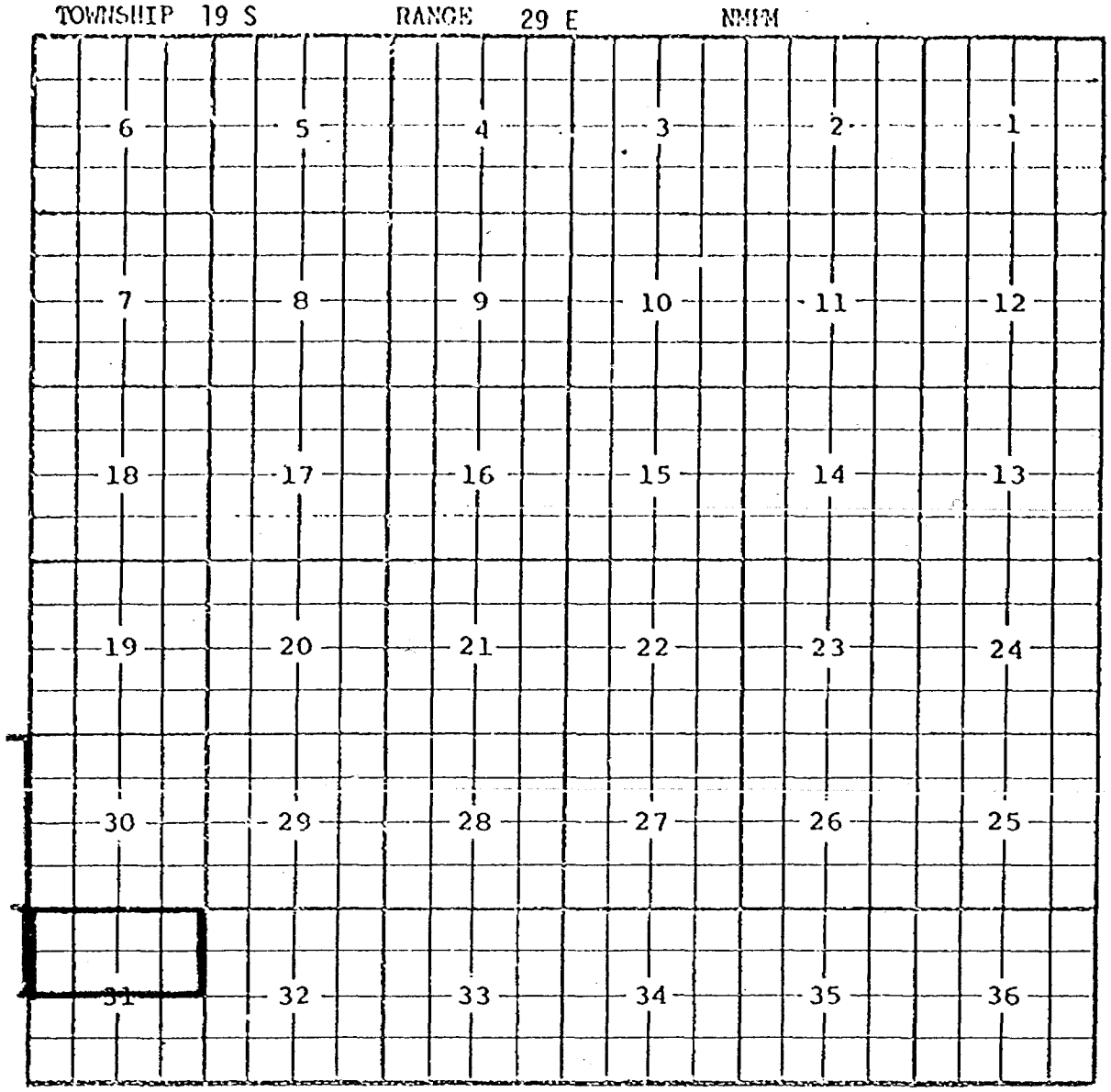
Section 4: All

CASE NO. 7328 (ee) EXTENSION OF AN EXISTING GAS POOL Contd. Page 2 of 2

EXHIBIT II

COUNTY EDDY POOL WINCHESTER - MORROW GAS

TOWNSHIP 19 S RANGE 29 E NMPM



Purpose: See Exhibit I

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
SEE EXHIBIT I						

Pool Boundary outlined in red.

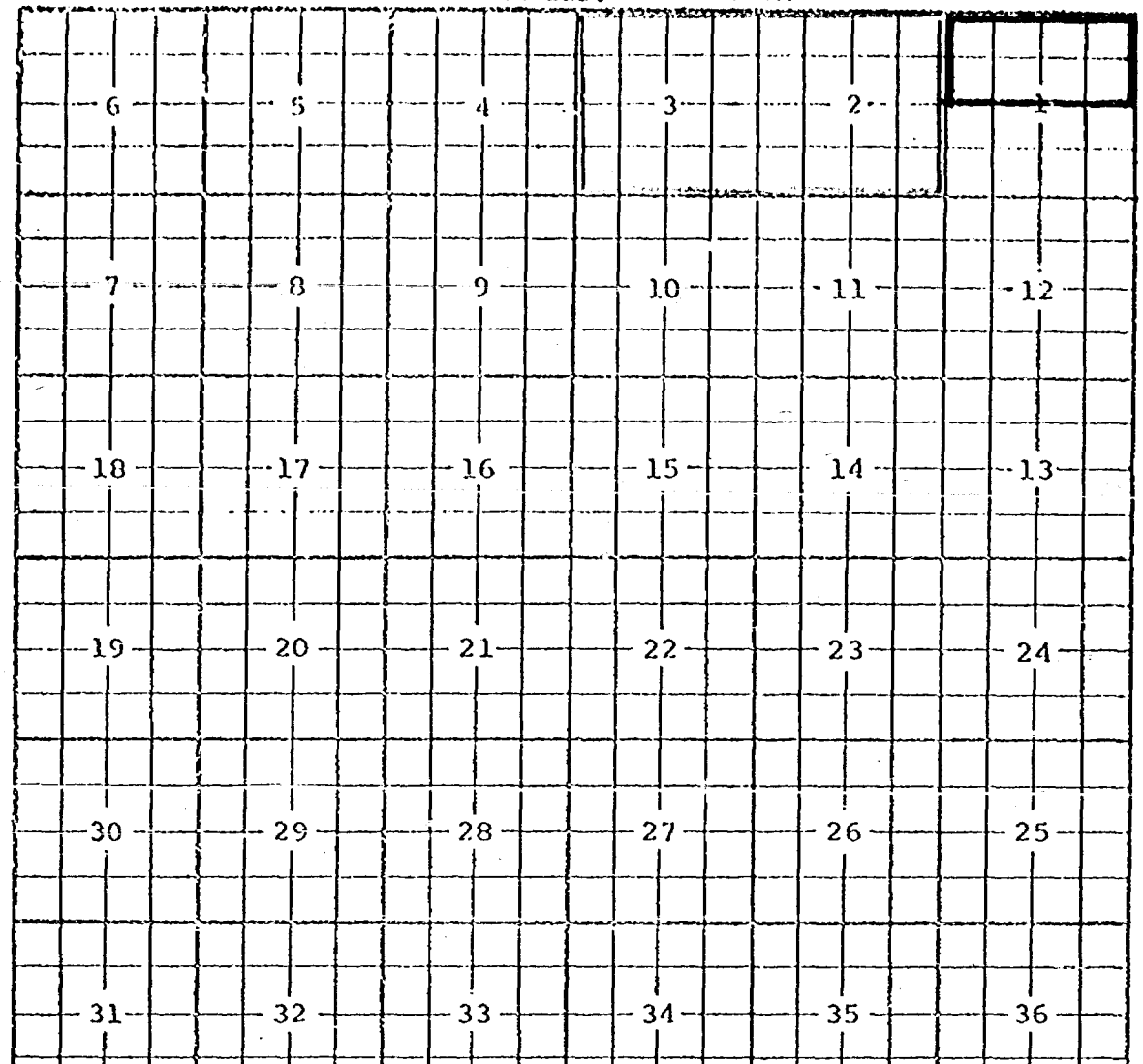
Proposed extension outlined in blue:

Section 31: N/2

CASE NO. 7328 (r) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL EAST LaRICA-MORROW GAS

TOWNSHIP 19 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.

Knox Industries, Inc. New Mexico State Well #2-H in Se. 1, T19S, R34E, completed June 9, 1981, in the Morrow formation. Top perf 13,398 ft.

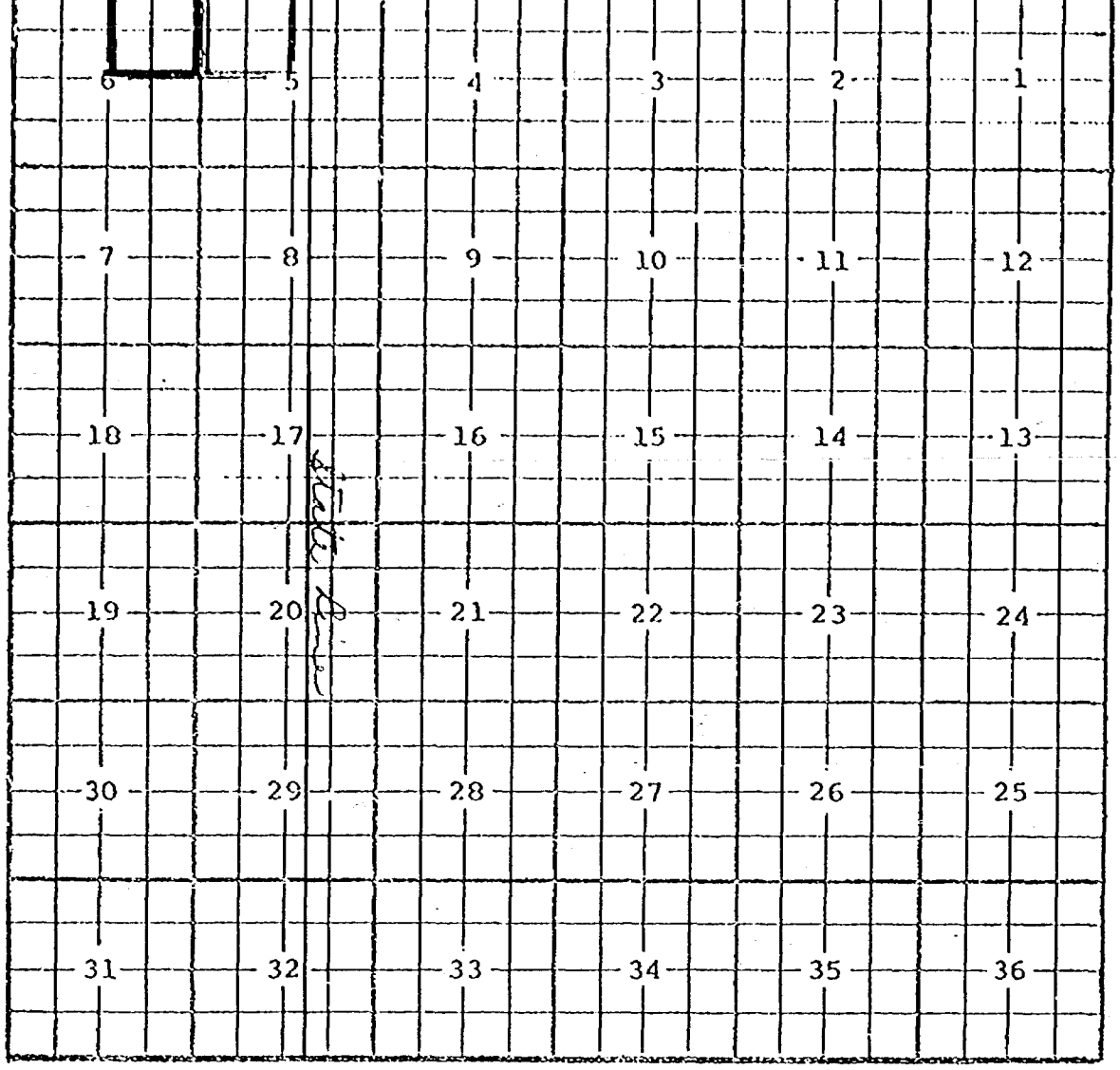
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 1: N/2

CASE NO. 7328 (o) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL FOSTER-SAN ANDRES

TOWNSHIP 19 South RANGE 39 East NMPM



PURPOSE: One completed oil well capable of producing.

Texas American Oil Corporation Foster Well #1-A in Sec. 6, T19S, R39E, completed May 26, 1981, in the San Andres formation. Top perf 4465 ft.

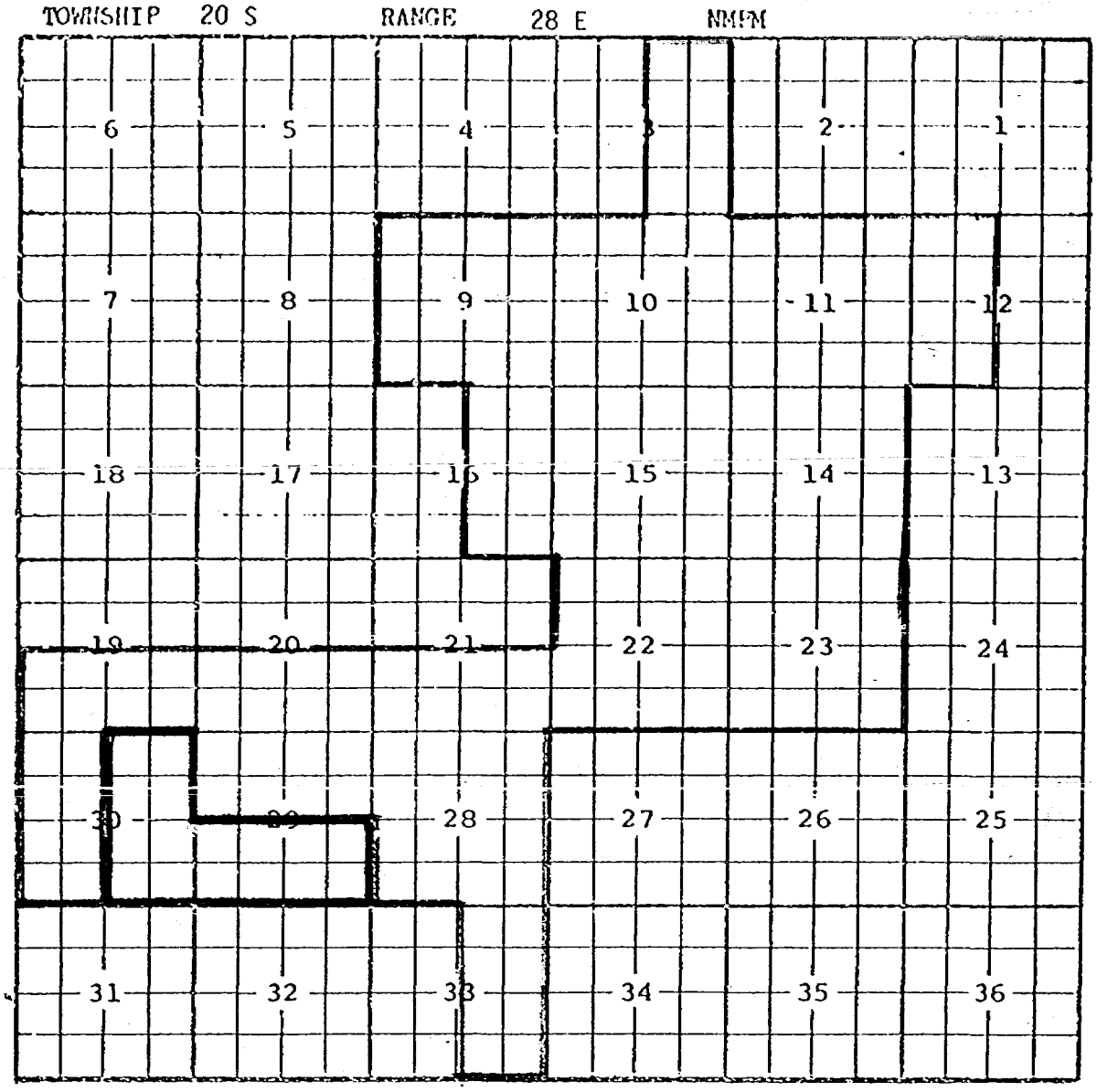
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 6: NE/4

CASE NO. 7328 (1) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL NORTH BURTON FLATS - WOLFCAMP GAS

TOWNSHIP 20 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Yates Pet.Corp.	Stonewall DS Fed.Com.	2-J	29-20-28	5-22-81	Wolfcamp	9546

Pool boundary outlined in red.

Proposed extension outlined in blue:

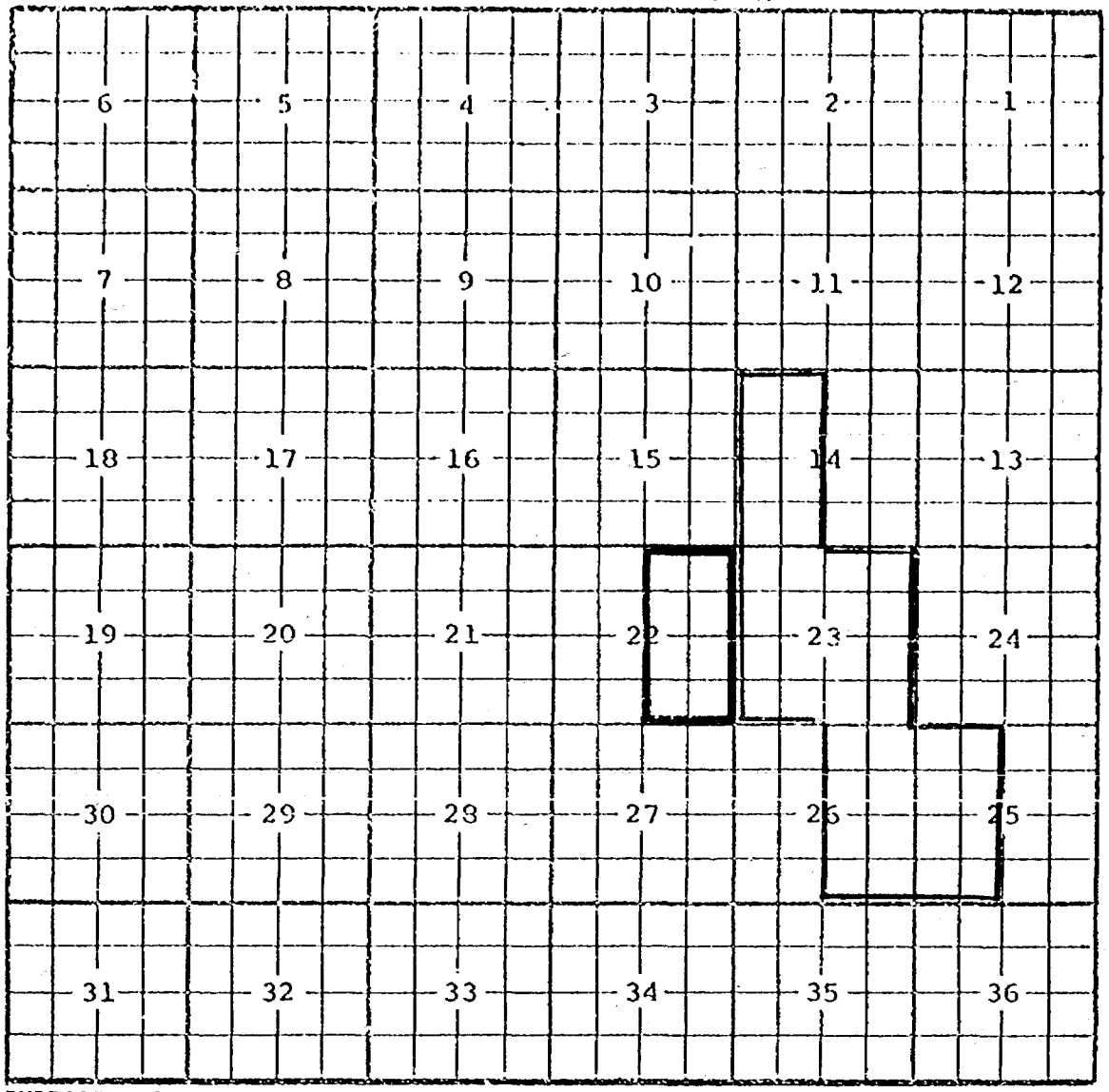
Section 29: S/2

Section 30: E/2

CASE NO. 7328 (u) EXTENSION OF AN EXISTING GAS POOL

COUNTY Lea POOL WEST OSUDO-MORROW GAS

TOWNSHIP 20 South RANGE 35 East NMPM



PURPOSE: One completed gas well capable of producing.

Amoco Production Co. Watkins A Gas Com Well #1-G in Sec. 22, T20S,R35E, completed 4-29-81, in the Morrow formation. Top perf 13,308 ft.

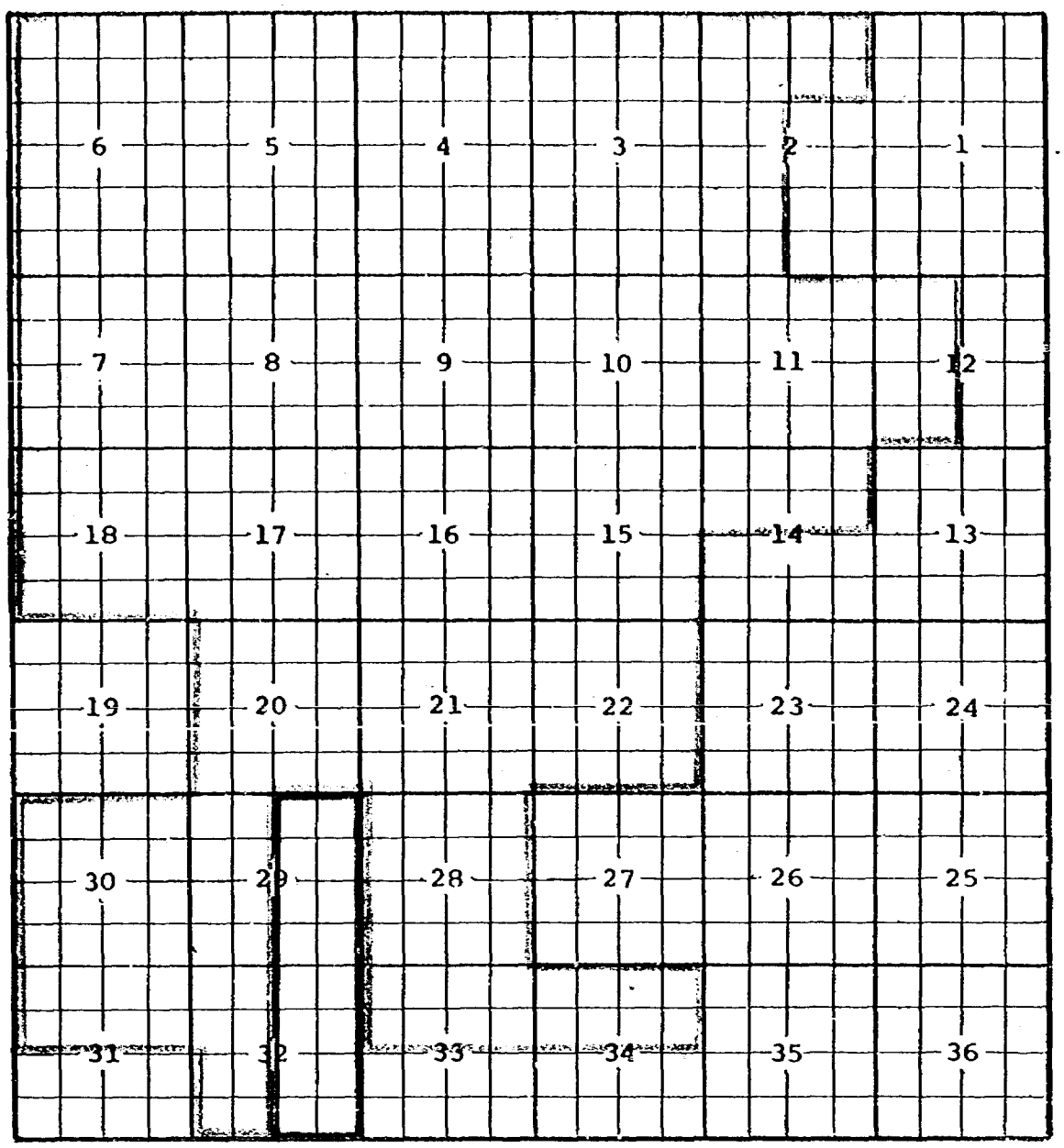
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 22: E/2

CASE NO. 7328 (k) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL BURTON FLAT - MORROW GAS

TOWNSHIP 21 S RANGE 27 E NMPM



Purpose: One completed gas well capable of producing

OPERATOR	LEASE	#-U	S-T-R	Comp	Form	TOP
Cities Service Co.	Tracy C Com	1-H	32-21-27	5-26-81	Morrow	11,299

Pool boundary outlined in red.

Proposed extension outlined in blue:

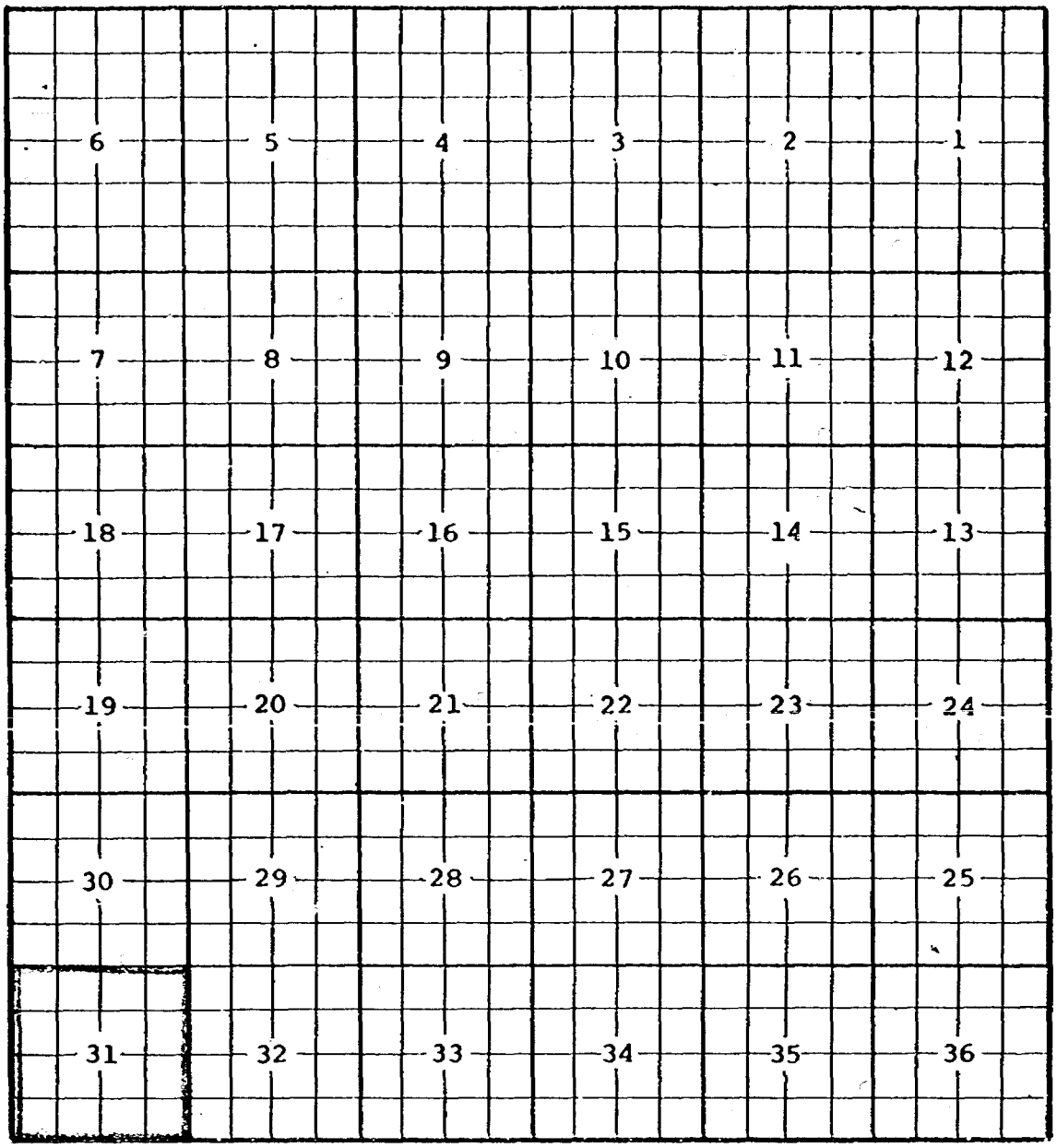
Section 29: E/2

Section 32: E/2

CASE NO. 7328 (m) EXTENSION OF AN EXISTING GAS POOL (Page 1 of 2 pages)

COUNTY EDDY POOL EAST CARLSBAD - STRAWN GAS

TOWNSHIP 21 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Perry R. Bass	Big Eddy Ut.	65-C	31-21-28	5-20-80	Strawn	10544

Pool boundary outlined in red.

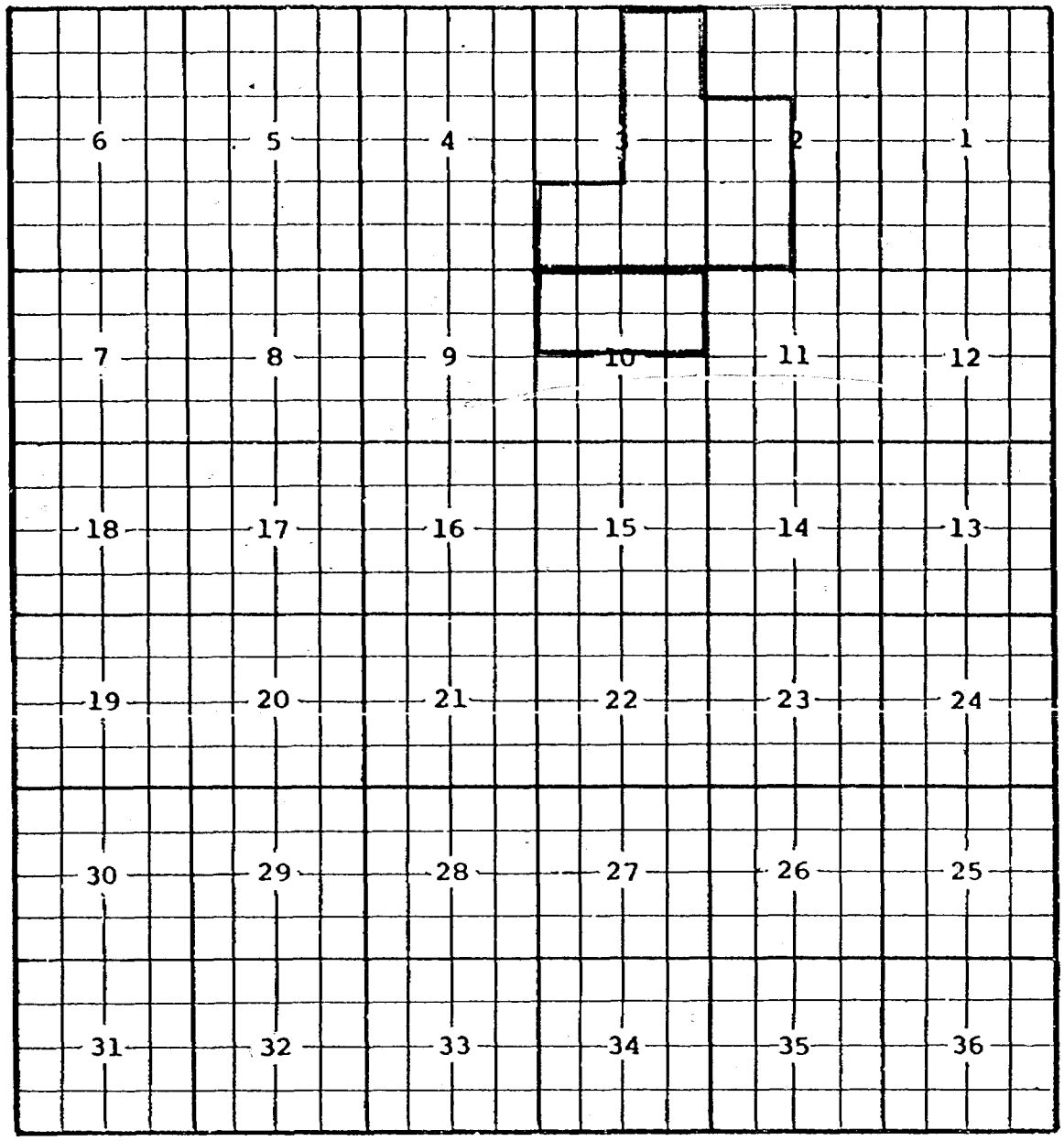
Proposed extension outlined in blue.

Section 31: All

CASE NO. 7328 (x) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL SAND POINT - MORROW GAS

TOWNSHIP 21 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp	FORM	TOP
Perry R. Bass	Big Eddy Ut.	83-C	10-21-28	5-11-81	Morrow	11816

Pool boundary outlined in red.

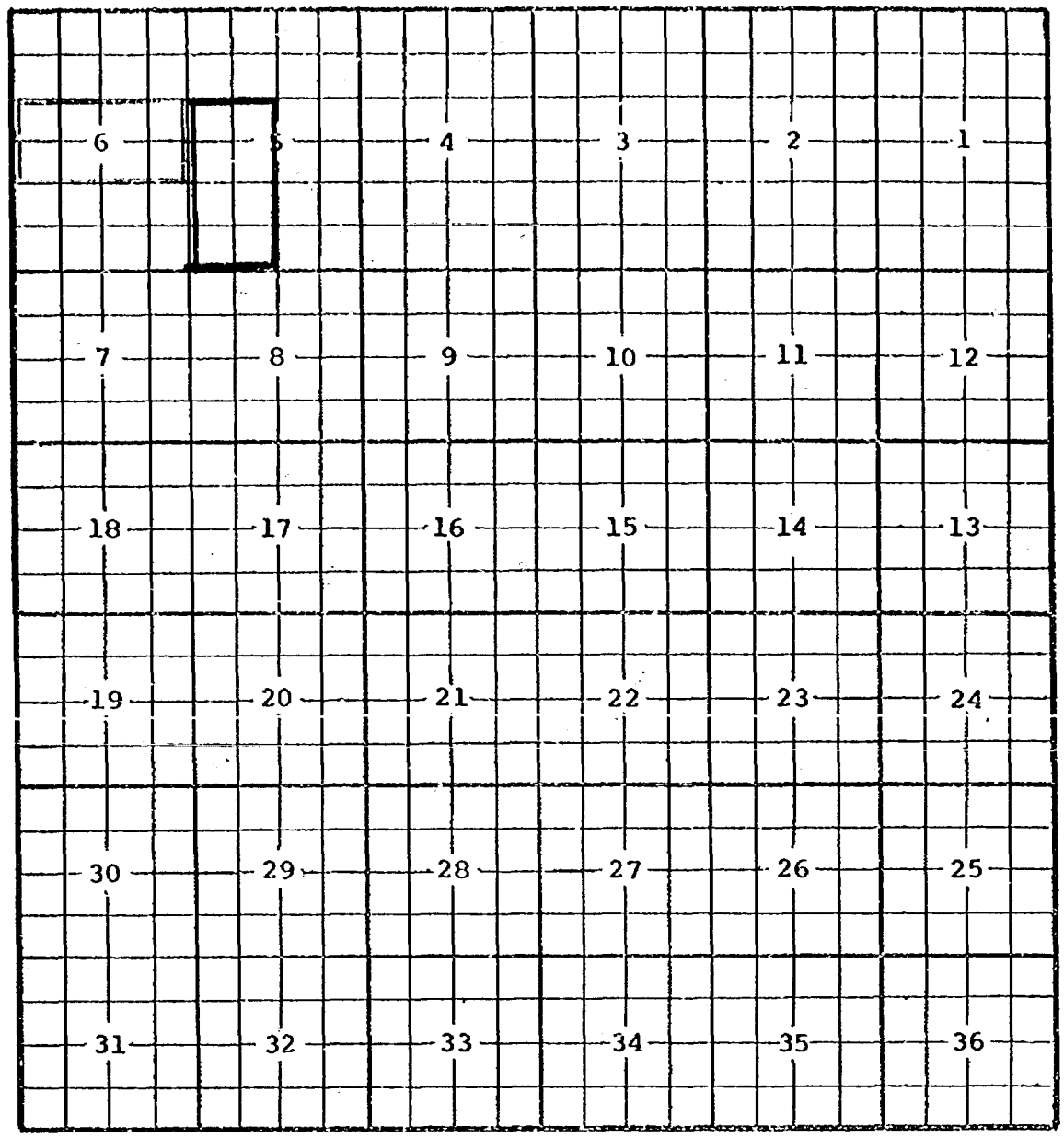
Proposed extension outlined in blue:

Section 10: N/2

CASE NO. 7328 (i) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL NORTH BERRY-MORROW GAS

TOWNSHIP 21 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.

Getty Oil Company Berry 5 State Well #1-T in Sec. 5, T21S, R34E, completed May 31, 1981, in the Morrow formation. Top perf 14,031 ft.

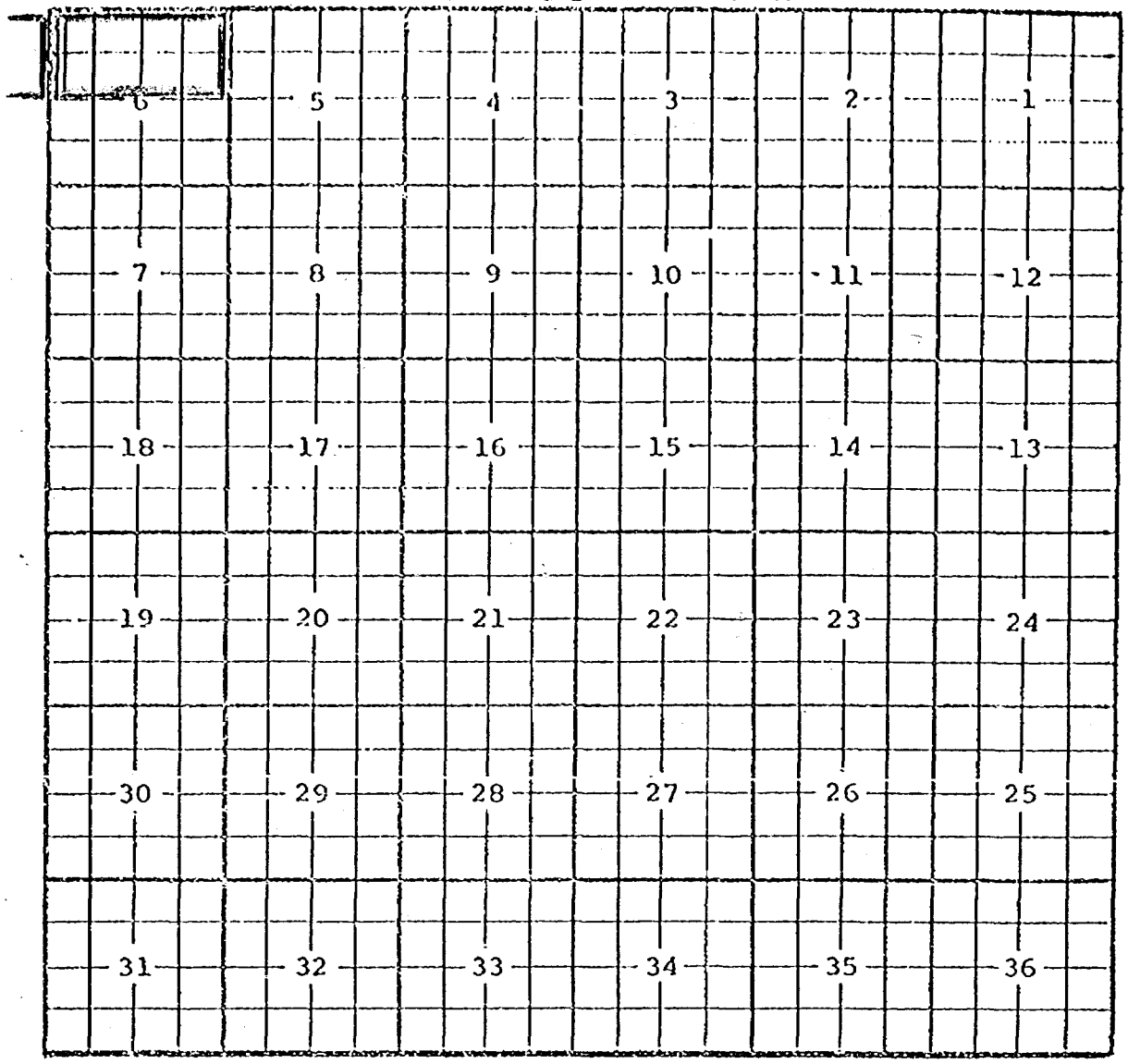
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 5: Lots 11, 12, 13, 14, &SW/4

CASE NO. 7328 (m) EXTENSION OF AN EXISTING GAS POOL Contd. Page 2 of 2

COUNTY EDDY POOL EAST CARLSBAD - STRAWN GAS

TOWNSHIP 22 S RANGE 28 E NMPM



Purpose: See page 1 of exhibit for Paragraph (m)

OPERATOR LEASE #-U S-T-R Comp. Form. TOP

(See page o of exhibit for Paragraph (m)

Pool boundary outlined in red.

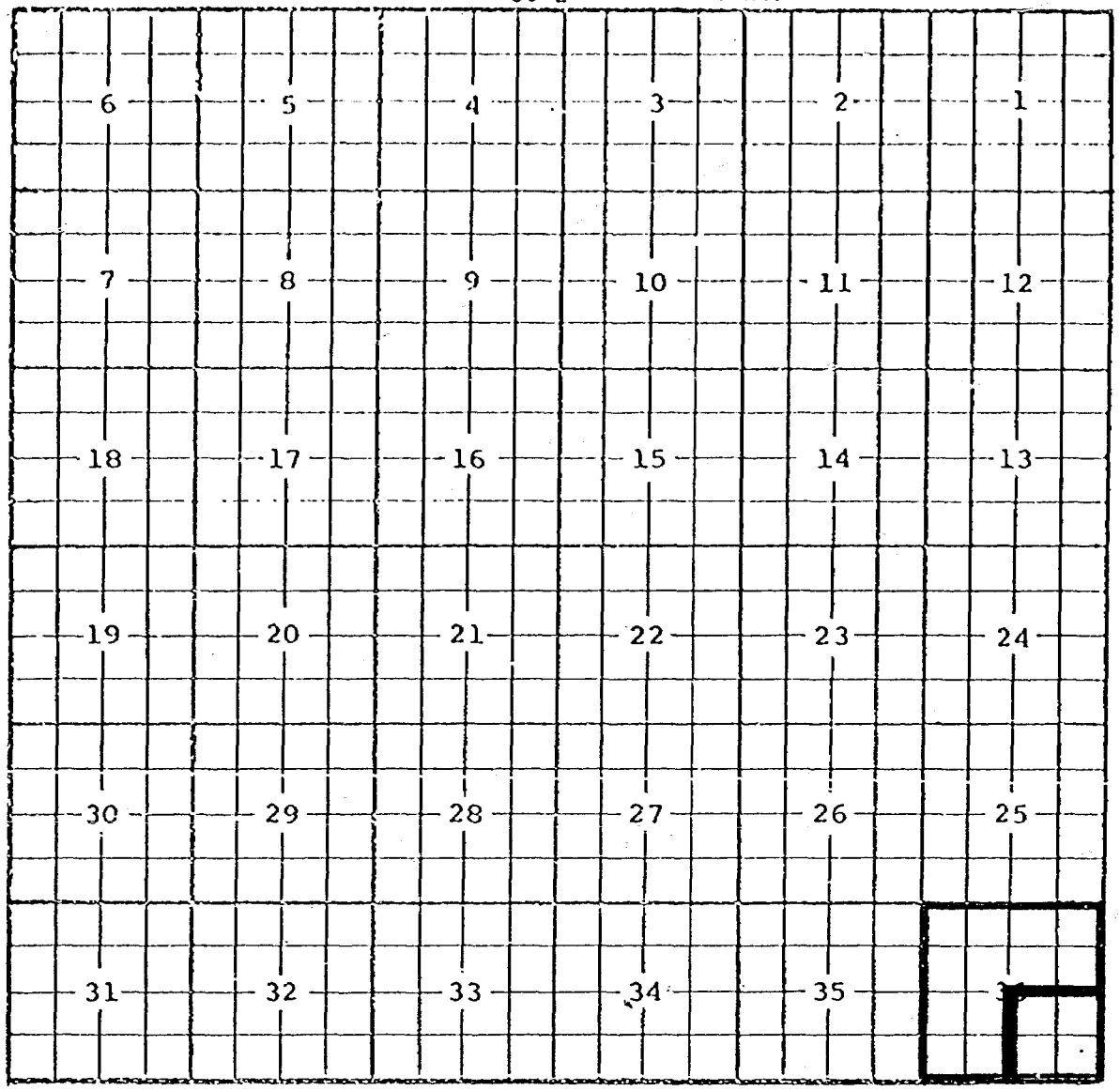
Proposed extension outlined in blue:

Section 6: N/2

CASE NO. 7328 (s) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL LOS MEDANOS - ATOKA GAS

TOWNSHIP 22 S RANGE 30 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
Belco Pet. Co.	James Ranch Ut.	11-E	36-22-30	5-31-81	Atoka	13044

Pool Boundary outlined in red.

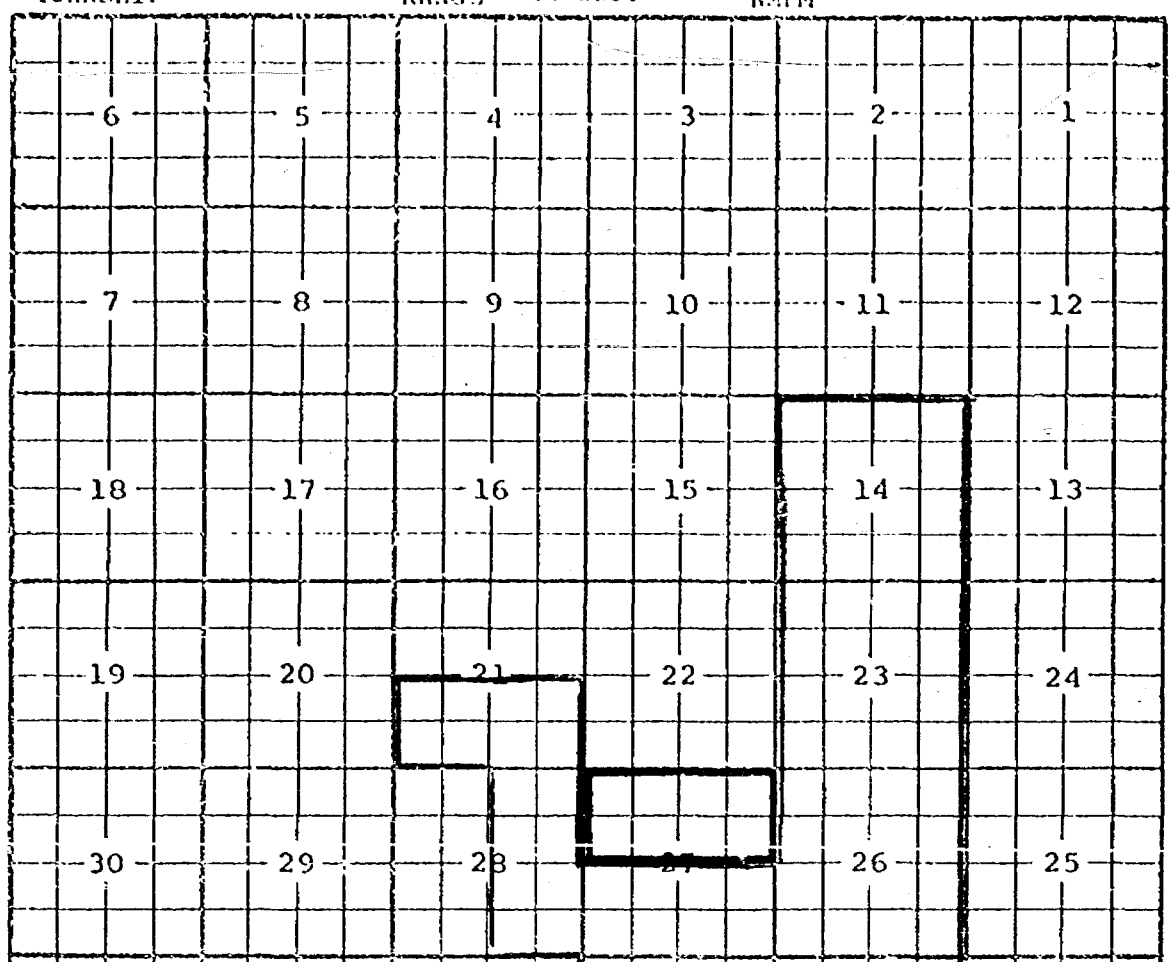
Proposed extension outlined in blue:

Section 36: N/2 and SW/4

CASE NO. 7328 (f) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL ANTELOPE RIDGE-MORROW GAS

TOWNSHIP 23 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.
Shell Oil Company Antelope Ridge Unit #7-G in 27-23-34, completed 11-6-80,
in the Morrow formation. Top perf 13,183 ft.

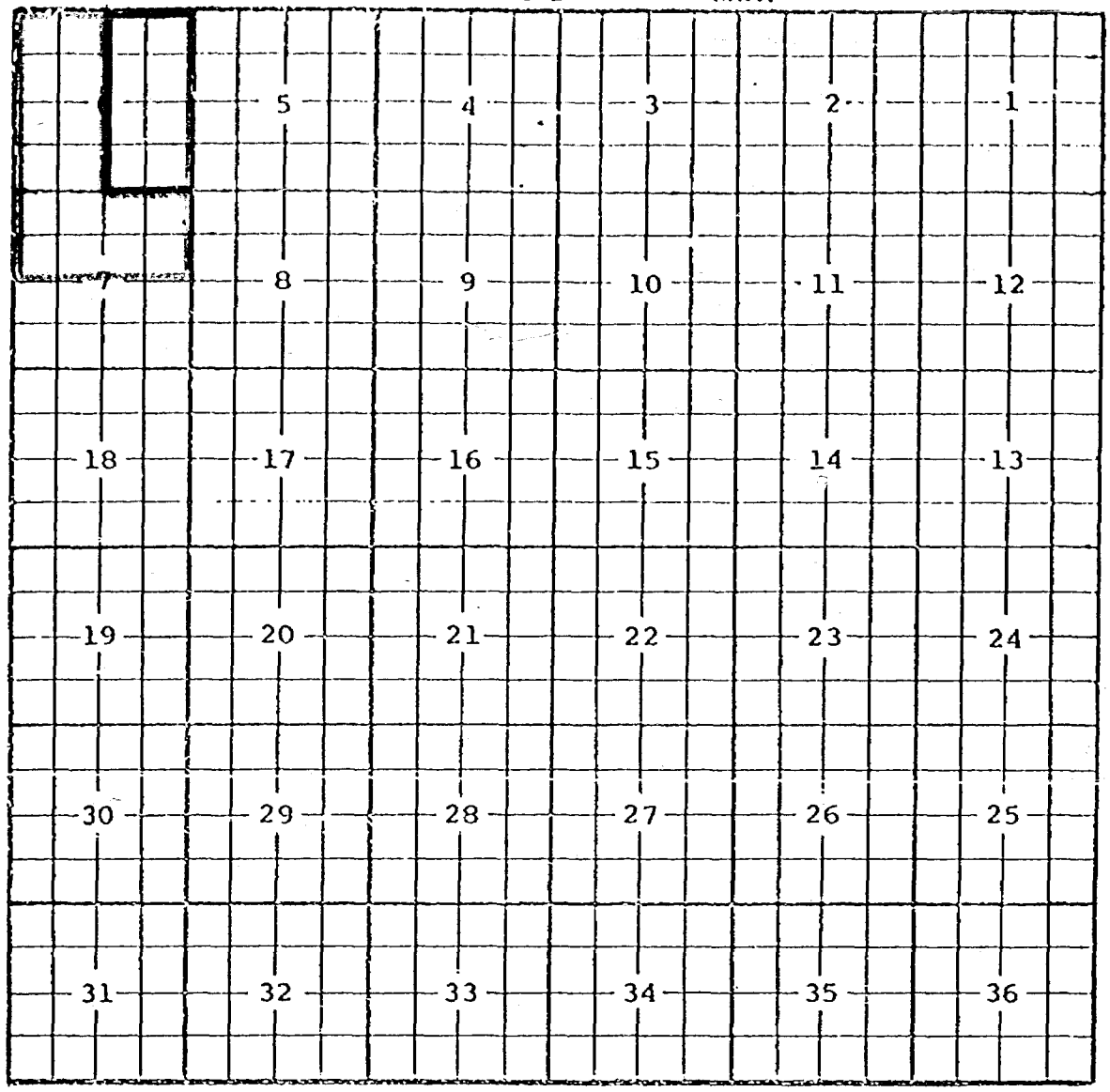
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 27: N/2

CASE NO. 7328 (g) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL BALDRIDGE CANYON - MORROW GAS

TOWNSHIP 24 S RANGE 25 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Amoco Prod. Co.	State IX Com.	1-H	6-24-25	4-27-81	Morrow	10864

Pool boundary outlined in red.

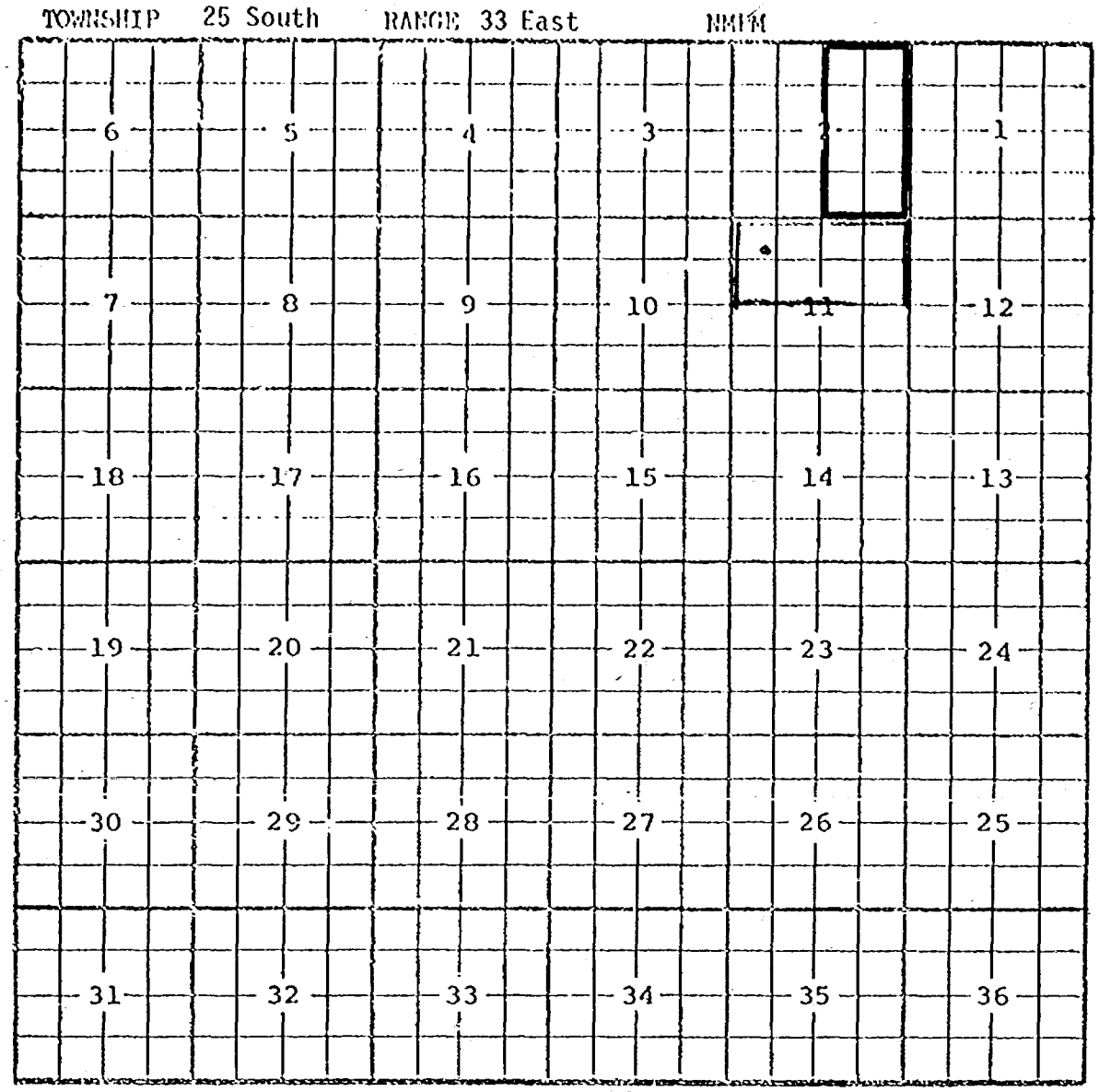
Proposed extension outlined in blue:

Section 6: E/2

CASE NO. 7328 (dd) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL VACA DRAW-MORROW GAS

TOWNSHIP 25 South RANGE 33 East NMPM



PURPOSE: One completed gas well capable of producing.

HNG Oil Co. Bell Lake 2 State Well #1-H in Sec. 2, T25S,R33E, completed April 14, 1981, in the Morrow formation. Top perf 15,157 ft.

Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 2: E/2

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

The hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico. CASE 7328

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

I N D E X

CARL ULVOG

Direct Examiantion by Mr. Padilla 3

E X H I B I T S

Division Exhibit One, Document 4

MR. NUTTER: Call Case Number 7328, which is in the matter of the hearing called by the OCD on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico.

MR. PADILLA: Mr. Examiner, Ernest L. Padilla, on behalf of the Oil Conservation Division.

I have one witness who needs to be sworn.

(Witness sworn.)

CARL ULVOG

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. PADILLA:

Q. Mr. Ulvog, for the record would you please state your name, by whom you're employed, and in what capacity?

A. Yes, sir. Carl Ulvog, the Senior Geologist for the Oil Commission, and I'm based in Santa Fe.

Q. Are you prepared to make recommendations

to the Division concerning the nomenclature of certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico?

A. I am.

Q. Are your recommendations prepared in the form of an exhibit?

A. I have one exhibit, which is composed of a series of paragraphs corresponding to that of the docket, ranging from paragraph (a) through (z) and (aa) through (ff).

Q. How is that exhibit names, Exhibit A or Exhibit One?

A. That's Exhibit One.

Q. Will you please refer to Exhibit One and to the docket that has been prepared and distributed at this hearing and explain any substantial differences between the two?

A. There are no differences between the advertisement and the docket, and we are proposing here, though, in addition to what is proposed under the docket, in the case of paragraph (n) we would here propose to add to what is given by the docket, the southwest quarter of Section 2 of Township 8 South, Range 32 East.

Other than that there are no differences.

Q. Mr. Ulvog, do you have anything further to add to your testimony?

A. No, sir.

MR. PADILLA: Mr. Examiner, I offer Exhibit One into evidence, and I have nothing else.

MR. NUTTER: Exhibit One in Case Number 7328 will be admitted in evidence.

Does anyone have anything to offer in Case Number 7328?

If not, we'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY THAT the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7328, heard by me on 8/12 19 81.

_____, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 August 1981

EXAMINER HEARING

IN THE MATTER OF:

The hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico. CASE 7328

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

I N D E X

CARL ULVOG

Direct Examiantion by Mr. Padilla 3

E X H I B I T S

Division Exhibit One, Document 4

MR. NUTTER: Call Case Number 7328, which is in the matter of the hearing called by the OCD on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico.

MR. PADILLA: Mr. Examiner, Ernest L. Padilla, on behalf of the Oil Conservation Division.

I have one witness who needs to be sworn.

(Witness sworn.)

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to the Division concerning the nomenclature of certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico?

A. I am.

Q. Are your recommendations prepared in the form of an exhibit?

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Q. How is that exhibit names, Exhibit A or Exhibit One?

A. That's Exhibit One.

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Other than that there are no differences.

Q. Mr. Ulvog, do you have anything further to add to your testimony?

A. No, sir.

MR. PADILLA: Mr. Examiner, I offer Exhibit One into evidence, and I have nothing else.

MR. NUTTER: Exhibit One in Case Number 7328 will be admitted in evidence.

Does anyone have anything to offer in Case Number 7328?

If not, we'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY THAT the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7328, heard by me on 8/12 19 81.

Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7328
Order No. R-6758

THE APPLICATION OF THE OIL
CONSERVATION DIVISION UPON ITS
OWN MOTION FOR AN ORDER CREATING
AND EXTENDING CERTAIN POOLS IN
CHAVES, EDDY, LEA, AND ROOSEVELT
COUNTIES, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Strawn formation, said pool to bear the designation of North Burton Flat-Strawn Gas Pool. Said North Burton Flat-Strawn Gas Pool was discovered by the Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. It was completed April 24, 1981, in the Strawn formation. The top of the perforations is at 10,135 feet.

(3) That there is need for the creation of a new pool in Chaves County, New Mexico, for the production of oil from the San Andres formation, said pool to bear the designation of Elkins-San Andres Pool. Said Elkins-San Andres Pool was discovered by the Tom L. Ingram Pogo State Well No. 1 located in

Unit P of Section 16, Township 7 South, Range 28 East, NMPM. It was completed in the San Andres formation on May 14, 1981. The top of the perforations is at 2,293 feet.

(4) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of oil from the Bone Spring formation, said pool to bear the designation of Indian Flats-Bone Spring Pool. Said Indian Flats-Bone Spring Pool was discovered by the Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. It was completed in the Bone Spring formation on July 16, 1980. The top of the perforations is at 8,804 feet.

(5) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Strawn formation, said pool to bear the designation of West Indian Flats-Strawn Gas Pool. Said West Indian Flats-Strawn Gas Pool was discovered by the Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. It was completed in the Strawn formation on July 15, 1980. The top of the perforations is at 10,904 feet.

(6) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Wolfcamp formation, said pool to bear the designation of East Lake McMillan-Wolfcamp Gas Pool. Said East Lake McMillan-Wolfcamp Gas Pool was discovered by the Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. It was completed in the Wolfcamp formation on November 21, 1980. The top of the perforations is at 7,870 feet.

(7) That there is need for certain extensions to the Chaveroo-San Andres Pool, the Springer Basin-Morrow Gas Pool, and the Twin Lakes-San Andres Associated Pool, all in Chaves County, New Mexico, and the Baldridge Canyon-Morrow Gas Pool, the Bunker Hill-Penrose Pool, the Burton Flat-Morrow Gas Pool, the North Burton Flats-Wolfcamp Gas Pool, the East Carlsbad-Strawn Gas Pool, the Los Medanos-Atoka Gas Pool, the Red Lake Queen-Grayburg-San Andres Pool, the Sand Point-Morrow Gas Pool, the Shugart-Morrow Gas Pool, the North Turkey Track-Morrow Gas Pool, and the Winchester-Morrow Gas Pool, all in Eddy County, New Mexico, and the Antelope Ridge-Morrow Gas Pool, the Bone-Upper Pennsylvanian Pool, the North Berry-Morrow Gas Pool, the Foster-San Andres Pool, the Jenkins-San Andres Pool, the Kemnitz-Morrow Gas Pool, the East LaRica-Morrow Gas Pool, the North Lusk-Wolfcamp Pool, the West Osudo-Morrow Gas Pool, the Sawyer-San Andres Associated Pool, the Vaca Draw-Morrow Gas Pool, and

the North Young-Bone Spring Pool, all in Lea County, New Mexico, and the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico.

IT IS THEREFORE ORDERED:

(a) That a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production is hereby created and designated as the North Burton Flat-Strawn Gas Pool, consisting of the following described area:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) That a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production is hereby created and designated as the Elkins-San Andres Pool, consisting of the following described area:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) That a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production is hereby created and designated as the Indian Flats-Bone Spring Pool, consisting of the following described area:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) That a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production is hereby created and designated as the West Indian Flats-Strawn Gas Pool, consisting of the following described area:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) That a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production is hereby created and designated as the East Lake McMillan-Wolfcamp Gas Pool, consisting of the following described area:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) That the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) That the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) That the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) That the North Berry-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) That the Bunker Hill-Penrose Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) That the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) That the North Burton Flats-Wolfcamp Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 32: E/2

(m) That the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) That the Chaveroo-San Andres Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 2: SW/4
Section 10: NW/4

(o) That the Foster-San Andres Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 39 EAST, NMPM
Section 6: NE/4

(p) That the Jenkins-San Andres Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) That the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) That the East LaRica-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) That the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) That the North Lusk-Wolfcamp Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) That the West Osudo-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) That the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) That the Red Lake Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) That the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) That the Sawyer-San Andres Associated Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) That the Shugart-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) That the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) That the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) That the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) That the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) That the Winchester-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) That the North Young-Bone Spring Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 3: S/2

IT IS FURTHER ORDERED:

(1) That pursuant to Section 70-2-18, NMSA 1978, contained in Chapter 271, Laws of 1969, any well which by virtue of any of the above pool extensions, is subject to pool rules providing for spacing or proration units larger than the one which is presently dedicated thereto, shall have 60 days from the effective date of this order in which to file new Forms C-102 dedicating a standard unit for the pool to said well, or to obtain a non-standard unit approved by the Division. Pending such compliance, the well shall receive a maximum allowable in the same proportion to a standard allowable for the pool that the acreage dedicated to the well bears to a standard unit for the pool. Failure to file Form C-102 dedicating a standard unit to the well or to obtain a non-standard unit approved by the Division within said 60-day period shall subject the well to cancellation of allowable.

(2) That the effective date of this order and all creations and extensions included herein shall be September 1, 1981.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

SEAL

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7328
ORDER NO. _____

THE APPLICATION OF THE OIL CONSERVATION
DIVISION UPON ITS OWN MOTION FOR AN ORDER
CREATING AND EXTENDING CERTAIN POOLS IN
CHAVES, EDDY, LEA, AND ROOSEVELT COUNTIES,
NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on the _____ day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Strawn formation, said pool to bear the designation of North Burton Flat-Strawn Gas Pool. Said North Burton Flat-Strawn Gas Pool was discovered by the Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. It was completed April 24, 1981, in the Strawn formation. The top of the perforations is at 10,135 feet.

(3) That there is need for the creation of a new pool in Chaves County, New Mexico, for the production of oil from the San Andres formation, said pool to bear the designation of Elkins-San Andres Pool. Said Elkins-San Andres Pool was discovered by the Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. It was completed in the San Andres formation on May 14, 1981. The top of the perforations is at 2,293 feet.

(4) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of oil from the Bone Spring formation, said pool to bear the designation of Indian Flats-Bone Spring Pool. Said Indian Flats-Bone Spring Pool was discovered by the Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. It was completed in the Bone Spring formation on July 16, 1980. The top of the perforations is at 8,804 feet.

(5) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Strawn formation, said pool to bear the designation of West Indian Flats-Strawn Gas Pool. Said West Indian Flats-Strawn Gas Pool was discovered by the Perry R. Bass, Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. It was completed in the Strawn formation on July 15, 1980. The top of the perforations is at 10,904 feet.

(6) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Wolfcamp formation, said pool to bear the designation of East Lake McMillan-Wolfcamp Gas Pool. Said East Lake McMillan-Wolfcamp Gas Pool was discovered by the Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. It was completed in the Wolfcamp formation on November 21, 1980. The top of the perforations is at 7,870 feet.

(7) That there is need for certain extensions to the Chaveroo-San Andres Pool, the Springer Basin-Morrow Gas Pool, and the Twin Lakes-San Andres Associated Pool, all in Chaves County, New Mexico, and the Baldridge Canyon-Morrow Gas Pool, the Bunker Hill-Penrose Pool, the Burton Flat-Morrow Gas Pool, the North Burton Flats-Wolfcamp Gas Pool, the East Carlsbad-Strawn Gas Pool, the Los Medanos-Atoka Gas Pool, the Red Lake-Queen-Grayburg-San Andres Pool, the Sand Point-Morrow Gas Pool, the Shugart-Morrow Gas Pool, the North Turkey Track-Morrow Gas Pool, and the Winchester-Morrow Gas Pool, all in Eddy County, New Mexico, and the Antelope Ridge-Morrow Gas Pool, the Baum-Upper Pennsylvanian Pool, the North Berry-Morrow Gas Pool, the Foster-San Andres Pool, the Jenkins-San Andres Pool, the Kemnitz-Morrow Gas Pool, the East LaRica-Morrow Gas Pool, the North Lusk-Wolfcamp Pool, the West Osudo-Morrow Gas Pool, the Sawyer-San Andres Associated Pool, the Vaca Draw-Morrow Gas Pool, and the North Young-Bone Spring Pool, all in Lea County, New Mexico, and the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico.

IT IS THEREFORE ORDERED:

(a) That a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production is hereby created and designated as the North Burton Flat-Strawn Gas Pool, consisting of the following described area:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) That a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production is hereby created and designated as the Elkins-San Andres Pool, consisting of the following described area:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) That a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production is hereby created and designated as the Indian Flats-Bone Spring Pool, consisting of the following described area:

TOWNSHIP 22 SOUTH, RANGE 23 EAST, NMPM
Section 2: SE/4 NW/4

(d) That a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production is hereby created and designated as the West Indian Flats-Strawn Gas Pool, consisting of the following described area:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) That a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production is hereby created and designated as the East Lake McMillan-Wolfcamp Gas Pool, consisting of the following described area:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) That the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) That the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) That the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) That the North Berry-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) That the Bunker Hill-Penrose Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) That the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) That the North Burton Flats-Wolfcamp Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 32: E/2

(m) That the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) That the Chaveroo-San Andres Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Addition ----------Section 2: SW/4
Section 10: NW/4

(o) That the Foster-San Andres Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 39 EAST, NMPM
Section 6: NE/4

(p) That the Jenkins-San Andres Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) That the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) That the East LaRica-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) That the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) That the North Lusk-Wolfcamp Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) That the West Osudo-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) That the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) That the Red Lake Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) That the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) That the Sawyer-San Andres Associated Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) That the Shugart-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) That the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) That the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) That the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) That the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) That the Winchester-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) That the North Young-Bone Spring Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 3: S/2

IT IS FURTHER ORDERED:

(1) That pursuant to Section 70-2-18, NMSA 1978, contained in Chapter 271, Laws of 1969, any well which by virtue of any of the above pool extensions, is subject to pool rules providing for spacing or proration units larger than the one which is presently dedicated thereto, shall have 60 days from the effective date of this order in which to file new Forms C-102 dedicating a standard unit for the pool to said well, or to obtain a non-standard unit approved by the Division. Pending such compliance, the well shall receive a maximum allowable in the same proportion to a standard allowable for the pool that the acreage dedicated to the well bears to a standard unit for the pool. Failure to file Form C-102 dedicating a standard unit to the well or to obtain a non-standard unit approved by the Division within said 60-day period shall subject the well to cancellation of allowable.

(2) That the effective date of this order and all creations and extensions included herein shall be September 1, 1981.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

CASE 7328: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and desgianted as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the East Lake McMillan-Wolfcamp Gas Pool. The discovery well is Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) EXTEND the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) EXTEND the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) EXTEND the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) EXTEND the North Berry-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) EXTEND the Bunker Hill-Penrose Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) EXTEND the North Burton Flat-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 30: E/2

(m) EXTEND the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 10: NW/4

Addition ---------- Section 2: SW/4

(p) EXTEND the Jenkins-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) EXTEND the Kennitz-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) EXTEND the East LaRica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) EXTEND the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) EXTEND the North Lusk-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) EXTEND the West Osudo-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) EXTEND the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) EXTEND the Red Lake Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) EXTEND the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) EXTEND the Sawyer-San Andres Associated Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) EXTEND the Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) EXTEND the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) EXTEND the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) EXTEND the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) EXTEND the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) EXTEND the North Young-Bone Spring Pool in Lea County, New Mexico, to include therein:

NEW POOLS

It is recommended that a new GAS pool be created and designated as the NORTH BURTON FLAT-STRAWN GAS Pool.

Vertical limits to be the STRAWN formation and the horizontal limits should be as follows: As shown in Paragraph (a) Exhibit I

Discovery well was Southland Royalty Co. Citgo 5 Fed Com Well #1 located in Unit B Section 5 Township 20 Range 28 and was completed on April 24, 1981. Top of perforations is at 10,135 feet.

It is recommended that a new OIL pool be created and designated as the ELKINS-SAN ANDRES Pool.

Vertical limits to be the SAN ANDRES formation and the horizontal limits should be as follows: As shown in Paragraph (b) Exhibit I

Discovery well was Tom L. Ingram Pogo State Well #1 located in Unit P Section 16 Township 7 Range 28 and was completed on May 14, 1981. Top of perforations is at 2293 feet.

It is recommended that a new OIL pool be created and designated as the INDIAN FLATS-BONE SPRING Pool.

Vertical limits to be the Bone Spring formation and the horizontal limits should be as follows: As shown in Paragraph (c) Exhibit I

Discovery well was Gulf Oil Corp. Eddy C State Well #1 located in Unit F Section 2 Township 22 Range 28 and was completed on July 16, 1980. Top of perforations is at 8804 feet.

NEW POOLS

It is recommended that a new GAS pool be created and designated as the WEST INDIAN FLATS-STRAWN GAS Pool.

Vertical limits to be the STRAWN formation and the horizontal limits should be as follows: As shown in Paragraph (d) Exhibit I

Discovery well was Perry R. Bass, Big Eddy Unit #64 located in Unit N Section 33 Township 21 Range 28 and was completed on July 15, 1980. Top of perforations is at 10,904 feet.

It is recommended that a new GAS pool be created and designated as the EAST LAKE McMILLAN-WOLFCAMP GAS Pool.

Vertical limits to be the WOLFCAMP formation and the horizontal limits should be as follows: As shown in Paragraph (e) Exhibit I

Discovery well was Gulf Oil Corp. Lake McMillan Federal Unit #1 located in Unit I Section 30 Township 19 Range 27 and was completed on Nov. 21, 1980. Top of perforations is at 7870 feet.

It is recommended that a new _____ pool be created and designated as the _____ Pool.

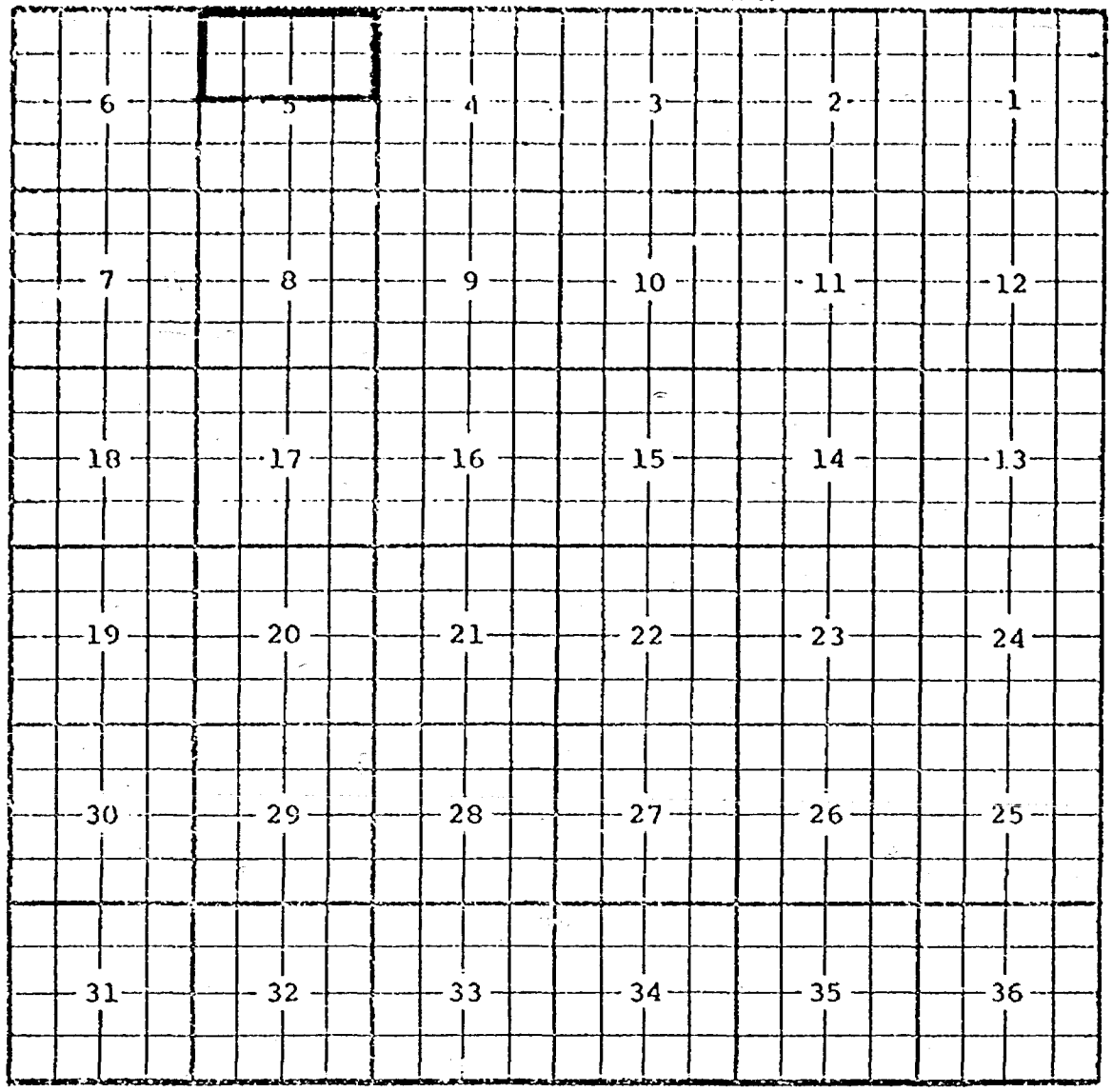
Vertical limits to be the _____ formation and the horizontal limits should be as follows: _____

Discovery well was _____ located in Unit ___ Section ___ Township ___ Range ___ and was completed on _____. Top of perforations is at _____ feet.

CASE NO. 7328 (a) CREATION OF A NEW GAS POOL

COUNTY Eddy POOL NORTH BURTON FLAT - STRAWN GAS

TOWNSHIP 20 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

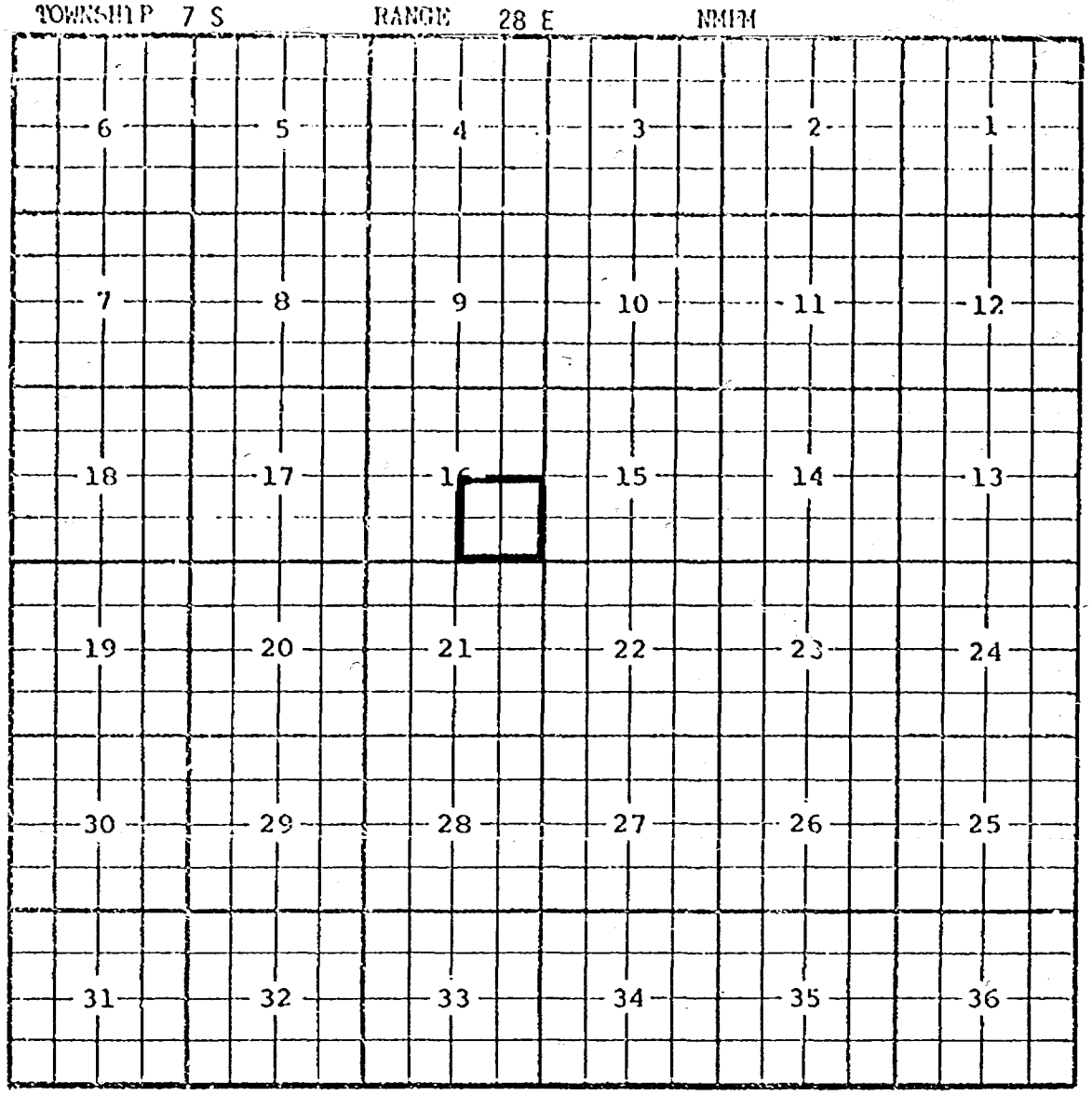
Disc. Well: Southland Royalty Co., Citgo 5 Federal Com. #1-B-5-20-28
Comp. 4-24-81, thru Strawn perfs 10,135-154.

Proposed pool boundary outlined in blue.
Section 5: N/2

CASE NO. 7328 (5) CREATION OF A NEW OIL POOL

COUNTY CHAVES POOL ELKINS - SAN ANDRES

TOWNSHIP 7 S RANGE 28 E NMPM



Purpose: One completed oil well capable of producing.

Disc. Well: Tom L. Ingram, Pogo State #1-P-16-7-28
Comp. 5-14-81 thru San Andres Perfs 2293-2341

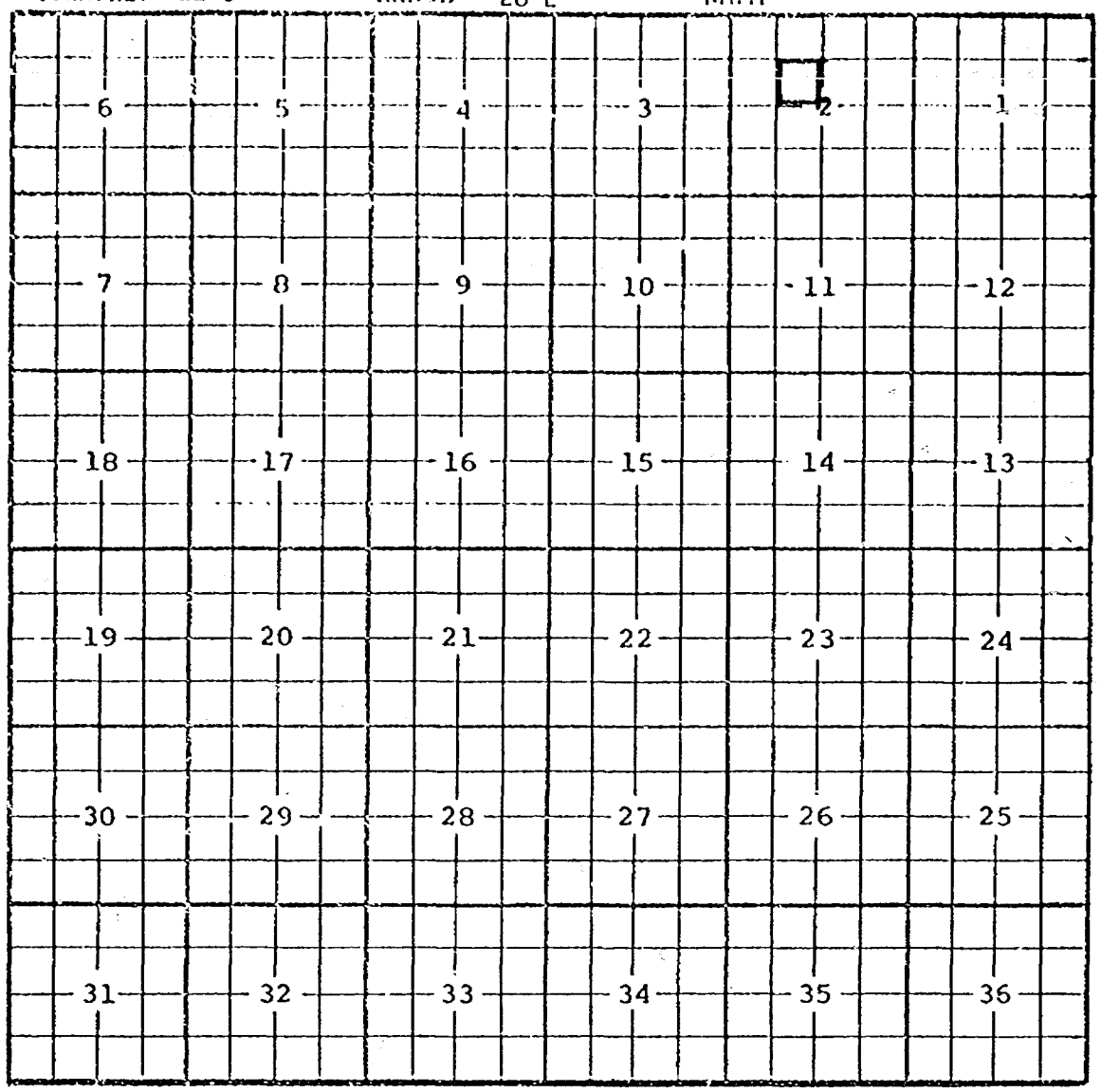
Proposed pool boundary outlined in blue:

Section 16: SE/4

CASE NO. 7328 (C) CREATION OF A NEW OIL POOL

COUNTY EDDY POOL INDIAN FLATS - BONE SPRING

TOWNSHIP 22 S RANGE 28 E NMPM



Purpose: One completed oil well capable of producing.

Disc. Well: Gulf Oil Corp., Eddy C State #1-F-2-22-28
Comp. 7-16-80 thru Bone Spring Perfs 8804-14

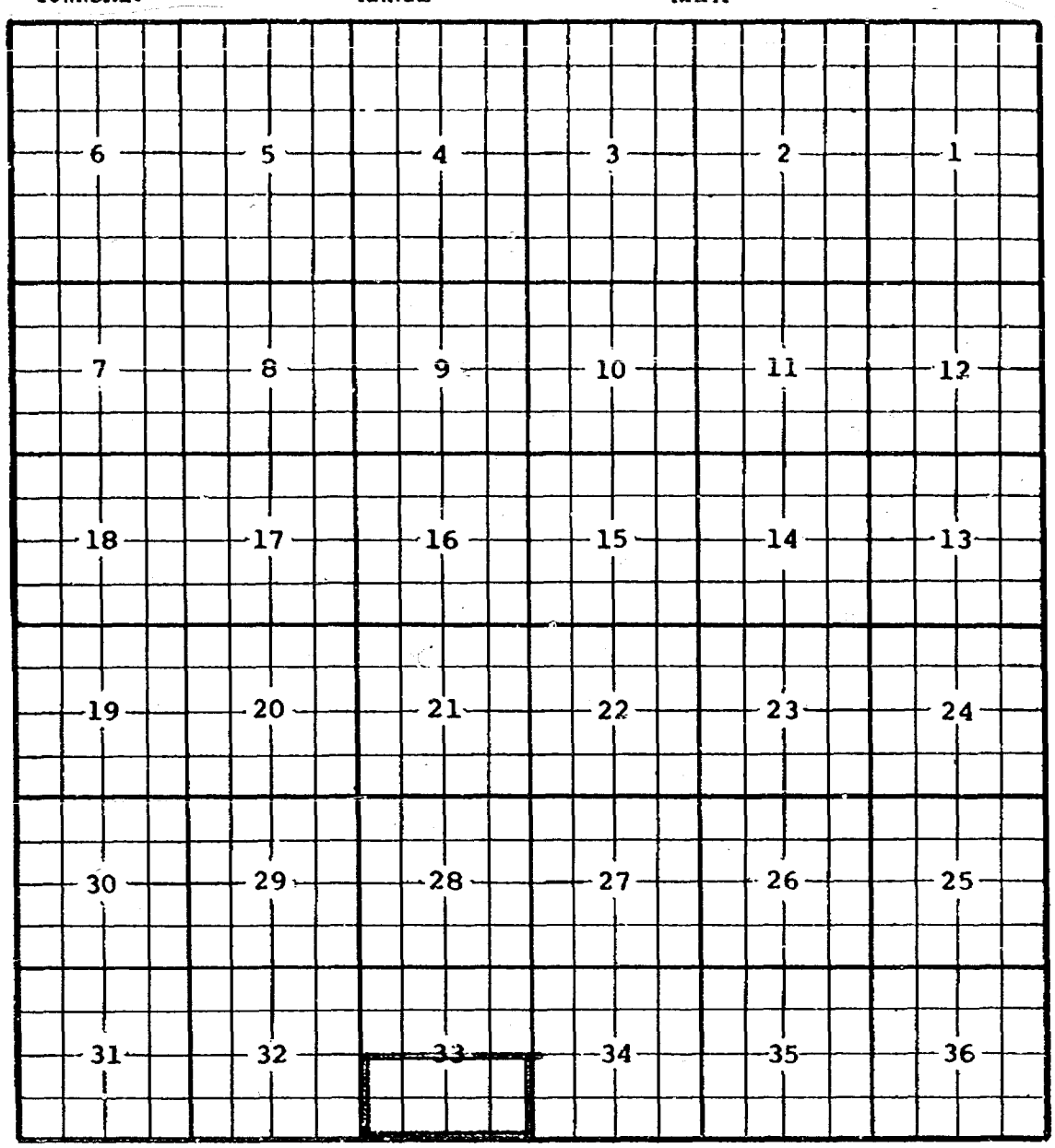
Proposed pool boundary outlined in blue.

Section 2: SE/4 NW/4

CASE NO. 7328 (d) CREATION OF A NEW GAS POOL

COUNTY EDDY POOL WEST INDIAN FLATS - STRAWN GAS

TOWNSHIP 21 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

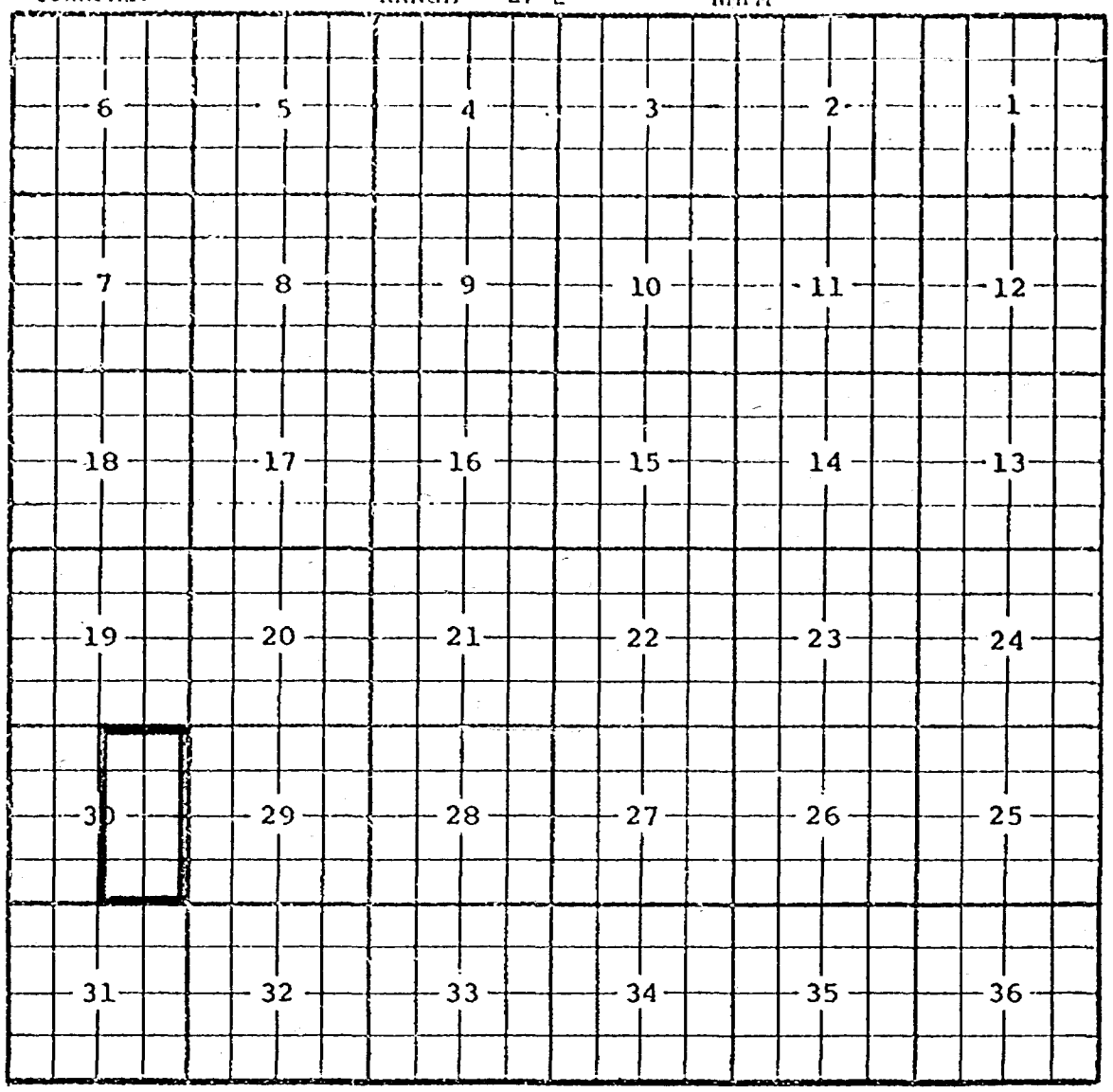
Disc. Well: Perry R. Bass, Big Eddy Unit #64-N-33-21-28
Comp. 7-15-80 thru Strawn Perfs 10,904-910

Proposed pool boundary outlined in blue:
Section 33: S/2

CASE NO. 7328 (e) CREATION OF A NEW GAS POOL

COUNTY EDDY POOL EAST LAKE MCMILLAN - WOLFCAMP GAS

TOWNSHIP 19 S RANGE 27 E NMPM



Purpose: One completed gas well, capable of producing.

Disc. Well: Gulf Oil Corp., Lake McMillan Federal Unit #1-I-30-19-27

Comp. 11-21-80 thru Wolfcamp Perfs 7870-7896

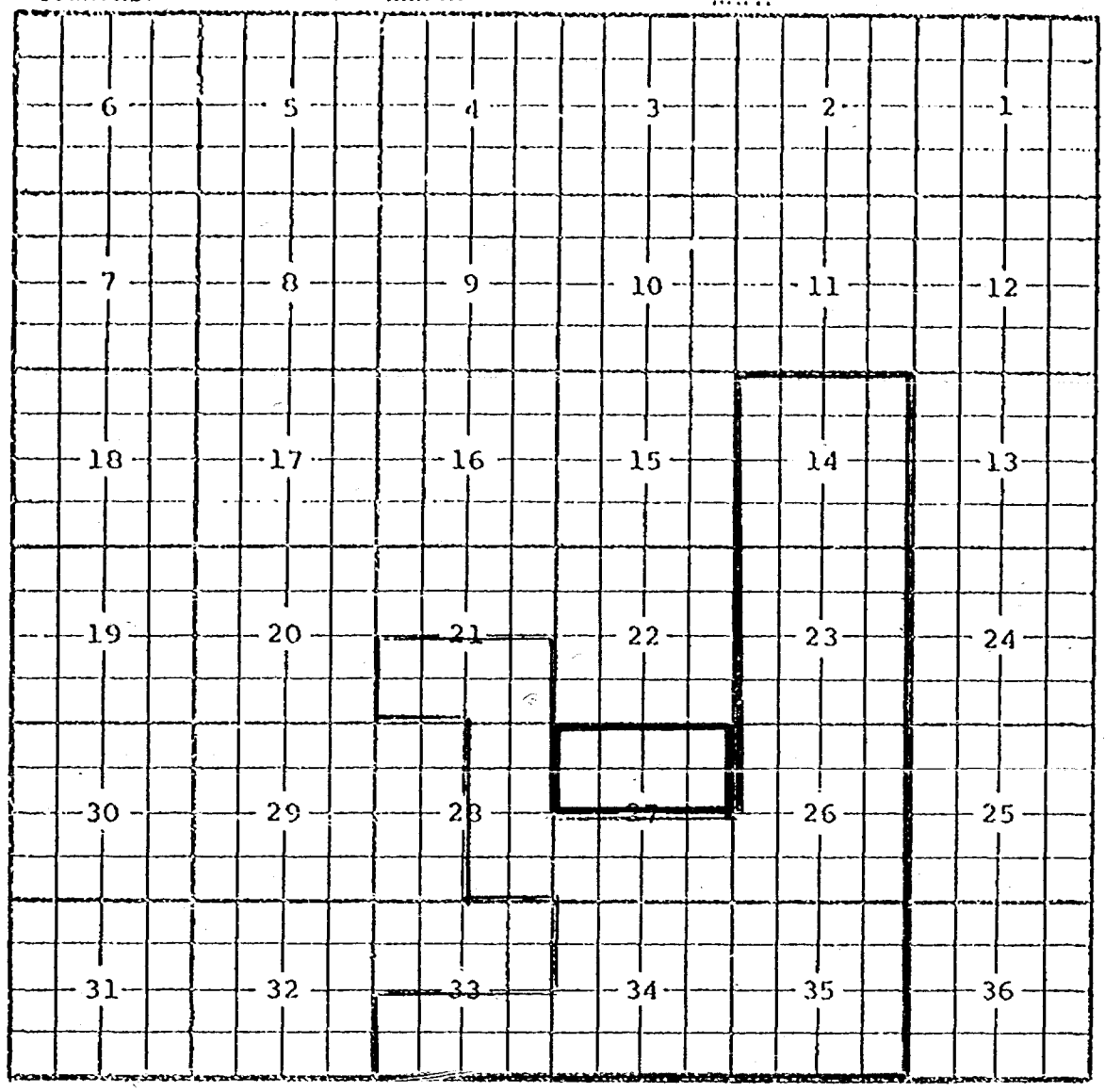
Proposed Pool boundary outlined in blue.

Section 30: E/2

CASE NO. 7328 (f) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL, ANTELOPE RIDGE-MORROW GAS

TOWNSHIP 23 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.
Shell Oil Company Antelope Ridge Unit #7-G in 27-23-34, completed 11-6-80,
in the Morrow formation. Top perf 13,183 ft.

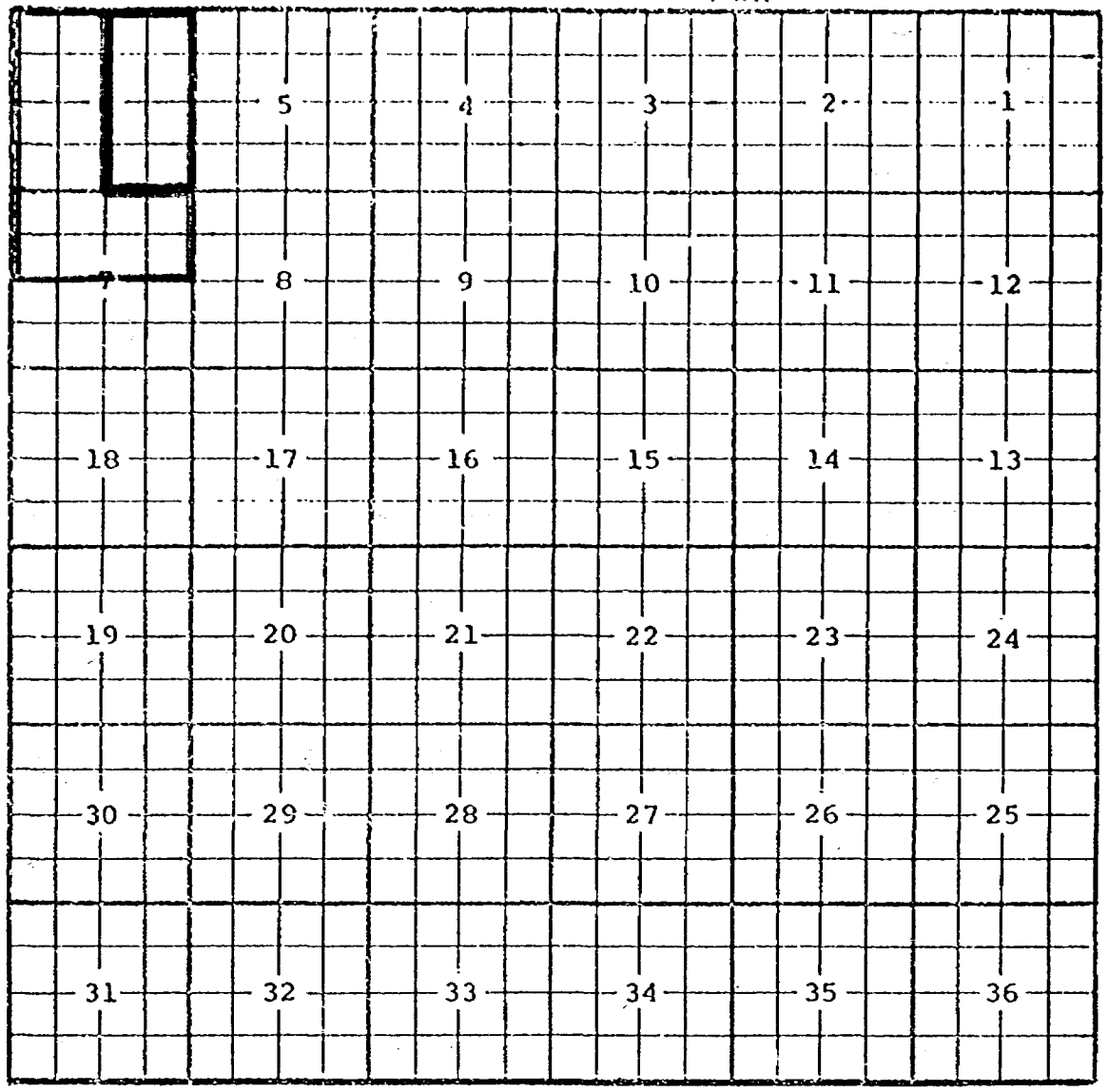
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 27: N/2

CASE NO. 7328 (g) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL BALDRIDGE CANYON - MORROW GAS

TOWNSHIP 24 S RANGE 25 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Amoco Prod. Co.	State IX Com.	1-H	6-24-25	4-27-81	Morrow	10864

Pool boundary outlined in red.

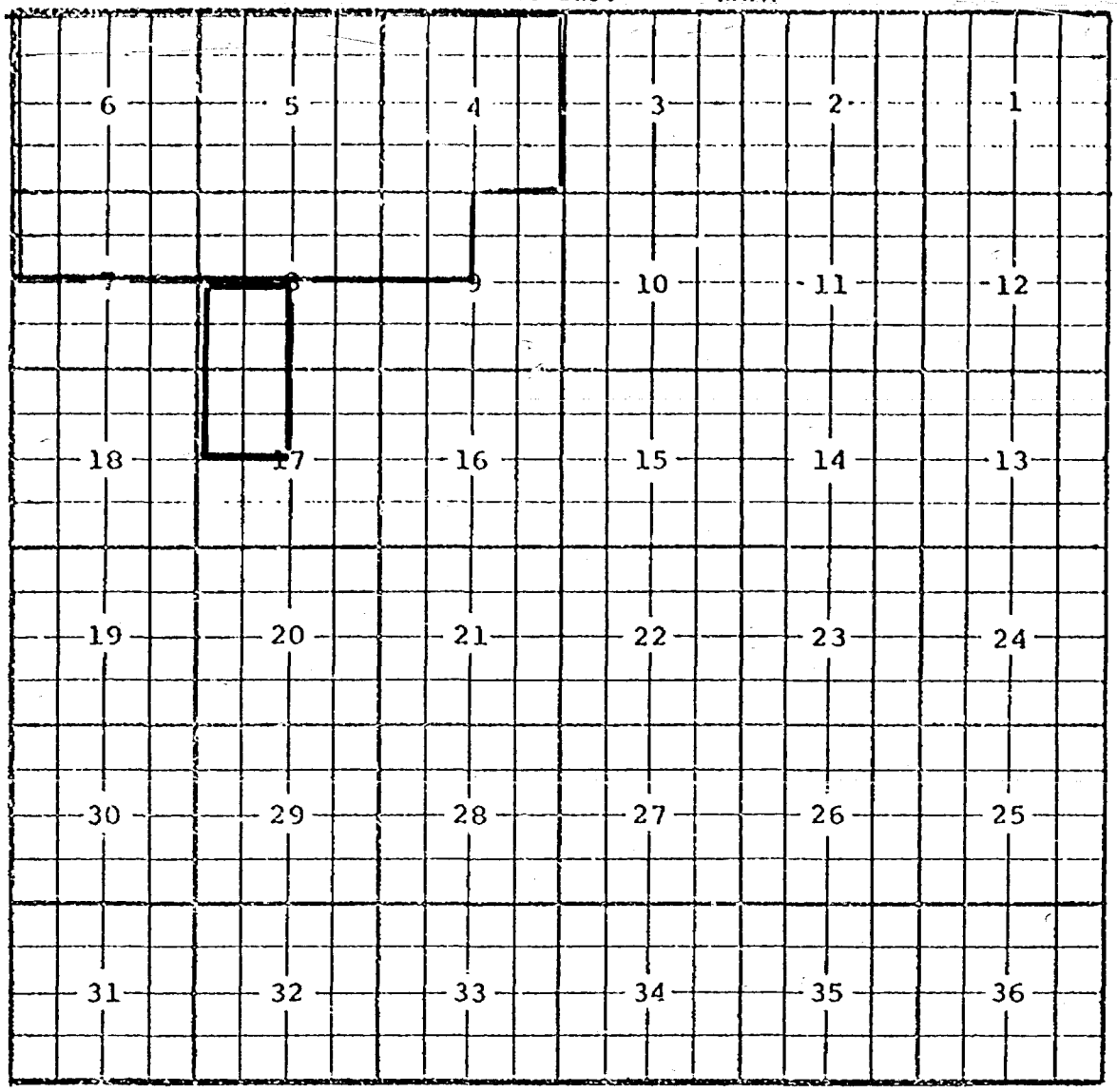
Proposed extension outlined in blue:

Section 6: E/2

CASE NO. 7328 (h) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL BAUM-UPPER PENNSYLVANIAN

TOWNSHIP 14 South RANGE 33 East NMPM



PURPOSE: One completed oil well capable of producing.

MWJ Prod. Co. Baum 17 State Well #1-D in 17-14-33, completed June 29, 1981, in the Upper Pennsylvanian formation. Top perf 9933 ft.

Pool boundary outlined in red.

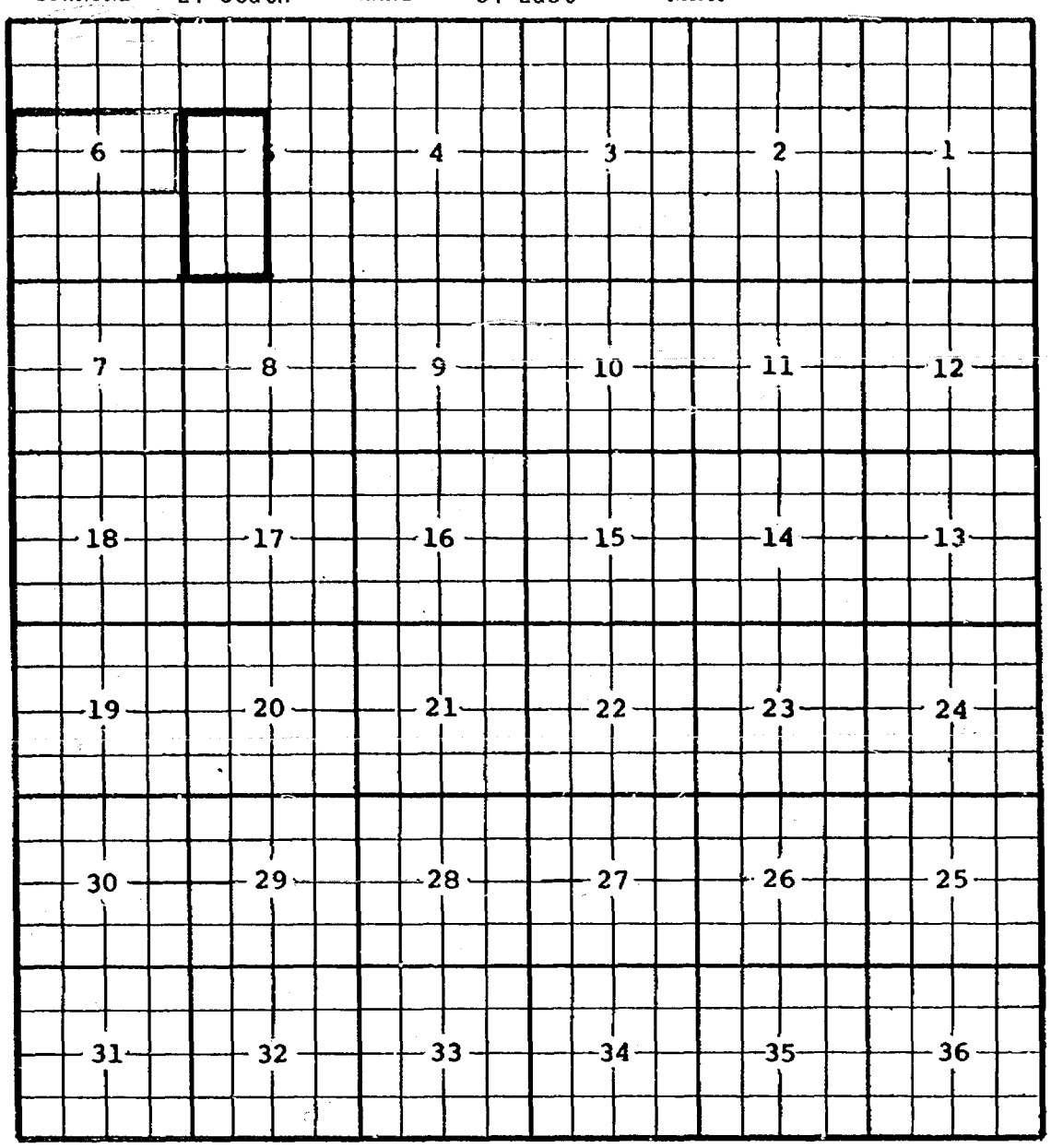
Proposed pool extension outlined in green. SECTION 8: SW/4

SECTION 17: NW/4

CASE NO. 7328 (1) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL NORTH BERRY-MORROW GAS

TOWNSHIP 21 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.

Getty Oil Company Berry 5 State Well #1-T in Sec. 5, T21S, R34E, completed May 31, 1981, in the Morrow formation. Top perf 14,031 ft.

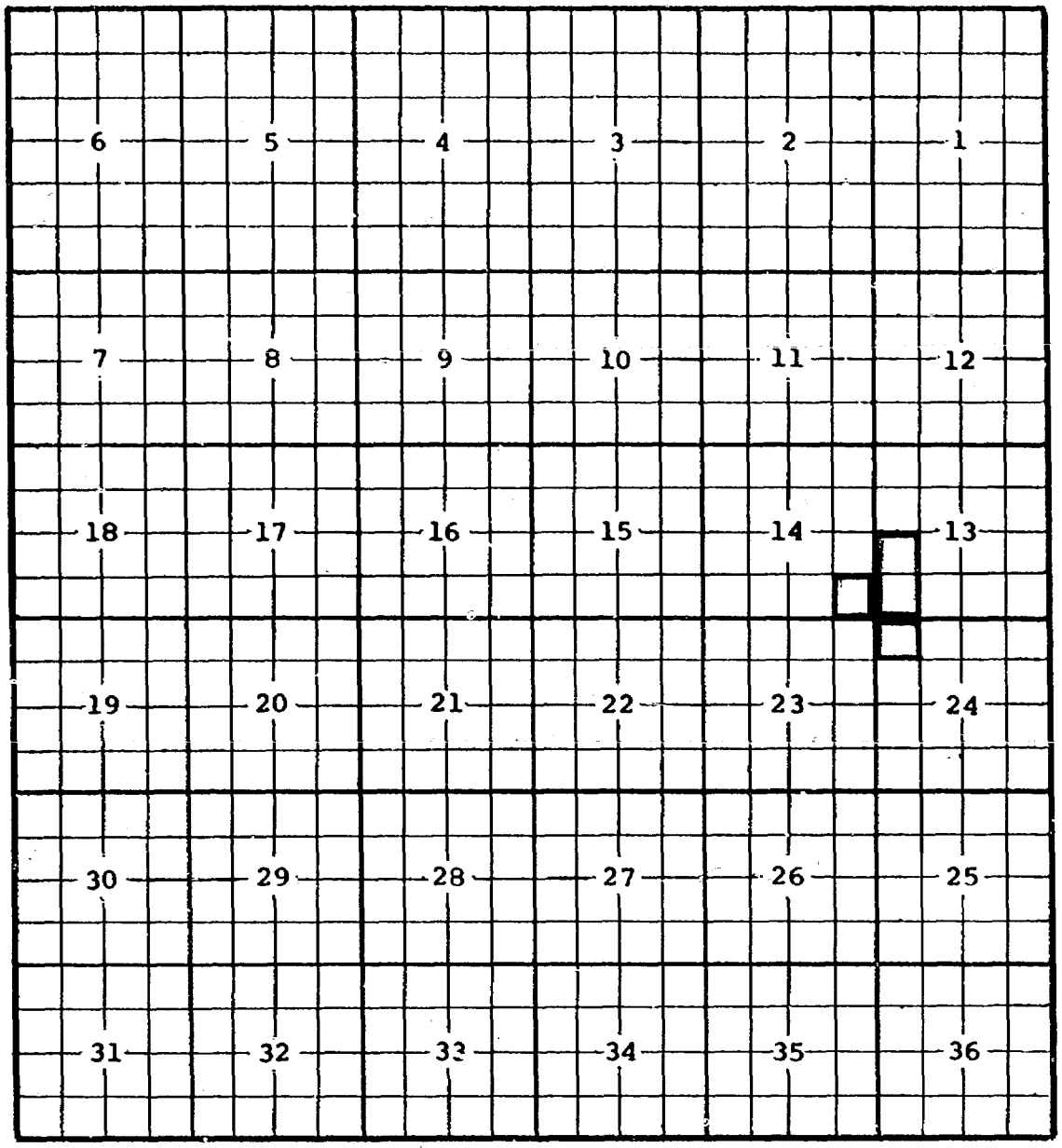
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 5: Lots 11, 12, 13, 14, &SW/4

CASE NO. 7328 (j) EXTENSION OF AN EXISTING OIL POOL

COUNTY EDDY POOL BUNKER HILL - PENROSE

TOWNSHIP 16S RANGE 31 E NMPM



Purpose: Two completed oil wells capable of producing

Read & Stevens,Inc.	Dartmouth	1-P	14-16-31	5-11-81	Penrose 3602
Read & Stevens,Inc.	Gulf West Mesa	2-D	24-16-31	3-1-81	Penrose 3600

Pool boundary outlined in red.

Proposed extension outlined in blue.

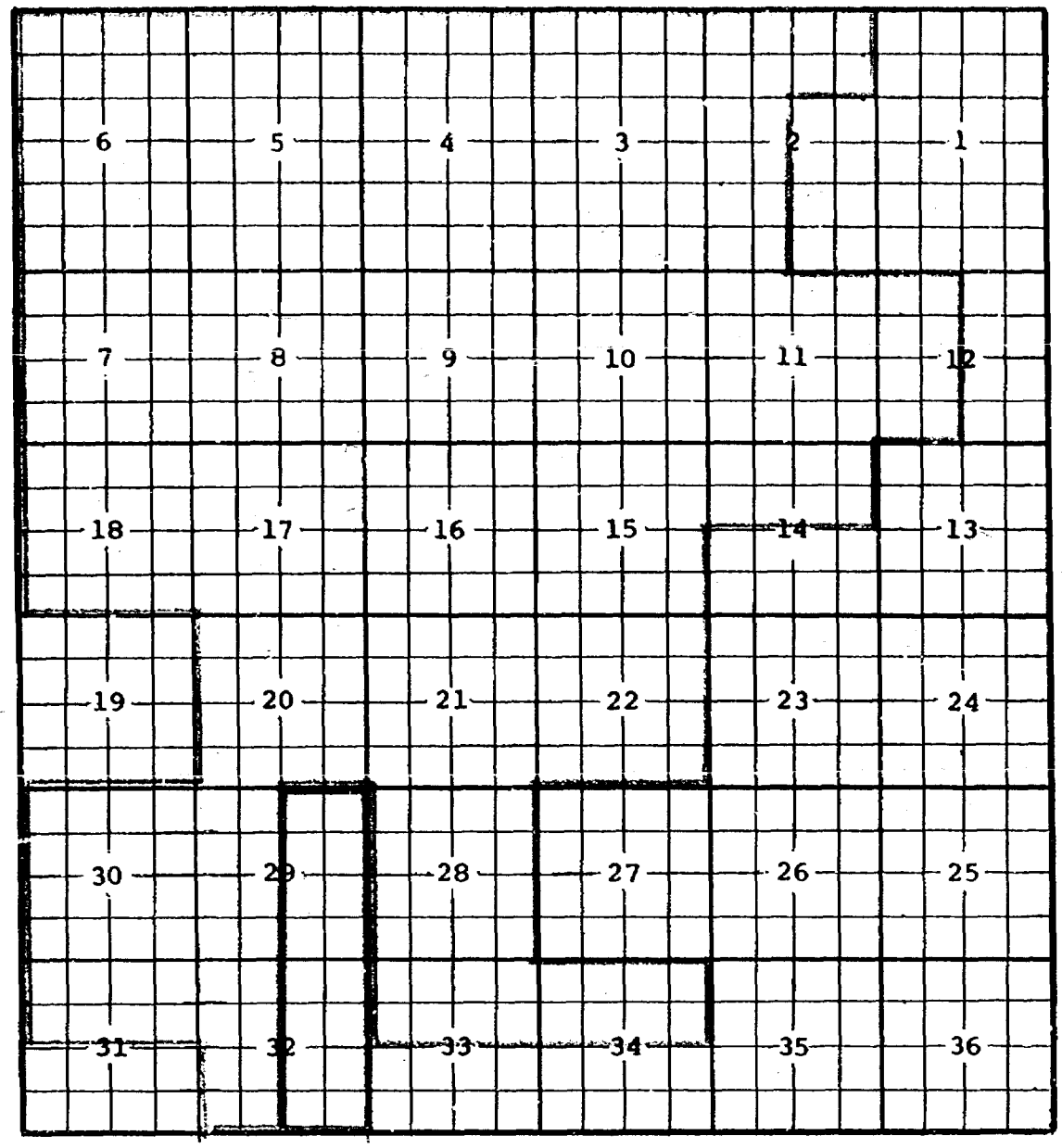
Section 14: SE/4 SE/4

Section 24: NW/4 NW/4

CASE NO. 7328 (k) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL BURTON FLAT - MORROW GAS

TOWNSHIP 21 S RANGE 27 E NMPM



Purpose: One completed gas well capable of producing

OPERATOR	LEASE	#-U	S-T-R	Comp	Form	TOP
Cities Service Co.	Tracy C Com	1-H	32-21-27	5-26-81	Morrow	11,299

Pool boundary outlined in red.

Proposed extension outlined in blue:

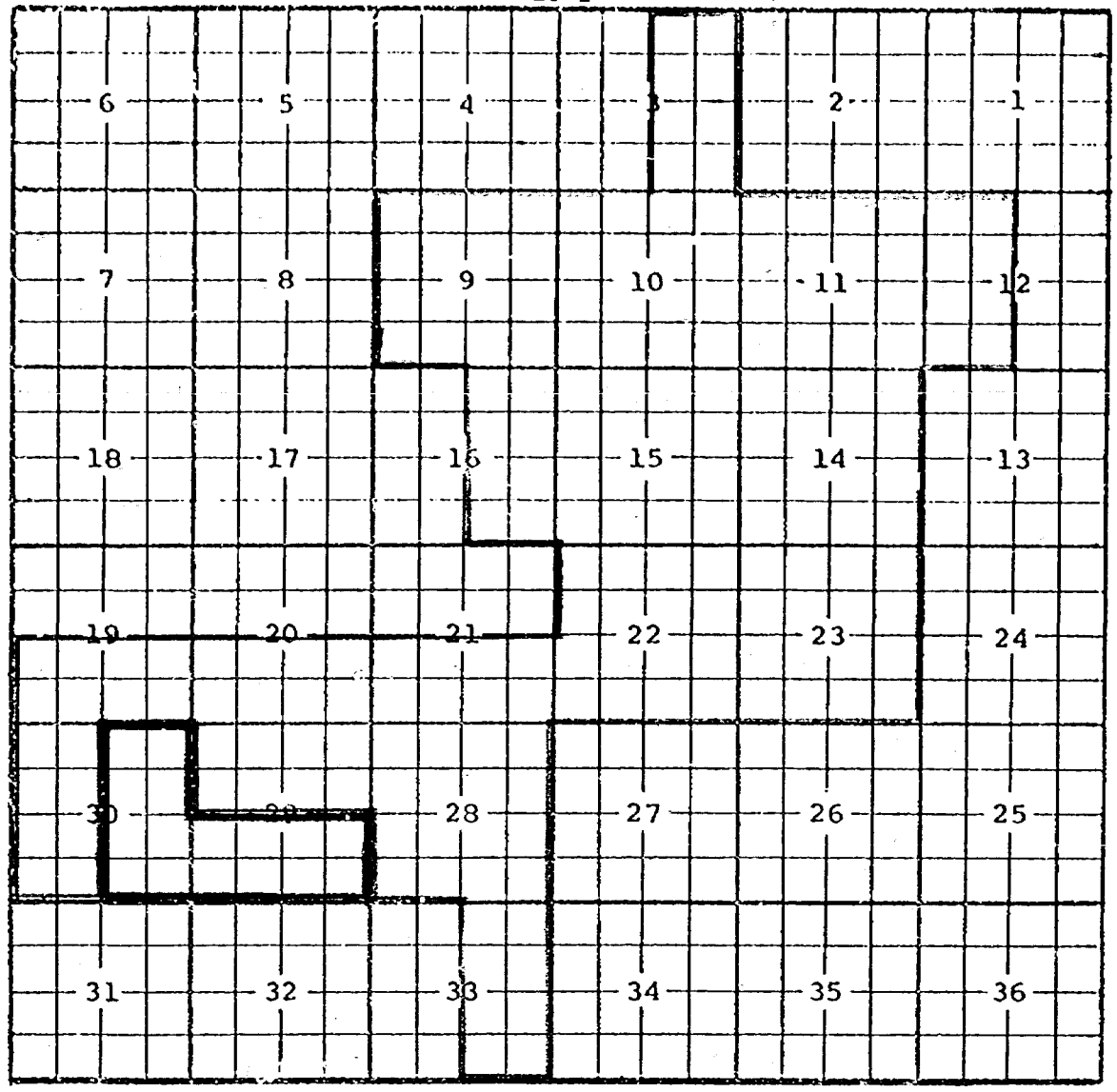
Section 29: E/2

Section 32: E/2

CASE NO. 7328 (1) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL NORTH BURTON FLATS - WOLFCAMP GAS

TOWNSHIP 20 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TGP
Yates Pet.Corp.	Stonewall DS Fed.Com.	2-J	29-20-28	5-22-81	Wolfcamp	9546

Pool boundary outlined in red.

Proposed extension outlined in blue:

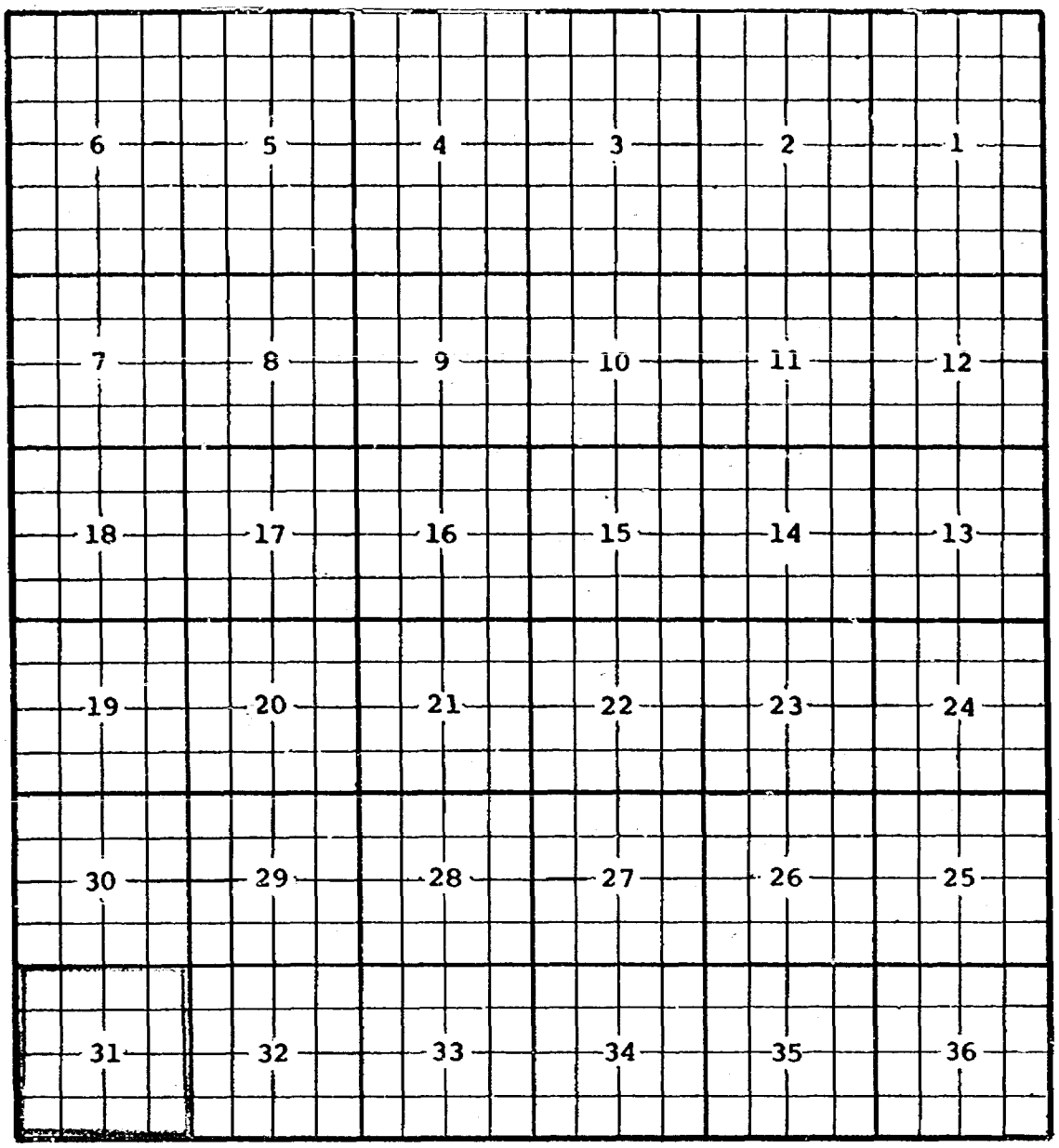
Section 29: S/2

Section 30: E/2

CASE NO. 7328 (m) EXTENSION OF AN EXISTING GAS POOL (Page 1 of 2 pages)

COUNTY EDDY POOL EAST CARLSBAD - STRAWN GAS

TOWNSHIP 21 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Perry R. Bass	Big Eddy Ut.	65-C	31-21-28	5-20-80	Strawn	10544

Pool boundary outlined in red.

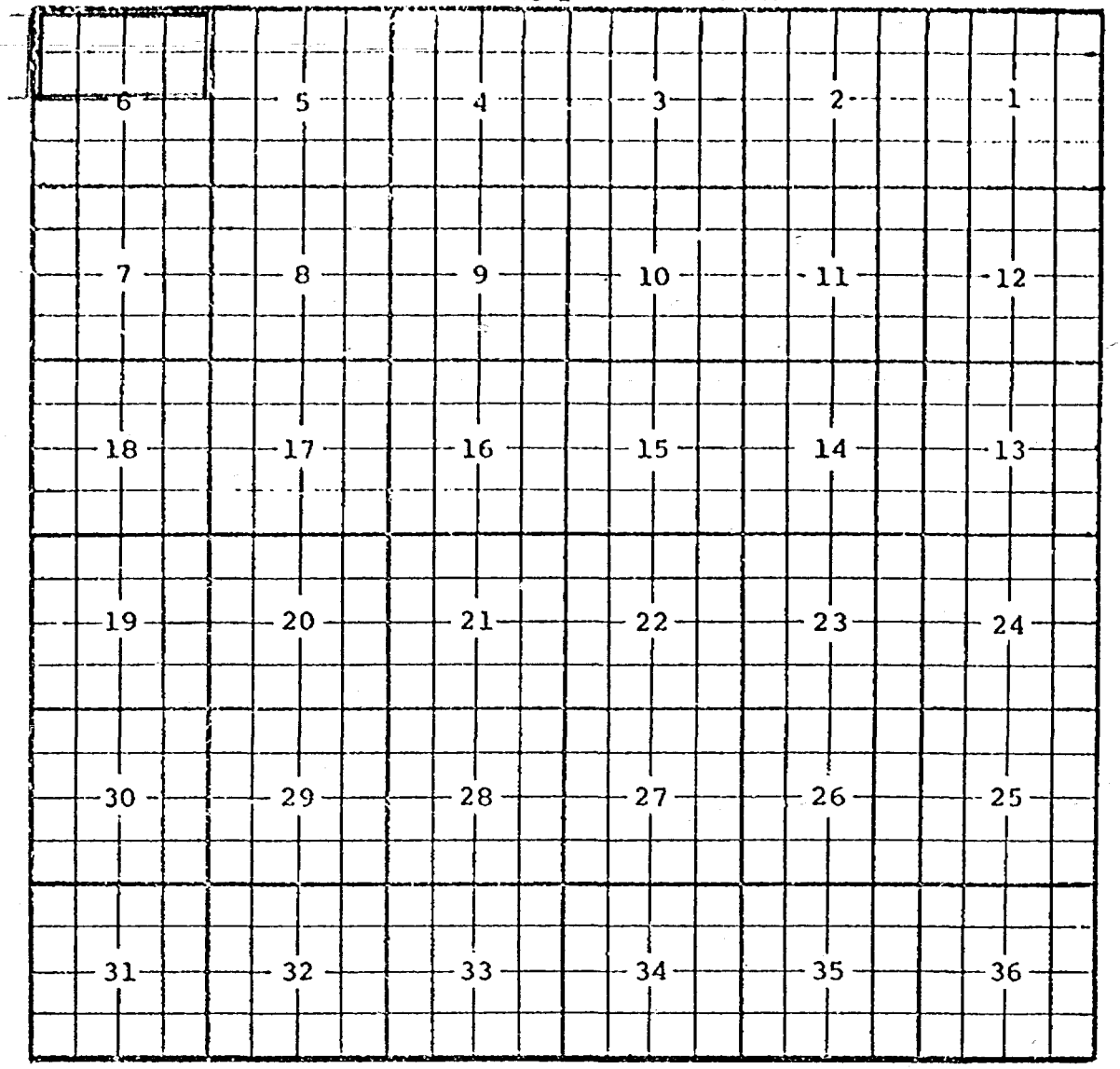
Proposed extension outlined in blue.

Section 31: All

CASE NO. 7328 (m) EXTENSION OF AN EXISTING GAS POOL Contd. Page 2 of 2

COUNTY EDDY POOL EAST CARLSBAD - STRAWN GAS

TOWNSHIP 22 S RANGE 28 E NMPM



Purpose: See page 1 of exhibit for Paragraph (m)

OPERATOR LEASE #-U S-T-R Comp. Form. TOP

(See page o of exhibit for Paragraph (m)

Pool boundary outlined in red.

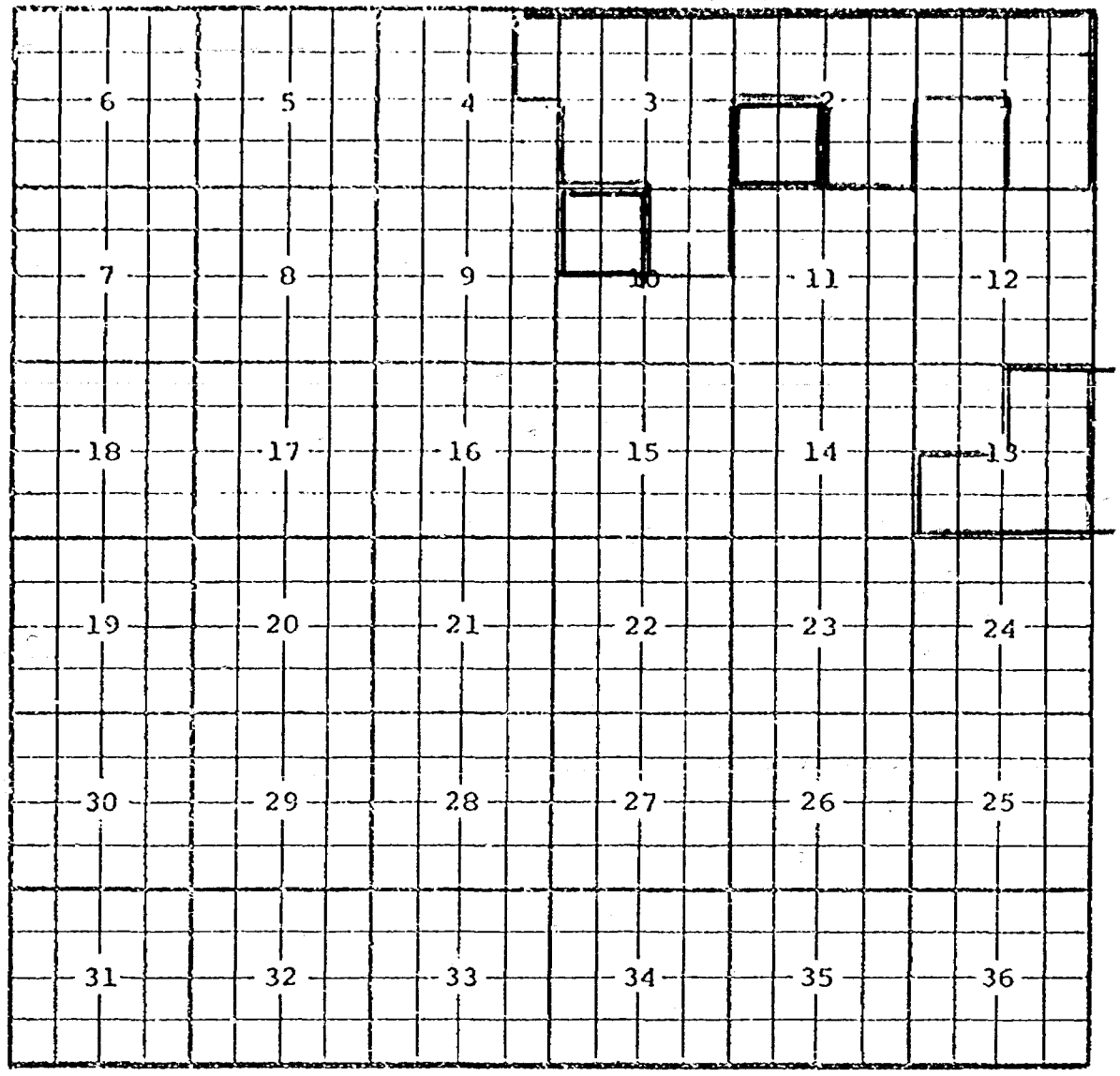
Proposed extension outlined in blue:

Section 6: N/2

CASE NO. 7328 (n) EXTENSION OF AN EXISTING OIL POOL

COUNTY CHAVES POOL CHAVEROO-SAN ANDRES

TOWNSHIP 8 South RANGE 32 East NMPM



PURPOSE: Three completed oil wells capable of producing.

MWJ Prod.Co. Chaveroo State #8-M 2-8-32 completed 7-23-81 in SA - top perf 4202'

MWJ Prod.Co. Chaveroo State #7-K 2-8-32 completed 7-22-81 in SA - top perf 4213'

Adams Expl.Co. Griffin #2-F 10-8-32 completed 5-19-81 in SA - top perf 4151'

Pool boundary outlined in red.

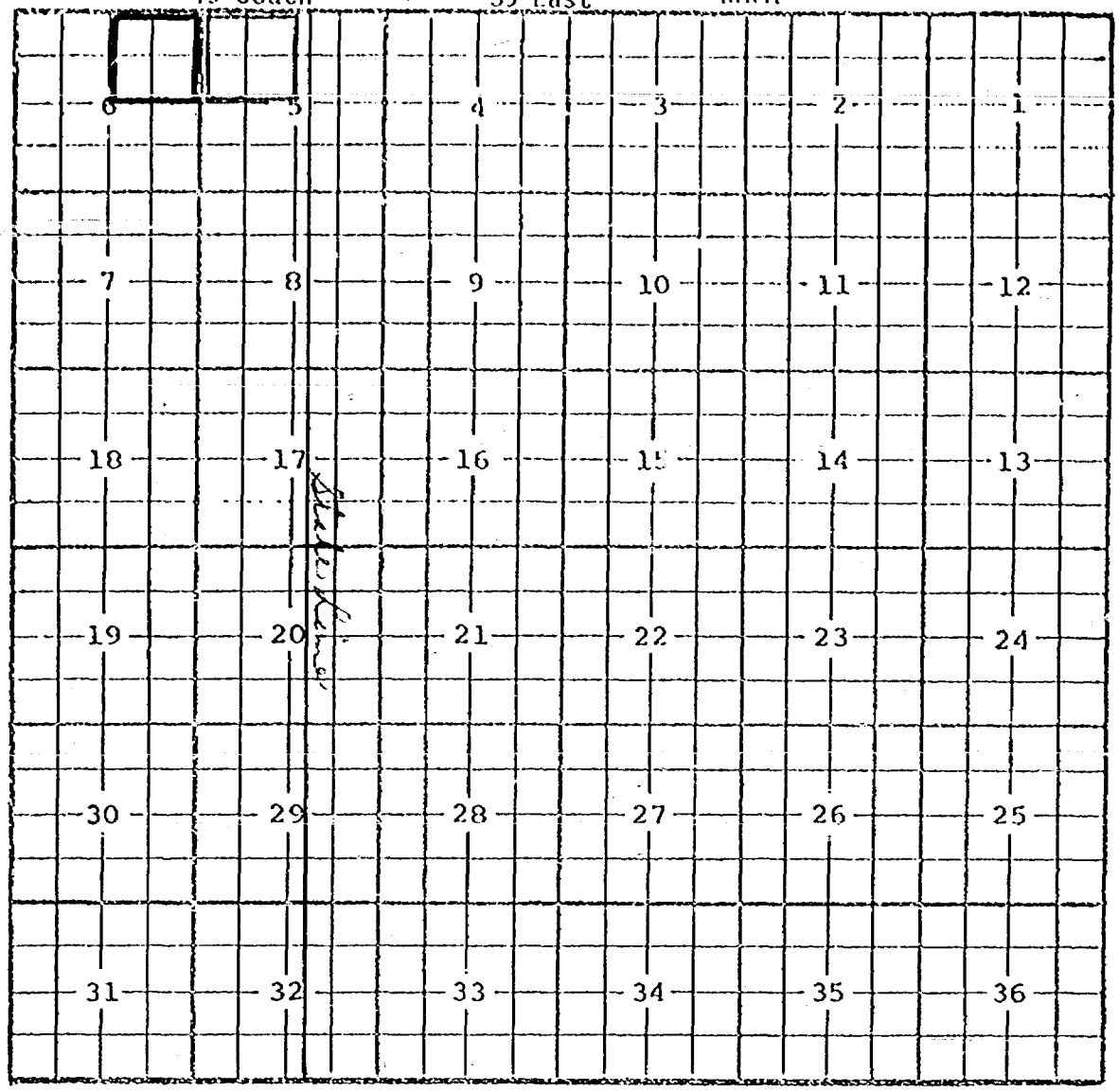
Proposed pool extension outlined in green. SECTION 10: NW/4

Addition ----------SECTION 2: SW/4

CASE NO. 7328 (o) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL FOSTER-SAN ANDRES

TOWNSHIP 19 South RANGE 39 East NMPM



PURPOSE: One completed oil well capable of producing.

Texas American Oil Corporation Foster Well #1-A in Sec. 6, T19S, R39E, completed May 26, 1981, in the San Andres formation. Top perf 4465 ft.

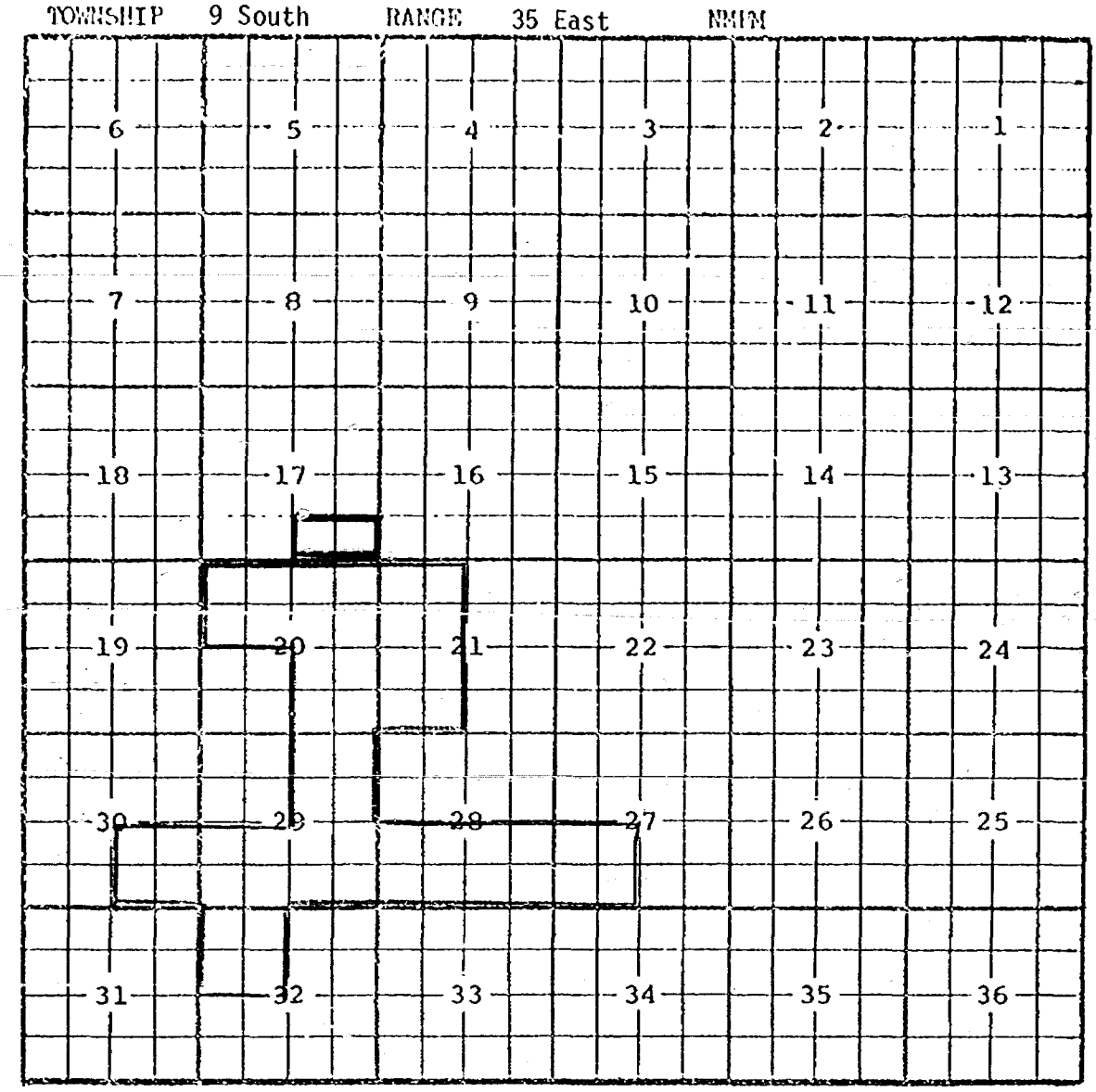
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 6: NE/4

CASE NO. 7328 (p) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL JENKINS-SAN ANDRES

TOWNSHIP 9 South RANGE 35 East NMPM



PURPOSE: One completed oil well capable of producing.

Yates Petroleum Corporation Hilliard USA Well #1-P in Sec. 17, T9S, R35E, completed May 30, 1981, in the San Andres formation. Top perf 4772 ft.

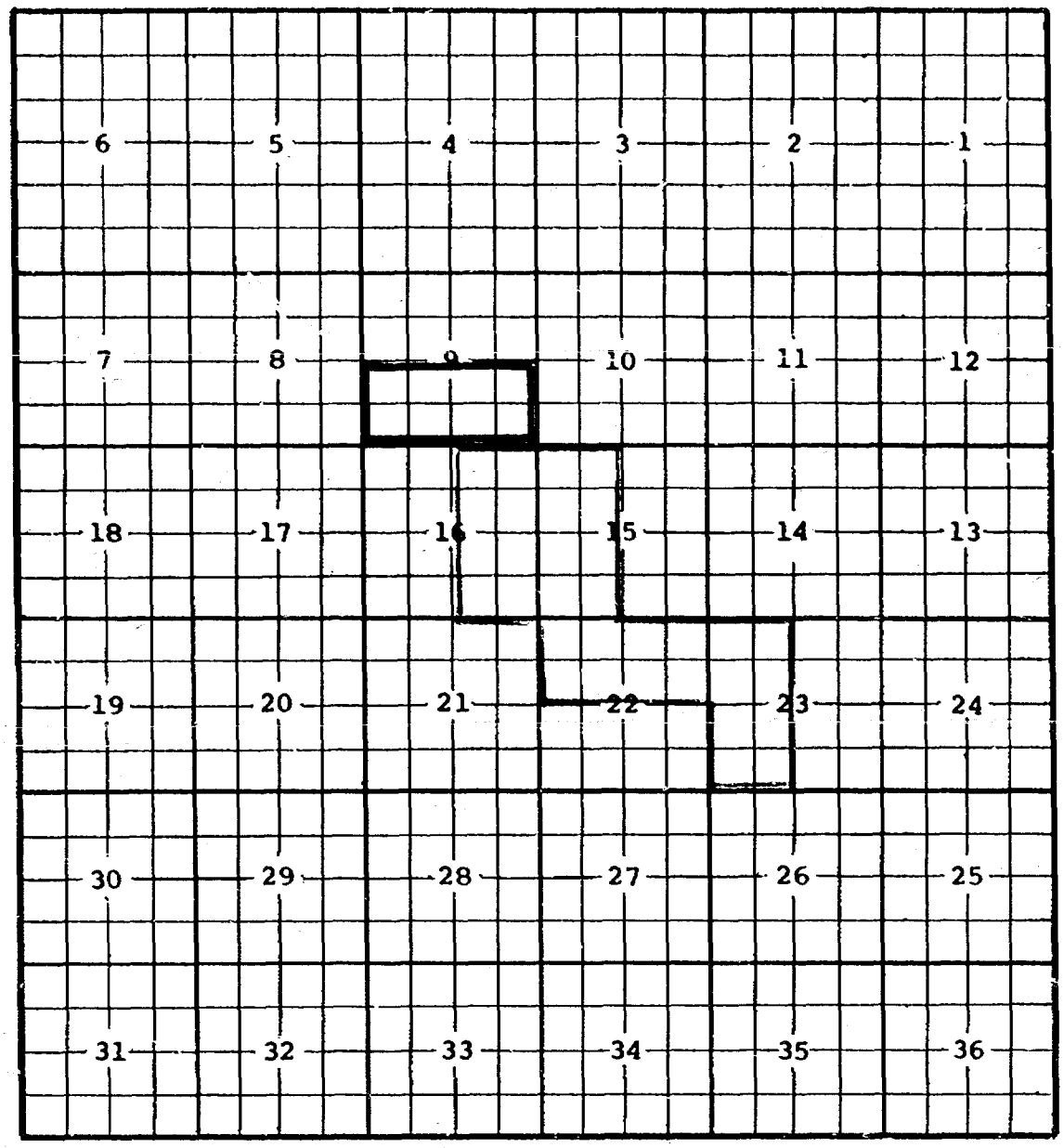
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 17: S/2 SE/4

CASE NO. 7328 (q) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL KEMNITZ-MORROW GAS

TOWNSHIP 16 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.

Elk Oil Company N.E. Kemnitz #6-N in Sec. 9, T16S, R34E, completed 5-25-81, in the Morrow formation. Top perf 13,250'.

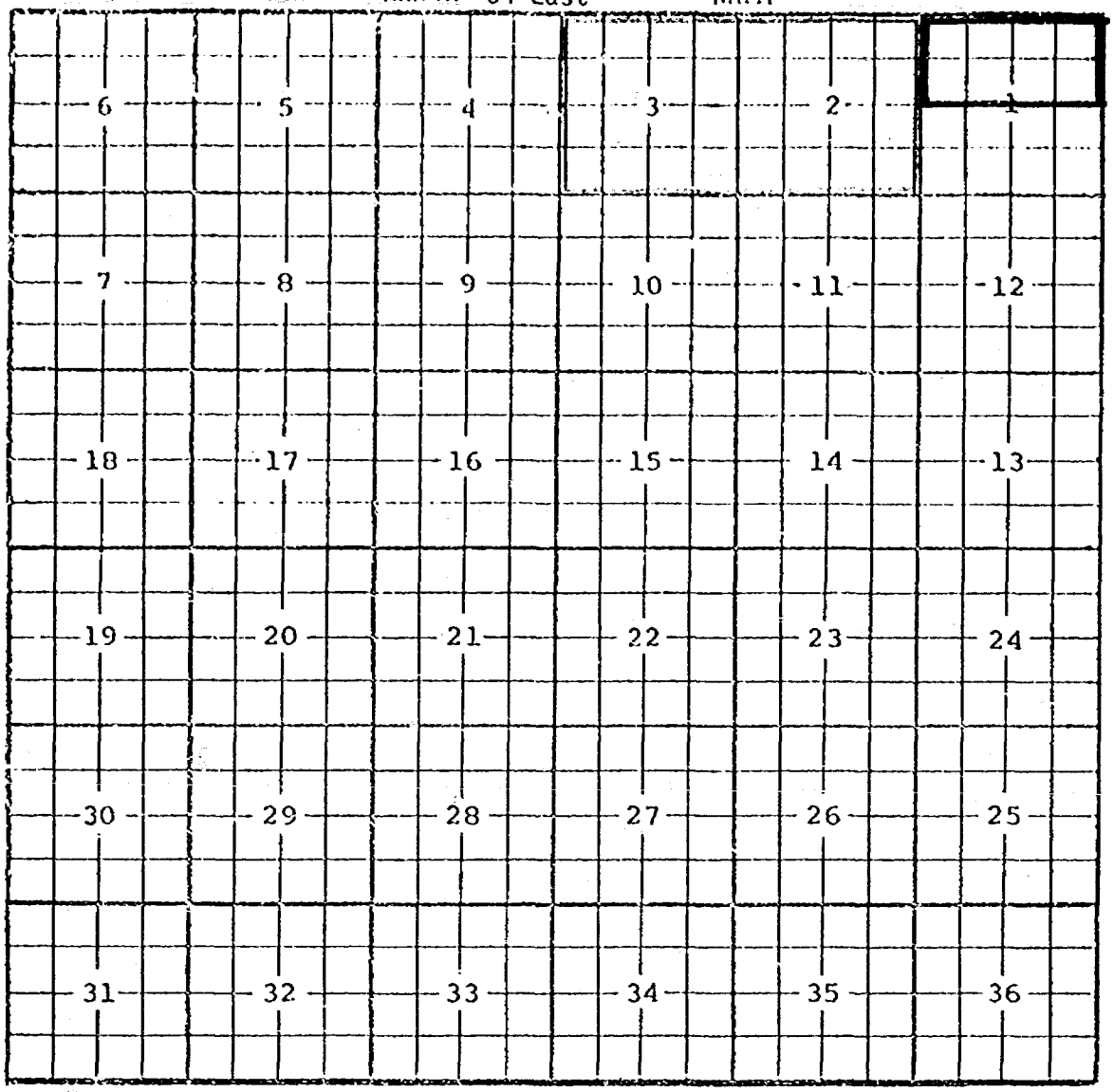
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 9: S/2

CASE NO. 7328 (r) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL EAST LaRICA-MORROW GAS

TOWNSHIP 19 South RANGE 34 East NMPM



PURPOSE: One completed gas well capable of producing.

Knox Industries, Inc. New Mexico State Well #2-H in Se. 1, T19S, R34E, completed June 9, 1981, in the Morrow formation. Top perf 13,398 ft.

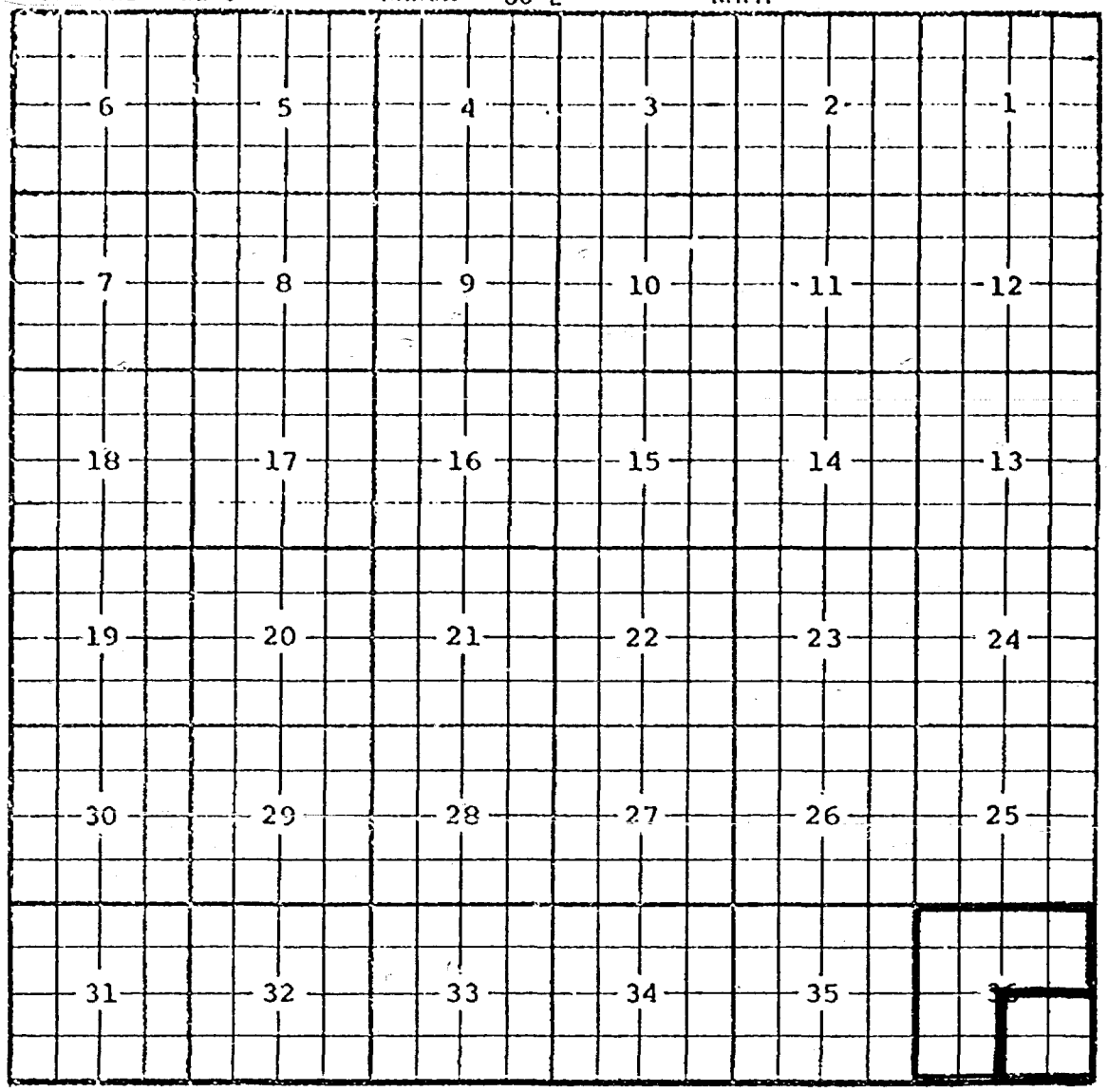
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 1: N/2

CASE NO. 7328 (s) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL LOS MEDANOS - ATOKA GAS

TOWNSHIP 22 S RANGE 30 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
Belco Pet. Co.	James Ranch Ut.	11-E	36-22-30	5-31-81	Atoka	13044

Pool Boundary outlined in red.

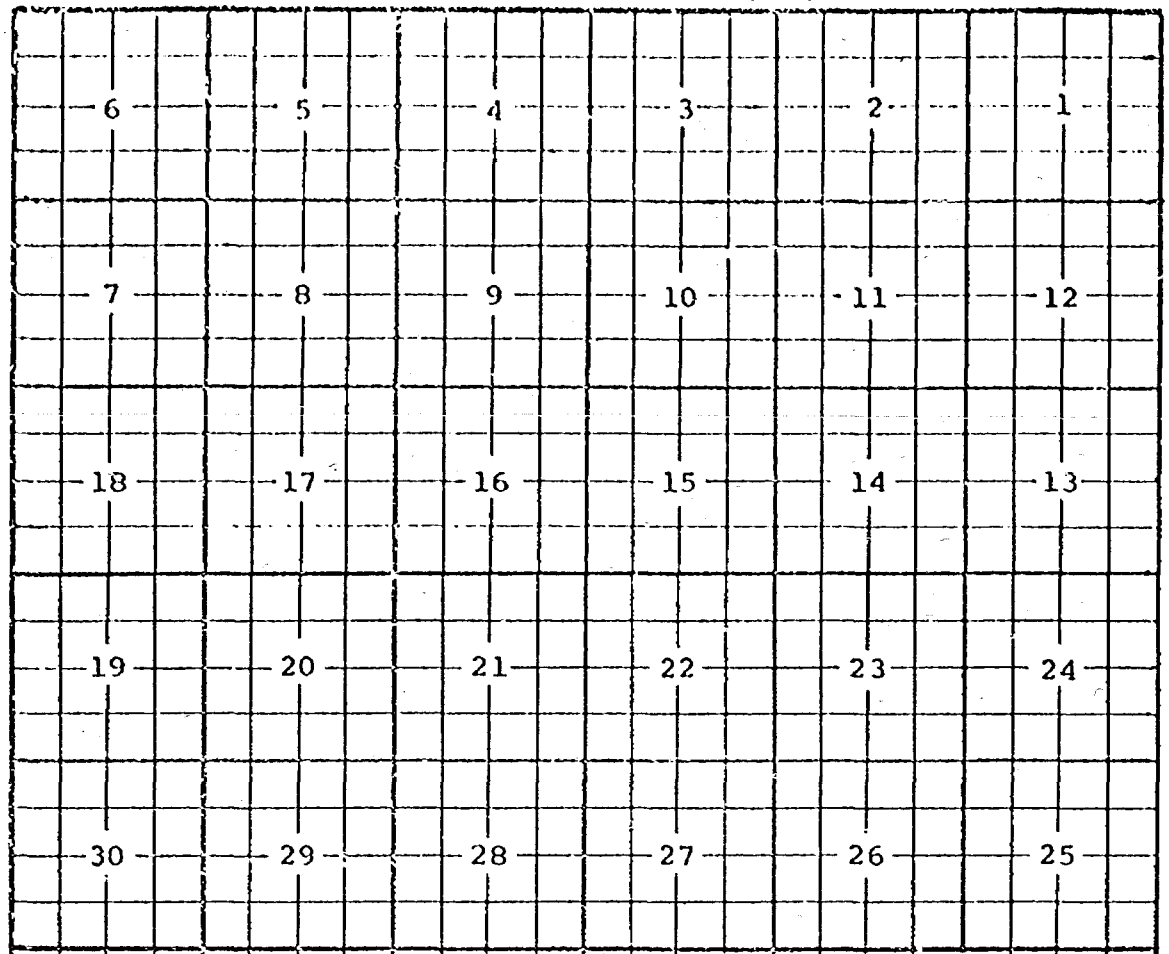
Proposed extension outlined in blue:

Section 36: N/2 and SW/4

CASE NO. 7328 (t) EXTENSION OF AN EXISTING OIL POOL

COUNTY LEA POOL NORTH LUSK-WOLFCAMP

TOWNSHIP 18 South RANGE 32 East NMPM



PURPOSE: One completed oil well capable of producing.

Amoco Production Co. State HU Well #1-J in Sec. 32, T18S, R32E, completed May 19, 1981, in the Wolfcamp formation. Top perf 10,674 ft.

Pool boundary outlined in red.

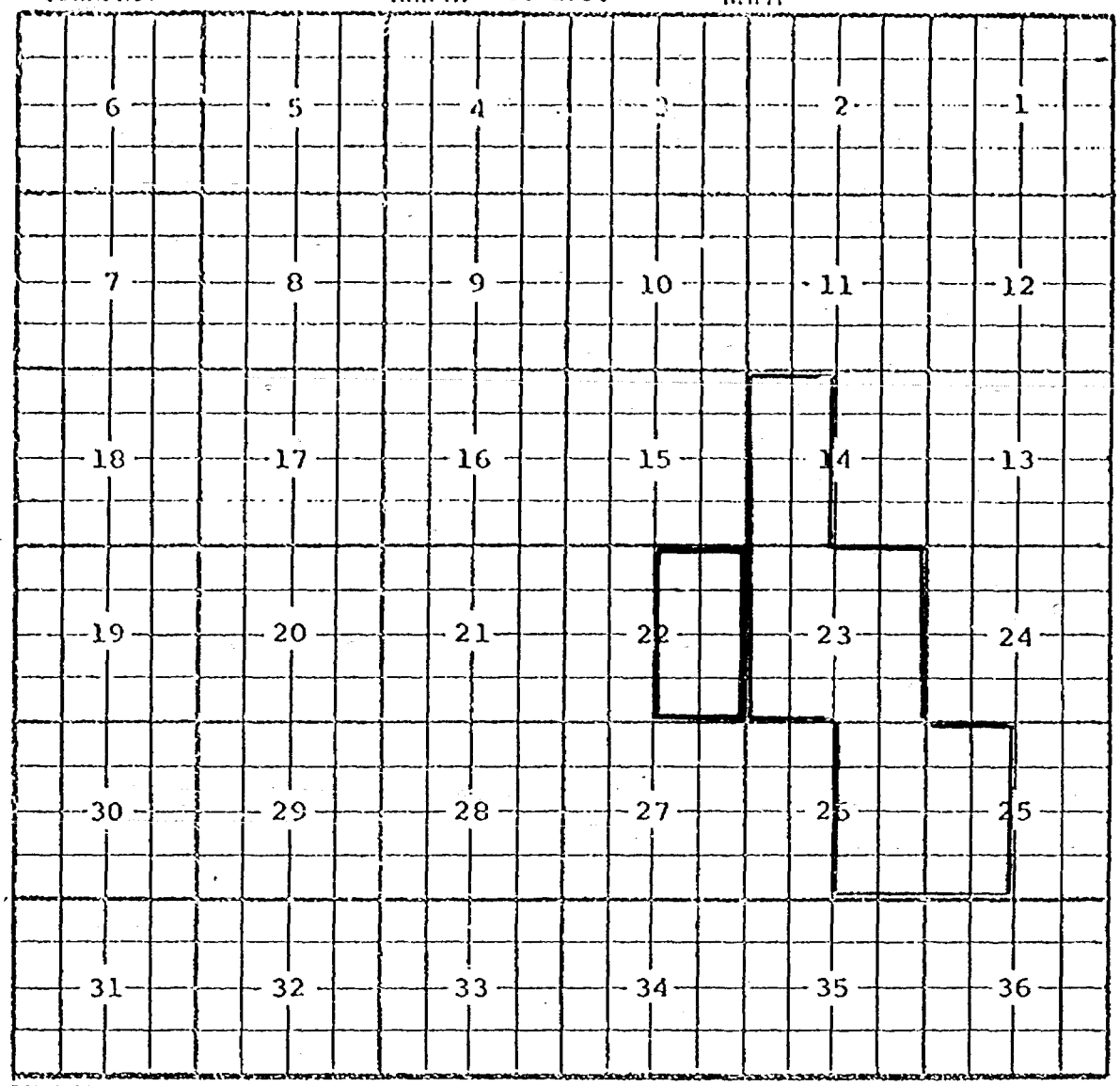
Proposed pool extension outlined in green. SECTION 32: SE/4

SECTION 33: SW/4

CASE NO. 7328 (u) EXTENSION OF AN EXISTING GAS POOL

COUNTY Lea POOL WEST OSUDO-MORROW GAS

TOWNSHIP 20 South RANGE 35 East NMPM



PURPOSE: One completed gas well capable of producing.

Amoco Production Co. Watkins A Gas Com Well #1-G in Sec. 22, T20S,R35E, completed 4-29-81, in the Morrow formation. Top perf 13,308 ft.

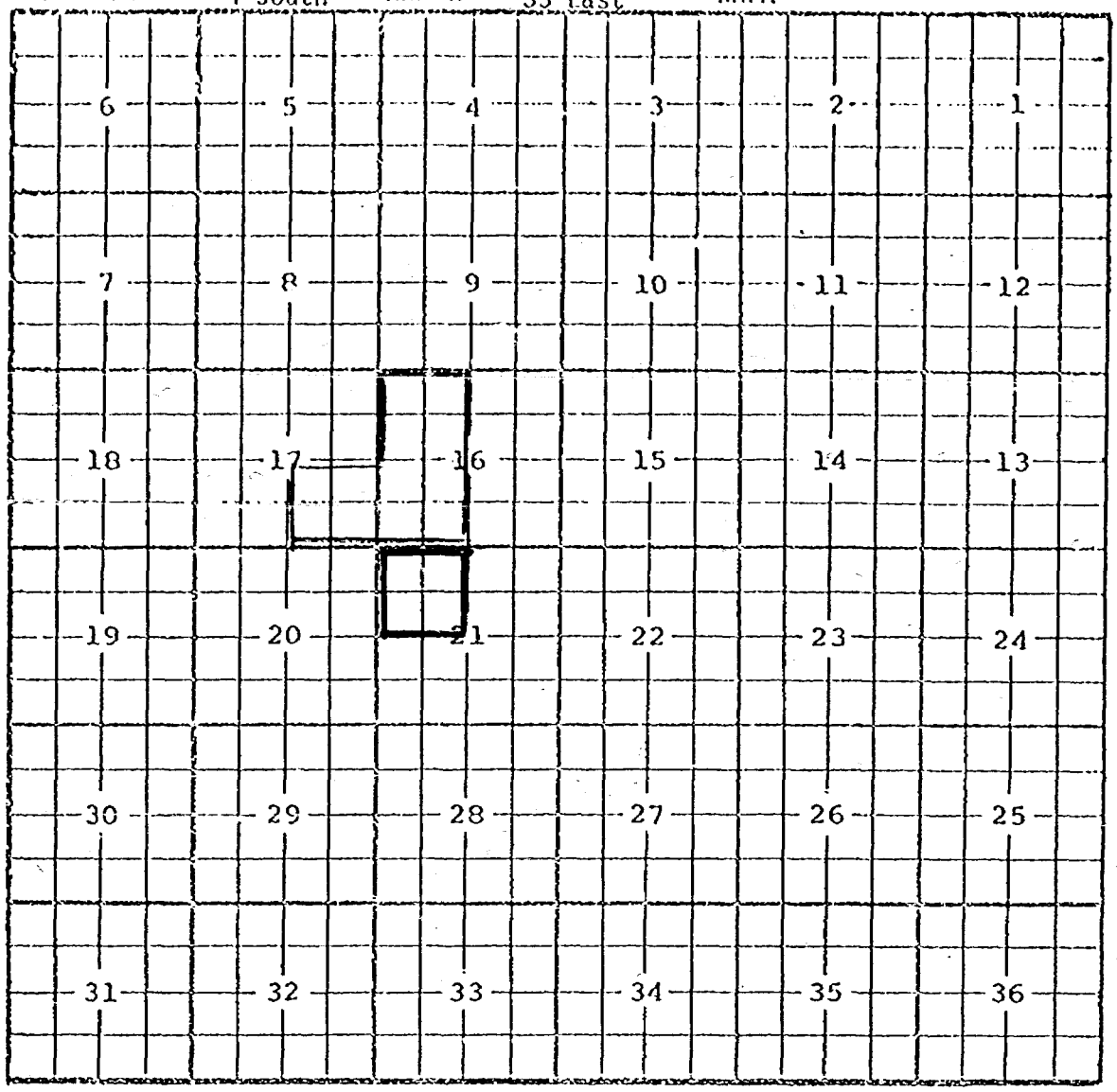
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 22: E/2

CASE NO. 7328: v) EXTENSION OF AN EXISTING OIL POOL

COUNTY ROOSEVELT POOL NORTH PETERSON-PENNSYLVANIAN

TOWNSHIP 4 South RANGE 33 East NMPM



PURPOSE: One completed oil well capable of producing.
Enserch Exploration, Inc. Pearl Jordan Well #1-C in 21-4-33, completed May 15, 1981, in the Pennsylvanian formation. Top perf 7804 ft.

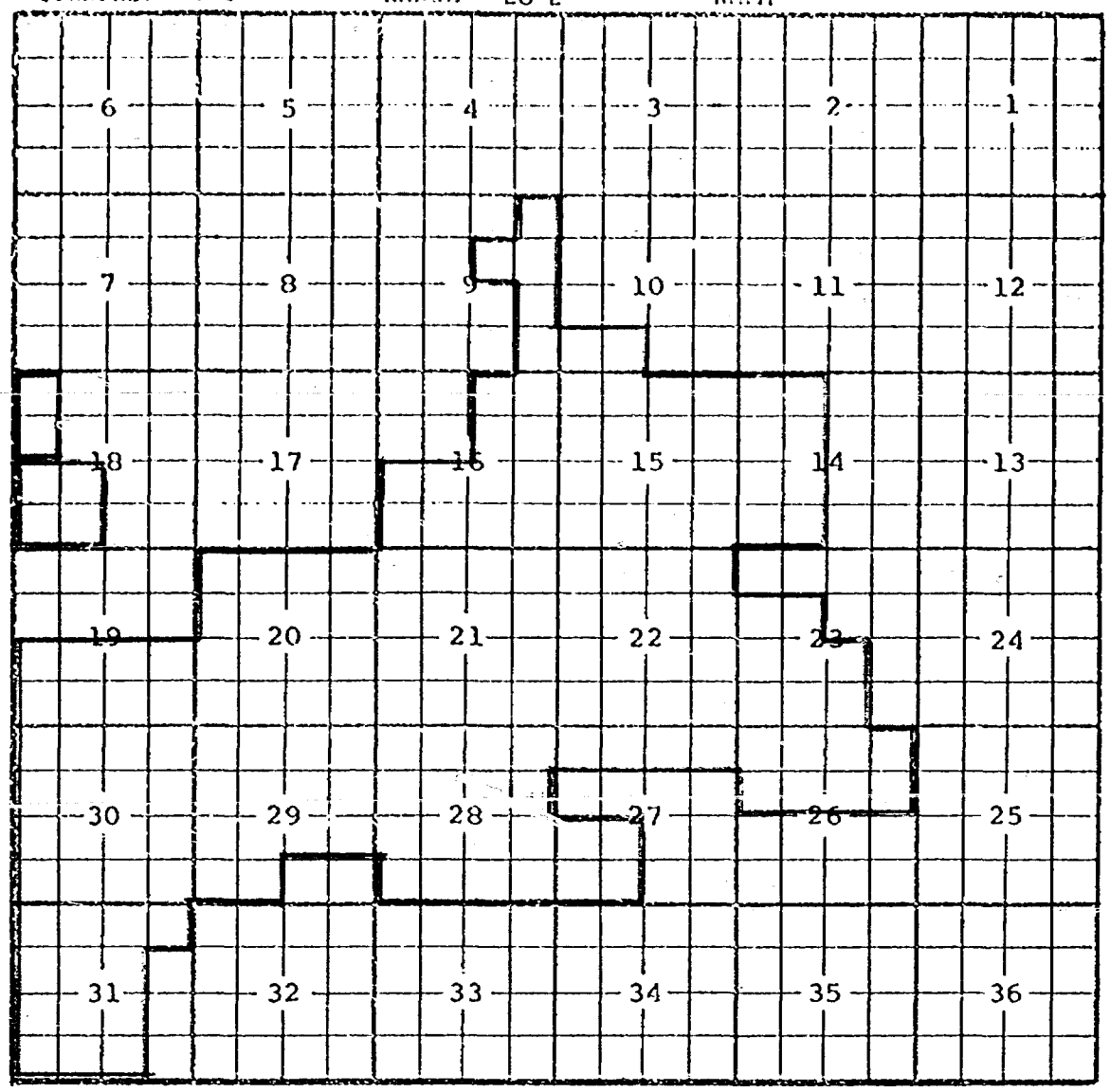
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 21: NW/4

CASE NO. 7328 (w) EXTENSION OF AN EXISTING OIL POOL

COUNTY EDDY POOL RED LAKE - QUEEN-GRAYBURG-SAN ANDRES

TOWNSHIP 17 S RANGE 28 E NMPM



Purpose: Two completed gas well capable of producing to be included in said oil pool.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
H&S Oil Co.	Hastie	19-E	18-17-28	1-9-81	Queen-Grayburg	1222
H&S Oil Co.	Hastie	20-D	18-17-28	1-9-81	Queen-Grayburg	1230

Pool boundary outlined in red.

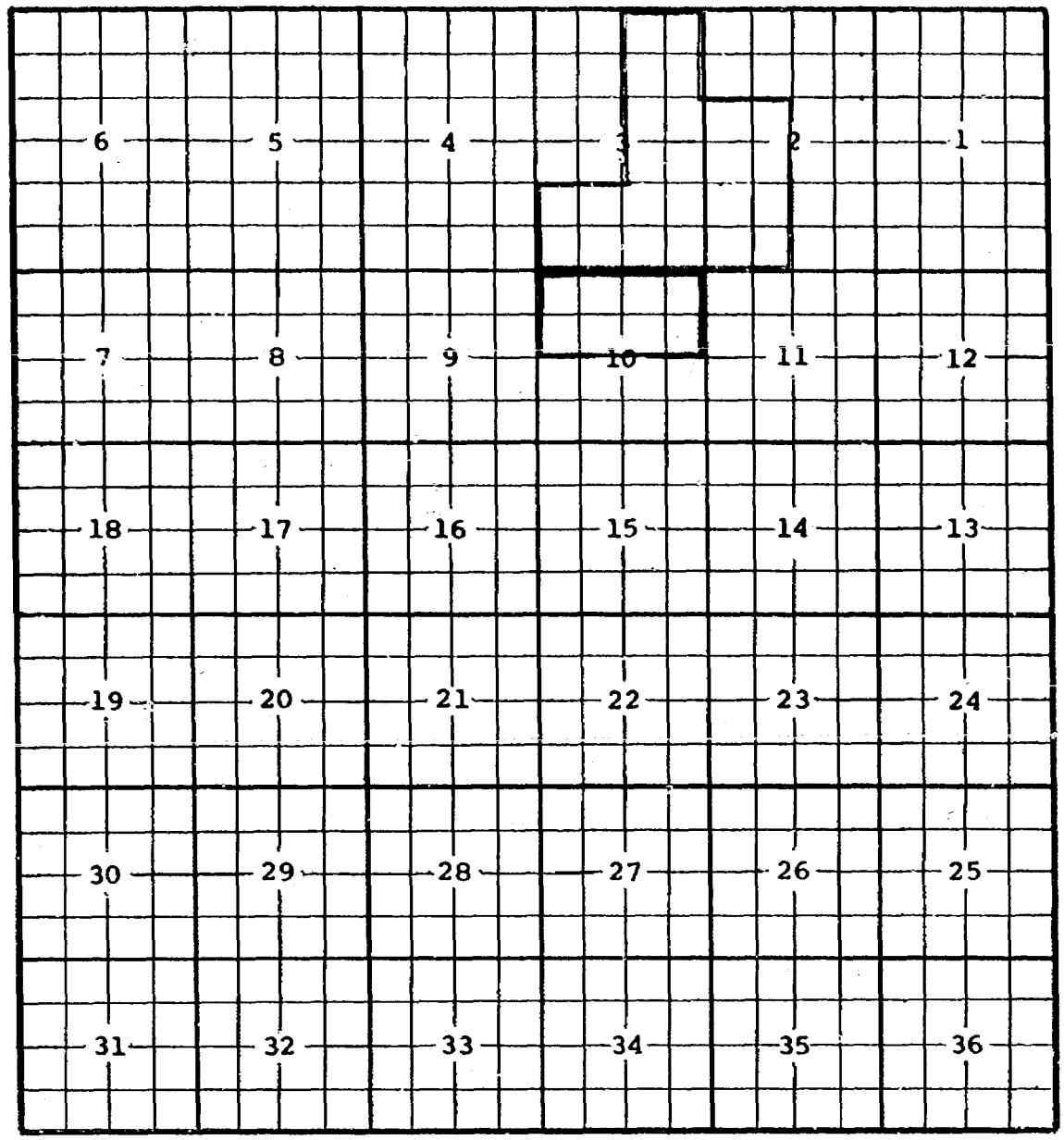
Proposed extension outlined in blue:

Section 18: W/2 NW/4

CASE NO. 7328 (x) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL SAND POINT - MORROW GAS

TOWNSHIP 21 S RANGE 28 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp	FORM	TOP
Perry R. Bass	Big Eddy Ut.	83-C	10-21-28	5-11-81	Morrow	11816

Pool boundary outlined in red.

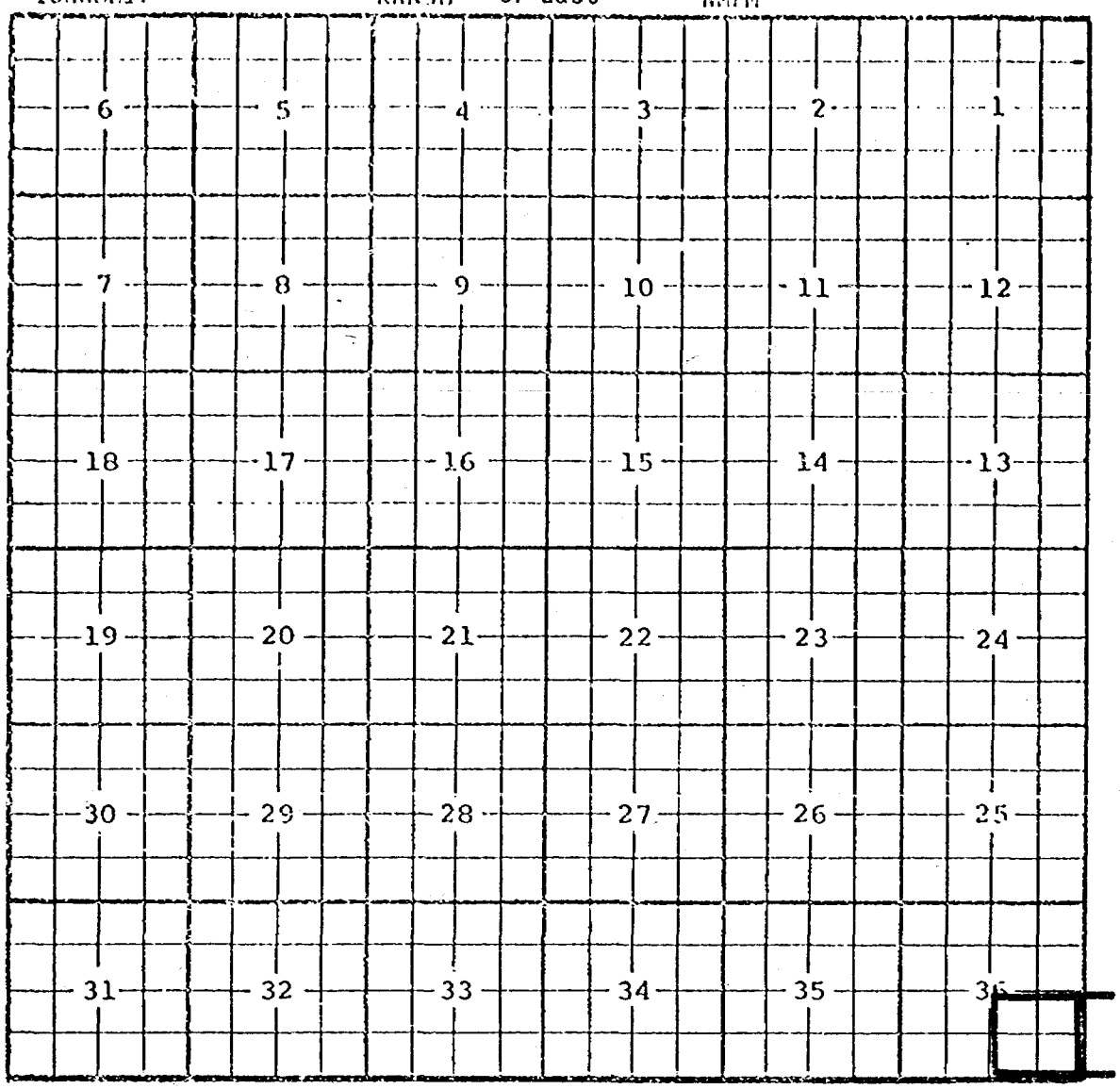
Proposed extension outlined in blue:

Section 10: N/2

CASE NO. 7328 (y) EXTENSION OF AN EXISTING ASSOCIATED POOL

COUNTY LEA POOL SAWYER-SAN ANDRES ASSOCIATED

TOWNSHIP 9 South RANGE 37 East NMPM



PURPOSE: One completed oil well capable of producing.
Brazos Petroleum Company Getty State Com Well #1-I in Sec. 36, T9S, R37E,
completed April 22, 1981, in the San Andres formation. Top perf 4931 ft.

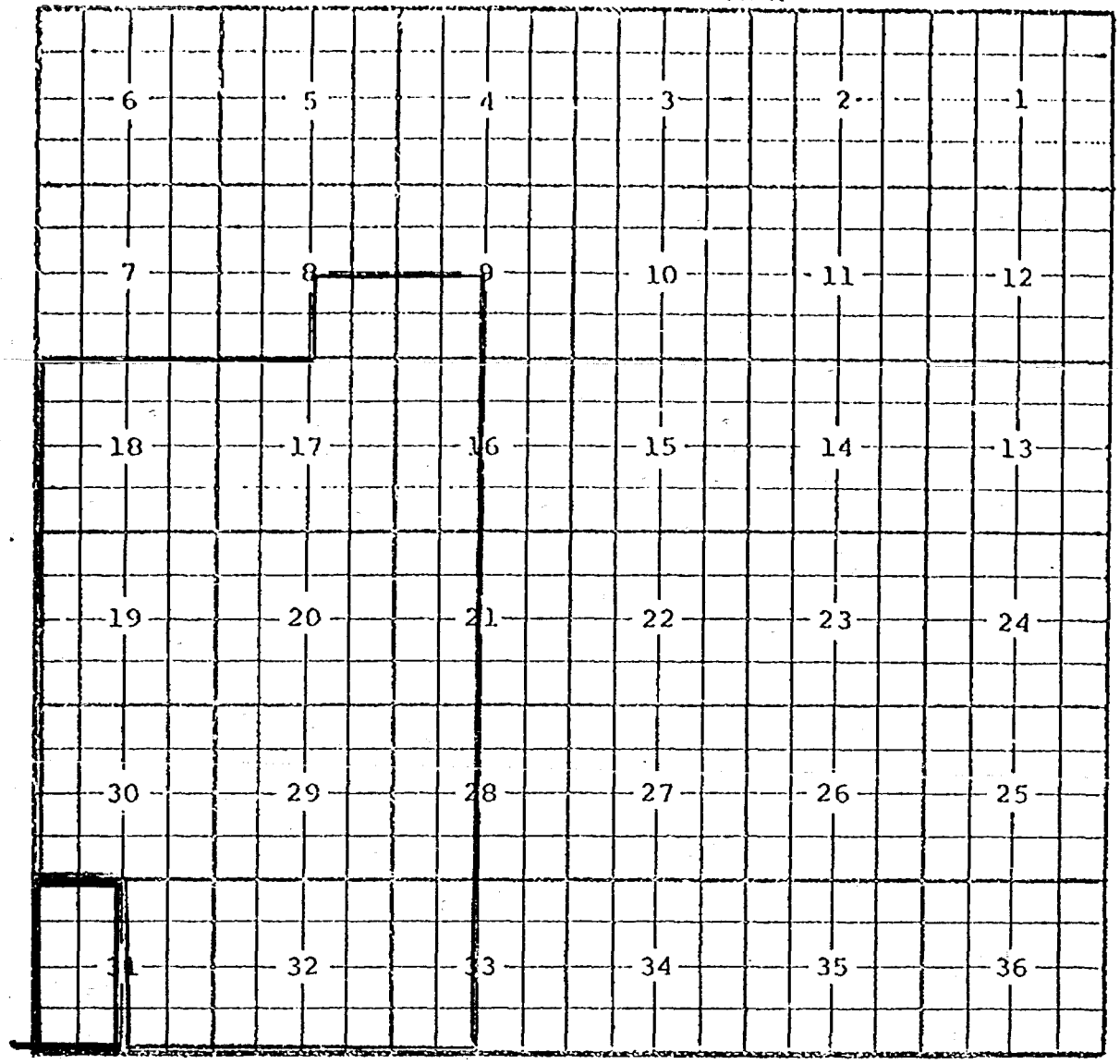
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 36: SE/4

CASE NO. 7328 (y) EXTENSION OF AN EXISTING ASSOCIATED POOL Contd.

COUNTY LEA POOL SAWYER-SAN ANDRES ASSOCIATED

TOWNSHIP 9 South RANGE 38 East NMPM



PURPOSE: See Page 1 of exhibit for Paragraph (y)

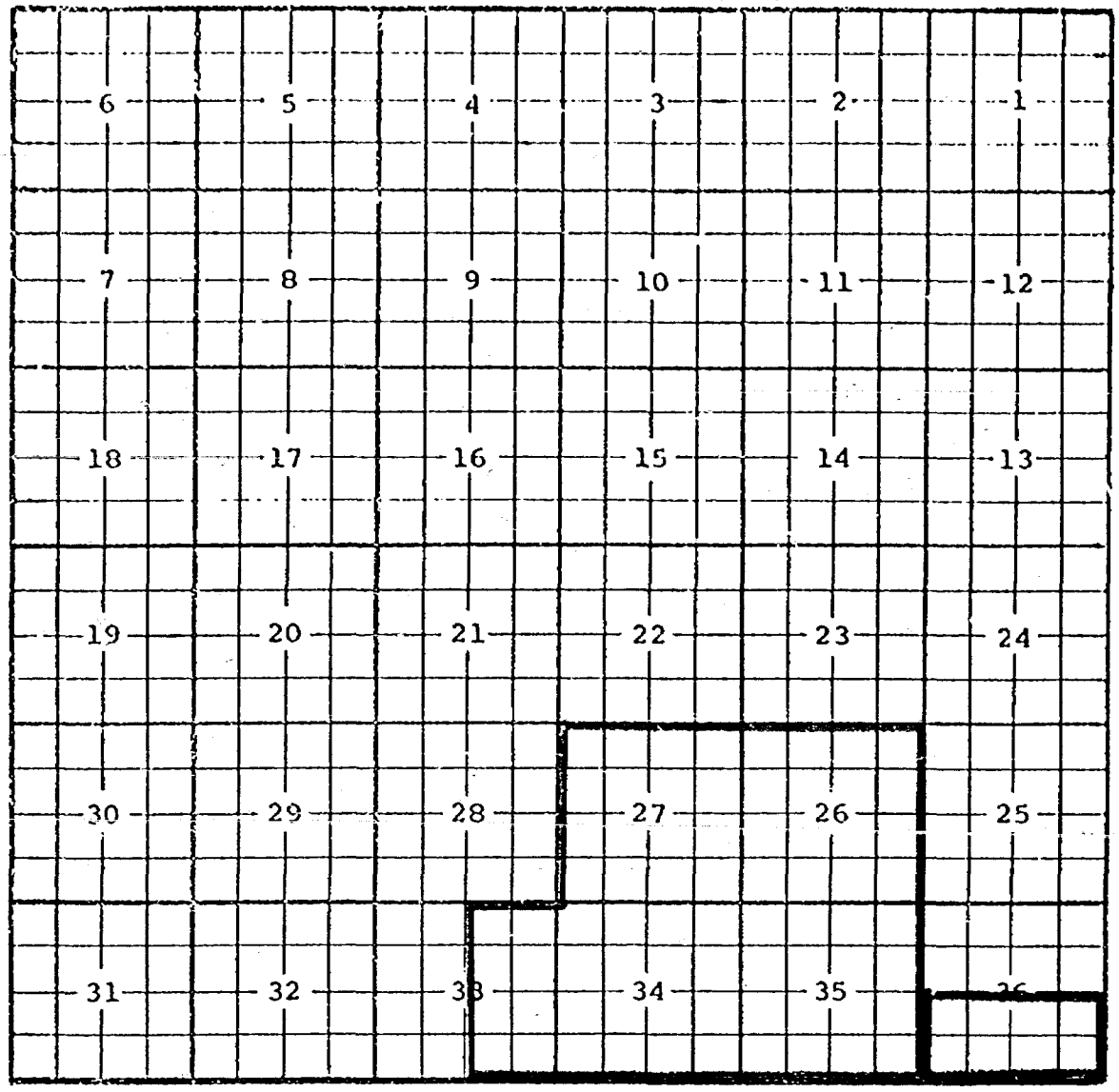
Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 31: W/2

CASE NO. 7328 (z) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL SHUGART-MORROW GAS

TOWNSHIP 18 S RANGE 31 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Gulf Oil Corp.	Eddy JP St.Com.	1-N	36-18-31	5-18-81	Morrow	11995

Pool boundary outlined in red.

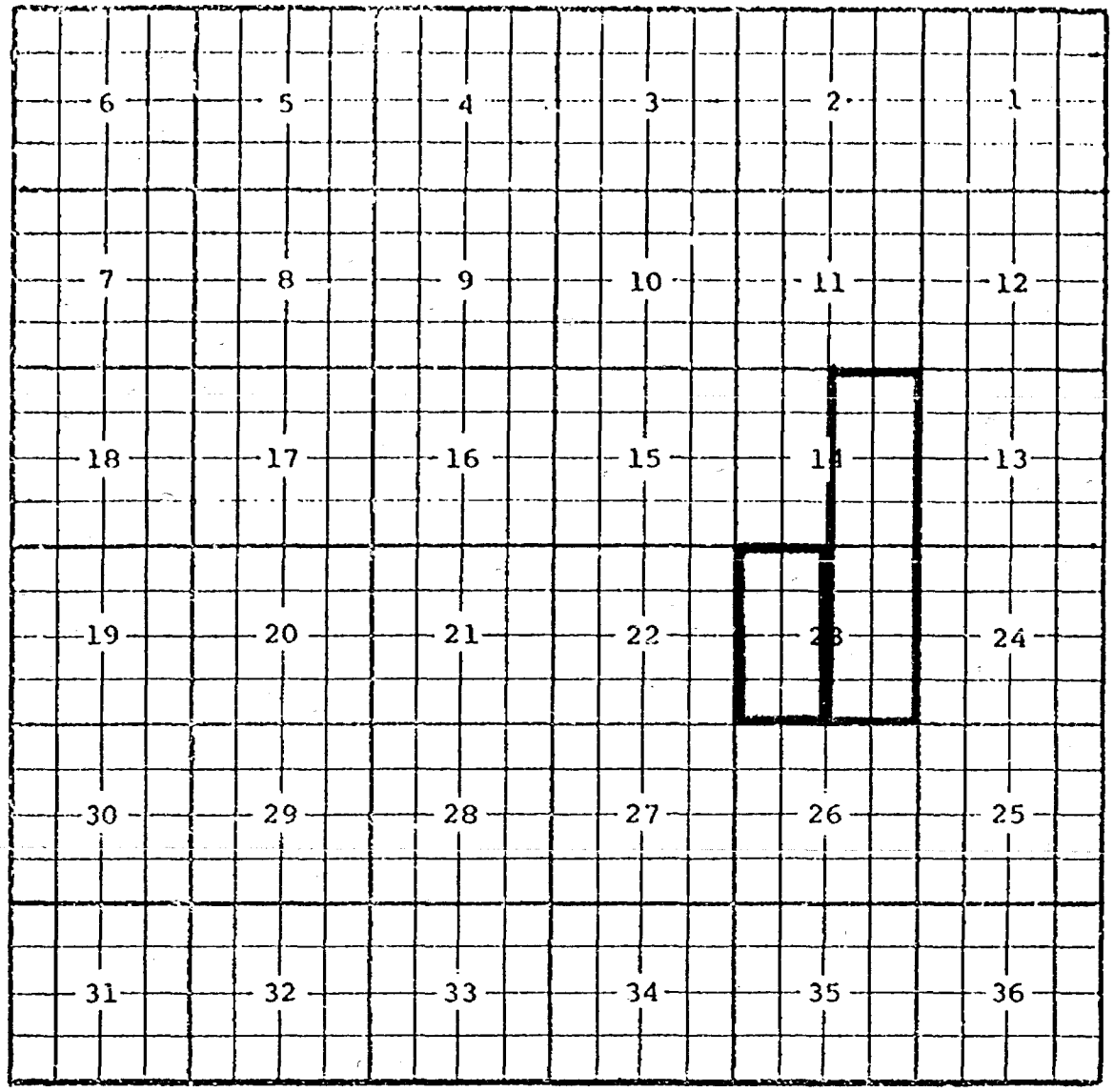
Proposed extension outlined in blue:

Section 36: S/2

CASE NO. 7328 (aa) EXTENSION OF AN EXISTING GAS POOL

COUNTY CHAVES POOL SPRINGER BASIN - MORROW GAS

TOWNSHIP 14 S RANGE 27 E NMPM



Purpose: One completed gas well, capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	Form.	TOP
Yates Pet.Corp.	Long Arroyo OW Fed.	1-K	23-14-27	5-20-81	Morrow	7926

Pool boundary outlined in red.

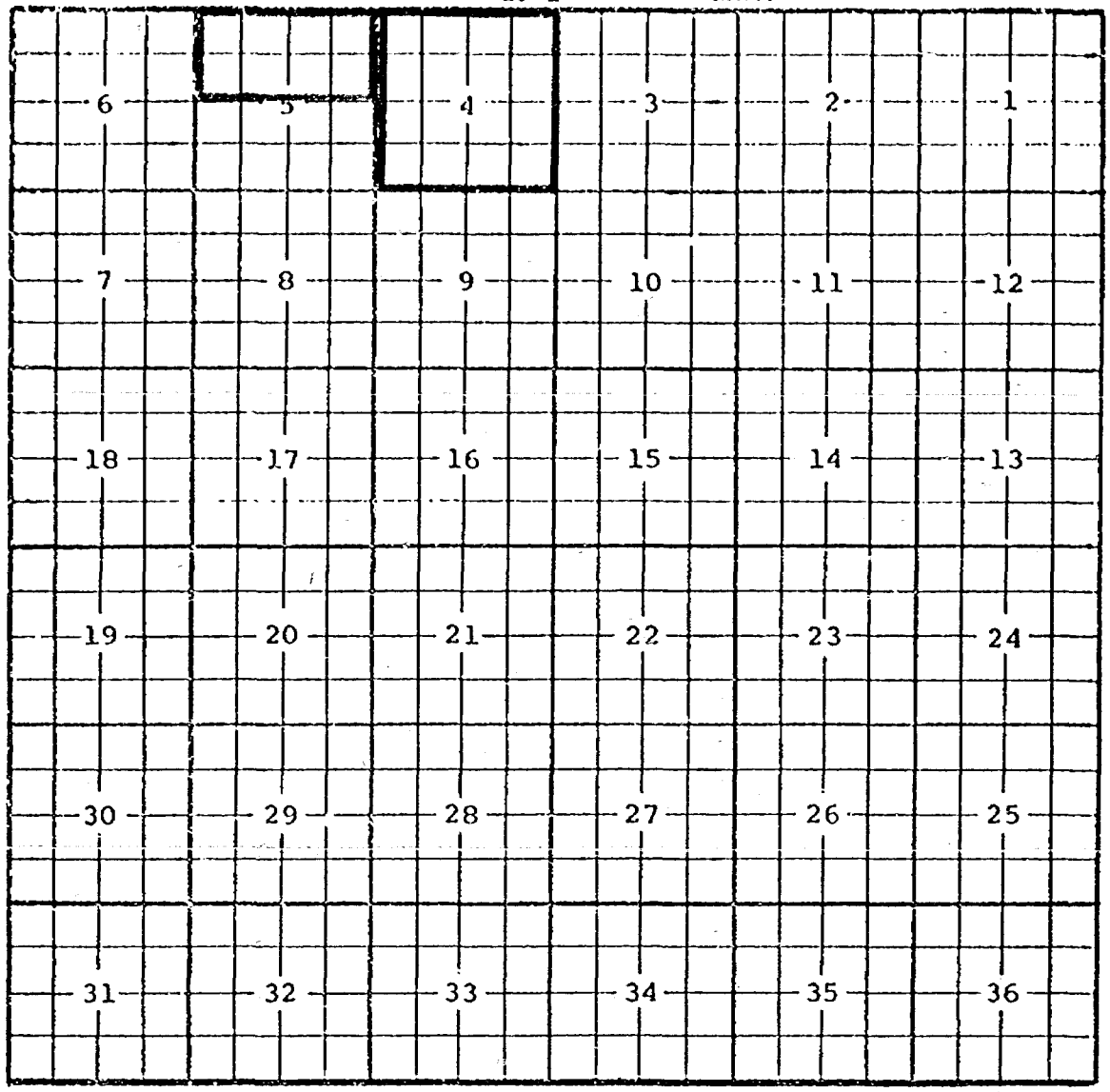
Proposed extension outlined in blue:

Section 23: W/2

CASE NO. 7328 (bb) EXTENSION OF AN EXISTING GAS POOL

COUNTY EDDY POOL NORTH TURKEY TRACK - MORROW GAS

TOWNSHIP 19 S RANGE 29 E NMPM



Purpose: One completed gas well capable of producing.

OPERATOR	LEASE	#-U	S-T-R	Comp.	FORM.	TOP
Cities Service Co.	State CZ Com.	1-H	4-19-29	3-16-81	Morrow	11340

Pool boundary outlined in red.

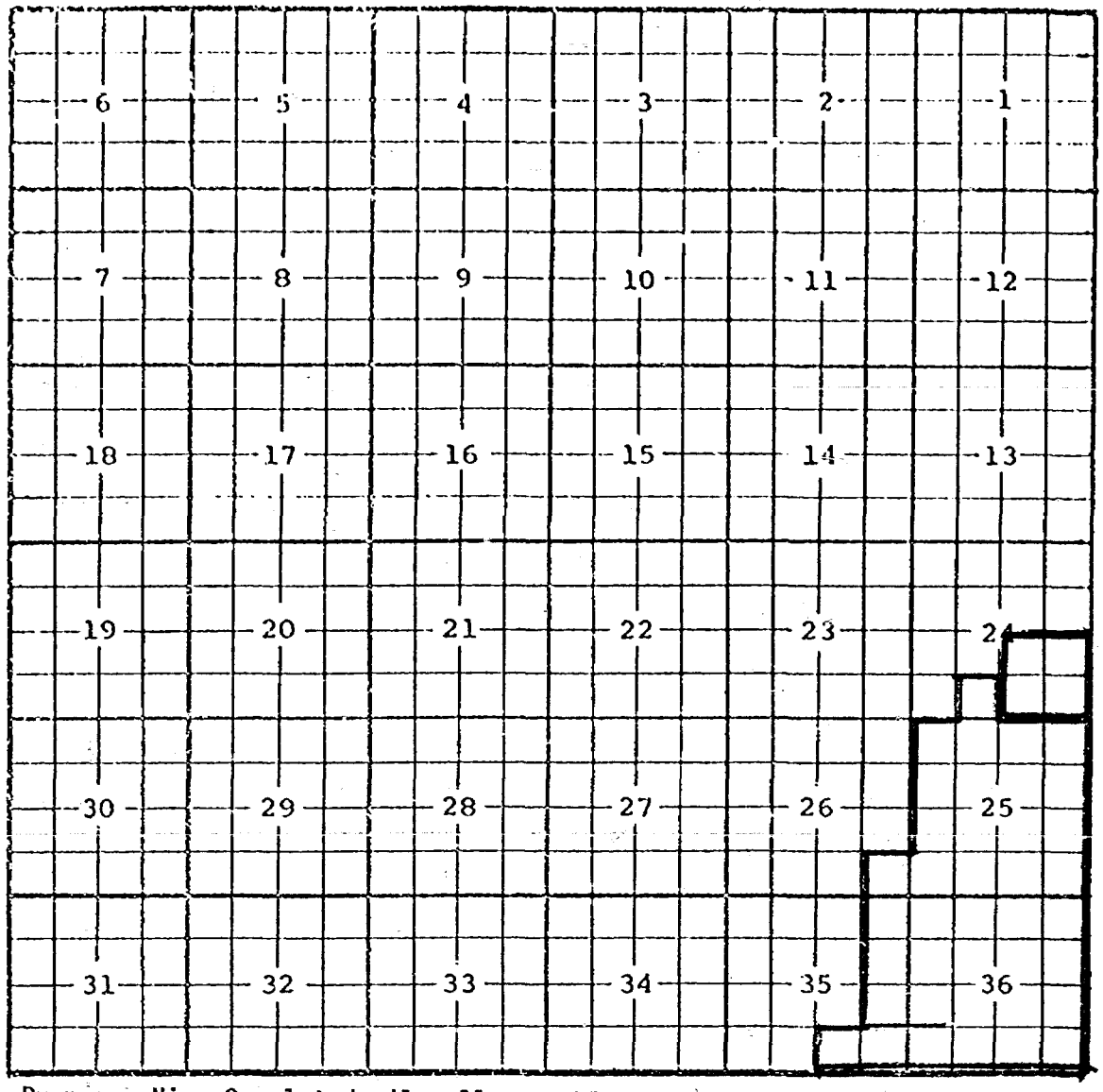
Proposed extension outlined in blue:

Section 4: All

CASE NO. 7328 (cc) EXTENSION OF AN EXISTING ASSOCIATED POOL Exhibit I

COUNTY CHAVES POOL TWIN LAKES - SAN ANDRES ASSOCIATED

TOWNSHIP 8 S RANGE 28 E NMPM



Purpose: Nine Completed oil wells capable of producing.

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
The Harlow Corp.	O'Brien Fee 24	1-I	24-8-28	1-29-81	San Andres	2664

Pool boundary outlined in red.

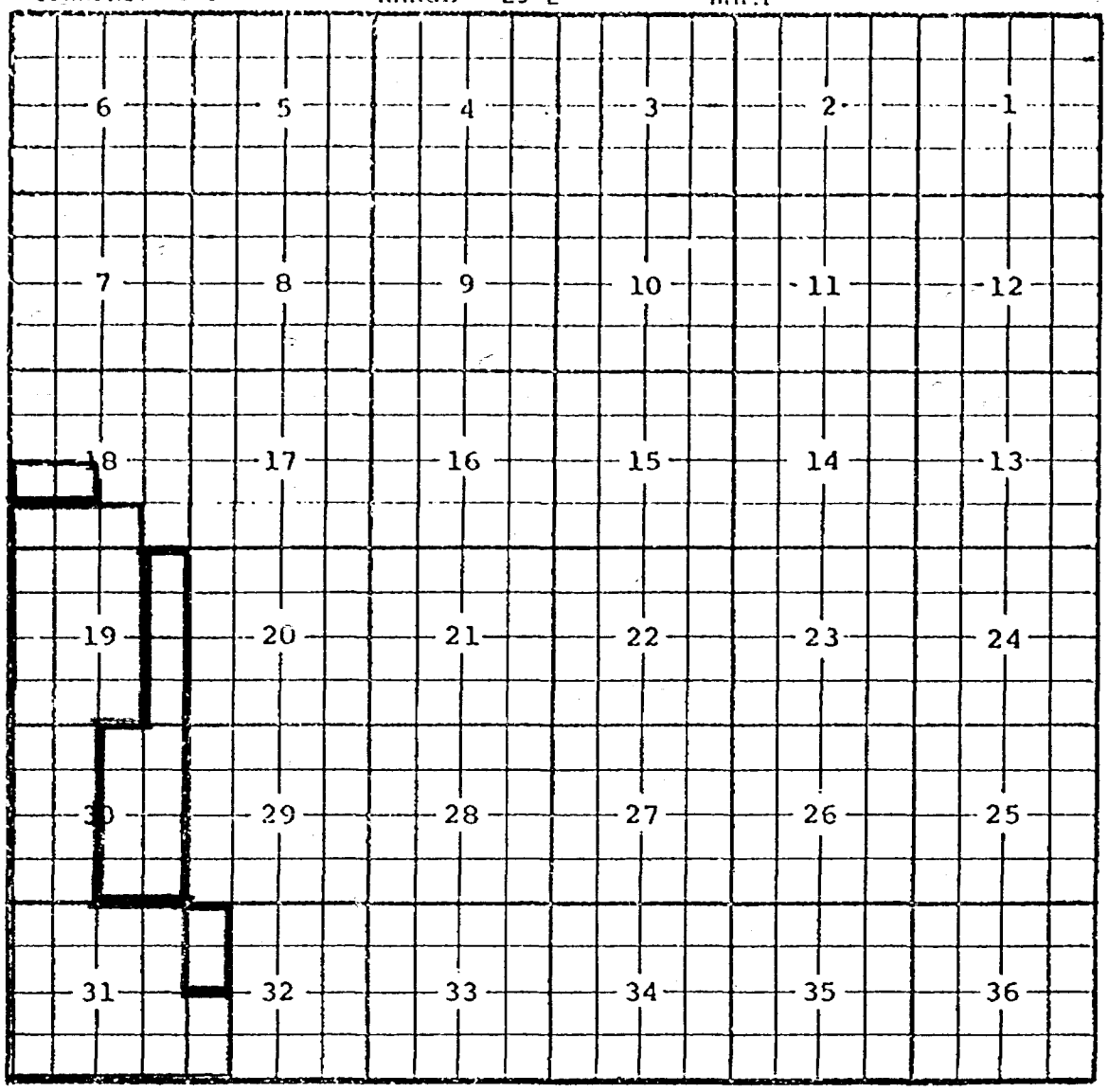
Proposed extension outlined in blue:

Section 24: SE/4

Exhibit II

COUNTY CHAVES POOL TWIN LAKES - SAN ANDRES ASSOCIATED

TOWNSHIP 8 S RANGE 29 E NMPM



Purpose: See Exhibit I

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
The Harlow Corp.	O'Brien Fee 18	4-L	18-8-29	4-28-81	San Andres	2665
The Harlow Corp.	Kuchemann	5-G	30-8-29	5-4-81	San Andres	2688

Pool boundary outlined in red.

Proposed extension outlined in blue:

Section 18: N/2 SW/4

Section 19: E/2 E/2

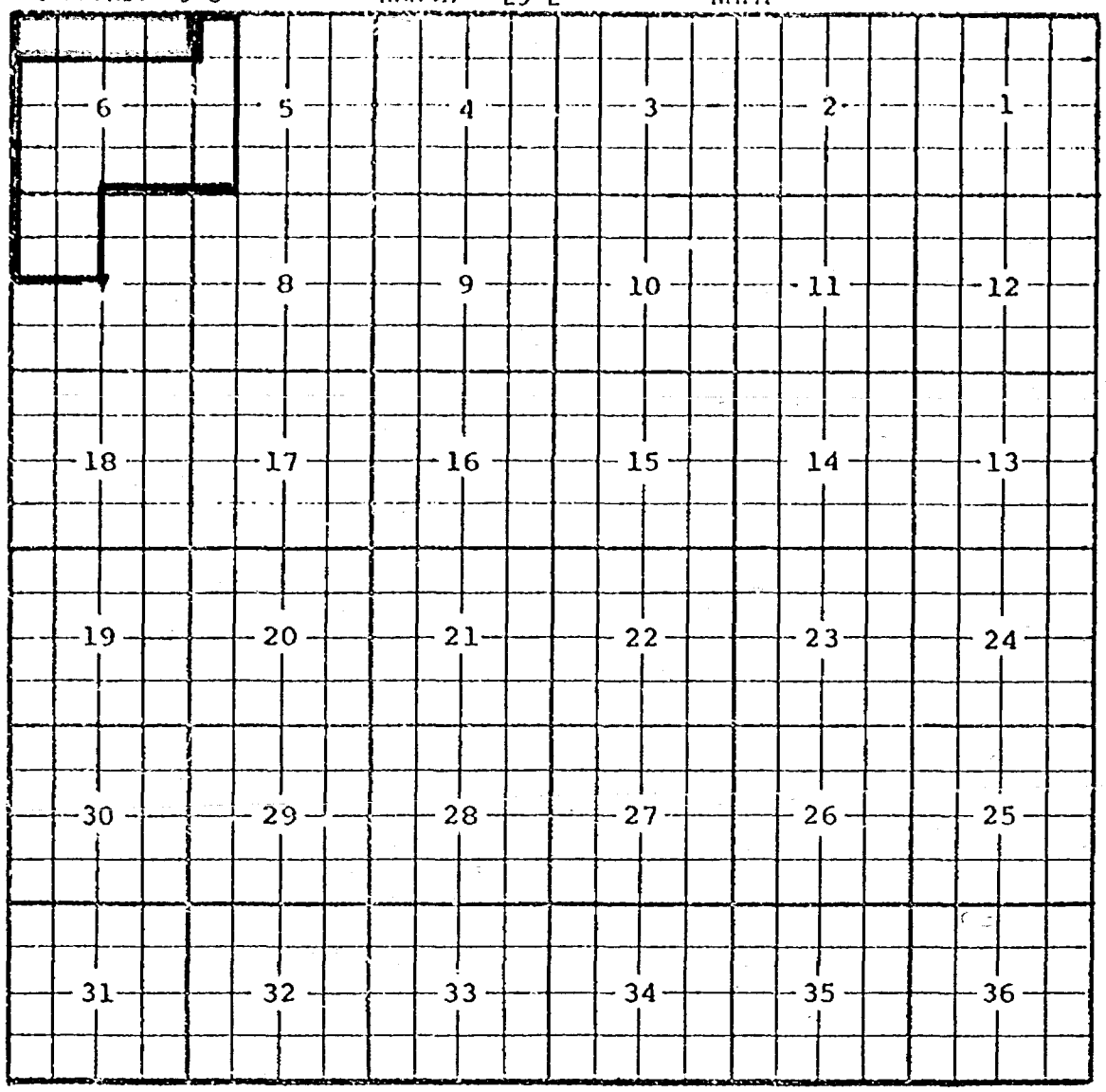
Section 30: E/2

Section 32: W/2 NW/4

Exhibit III

COUNTY CHAVES POOL TWIN LAKES - SAN ANDRES ASSOCIATED

TOWNSHIP 9 S RANGE 29 E NMPM



Purpose: See Exhibit I

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
Stevens Oil Co.	O'Brien L	6-D	5-9-29	6/2/81	San Andres	2780
Stevens Oil Co.	O'Brien L	7-E	5-9-29	6-19-81	San Andres	2769
Stevens Oil Co.	O'Brien FF	1-J	6-9-29	6-23-81	San Andres	2696
Stevens Oil Co.	O'Brien L	4-G	6-9-29	5-25-81	San Andres	2715
Stevens Oil Co.	O'Brien L	5-H	6-9-29	6-8-81	San Andres	2729
Selco,Inc.	Moonshine 7	1-F	7-9-29	3-27-81	San Andres	2653

Pool boundary outlined in red.

Proposed extension outlined in blue:

Section 5: W/2 W/2

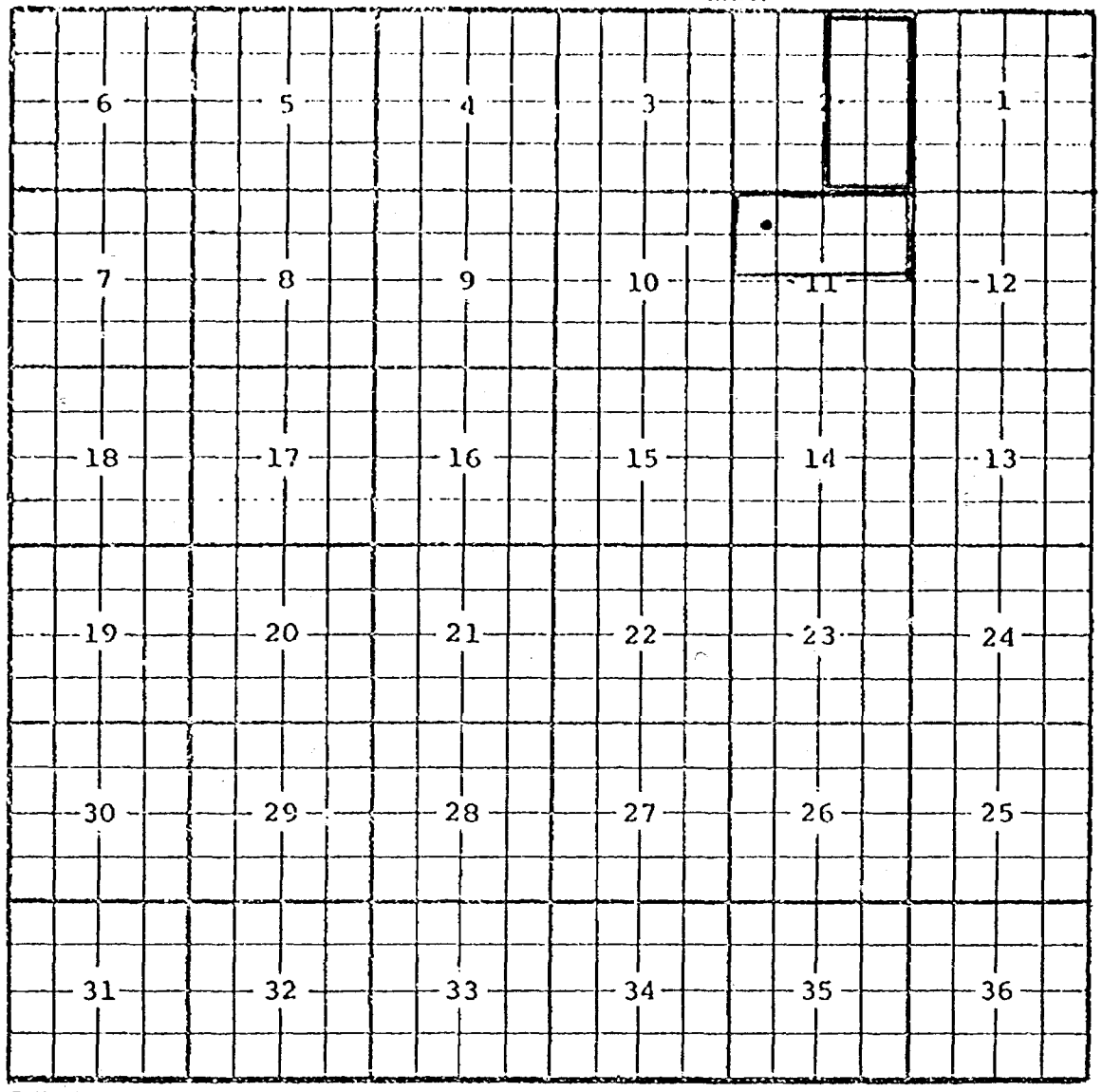
Section 6: S/2 N/2 & S/2

Section 7: NW/4

CASE NO. 7328 (dd) EXTENSION OF AN EXISTING GAS POOL

COUNTY LEA POOL VACA DRAW-MORROW GAS

TOWNSHIP 25 South RANGE 33 East NMPM



PURPOSE: One completed gas well capable of producing.

HNG Oil Co. Bell Lake 2 State Well #1-H in Sec. 2, T25S,R33E, completed April 14, 1981, in the Morrow formation. Top perf 15,157 ft.

Pool boundary outlined in red.

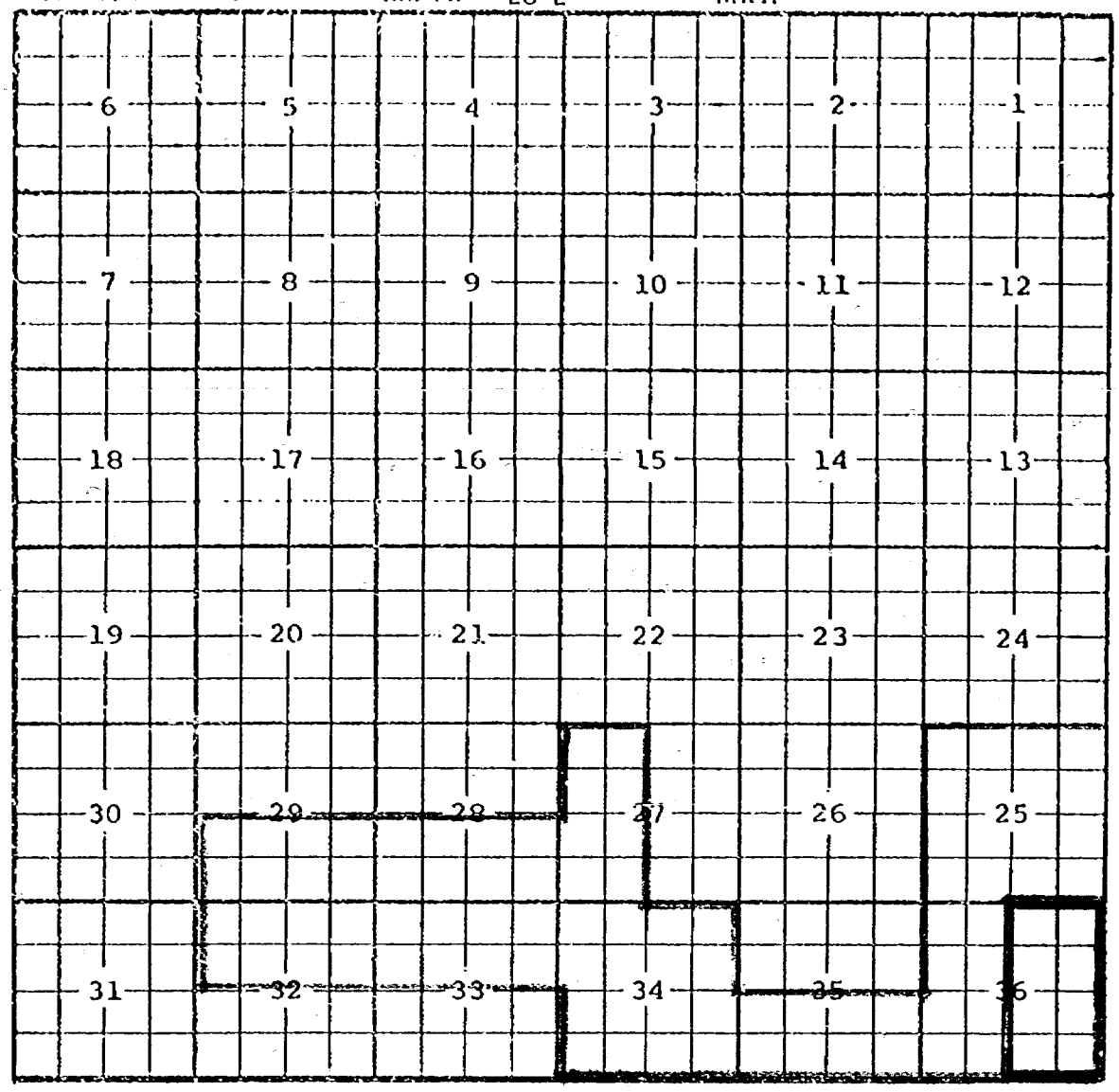
Proposed pool extension outlined in green. SECTION 2: E/2

CASE NO.7328 (ee) EXTENSION OF AN EXISTING GAS POOL Page 1 of 2 pages

EXHIBIT I

COUNTY EDDY POOL WINCHESTER - MORROW GAS

TOWNSHIP 19 S RANGE 28 E NMPM



Purpose: One Completed Gas Well Capable of Producing.

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
Marathon Oil Co.	Martinez 31 Fed.	1-F	31-19-29	5-7-81	Morrow	11238

Pool boundary outlined in red.

Proposed boundary outlined in blue:

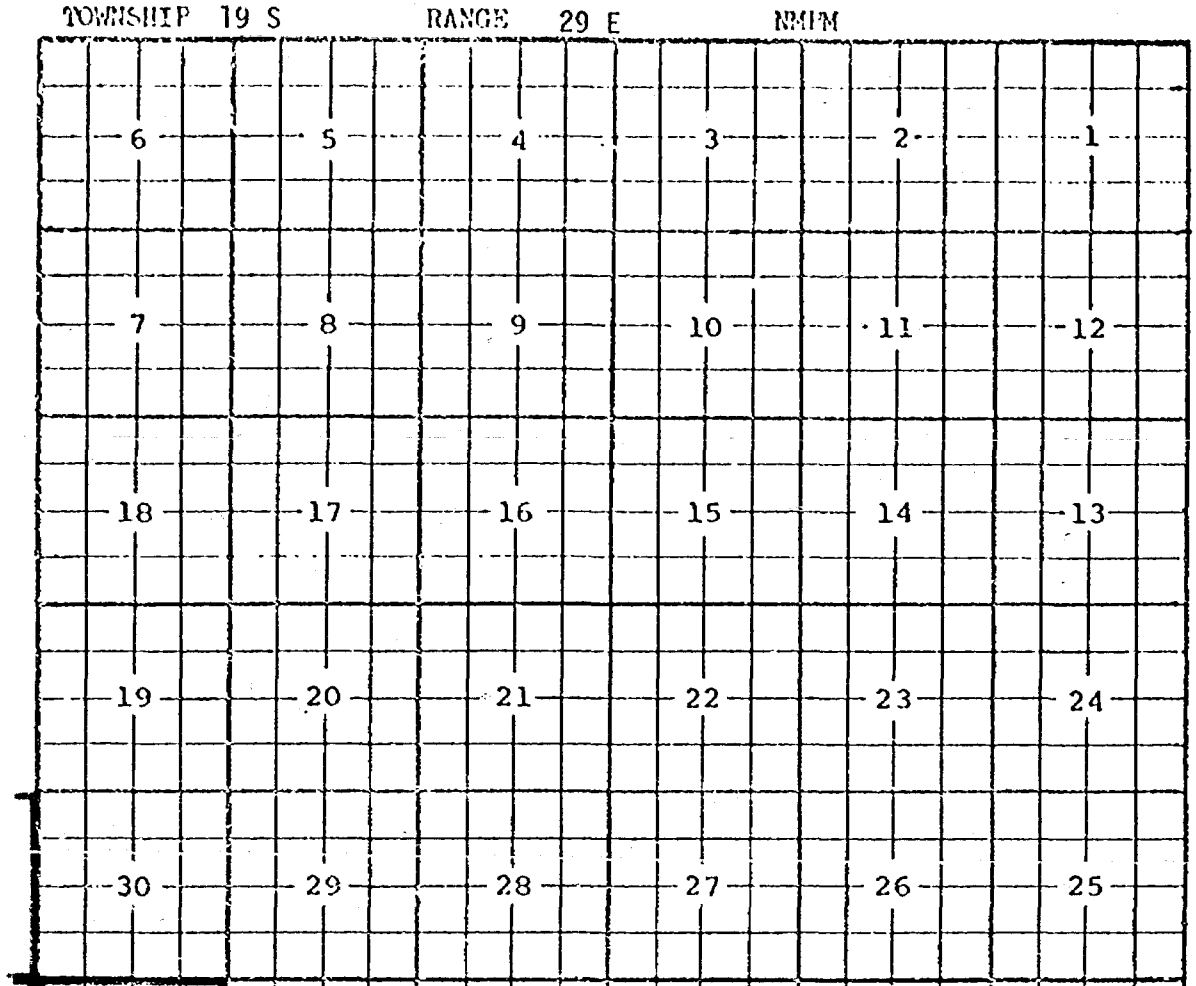
Section 36: E/2

CASE NO. 7328 (ee) EXTENSION OF AN EXISTING GAS POOL Contd. Page 2 of 2

EXHIBIT II

COUNTY EDDY POOL WINCHESTER - MORROW GAS

TOWNSHIP 19 S RANGE 29 E NMPM



Purpose: See Exhibit I

OPERATOR	LEASE	#-U	S-T-R	COMP.	FORM.	TOP
SEE EXHIBIT I						

Pool Boundary outlined in red.

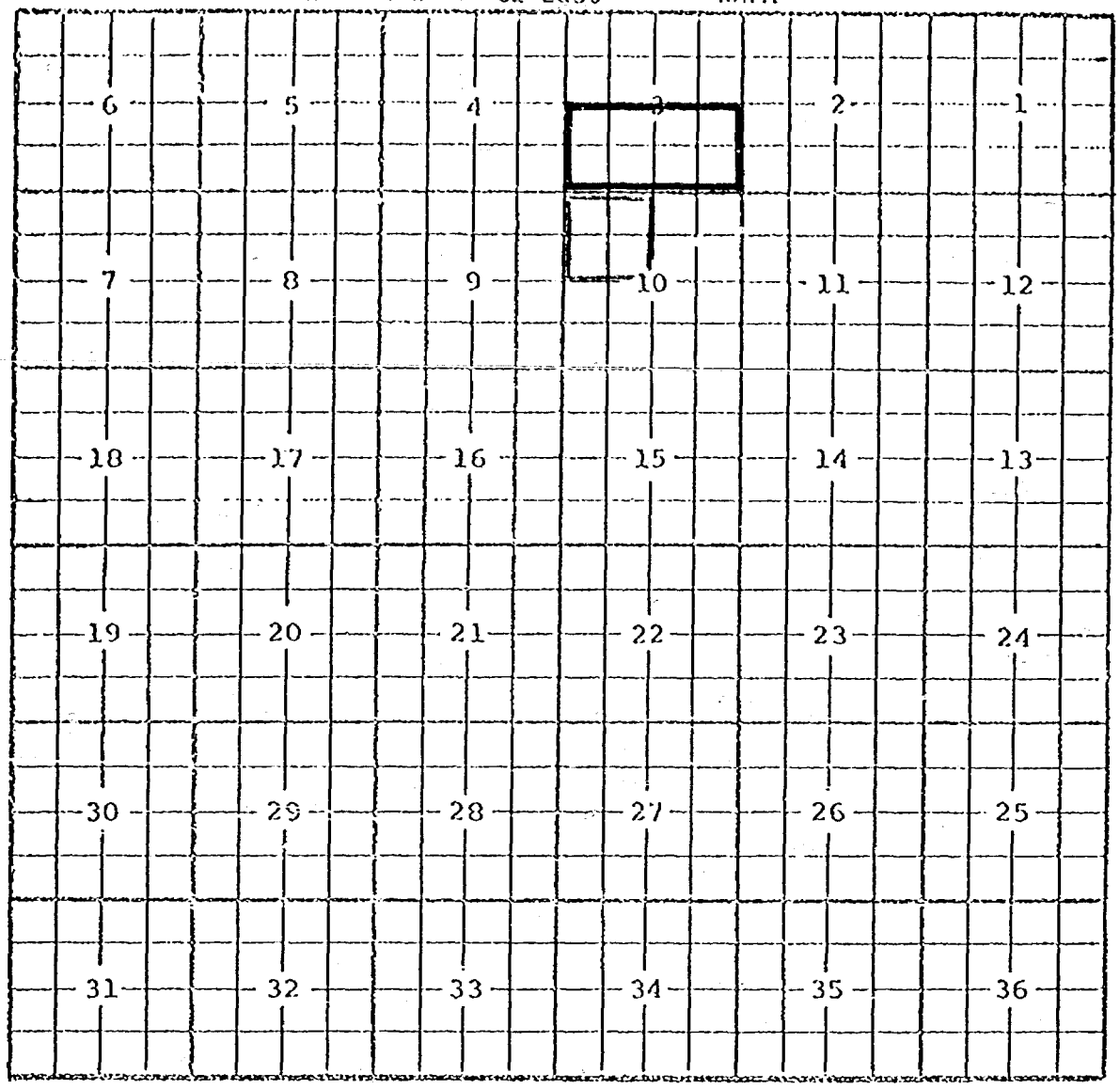
Proposed extension outlined in blue:

Section 31: N/2

CASE NO. 7328 (ff) EXTENSION OF AN EXISTING OIL POOL.

COUNTY LEA POOL NORTH YOUNG-BONE SPRING

TOWNSHIP 18 South RANGE 32 East NMPM



PURPOSE: One completed oil well capable of producing.

Harvey E. Yates Company Young Deep 3 Federal Well #1-O in Sec. 3, T18S,R32E, completed June 22, 1981, in the Bone Spring formation. Top perf 8469 ft.

Pool boundary outlined in red.

Proposed pool extension outlined in green. SECTION 3: S/2

CASE 7284: (Continued from July 2, 1981, Examiner Hearing)

Application of Energy Reserves Group, Inc. for an unorthodox gas well location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Cisco location of its Miller Well No. 1 located 660 feet from the South and West lines of Section 12, Township 6 South, Range 33 East, the S/2 of said Section 12 to be dedicated to the well.

CASE 7324: Application of Benson-Montin-Greer Drilling Corporation for a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 240.01-acre non-standard proration unit comprising the N/2 of Section 31, Township 32 North, Range 13 West, Ute Dome-Dakota Pool, to be dedicated to a well drilled at a standard location thereon.

CASE 7325: Application of Benson-Montin-Greer Drilling Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying Section 32, Township 26 North, Range 1 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well. Applicant further seeks provision for the re-allocation of all costs and charges, and revenues, to the Canada Ojitos Unit in accordance with the unit agreement, should the aforesaid pooled lands be committed to said unit.

CASE 7326: Application of Tenneco Oil Company for the amendment of Division Order No. R-4157-C, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-4157-C by re-establishing 640-acre spacing and proration units in the Catclaw Draw-Morrow Gas Pool with a provision for infill drilling of a second well on each 640-acre spacing unit.

CASE 7327: Application of John E. Schalk for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying Township 25 North, Range 3 West, containing 23,040 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7328: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and desgianted as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the East Lake McMillan-Wolfcamp Gas Pool. The discovery well is Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) EXTEND the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) EXTEND the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) EXTEND the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) EXTEND the North Berry-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) EXTEND the Bunker Hill-Penrose Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) EXTEND the North Burton Flat-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 30: E/2

(m) EXTEND the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 10: NW/4

(o) EXTEND the Foster-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 39 EAST, NMPM
Section 6: NE/4

(p) EXTEND the Jenkins-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) EXTEND the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) EXTEND the East LaRica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) EXTEND the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) EXTEND the North Lusk-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) EXTEND the West Osudo-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) EXTEND the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) EXTEND the Red Lake Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) EXTEND the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) EXTEND the Sawyer-San Andres Associated Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) EXTEND the Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) EXTEND the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) EXTEND the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) EXTEND the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) EXTEND the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) EXTEND the North Young-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 3: S/2

CASE 7304: (Readvertised)

Application of ARCO Oil and Gas Company for directional drilling and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill its Custer Well No. 1, the surface location of which is 1810 feet from the North line and 2164 feet from the West line of Section 6, Township 25 South, Range 37 East, Custer Field, in such a manner as to penetrate the Devonian formation at an unorthodox location within 100 feet of a point approximately 1800 feet from the North line and 1480 feet from the West line of said Section 6, and to bottom said well in the Ellenburger formation within 100 feet of a point approximately 1650 feet from the North line and 760 feet from the West line of said Section 6, but in no event closer than 660 feet to said line. The N/2 of said Section 6 would be dedicated to each of said formations.

Florene,

You will notice that the extension to the
North Burton Flat-Wolfcamp Gas Pool (Paragraph 1)
is for S/2 of Sec. 29 instead of all as indicated on
the Nomenclature ad from Artesia. I checked with
Larry since my pool book showed that the N/2 had been
placed in pool by R-6476.

Also, a correction in the East Carlsbad-Strawn Gas Pool
extension (paragraph (m)
and the North Turkey Track-Morrow Gas Pool (Paragraph bb)
were checked with Larry.

If you find any mistakes, just give me a call. Thanks,

Evelyn

RECEIVED
JUL 15 1981
OIL CONSERVATION DIVISION
SANTA FE

NOMENCLATURE ADVERTISEMENT FOR AUGUST 1981
CASE NO. 7328

In the matter of the application of the Oil Conservation Division of the Energy and Minerals Department upon its own motion for an order for the creation of new pools in Chaves and Eddy Counties, New Mexico, and the extension of certain existing pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico, and giving notice to all persons and parties interested in the subject matter thereof to appear and show cause why such creations and extensions should not be made.

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and designated as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said Pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The Discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the East Lake McMillan-Wolfcamp Gas Pool. The discovery well is Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) EXTEND the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) EXTEND the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) EXTEND the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) EXTEND the North Berry-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) EXTEND the Bunker Hill-Penrose Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) EXTEND the North Burton Flat-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 30: E/2

(m) EXTEND the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 10: NW/4

(o) EXTEND the Foster-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 39 EAST, NMPM
Section 6: NE/4

(p) EXTEND the Jenkins-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) EXTEND the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) EXTEND the East LaRica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) EXTEND the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) EXTEND the North Lusk-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) EXTEND the West Osudo-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) EXTEND the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) EXTEND the Red Lake-Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) EXTEND the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) EXTEND the Sawyer-San Andres Associated Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) EXTEND the Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) EXTEND the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) EXTEND the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) EXTEND the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) EXTEND the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) EXTEND the North Young-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 3: S/2

NOMENCLATURE ADVERTISEMENT FOR AUGUST 1981
CASE NO. 7328

In the matter of the application of the Oil Conservation Division of the Energy and Minerals Department upon its own motion for an order for the creation of new pools in Chaves and Eddy Counties, New Mexico, and the extension of certain existing pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico, and giving notice to all persons and parties interested in the subject matter thereof to appear and show cause why such creations and extensions should not be made.

(a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Burton Flat-Strawn Gas Pool. The discovery well is Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and designated as the Elkins-San Andres Pool. The discovery well is Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Indian Flats-Bone Spring Pool. The discovery well is Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. Said Pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Indian Flats-Strawn Gas Pool. The Discovery well is Perry R. Bass Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the East Lake McMillan-Wolfcamp Gas Pool. The discovery well is Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) EXTEND the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) EXTEND the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) EXTEND the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) EXTEND the North Berry-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) EXTEND the Bunker Hill-Penrose Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) EXTEND the North Burton Flat-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 30: E/2

(m) EXTEND the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 10: NW/4

(o) EXTEND the Foster-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 39 EAST, NMPM
Section 6: NE/4

(p) EXTEND the Jenkins-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) EXTEND the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) EXTEND the East LaRica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) EXTEND the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) EXTEND the North Lusk-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) EXTEND the West Osudo-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) EXTEND the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) EXTEND the Red Lake-Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) EXTEND the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) EXTEND the Sawyer-San Andres Associated Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) EXTEND the Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) EXTEND the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) EXTEND the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) EXTEND the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) EXTEND the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) EXTEND the North Young-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 3: S/2

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7328
ORDER NO. R-6758

THE APPLICATION OF THE OIL CONSERVATION
DIVISION UPON ITS OWN MOTION FOR AN ORDER
CREATING AND EXTENDING CERTAIN POOLS IN
CHAVES, EDDY, LEA, AND ROOSEVELT COUNTIES,
NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 a.m. on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on the _____ day of August, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Strawn formation, said pool to bear the designation of North Burton Flat-Strawn Gas Pool. Said North Burton Flat-Strawn Gas Pool was discovered by the Southland Royalty Company Citgo 5 Federal Com Well No. 1 located in Unit B of Section 5, Township 20 South, Range 28 East, NMPM. It was completed April 24, 1981, in the Strawn formation. The top of the perforations is at 10,135 feet.

(3) That there is need for the creation of a new pool in Chaves County, New Mexico, for the production of oil from the San Andres formation, said pool to bear the designation of Elkins-San Andres Pool. Said Elkins-San Andres Pool was discovered by the Tom L. Ingram Pogo State Well No. 1 located in Unit P of Section 16, Township 7 South, Range 28 East, NMPM. It was completed in the San Andres formation on May 14, 1981. The top of the perforations is at 2,293 feet.

(4) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of oil from the Bone Spring formation, said pool to bear the designation of Indian Flats-Bone Spring Pool. Said Indian Flats-Bone Spring Pool was discovered by the Gulf Oil Corporation Eddy C State Well No. 1 located in Unit F of Section 2, Township 22 South, Range 28 East, NMPM. It was completed in the Bone Spring formation on July 16, 1980. The top of the perforations is at 8,804 feet.

(5) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Strawn formation, said pool to bear the designation of West Indian Flats-Strawn Gas Pool. Said West Indian Flats-Strawn Gas Pool was discovered by the Perry R. Bass, Big Eddy Unit Well No. 64 located in Unit N of Section 33, Township 21 South, Range 28 East, NMPM. It was completed in the Strawn formation on July 15, 1980. The top of the perforations is at 10,904 feet.

(6) That there is need for the creation of a new pool in Eddy County, New Mexico, for the production of gas from the Wolfcamp formation, said pool to bear the designation of East Lake McMillan-Wolfcamp Gas Pool. Said East Lake McMillan-Wolfcamp Gas Pool was discovered by the Gulf Oil Corporation Lake McMillan Federal Unit Well No. 1 located in Unit I of Section 30, Township 19 South, Range 27 East, NMPM. It was completed in the Wolfcamp formation on November 21, 1980. The top of the perforations is at 7,870 feet.

(7) That there is need for certain extensions to the Chaveroo-San Andres Pool, the Springer Basin-Morrow Gas Pool, and the Twin Lakes-San Andres Associated Pool, all in Chaves County, New Mexico, and the Baldridge Canyon-Morrow Gas Pool, the Bunker Hill-Penrose Pool, the Burton Flat-Morrow Gas Pool, the North Burton Flats-Wolfcamp Gas Pool, the East Carlsbad-Strawn Gas Pool, the Los Medanos-Atoka Gas Pool, the Red Lake-Queen-Grayburg-San Andres Pool, the Sand Point-Morrow Gas Pool, the Shugart-Morrow Gas Pool, the North Turkey Track-Morrow Gas Pool, and the Winchester-Morrow Gas Pool, all in Eddy County, New Mexico, and the Antelope Ridge-Morrow Gas Pool, the Baum-Upper Pennsylvanian Pool, the North Berry-Morrow Gas Pool, the Foster-San Andres Pool, the Jenkins-San Andres Pool, the Kemnitz-Morrow Gas Pool, the East LaRica-Morrow Gas Pool, the North Lusk-Wolfcamp Pool, the West Osudo-Morrow Gas Pool, the Sawyer-San Andres Associated Pool, the Vaca Draw-Morrow Gas Pool, and the North Young-Bone Spring Pool, all in Lea County, New Mexico, and the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico.

IT IS THEREFORE ORDERED:

(a) That a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production is hereby created and designated as the North Burton Flat-Strawn Gas Pool, consisting of the following described area:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 5: N/2

(b) That a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production is hereby created and designated as the Elkins-San Andres Pool, consisting of the following described area:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM
Section 16: SE/4

(c) That a new pool in Eddy County, New Mexico, classified as an oil pool for Bone Spring production is hereby created and designated as the Indian Flats-Bone Spring Pool, consisting of the following described area:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: SE/4 NW/4

(d) That a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production is hereby created and designated as the West Indian Flats-Strawn Gas Pool, consisting of the following described area:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 33: S/2

(e) That a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production is hereby created and designated as the East Lake McMillan-Wolfcamp Gas Pool, consisting of the following described area:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 30: E/2

(f) That the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 27: N/2

(g) That the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 24 SOUTH, RANGE 25 EAST, NMPM
Section 6: E/2

(h) That the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 8: SW/4
Section 17: NW/4

(i) That the North Berry-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 5: Lots 11, 12, 13, 14, and SW/4

(j) That the Bunker Hill-Penrose Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 14: SE/4 SE/4
Section 24: NW/4 NW/4

(k) That the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 29: E/2
Section 32: E/2

(l) That the North Burton Flats-Wolfcamp Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 29: S/2
Section 32: E/2

(m) That the East Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 31: All

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 6: N/2

(n) That the Chaveroo-San Andres Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Addition ----------Section 2: SW/4
Section 10: NW/4

(o) That the Foster-San Andres Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 39 EAST, NMPM
Section 6: NE/4

(p) That the Jenkins-San Andres Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 17: S/2 SE/4

(q) That the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 9: S/2

(r) That the East LaRica-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 1: N/2

(s) That the Los Medanos-Atoka Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 22 SOUTH, RANGE 30 EAST, NMPM
Section 36: N/2 and SW/4

(t) That the North Lusk-Wolfcamp Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(u) That the West Osudo-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 22: E/2

(v) That the North Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 21: NW/4

(w) That the Red Lake Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 18: W/2 NW/4

(x) That the Sand Point-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 10: N/2

(y) That the Sawyer-San Andres Associated Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM
Section 31: W/2

(z) That the Shugart-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: S/2

(aa) That the Springer Basin-Morrow Gas Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 14 SOUTH, RANGE 27 EAST, NMPM
Section 23: W/2

(bb) That the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 4: All

(cc) That the Twin Lake-San Andres Associated Pool in Chaves County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM
Section 24: SE/4

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SW/4
Section 19: E/2 E/2
Section 30: E/2
Section 32: W/2 NW/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM
Section 5: W/2 W/2
Section 6: S/2 N/2 and S/2
Section 7: NW/4

(dd) That the Vaca Draw-Morrow Gas Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 2: E/2

(ee) That the Winchester-Morrow Gas Pool in Eddy County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 31: N/2

(ff) That the North Young-Bone Spring Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 3: S/2

IT IS FURTHER ORDERED:

(1) That pursuant to Section 70-2-18, NMSA 1978, contained in Chapter 271, Laws of 1969, any well which by virtue of any of the above pool extensions, is subject to pool rules providing for spacing or proration units larger than the one which is presently dedicated thereto, shall have 60 days from the effective date of this order in which to file new Forms C-102 dedicating a standard unit for the pool to said well, or to obtain a non-standard unit approved by the Division. Pending such compliance, the well shall receive a maximum allowable in the same proportion to a standard allowable for the pool that the acreage dedicated to the well bears to a standard unit for the pool. Failure to file Form C-102 dedicating a standard unit to the well or to obtain a non-standard unit approved by the Division within said 60-day period shall subject the well to cancellation of allowable.

(2) That the effective date of this order and all creations and extensions included herein shall be September 1, 1981.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L