

CASE 3437: Application of ANADARKO
PRODUCTION for a waterflood expansion,
Lea County, New Mexico

Case Number

3437

Application
Transcripts.

Small Exhibits

ETC.



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 907 FORT WORTH, TEXAS 76107
CABLE ADDRESS: ANDARK

September 9, 1966

Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter

Dear Mr. Nutter:

Attached is reproduced copy of Assignments of Operating
Rights affecting oil and gas lease LC 059255.

This is for your files.

Very truly yours,

E. A. Riley
Superintendent
Secondary Recovery Div.

EAR/hb

[illegible]

1. *Pharmaceutical industry* – The pharmaceutical industry is the largest of the four industries, with sales of \$10.5 billion in 1997. It is the only industry that has a significant presence in all four countries.

Figure 1 consists of three panels, (a), (b), and (c), each showing a sequence of stimuli. Panel (a) shows a fixation cross, followed by a target stimulus, and then a distractor stimulus. Panel (b) shows a fixation cross, followed by a target stimulus, and then a distractor stimulus. Panel (c) shows a fixation cross, followed by a target stimulus, and then a distractor stimulus.

Figure 1 illustrates the experimental setup. A participant is seated at a table, observing a screen. The screen displays a 3D model of a hand holding a tool, with a coordinate system (x, y, z) and a scale bar. The participant is instructed to observe the hand and tool, and to adjust the tool's position to match the target position. The diagram includes labels for the participant, screen, hand, tool, and target position.

[illegible][illegible]

1992. The influence of the 1992 drought on the 1993-1994 winter wheat production in the North China Plain. *Journal of Agricultural Science*, 120, 1-10.

LC 059255
Oil and Gas
4.10g

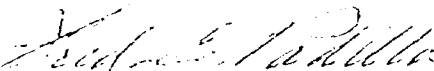
Ruthe S. Taubman, as custodian for
Maurine Taubman under the Oklahoma
Uniform Gifts to Minors Act- - - - - 0.349%
Louis Taubman and Ruthe S. Taubman,
Trustees for Lawrence Nathan Taubman
under the Lawrence Nathan Taubman
Accumulation Trust dated February 5, 1960- - - - 0.582%
Louis Taubman and Ruthe S. Taubman,
Trustees for Maurine Taubman under
the Maurine Taubman Accumulation
Trust dated February 5, 1960- - - - -0.582%
Ruthe S. Taubman- - - - -0.495%

(5) Rosalie Taubman Shalom- - - - -12.0808%
David B. Shalom, custodian for Karen
Paula Shalom under the Oklahoma
Uniform Gifts to Minors Act- - - - - 0.698%

The above listed assignments constitute all of the operating rights received by the assignors herein by instrument executed August 23, 1965, approved by Decision dated January 19, 1966. Anadarko Production Company now holds all of the operating rights under the lease down to 5,000 feet below the surface. The lessee, Humble Oil & Refining Company, holds all rights below 5,000 feet.

The lessee maintains a nationwide bond.

As only one executed copy of each operating agreement is required to be filed, the extra two copies of each assignment are returned herewith to the assignee.


Fred E. Padilla, Chief
Branch of Oil and Gas

Enclosures

Orig. Anadarko Production Co.(1 cc)
cc: Charles S. Taubman
Humble Oil & Refining Co.
O&G Supv.(3) Roswell(w/3 copies of Anadarko's letter of 8/15/66

State of New Mexico
Oil Conservation Commission



STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

October 4, 1966

Re: Case No. 3437
Order No. R-3132
Applicant:

Anadarko Production Company

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

A. L. Porter, Jr.
A. L. PORTER, Jr.
Secretary-Director

Carbon copy of order also sent to:

Hobbs OCC x

Artesia OCC_____

Aztec OCC _____

OTHER _____

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3437
Order No. R-3132

APPLICATION OF ANADARRO PRODUCTION
COMPANY FOR A WATERFLOOD EXPANSION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 24, 1966,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of October, 1966, the Commission, a
quorum being present, having considered the record and the recom-
mentations of the Examiner, and being fully advised in the premises,

FINDS:

That the applicant's request for dismissal should be
granted.

IT IS THEREFORE ORDERED:

That Case No. 3437 is hereby dismissed.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

Clinton B. Hays
CLINTON B. HAYS, Member

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

S E A L

ear/

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 24, 1966

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

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

CASE 3437: (Continued and readvertised from the August 3, 1966 Examiner Hearing)

Application of Anadarko Production Company for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Pearsall Queen Sand Unit waterflood project by the injection of water into the Queen formation through one well to be drilled at an unorthodox location 25 feet North of the South line and 25 feet West of the East line of the SE/4 NW/4 of Section 4, Township 18 South, Range 32 East, Lea County, New Mexico.

CASE 3443: Application of Mobil Oil Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the approval of its Northeast Square Lake (Premier) Unit Area comprising 2,200 acres, more or less, of Federal and State lands in Township 16 South, Range 31 East, Eddy County, New Mexico.

CASE 3444: Application of Mobil Oil Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Northeast Square Lake (Premier) Unit by the injection of water into the Premier Sand of the Grayburg formation through 14 wells located in Sections 2, 3, 9, 10, and 11, Township 16 South, Range 31 East, North Square Lake Pool, Eddy County, New Mexico.

CASE 3445: Application of Kersey & Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through two wells located in Section 32, Township 17 South, Range 32 East, Maljamar Pool, Lea County, New Mexico.

CASE 3446: Application of Kersey & Company for an amendment to Order No. R-2908, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2908 which authorized a waterflood project in the Old Loco Unit, Loco Hills Pool, Eddy County, New Mexico. Applicant seeks authority to substitute 8 wells in Section 32, Township 17 South, Range 29 East, for the 6 wells previously authorized for injection so that the injection pattern will conform to that of a nearby project currently in operation.

CASE 3447: Application of Texas Pacific Oil Company for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the North Bagley Middle-Pennsylvanian and North Bagley Upper-Pennsylvanian Pools in the wellbore of its J. P. Collier Well No. 1 located in Unit F of Section 10, Township 11 South, Range 33 East, North Bagley Field, Lea County, New Mexico.

-2-

Docket No. 21-66

CASE 3448: Application of Pan American Petroleum Corporation for an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to complete its South Mattix Unit Well No. 21 at an unorthodox location 1373 feet from the South line and 2087 feet from the West line of Section 15, Township 24 South, Range 37 East, Fowler Ellenburger Pool, Lea County, New Mexico.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPPLICATE*
(Other instructions on re-
verse side)

Form approved,
Budget Bureau No. 42-31421.

5. LEASE DESIGNATION AND SERIAL NO.
LC 059255

6. IF INDIAN, ALLOTTED OR LEASE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Federal-Love

9. WELL NO.

10. FIELD AND POOL, OR WILDCAT
Pearsall

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREA

12. COUNTY OR PARISH 13. STATE
Lea New Mexico

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

1. OIL WELL ☒ GAS WELL ☐ OTHER ☐

2. NAME OF OPERATOR
Anadarko Production Company

3. ADDRESS OF OPERATOR
P.O. Box 9317, Fort Worth, Texas

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface
2310' FSL & 1650' FWL of Section 4, Twp. 18 South
Rge. 32 East, Lea County, New Mexico

14. PERMIT NO. 15. ELEVATIONS (Show whether DE, RT, GR, etc.)
3852 G.L.

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other) Convert to water injection

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

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

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

Check and clean out to T.D. Run 2" OD plastic coated tubing with tension
packer and set at 3750 ft. Hook up well to water injection line and
initiate injection.

Well currently is temporarily abandoned.

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

SIGNED

E. A. Riley

(This space for Federal or State office use)

Supervisor

Secondary Recovery Div.

DATE 8-10-66

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107
CABLE ADDRESS: ANADARK

August 10, 1966

United States Geological Survey
P. O. Box 1137
Hobbs, New Mexico

Attention: Mr. Arthur Brown

Gentlemen:

The Federal-Love lease (E/2 SW/4 and S/2 SE/4 Section 4, Twp. 18 South, Range 32 East in Lea County, New Mexico) was recently acquired by Anadarko from the Maljamar Petroleum Products, Inc. We acquired the lease in order to utilize well No. 1 as a water injection well in our Pearsall field waterflood.

Since the field is currently unitized and the subject tract is located outside the Unit Area, it will be necessary to expand the unit, utilizing Section 4 Expansion of the Unit Agreement. We urgently need to convert the well to water injection status at an early date to afford optimum oil recovery; therefore, we would like to convert the well prior to completion of the expansion proceedings. We have discussed this with your Roswell office (Messrs Carl Trawick and Ed Wyatt) and they have given verbal approval to the conversion, provided we (1) file the attached forms with you defining our needs and (2) proceed thereafter in an orderly manner to expand the unit to include this acreage.

We will take immediate and proper steps to bring the tract into the Pearsall Queen Sand Unit in accordance with Section 4 of the Unit Agreement.

Also attached is a plat of the Pearsall Queen Sand Unit showing all wells - injectors are double-circled and connected with the solid black line - and the proposed injection well circled in red.



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107
CABLE ADDRESS: ANDARK

-2-

Please give your approval of the form 9-331 and this application to convert the well to water injection status. Also, please forward an approved copy to the New Mexico Oil Conservation Commission.

Your early approval will be sincerely appreciated.

Yours very truly,

ANADARKO PRODUCTION COMPANY

E. A. Riley, Superintendent
Secondary Recovery Division

cc: New Mexico Oil Conservation Commission



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107
CABLE ADDRESS: ANOARK

August 10, 1966

B. M. Jackson
Republic National Bank Bldg.
Dallas, Texas

Reading & Bates
Philtower Bldg.
Tulsa, Oklahoma

Minntex Oil Company
304 Foshay Tower
Minneapolis, Minnesota

RE: Federal-Love Lease
E/2 SW/4 and S/2 SE/4
Sec. 4, T18S, R32E,
Lea County, New Mexico

Gentlemen:

As owner or operator of the lease offsetting our Federal-Love lease (E/2 SW/4 and S/2 SE/4 Sec. 4, T18S, R32E), we request your waiver of our application to convert well No. 1 to water injection status as a logical expansion of the waterflood program on our Pearsall Queen Sand Unit.

You are requested to either execute and mail a copy of this waiver letter to the New Mexico Oil Conservation Commission (in the stamped addressed envelope enclosed) or telegram your approval. Please send us a copy of your approval.

Yours very truly,

ANADARKO PRODUCTION COMPANY

E. A. Riley
E. A. Riley, Superintendent
Secondary Recovery Division

EAR:pr

I or We _____ the subject application
to convert Anadarko's Federal-Love #1 to
water injection status.

for: _____

by: _____ date: _____



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107
CABLE ADDRESS: ANDARK

AM 7 42

AUG 8 1966

August 4, 1966

2/21/66

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. Dan Nutter

Gentlemen:

Pursuant to your request at the Examiner's Hearing yesterday (Case 3437), we are pleased to submit our calculations of the data on the well which we have acquired today from Maljamar Petroleum Products, Inc. (See attachment)

The well is designated as their Federal-Love #1 and is located 2310' FSL and 1650' FWL of Section 4, T-18S, R-32E in Lea County, New Mexico. Total depth (4030 feet) was reached on 11-19-63 and the well was plugged back to 3849 feet thereafter. Completion attempts were made in the intervals 3755-60 and 3770-78 feet (Queen Sand) following treatment with 500 gallons MCA plus 15,000 gallons of oil and 22,000 lbs. of sand.

The casing program and other pertinent information is given on the attached photo copy of USCS Form 9-330. We trust that this fulfills your needs.

Our application for administrative approval to convert this well to water injection status will be submitted to your office in the very near future, as discussed at the above hearing.

Yours very truly,

ANADARKO PRODUCTION COMPANY

E. A. Riley
E. A. Riley, Superintendent
Secondary Recovery Division

EAR:pr

cc: Mr. Irby, State Engineers Office
Santa Fe, New Mexico

Calculation of Cement Tops - Anadarko Production Company #1
 2310' FSL & 1650' FWL Sec. 4-18S-32E
 Lea County, New Mexico

Surface Casing

Hole Size 12½" OD
 Casing Size 8-5/8"
 Cement 160 sx of 4%
 100 sx of neat

$$1. \quad 160 \text{ sx} \times 1.604 \text{ cu. ft./sx} = 256.00 \text{ cu. ft.}$$

$$2. \quad 100 \text{ sx} \times 1.32 \text{ cu. ft./sx} = \underline{132.00 \text{ cu. ft.}}$$

$$388.00 \text{ cu. ft.}$$

$$388 \text{ cu. ft.} \times 5.7719 \text{ lin.ft./cu.ft.} = 2239.50 \text{ lin. ft.}$$

apparently cement was
 circulated to the
 surface

Production Casing

Hole Size 7-7/8" OD
 Casing Size 5-1/2" OD
 Cement 100 sx. of 10%
 150 sx. of 6%
 130 sx. of 2%

$$1. \quad 100 \text{ sx.} \times 2.02 \text{ cu. ft./sx.} = 202.00 \text{ cu. ft.}$$

$$2. \quad 150 \text{ sx.} \times 1.730 \text{ cu. ft./sx.} = 259.50 \text{ cu. ft.}$$

$$3. \quad 130 \text{ sx.} \times 1.478 \text{ cu. ft./sx} = \underline{192.14 \text{ cu. ft.}}$$

$$653.64 \text{ cu. ft.}$$

$$653.64 \text{ cu. ft.} \times 2.4229 \text{ lin. ft./cu. ft.} = 1583.70 \text{ lin. ft.}$$

Thus, cement top is 3879 - 1584 = 2295 ft. from the surface

| Item | Quantity | Unit Price | Total Price | Remarks |
|----------|----------|------------|-------------|---------|
| 1. 1000 | 1000 | 1.00 | 1000.00 | |
| 2. 1000 | 1000 | 1.00 | 1000.00 | |
| 3. 1000 | 1000 | 1.00 | 1000.00 | |
| 4. 1000 | 1000 | 1.00 | 1000.00 | |
| 5. 1000 | 1000 | 1.00 | 1000.00 | |
| 6. 1000 | 1000 | 1.00 | 1000.00 | |
| 7. 1000 | 1000 | 1.00 | 1000.00 | |
| 8. 1000 | 1000 | 1.00 | 1000.00 | |
| 9. 1000 | 1000 | 1.00 | 1000.00 | |
| 10. 1000 | 1000 | 1.00 | 1000.00 | |
| 11. 1000 | 1000 | 1.00 | 1000.00 | |
| 12. 1000 | 1000 | 1.00 | 1000.00 | |
| 13. 1000 | 1000 | 1.00 | 1000.00 | |
| 14. 1000 | 1000 | 1.00 | 1000.00 | |
| 15. 1000 | 1000 | 1.00 | 1000.00 | |
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| 17. 1000 | 1000 | 1.00 | 1000.00 | |
| 18. 1000 | 1000 | 1.00 | 1000.00 | |
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| 21. 1000 | 1000 | 1.00 | 1000.00 | |
| 22. 1000 | 1000 | 1.00 | 1000.00 | |
| 23. 1000 | 1000 | 1.00 | 1000.00 | |
| 24. 1000 | 1000 | 1.00 | 1000.00 | |
| 25. 1000 | 1000 | 1.00 | 1000.00 | |
| 26. 1000 | 1000 | 1.00 | 1000.00 | |
| 27. 1000 | 1000 | 1.00 | 1000.00 | |
| 28. 1000 | 1000 | 1.00 | 1000.00 | |
| 29. 1000 | 1000 | 1.00 | 1000.00 | |
| 30. 1000 | 1000 | 1.00 | 1000.00 | |
| 31. 1000 | 1000 | 1.00 | 1000.00 | |
| 32. 1000 | 1000 | 1.00 | 1000.00 | |
| 33. 1000 | 1000 | 1.00 | 1000.00 | |
| 34. 1000 | 1000 | 1.00 | 1000.00 | |
| 35. 1000 | 1000 | 1.00 | 1000.00 | |
| 36. 1000 | 1000 | 1.00 | 1000.00 | |
| 37. 1000 | 1000 | 1.00 | 1000.00 | |
| 38. 1000 | 1000 | 1.00 | 1000.00 | |
| 39. 1000 | 1000 | 1.00 | 1000.00 | |
| 40. 1000 | 1000 | 1.00 | 1000.00 | |
| 41. 1000 | 1000 | 1.00 | 1000.00 | |
| 42. 1000 | 1000 | 1.00 | 1000.00 | |
| 43. 1000 | 1000 | 1.00 | 1000.00 | |
| 44. 1000 | 1000 | 1.00 | 1000.00 | |
| 45. 1000 | 1000 | 1.00 | 1000.00 | |
| 46. 1000 | 1000 | 1.00 | 1000.00 | |
| 47. 1000 | 1000 | 1.00 | 1000.00 | |
| 48. 1000 | 1000 | 1.00 | 1000.00 | |
| 49. 1000 | 1000 | 1.00 | 1000.00 | |
| 50. 1000 | 1000 | 1.00 | 1000.00 | |
| 51. 1000 | 1000 | 1.00 | 1000.00 | |
| 52. 1000 | 1000 | 1.00 | 1000.00 | |
| 53. 1000 | 1000 | 1.00 | 1000.00 | |
| 54. 1000 | 1000 | 1.00 | 1000.00 | |
| 55. 1000 | 1000 | 1.00 | 1000.00 | |
| 56. 1000 | 1000 | 1.00 | 1000.00 | |
| 57. 1000 | 1000 | 1.00 | 1000.00 | |
| 58. 1000 | 1000 | 1.00 | 1000.00 | |
| 59. 1000 | 1000 | 1.00 | 1000.00 | |
| 60. 1000 | 1000 | 1.00 | 1000.00 | |
| 61. 1000 | 1000 | 1.00 | 1000.00 | |
| 62. 1000 | 1000 | 1.00 | 1000.00 | |
| 63. 1000 | 1000 | 1.00 | 1000.00 | |
| 64. 1000 | 1000 | 1.00 | 1000.00 | |
| 65. 1000 | 1000 | 1.00 | 1000.00 | |
| 66. 1000 | 1000 | 1.00 | 1000.00 | |
| 67. 1000 | 1000 | 1.00 | 1000.00 | |
| 68. 1000 | 1000 | 1.00 | 1000.00 | |
| 69. 1000 | 1000 | 1.00</ | | |

ILLEGIBLE

Aug 11 11 25
Aug 11 P1
August 10, 1966

Anadarko Production Company
P. O. Box 9317
Fort Worth, Texas 76107

Attn. Mr. E. A. Riley, Supt.
Secondary Recovery Division

Gentlemen:

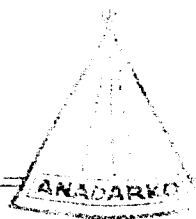
Your letter of August 4, 1966 and the information requested at the Examiner's hearing on August 3, 1966 in Oil Conservation Commission Case 3437 have been received. Your prompt attention to this matter is sincerely appreciated.

FEI/ma
cc-Oil Conservation Commission

Yours truly,

S. E. Reynolds
State Engineer

By:
Frank E. Irby
Chief
Water Rights Div.



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107

CABLE ADDRESS: ANDARK

August 1, 1966

State Engineers Office
Capitol Building
Santa Fe, New Mexico

Gentlemen:

Attached is a copy of all data pertinent to our application before the New Mexico Oil Conservation Commission for a permit for Pearsall Queen Sand Unit, Tract 6, Well 2, to be utilized as an injection well.

Water injection into this well will be through plastic coated tubing and a packer set immediately above the pay zone.

We respectfully request your approval of this style of water injection.

Yours very truly,

ANADARKO PRODUCTION COMPANY

E. A. Riley
E. A. Riley
Superintendent
Secondary Recovery Division

EAR:pr

cc: New Mexico Oil Cons. Comm.

File # 40-100-703,11

Don Layton

Chairman.

D.L.

1966 AUG 3 AM 7 45

Case 3437

Application of Anadarko
Production - for a
waterflood expansion
Lea County, New Mex.

Santa Fe. paper left
out " of the SE 1/4 NW 1/4
of Section 4 " in
the description of the
location of the ~~unorthodox~~
well location.

Note from Dan says there can
be adm. approval if reviews
from Reading & Bule ✓

① Jackson ✓

② Malpman

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA144 KB335 SSP135

(20) 1 (1-60)

1966 JUN 17 PM 4 10

K TUA491 PD=FAX TULSA OKLA 17 409P CST=
NEW MEXICO OIL CONSERVATION COMM=
ATTN DAN NUTTER SANTA FE NMEX=
RE: PEARSALL QUEEN SAND UNIT, LEA COUNTY READING AND
BATES INC. HAS NO OBJECTION TO DRILLING OF UNIT WELL
NO. 6-2 AS SET OUT IN ANADARKO APPLICATION DATED
5-6-66=
BILL M BURKS READING AND BATES=

Case 3437

66 JUN 17 PM 4
MAIN OFFICE

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA111 JAX19 (MSRTE) =YY LB291 DA362 D = (36) = =

1201 (1-60)
1966 JUN 24 PM 2 19

TNA038 PD TN DALLAS TEX 24 231P CST0=
DAN S NUTTER =
NEW MEXICO OIL CONSERVATION COMMISSON
SANTA FE NMEX =
WE HAVE NO OBJECTION TO THE DRILLING OF UNIT WELL
#6-2 AS SET OUT IN ANADARKO PRODUCTION COMPANYS
APPLICATION DATED 5-6-66 IN CONNECTION WITH THEIR
PEARSALL QUEEN SAND UNIT, LEA COUNTY, NEW MEXICO =
B M JACKSON =

Case 3437

66 JUN 24 PM 2 19

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

IN REPLY REFER TO:

August 1, 1966

Anadarko Production Company
P. O. Box 9317
Fort Worth, Texas

Attention: Mr. E. A. Riley

Gentlemen:

You have requested by telephone that we furnish you a letter concerning our position with respect to the injection of water into the Queen formation through a well to be drilled 25 feet north of the south line and 25 feet west of the east line of the SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 18 S., R. 32 E., Lea County, New Mexico, in the Pearsall Queen Sand unit area. It is understood that you may either drill such injection well or convert the Maljamar Petroleum Federal well No. 1 located outside the Pearsall unit area in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 18 S., R. 32 E., to water injection in order to balance the existing injection pattern.

We believe that water injection at either of the locations you propose is necessary and we will approve a formal proposal to inject water at either of the two above described locations.

Sincerely yours,

(SIGNED) J. A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
NMOCC, Santa Fe ✓
Hobbs

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

July 5, 1966

Case 3437

C
O
P
Y

Anadarko Production Company
Post Office Box 9317
Fort Worth, Texas 76107

Attention: Mr. Shaw

Gentlemen:

Pursuant to our telephone conversation, your application to expand your Pearsall Queen Sand Unit Waterflood Project, as amended to delete Well No. 5A-2, will be placed on the docket for the next available hearing.

It is our understanding that you wish only one well to be advertised for consideration as an injection well, that being your proposed Unit Well No. 6-2, to be drilled 25 feet North of the South line and 25 feet West of the East line of the NW/4 of Section 4, Township 13 South, Range 32 East, Lea County, New Mexico.

Your application has been placed on the next docket, which will come up for hearing on August 3, 1966.

Very truly yours,

DANIEL S. NUTTER
Chief Engineer

DSN/lr

DOCKETED

Date 122 66
JK

CLARENCE E. HINKLE
W. E. BONDURANT, JR.
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
MICHAEL R. WALLER
W. R. HUGHES, JR.

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

MIDLAND, TEXAS OFFICE
521 MIDLAND TOWER
(915) MU 3-4691
OF COUNSEL: HIRAM M. DOW

TELEPHONE 622-6510
AREA CODE 505
POST OFFICE BOX 10

July 27, 1966

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

Re: CASE 3437
Application of Anadarko Production
Company for a waterflood expansion,
Lea County, New Mexico

MAILED 10-10
'66 JUL 28 AM 10 10

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

We would appreciate your entering the appearance of this law firm in the captioned case in behalf of the applicant Anadarko Production Company.

Mr. Irley Bonnette, of Fort Worth, Texas, who is a duly licensed and practicing attorney of the state of Texas, will be associated with us in this case, and will present the testimony of the applicant at the hearing of the case before Daniel S. Nutter, Examiner on Wednesday, August 3, 1966.

Respectfully submitted,

HINKLE, BONDURANT & CHRISTY

By 

SBC:kh

cc: Mr. Irley Bonnette

DOCKET MAILED

Date _____



ANADARKO PRODUCTION COMPANY

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107
CABLE ADDRESS: ANADARK

May 6, 1966

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

Gentlemen:

Anadarko Production Company, in its capacity as operator of the Pearsall Queen Sand Unit in Lea County, New Mexico, hereinafter referred to as "Anadarko", makes this its application for authority to drill two wells to be used for water injection purposes in, on, and under the Pearsall Queen San Unit. Said wells are to be known as 5A-2 and 6-2, with 5A-2 being located 25' West and 25' North of the East and South lines respectively of the NW/4, NE/4 of Sec. 4, Township 18 South, Range 32 East, Lea County, New Mexico and well No. 6-2 being located 25' West and 25' North of the East and South lines, respectively of the SE/4 of the NW/4 of said section, Township 18 South, Range 32 East, Lea County, New Mexico.

In connection with and in support of this application, Anadarko alleges or states the following:

1. Each of the above mentioned wells will be drilled with rotary tools to 300' at which time Anadarko will then set 7 inch casing and circulate cement. The wells will then be shut in 18 hours and 7 inch casing will be tested at 500 lbs. pressure. Thereafter the wells will be drilled to approximately 3,825' where logs will be run, 4" casing set, cemented with 250 sacks of cement. Thereafter logs will be run and perforations made, then run tubing and a packer and connect for water injection services.
2. That the above mentioned injection wells will be used for the purpose of injecting water into the Queen formation located at an approximate depth of 3800 feet from the surface; and it is anticipated that there will be injected into each well a volume of 450 barrels per day.
3. The two wells will be utilized as water injection wells and are proposed to be located at a distance of 25' from the nearest lease line, as above indicated for the following reasons:
 - a. They will provide protection of correlative rights by preventing loss of oil from the Unit area.
 - b. The drilling and completing of the above mentioned two wells as water injection wells will aid in a more efficient and orderly development and operation of the Pearsall Queen Sand

Page #2

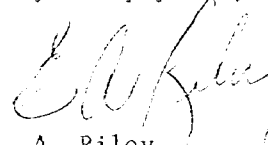
Unit and is in fact, necessary to allow Anadarko, as Operator of said Unit, to completely develop and operate said Pearsall Queen Sand Unit.

- c. They are in the interest of conservation since they will prevent loss of oil into areas of the reservoir which are inaccessible for recovery wells.
 - d. They are necessary since, to date, the unit has been unable to negotiate some type cooperative waterflooding effort with the offset operators and the offset operators have rejected offers of the inclusion of their acreage within the Pearsall Queen Sand Unit.
4. Attached hereto marked Exhibit "A" and made a part hereof is a map showing the Pearsall Queen Sand Unit boundary lines, current injection wells and the proposed locations for the two above mentioned wells.
5. Attached hereto and also made a part of this application are copies of United States Department of Interior (Geological Survey) form 9-331C in quadruplicate for each well completely filled in and executed by Anadarko Production Company.

Anadarko is filing this application in accordance with the various Rules and Regulations of the New Mexico Oil Conservation Commission and the United States Geological Survey, and requests and prays that an order be entered by this Commission allowing the drilling of above mentioned wells as water injection wells and the injection of water into the Queen formation underlying the above mentioned Pearsall Queen Sand Unit.

Applicant requests a hearing, if necessary, and prays that the above mentioned order be entered by the Commission.

Very truly yours,



E. A. Riley
Superintendent
Secondary Recovery Division

EAR/hb

Page #3

I, E. A. Riley, do hereby certify that on this 6th day of May, 1966 mailed duplicate copies of this letter and application, together with all exhibits to the following parties.


E. A. Riley

Continental Oil Company
P.O. Box 460
Hobbs, New Mexico

B. M. Jackson
Republic National Bank Bldg.
Dallas, Texas

DOCKET MAILED

Reading & Bates
Philtower Bldg.
Tulsa, Oklahoma

Date 7-22-66

Maljamar Petroleum Products Inc.
Shell Building
Tulsa, Oklahoma

 DOCKET MAILED

Date 8-11-66

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | | | | |
|---|--|--|--|--|--|
| 1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> | | | 5. LEASE DESIGNATION AND SERIAL NO. LC-06184Q (A) | | |
| b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Water Injection <input checked="" type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | | | 6. IF INDIAN, ALLOTTEE OR TRIBE NAME | | |
| 2. NAME OF OPERATOR Anadarko Production Company | | | 7. UNIT AGREEMENT NAME Pearsall Queen Sand Unit | | |
| 3. ADDRESS OF OPERATOR P.O. Box 9317, Fort Worth, Texas | | | 8. FARM OR LEASE NAME Tract No. 5-A | | |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.) At surface 1295' FNL 1345' FEL Sec. 4, T-18S, R-32E At proposed prod. zone Same | | | 9. WELL NO. 2 | | |
| 14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* 5 miles south Maljamar, New Mexico | | | 10. FIELD AND POOL, OR WILDCAT Pearsall Queen | | |
| 15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 25 | | | 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 4, T-18S, R-32E | | |
| 16. NO. OF ACRES IN LEASE 40 | | | 12. COUNTY OR PARISH Lea | | |
| 17. NO. OF ACRES ASSIGNED TO THIS WELL 40 | | | 13. STATE New Mexico | | |
| 18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 502 | | | 19. PROPOSED DEPTH 3825 | | |
| 20. ROTARY OR CABLE TOOLS Rotary | | | 22. APPROX. DATE WORK WILL START* 25 May 1966 | | |
| 21. ELEVATIONS (Show whether DF, RT, GR, etc.) 3875 G.L. (estimated) | | | | | |

| 23. PROPOSED CASING AND CEMENTING PROGRAM | | | | |
|---|----------------|-----------------|---------------|--------------------|
| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | QUANTITY OF CEMENT |
| 10 3/4 | 7" | 22# | 300 | 250 - circulate |
| 6 1/2 | 4 1/2" | 10.9 | 3825 | 250 sacks |

Application filed for non-standard location

Drill with rotary tools to 300 ft. Set 7" casing and circulate cement - shut in 18 hours - test 7" casing at 500# - drill to approximately 3825', run logs. Set 4 1/2" casing and cement with 250 sacks. Run Gamma Ray Neutron log and perforate. Run tubing and packer and connect for water injection service.

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

24. SIGNED [Signature] TITLE Superintendent DATE May 6, 1966
Secondary Recovery Div.
(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Instructions

General: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal 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.

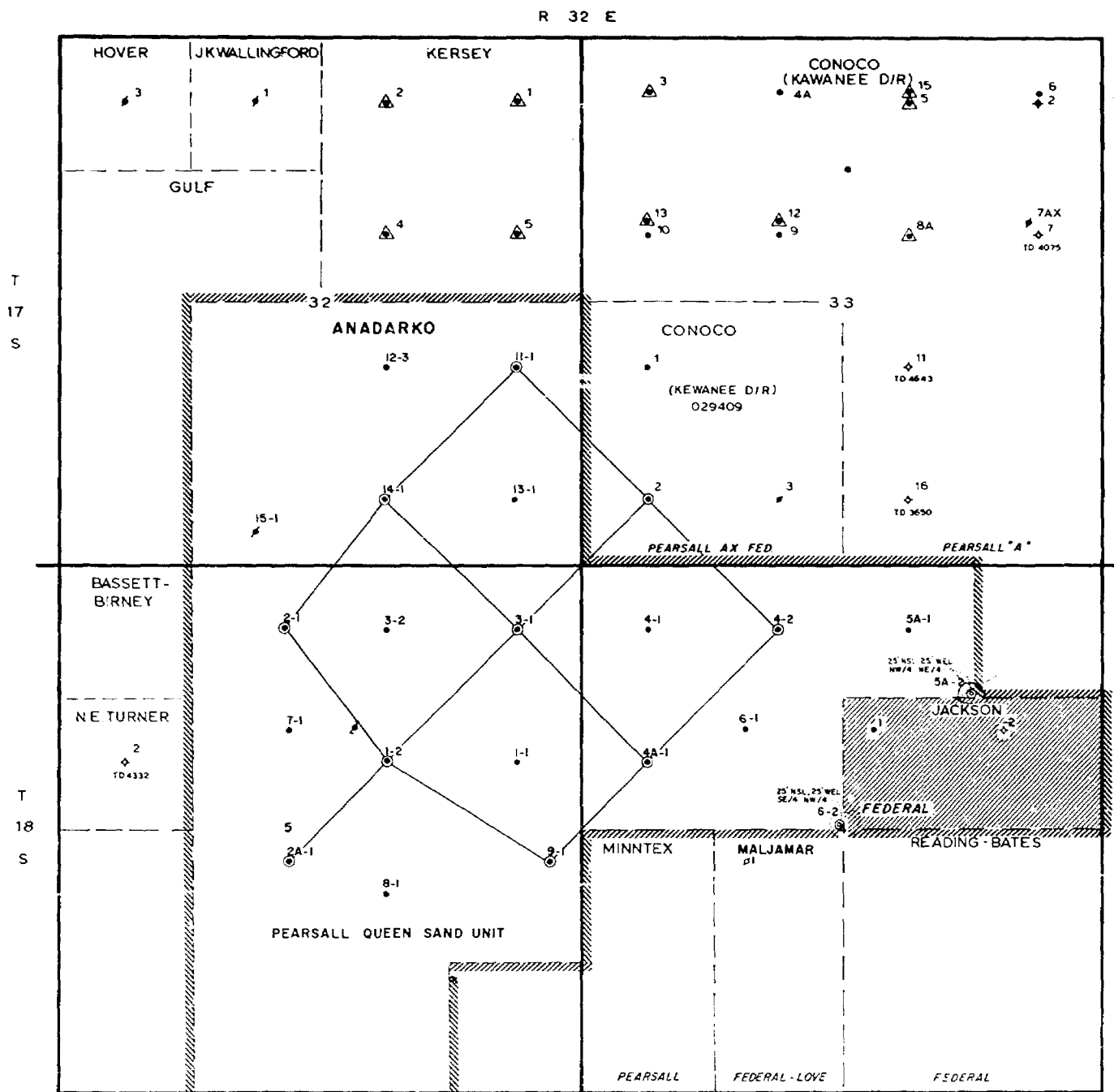
Item 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable State or Federal regulations concerning subsequent work proposals or reports on the well.

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 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on this reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal or State agency offices.

Items 15 and 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective production zone.

Item 22: Consult applicable Federal or State regulations, or appropriate officials, concerning approval of the proposal before operations are started.



60-3931

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | | | |
|--|--|---|--|
| 1a. TYPE OF WORK DRILL <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> | | 5. LEASE DESIGNATION AND SERIAL NO. LC-060503 12 | |
| b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input checked="" type="checkbox"/> Water Inj. SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | | 6. IF INDIAN, ALLOTTEE OR TRIBE NAME | |
| 2. NAME OF OPERATOR Anadarko Production Co. | | 7. UNIT AGREEMENT NAME Pearsall Queen Sand Unit | |
| 3. ADDRESS OF OPERATOR P.O. Box 9317, Fort Worth, Texas | | 8. FARM OR LEASE NAME Tract 6 | |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.) At surface 2615' FNL, 2615' FWL At proposed prod. zone Sec. 4, T-18S, R-32E Same | | 9. WELL NO. 2 | |
| 14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* 5 miles south Maljamar, New Mexico | | 10. FIELD AND POOL, OR WILDCAT Pearsall Queen | |
| 15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drilg. unit line, if any) 25 | 16. NO. OF ACRES IN LEASE 40 | 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 4, T-18S, R-32E | |
| 18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 1028 | 19. PROPOSED DEPTH 3825 | 12. COUNTY OR PARISH Lea | |
| 21. ELEVATIONS (Show whether DF, RT, GR, etc.) 3860 GL (est.) | | 13. STATE New Mexico | |
| 22. APPROX. DATE WORK WILL START* 5 June 1966 | | | |

| 23. PROPOSED CASING AND CEMENTING PROGRAM | | | | |
|---|----------------|-----------------|---------------|--------------------|
| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | QUANTITY OF CEMENT |
| 10 3/4 | 7" | 20# | 300 | 250 circulate |
| 6 1/2 | 4 1/2 | 10.9 | 3825 | 250 |

Application filed for non-standard location

Drill with rotary tools to 300 ft. Set 7" casing and circulate cement - shut in 18 hours - test 7" casing at 500# - drill to approximately 3825', run logs. Set 4 1/2" casing and cement with 250 sacks. Run Gamma Ray Neutron log and perforate. Run tubing and packer and connect for water injection service.

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

24. SIGNED [Signature] TITLE Superintendent DATE May 6, 1966
Secondary Recovery Div.
(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Instructions

General: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal 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.

Item 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable State or Federal regulations concerning subsequent work proposals or reports on the well.

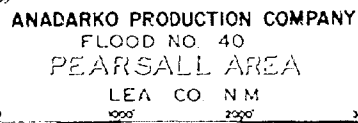
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PEARSALL QUEEN SAND UNIT
EXHIBIT "A"

Case 2437

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 3, 1966

EXAMINER HEARING

IN THE MATTER OF: Application of Anadarko
Production Company for a waterflood
expansion, Lea County, New Mexico.

Case No. 3437

BEFORE: DANIEL S. NUTTER, Examiner.

TRANSCRIPT OF HEARING

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

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PAGE

2

MR. NUTTER: The Hearing will come to order. The first case is Case 3437.

MR. HATCH: Application of Anadarko Production Company for a waterflood expansion, Lea County, New Mexico.

MR. BONNETTE: My name is Irley Bonnette. I believe you should have it in the file. I am an attorney from Fort Worth, Texas -- It's a letter from Hinkle, Bondurant and Christy.

MR. NUTTER: We have the letter from the firm of Hinkle, Bondurant and Christy making appearance for you.

MR. BONNETTE: Fine. On file in this pleading, also, is an application dated May 6, 1966 of Anadarko Production Company signed by Mr. E. A. Riley. This applicant makes application to convert, to drill two new wells for water injection purposes in this unit.

One well was cancelled by supplemental letter. The second well, which is still on application, is 6-2, located in the southeast quarter of the northwest quarter, 25 feet out of that corner, the east line and the south line of that quarter section.

I might state, before Mr. Riley begins his testimony, that we are negotiating for the purchase, and we have in our files, we got word today that came in late yesterday evening, purchase of this area here. I'm sure the title will be



satisfactory and we will probably end up purchasing this property.

MR. NUTTER: For the purpose of the record, that will be the property labeled Maljamar Federal Leases being in the --

MR. BONNETTE: East half of the southwest quarter, south half of the southeast quarter of Section 4.

MR. NUTTER: I see.

MR. BONNETTE: If we do consummate that purchase, we will later cancel this request that we are going through this morning and make application to convert this well, which will be a better location.

MR. NUTTER: Which is a dry hole that has been drilled in the northeast quarter of the southwest quarter of the Section 4?

MR. BONNETTE: Right.

MR. HATCH: I might point out at this time, it seems that this case has been improperly advertised, and I would like to make a motion that we do receive the testimony this morning and it be continued and readvertised.

MR. NUTTER: Thank you, Mr. Hatch. This case has long been delayed for one reason or another, and it looks like there's going to be a little bit more delay.

The Santa Fe New Mexican, in advertising the case, made an error in the description of the location of the

dearnley-meier reporting service, inc.

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PAGE 4

well, so we technically do not have jurisdiction for this Hearing today. However, we will hear the case but we will have to readvertise it, giving the proper location, and we'll withhold entering any order until we have readvertised the case.

We will call it at the next Hearing then, and ask for appearances, and I don't anticipate any appearance being made in opposition to the case, but we would technically have to withhold entering any order until such time as proper description has been given and notice given for the case.

You may proceed this morning. I don't think it will be necessary that you even appear at the next Hearing.

MR. BONNETTE: All right, fine. I would like to call Mr. Mike Riley with Anadarko Production Company.

(Witness sworn.)

E. A. R I L E Y, called as a witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BONNETTE:

Q Mr. Riley, would you state your full name?

A E. A. Riley.

Q Your position with Anadarko?

A Superintendent of the Secondary Recovery Division located in Fort Worth, Texas.



Q What type engineer are you?

A I'm a graduate petroleum engineer.

Q Have you testified before this Commission before?

A Yes, I have.

MR. BONNETTE: Will you accept his qualifications?

MR. NUTTER: The witness is qualified.

Q (By Mr. Bonnette) Mr. Riley, will you just explain to the Examiner the purpose of this application and what you propose to do?

A The purpose of the application is to receive a permit to drill an injection well labeled Pearsall Queen Sand Unit Well 6-2, located 25 feet out of the southeast corner of the northwest quarter of Section 4, Township 18 South, Range 32 East, Lea County, New Mexico.

The location will be used as an injection well to afford optimum sweep from the waterflood around Pearsall Queen Sand Unit Well 6-1. Unless the well is located in this general area there will be a considerable amount of oil lost and unrecovered in the inner well area between Well 6-1 and Well 6-2.

We have proposed this well to be located at or near the water-oil contact at a plus super-sea elevation of 110 feet. I have three Exhibits to present; Exhibit A, as it's labeled, is a structure map on top of the Queen Sand and on this

map is indicated the water-oil contact existing at plus 110 feet. On it is also shown the well location and all other wells currently active within the unit area and adjoining the unit area to the north.

(Whereupon, Exhibit A marked for identification.)

A On this Exhibit are shown the current injection wells which are connected with the solid line, and consists of nine injection wells on the unit area, and one well operated by Continental, which is being operated under a cooperative flooding agreement previously approved on the initial waterflood application.

Exhibit B is also a map of the same area, and on it is shown the sweep efficiency and area to be expected from injection into wells, unit wells 4-2 and 4A-1, such oil to be recovered at Unit Well 6-1. These areas are enclosed in the curved line and have been also colored yellow.

(Whereupon, Exhibit B marked for identification.)

A This would be the oil expected to be recovered at Well 6-1 without the injection well. It would consist of a sweep efficiency from Well 4A-1, recovering oil in the amount of 19,750 barrels at 6-1 and sweep first in E.T. recovery of 12,500 as a result of injection in 4-2 and recovery to be at 6-1.

DEARNEY-MEIER

INC.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

ALBUQUERQUE, NEW MEXICO

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Exhibit C is a map of the same unit area on the same scale and on it is shown the expected sweep, additional recovery from improved sweep, first as a result of drilling and injecting into Unit Well 6-2. Our calculations show that additional recovery to be expected at Unit Well 6-1 will be 36,250 gross barrels.

(Whereupon, Exhibit C marked for identification.)

A This sweep area is calculated in the more or less conventional engineering manner of planimetry the area within the predicted sweep lines, multiplying the acreage therein by the average thickness and in turn, multiplying the result by the expected secondary recovery and barrels per acre foot.

This results in an anticipated additional recovery of 36,250 barrels. This agrees quite closely with the prediction resulting from the additional recovery of 25 per cent of the pattern primary recovery around the well.

Based on economics, the revenue to be generated to the unit working interest owners from the additional oil recovery will be \$76,032.00. The cost of drilling and completing the well would cost \$25,000 and the water for injection purposes would amount to \$10,000.00, or a total cost of \$35,000.00.

This results in a profit to the working interest

owner after recovering all costs, of \$41,032.00. I have what I have styled a pertinent data sheet, which if the Commission would like, I will submit, which carries this economic calculation and recovery figures in addition to other pertinent information as to the size of the unit, the case, and order number authorizing the unit, and the pilot and subsequent spans of the waterflood. Also included on the pertinent data sheet is the current cumulative and current rate recovery on the unit.

(Whereupon, Exhibit D marked for identification.)

A I further point out that if this well is not permitted there will be loss of oil into an area inaccessible by a recovery well at this point, and also into an area off the unit area on the acreage owned by the offset operator to the east, who is identified as B. M. Jackson.

MR. BONNETTE: I would like to point out although the unit boundary surrounds that Jackson tract, the Jackson tract is not in this Pearsall Queen Sand Unit.

MR. NUTTER: It's not committed to the unit?

MR. BONNETTE: It's not committed to the unit.

MR. NUTTER: We have previously had a Hearing and entered an order converting Jackson's well to water injection.

A That is correct.

MR. NUTTER: I believe that was the reason for your

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
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dropping 5A-2, which was in the northwest of the northeast of the Section?

MR. BONNETTE: Yes.

A That is correct. I further point out that the need for early injection into this well 6-2 is needed in order to recreate some better balance of the injection pattern around 6-1. We're hoping that we can receive early action on the application.

MR. BONNETTE: We were advised by Mr. Jackson that he would send the Commission a wire waiving any objection to this. We do not have a copy of that wire, do we?

MR. NUTTER: When this was being proposed as an administrative application, we got waivers of objection from B. M. Jackson and from Redding and Bates.

MR. BONNETTE: Right.

MR. NUTTER: We failed to get one from Maljamar, that's the reason for the Hearing. If you can acquire the Maljamar property we can properly process this as an administrative application and enter the order considerably sooner than if we have to readvertise the case and set it for Hearing on the 24th of August.

MR. BONNETTE: I'm convinced that we will acquire this Maljamar property by tomorrow.

MR. NUTTER: If you will send us evidence that you



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have acquired this, we will process this as an administrative action and we'll enter an order in this case dismissing this case because it has been considered administratively.

MR. BONNETTE: If we change this location to the actual Maljamar location, could it then be processed, this new location be processed as an administrative Hearing?

MR. NUTTER: It could except for one thing, these people have waived their objection to a well being drilled at this location.

MR. BONNETTE: That's right.

MR. NUTTER: So we would probably have to have new telegrams and Redding and Bates --

A Redding and Bates is a member of the unit itself, so there's no problem there.

MR. BONNETTE: What about this location, it is quite a ways off?

A Metex is also a member of the Pearsall Unit.

MR. NUTTER: We should have a wire from the Metex people, then.

MR. BONNETTE: We are getting close to them, we weren't before. That's the reason we didn't consider them the last time.

A Also we have a letter which I would like to give a copy to the Commission from the USGS. You will notice



that the Maljamar tract is not in the unit at this time. We have talked to them and sent a letter to them, and we have received instructions that it will be approved by them to go ahead and inject into the well if the Commission approves.

MR. NUTTER: The USGS did approve either location?

A Either location.

MR. NUTTER: We did get a copy of that letter?

A You did.

MR. NUTTER: That's the letter of August 1st from

John Anderson?

A Yes.

MR. BONNETTE: Is that all you have?

A That's my testimony.

MR. BONNETTE: That's all we have.

MR. NUTTER: We will need some data on the proposed completion program for this proposed injection well, be it the 6-2 to be drilled or the conversion of the old Maljamar Well there.

A I have a packet styled schedule of pertinent data wherein there is USGS form 9-331C, submitted to the USGS Hobbs Office on August the 1st, of which you will be receiving an approved copy of that. I think it carries the information that you are requesting, Mr. Examiner.

MR. NUTTER: Would you describe what you propose

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there as your casing program, please?

A All right. On USGS 9-331C dated August 1st, we have --

MR. BONNETTE: Excuse me. Just state that this is, if it is, state that it is our proposed program.

A We have a proposed casing program for the proposed Well 6-2 drilling a ten and three/quarter inch hole to 300 feet, setting OD 20 pound casing and circulating cement to the surface, which we estimate 250 sacks will circulate, and then drilling an estimated six and a quarter inch hole to 3825 feet, setting and cementing four and a half inch OD 10.6 pound pipe, and cementing it with 250 sacks of cement, with the estimated top of the cement to come back up the hole 2700 feet.

We plan to drill the well with rotary tool set through, run gamma-ray neutron and perforate the pay zone, run plastic coated tubing and packer to be set immediately above the perforations, and inject fresh water available through the unit water plant through the plastic coated tubing and under packer.

MR. NUTTER: What would the depth of the packer be?

A It would be approximately 3800 feet.

MR. NUTTER: I want to see if I have this straight; this ten and three/quarter to 300, circulate cement on seven inch casing, drill six/quarter inch to 3825, cement four and

a half inch casing with 250 sacks with the expected top at 2700 feet, then you would run a packer to 3800 feet and install plastic coated tubing in that packer?

A That is correct.

MR. NUTTER: And inject fresh water?

A That's right.

MR. NUTTER: If you go to the old Maljamar Well, what is the program there?

A Identical program. It is presently cased, it has been temporarily abandoned for some time. They have 1125 feet of eight and five eighths, 28 pound pipe, cemented with 260 sacks of cement, and 3879 feet of five and a half, 14 pound casing cemented with 250 sacks, 380 sacks of various composite cement.

MR. NUTTER: 380 on that?

A 380. They have perforated, well, superdynajet from 3855 to 3760 and 3770 to 78, in the Queen Sand. The same arrangement on tubing and packer would be followed in this well as Well 6-2.

MR. NUTTER: Do you have any estimate where the top of the cement is on the eight and five/eighths inch pipe?

A No, I don't. They have no indication on their form here.



MR. NUTTER: How about the top of the cement on the five and a half inch pipe, does that have anything there?

A No. They have nothing on it. I could calculate it but I do not have it calculated.

MR. NUTTER: What was the length of the five and a half inch again?

A 3879.

MR. NUTTER: If you converted this well to water injection, would you run a packer and plastic coated tubing?

A Yes.

MR. NUTTER: Mr. Riley, when you get home, if you will, drop us a note and tell us what the calculated top of the cement on each of the two strings would be.

A Sure will.

MR. NUTTER: Are there any questions of Mr. Riley?

MR. IRBY: Mr. Riley, could you furnish me the information on this Maljamar Number 1 that you may be asking for that you are furnishing to the Commission --

A Yes.

MR. IRBY: -- concerning the tubing program, cement, et cetera?

A I'll be glad to.

MR. NUTTER: Any further questions of the witness?
He may be excused.

MR. HATCH: Were these Exhibits prepared by you or under your supervision?

A They were prepared by me.

MR. HATCH: I would like to move that the Exhibits be admitted.

MR. NUTTER: If there is no objection, the Exhibits will be admitted in evidence.

(Whereupon, Exhibits A, B, C, and D offered and admitted in evidence.)

MR. NUTTER: The witness will be excused.

(Witness excused).

MR. BONNETTE: I have nothing further.

MR. NUTTER: We will wait and see if you do acquire the Maljamar and get a waiver from B. M. Jackson and Redding and Bates and Metex this time, and upon receiving the evidence and the waivers, we will process the application administratively; otherwise, the case must be continued to August 24th, and then it will be readvertised giving the correct description of the well. The County paper got it right but the Santa Fe paper got it wrong. We'll continue the case until August 24.

MR. BONNETTE: Thank you.

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I N D E X

WITNESS

PAGE

E. A. RILEY

Direct Examination by Mr. Bonnette

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E X H I B I T S

NUMBER

MARKED FOR
IDENTIFICATION

OFFERED

ADMITTED

Exhibit A
Exhibit B
Exhibit C
Exhibit D

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

Witness my Hand and Seal this 9th day of August, 1966.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1967

I do hereby certify that the foregoing is
a true and correct record of the proceedings in
the New Mexico Oil Conservation Commission Case No. 3437,
heard on 8/3, 19 66.

Alvin, Examiner
New Mexico Oil Conservation Commission

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 24, 1966

Regular HEARING

Application of Anadarko Production
Company for a waterflood expansion,
Lea County, New Mexico.

CASE NUMBER
3437

BEFORE:

ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 24, 1966

Application of Anadarko Production
Company for a waterflood expansion,
Lea County, New Mexico.

CASE NUMBER
3437

BEFORE:

ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

MR. ELVIS A. UTZ: The hearing will come to order.

The first case on the docket will be 3437.

MR. HATCH: Case 3437 continued and readvertised from
the August 3, 1966, Examiner Hearing.

Application of Anadarko Production Company for a
waterflood expansion, Lea County, New Mexico.

MR. UTZ: Are there appearances in this case?

(No response.)

Since there are no appearances, the case will be taken
under advisement and an order will be written on it.

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

I, W. DON McINTYRE, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attache Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 12th day of September, 1966.


W. DON McINTYRE

My Commission Expires:

July 14, 1970

I do hereby certify that
the foregoing is a true and correct
transcript of the proceedings of the
New Mexico Oil Conservation Commission
held on Aug 24 1966
3437

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICOREGISTERHEARING DATE AUGUST 24, 1966 TIME: 9 A.M.

| NAME: | REPRESENTING: | LOCATION: |
|-----------------|---------------------|--------------|
| Geo. B. Ball | Pho. Am. Co. | San Antonio |
| Geo. H. Brown | " " | " " |
| Mr. D. L. Brown | Pho. Am. Co. | San Antonio |
| Jim L. Brown | Mobil Oil Corp. | Albuquerque |
| R. W. White | Mobil Oil Corp. | Midland |
| P. W. Kelly | Mobil Oil Corp. | Midland |
| Fred. H. Brown | Pho. Am. Co. | Midland |
| Redney J. Brown | Baker Oil Field Co. | Odessa, Tex. |
| P. M. Wilson | " " | " " |
| Harold Brown | " " | " " |
| James Brown | " " | " " |

PERTINENT DATA

Application of Anadarko Production Company
For An Unorthodox Location For an
Injection Well on The Pearsall Queen Sand Unit

CASE 3437

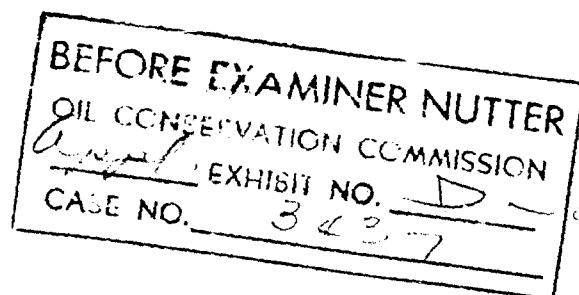
Examiner Hearing-Wednesday-August 3, 1966

Project Name Pearsall Queen Sand Unit,
Case 3004, Order 2669 (March 18, 1964)
Effective Date, November 1, 1964.

Project Location E/2 SW/4 & SE/4 Sec. 32 T17S R32E
E/2 NW/4, NE/4, E/2 SW/4, W/2 SE/4 &
NE/4 SE/4 Sec. 5 and NW/4 & NW/4 NE/4
Sec. 4 T18S R32E all in Lea County,
New Mexico

Total Wells 10 Injection Wells (Conoco has one
Injection Well under Coop. Agreement)
9 Producing Wells.

Flood History Pilot (6 Injection Wells-Conoco has one
Injection Well under Coop. Agreement)
initiated on April 29, 1965 under
Case No. 3005, Order R 2672, March 18,
1964. Expansion of pilot (4 Injection
Wells), initiated on March 25, 1966,
under Order WFX 225.



| | |
|------------------------------------|---------------|
| Water Injection to July 1, 1966 | 647,737 Bbls. |
| Water Production to " " | 3,350 " |
| Sec. Rec. Oil to " " | 63,279 " |
| Production rates during June, 1966 | |
| Well 6-1 - 1452 BO | |
| 400 BW | |
| Project -10,384 BO | |
| 1,405 BW | |

Recovery Figures for Proposed Location

Secondary oil recovery will be increased by the proposed injection location (Pearsall Unit Well 6-2) due to improved areal sweep efficiency as shown on Exhibit C and was calculated by planimentering the acreage within the sweep lines on the map, multiplying the acreage figure (29 acres) by the acreage thickness of the pay section (10 ft.) and multi-

plying the answer by the expected secondary oil recovery figure of 125 B/A-F; resulting in a predicted increase in recovery of 36,250 GBO.

This figure agrees closely with the prediction based on additional recovery of 25% of the pattern primary recovery around Pearsall Unit-Well 6-1 calculated as follows:

| | | | |
|-------------------|---------------|---------|-----|
| Primary Recovery: | | | |
| Unit Well 6-1 | 74,875x1.00 = | 74,875 | GBO |
| Unit Well 4A-1 | 50,034x.40 = | 20,014 | " |
| Unit Well 4-2 | 135,000x.25 = | 33,750 | " |
| | | 128,639 | " |

| | | | |
|-------------------------------------|---|--------|-----|
| Predicted Inc. Sec. Rec. @ Well 6-1 | | | |
| 128,639x.25 | = | 32,160 | GBO |

Economics

Revenue

| | | | |
|-----------------|---|-----------|-----|
| 36,000 x 80% | = | 28,800 | NBO |
| (\$2.80 - 0.16) | = | \$ 76,032 | |

Costs

| | |
|-----------------------|---------------|
| Water Injection | \$ 10,000 |
| Drilling & Completion | <u>25,000</u> |

\$35,000

| | |
|--------|---------------|
| Profit | \$76,032 |
| | <u>35,000</u> |

\$41,032

INJECTION WELL DATA

ANADARKO PRODUCTION CO. - FEDERAL-LOVE #1

Aug 12 AM 7 44

| | | | | | | | |
|-------------------|-----------------------|--------------------------|----------|-----------|--|--|--|
| SURFACE CASING | WELL NO. | #1 | | | | | |
| | SIZE | 8-5/8"-28# | | | | | |
| | LENGTH | 1125 ft. | | | | | |
| | SXS. CEMENT | 260 | | | | | |
| PRODUCTION CASING | SIZE | 5 1/2"- 14# | | | | | |
| | LENGTH | 3879 ft. | | | | | |
| | SXS. CEMENT | 380 | | | | | |
| TUBING | SIZE | 2-3/8" OD Plastic coated | | | | | |
| | LENGTH | 3750 ft. | | | | | |
| | PACKER DEPTH | 3750 ft. | Johnston | 101S pkr. | | | |
| INJ. | DEPTH | | | | | | |
| | THRU CASING OR TUBING | Tubing | | | | | |