STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. Box 2088
SANTA FE, NEW MEXICO
87501

ADMINISTRATIVE ORDER
NFL 27

INFILL DRILLING FINDINGS PURSUANT TO
SECTION 271.305(b) OF THE FEDERAL ENERGY REGULATORY
COMMISSION REGULATIONS, NATURAL GAS POLICY ACT OF 1978
AND OIL CONSERVATION DIVISION ORDER NO. R-6013-A

I.

Operator ARCO Oil and Gas Co. Well Name and No. Shipley "A" WN Well No. 6

Location: Unit E Sec. 27 Twp. 22S Rng. 36E Cty. Lea

II.

THE DIVISION FINDS:

(1) That Section 271.305(b) of the Federal Energy Regulatory Commission Regulations promulgated pursuant to the Natural Gas Policy Act of 1978 provides that, in order for an infill well to qualify as a new onshore production well under Section 103 of said Act, the Division must find that the infill well is necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit which cannot be so drained by any existing well within that unit.

(2) That by Order No. R-6013-A, dated February 8, 1980, the Division established an administrative procedure whereby the Division Director and the Division Examiners are empowered to act for the Division and find that an infill well is necessary.

(3) That the well for which a finding is sought is completed in the Jalmat Gas Pool, and the standard spacing unit in said pool is 640 acres.

(4) That a 160-acre proration unit comprising the NW/4 of Sec. 27, Twp. 22S, Rng. 36E, is currently dedicated to the Shipley "A" WN Well No. 1 located in Unit C of said section.

(5) That this proration unit is ( ) standard (X) nonstandard; if nonstandard, said unit was previously approved by Order No. NSP-1106.

(6) That said proration unit is not being effectively and efficiently drained by the existing well(s) on the unit.

(7) That the drilling and completion of the well for which a finding is sought should result in the production of an additional 540 M MCF of gas from the proration unit which would not otherwise be recovered.

(8) That all the requirements of Order No. R-6013-A have been complied with, and that the well for which a finding is sought is necessary to effectively and efficiently drain a portion of the reservoir covered by said proration unit which cannot be so drained by any existing well within the unit.

(9) That in order to permit effective and efficient drainage of said proration unit, the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant is hereby authorized to drill the well described in Section I above as an infill well on the existing proration unit described in Section II(4) above. The authorization for infill drilling granted by this order is necessary to permit the drainage of a portion of the reservoir covered by said proration unit which cannot be effectively and efficiently drained by any existing well 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 this 28th day of April, 19 81.

DIVISION DIRECTOR EXAMINER

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0100

March 27, 1981

Oil Conservation Division of the
New Mexico Department of Energy and Minerals
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Shipley "A" WN No. 6
Infill Finding Application
Jalmat Tansill Yates Seven Rivers Pool
Section 27, T-22-S, R-36-E
Lea County, New Mexico

Gentlemen:

ARCO Oil and Gas Company respectfully requests administrative approval of an infill well finding, the Shipley "A" WN No. 6, on an existing 160-acre non-standard proration unit. The proration unit, established by Administrative Order NSP-1106, comprises the NW/4 of Section 27, T-22-S, R-36-E. The Shipley "A" WN No. 1 is currently shut-in and was approved for plugging and abandonment in September, 1980. It is requested that the Division issue certification that there is a need for an infill finding on the non-standard proration unit. This certification is necessary to meet the requirements of the NGPA of 1978 and we request the certification be handled administratively under Division Order No. R-6013-A. The volume of increased ultimate recovery from the Shipley "A" WN No. 6 is estimated to be 540 MMCFG. The reserve calculations and supporting data are attached.

In accordance to special rules and regulations set forth under Order R-6013-A, the following data is submitted.

1) Copies of forms C-101 and C-102 are attached.

2) The Shipley "A" WN No. 6 has been drilled to the Jalmat gas pool which has a standard proration unit size of 640-acres.

3) The Shipley "A" WN No. 1 is currently shut-in and will be plugged and abandoned due to high operating costs caused by sand problems. A workover attempted in August, 1978 was unsuccessful.

4) The Shipley "A" WN No. 6 is located 1650' FNL and 660' FWL in Section 27, T-22-S, R-36-E, Lea County, New Mexico. The No. 6 well was spudded January 9, 1981, and completed March 25, 1981, as a gas well in the Jalmat Yates Seven Rivers gas zone. The initial rate of production was 918 MCFGPD.

5) The Shipley "A" WN No. 1 is the only other well on the subject proration unit that has been drilled and completed in the Jalmat gas pool. The well is located 990' FNL and 1650' FWL in Section 27, T-22-S, R-36-E, Lea County, New Mexico. The No. 1 well was spudded April 3, 1949 and completed May 10, 1946 as a Jalmat Yates-Seven Rivers gas well. The initial potential was 10 MMCFGPD.

   The well was shut-in due to high operating costs in May, 1980, after producing 181 MBO and 2208 MMCF. Final production for the well was 0 BOPD and 15 MCFGPD.

6) The infill well, Shipley "A" WN No. 6, was completed on March 25, 1981, at an initial rate of 918 MCFGPD from the Jalmat gas zone.

7) A structure map on the top of the Yates formation is attached.

8) The volume of increased ultimate recovery is anticipated to be 540 MMCFG. The reserve calculations and supporting data are attached.

9) A list of all offset operators is attached. These operators have been sent a copy of this application by certified mail.

ARCO Oil and Gas Company believes approval of these requests will be in the interest of conservation, protection of correlative rights, and allow for more complete recovery of Jalmat gas reserves from the subject acreage.

Respectfully,

Susan M. Tidwell

Susan M. Tidwell
Operations Engineer

SMT:jaf

Attachments

LIST OF OFFSET OPERATORS

Conoco, Inc.
P. O. Box 460
Hobbs, New Mexico 88240

Getty Oil Company
P. O. Box 1231
Midland, Texas 79702

Sun Texas Company
P. O. Box 4067
Midland, Texas 79702

RESERVE CALCULATIONS
Shipley "A" WN No. 1
160 Acre Proration Unit
(Jalmat Gas)
NW/4 Section 27-T22S-R36E

1. Calculation of Gas in Place by Volumetric Method

$$G = 43560 \times A \times \emptyset \times h \times (1-Sw) \times Bgi$$

Where:

A = 160 acres
Ø = 12.0% (Average from available logs)
h = 105'
Sw = 27.1% *
Bgi = $35.35 \frac{P}{\not{Z}T}$ $\frac{SCF}{Cu\ Ft}$

$$= \frac{(35.35)(1400)}{(.78)\ (554)}$$

$$= 114.53 \frac{SCF}{Cu\ Ft}$$

Therefore,

$$G = (43560)(160)(.120)(105)(1-.271)(114.53)$$

$$= 7.33\ BCFG$$

*Published in Oil & Gas Fields of Southwest New Mexico, 1956, by Roswell Geological Society.

Abbreviations:

A : Drainage area, acres
Ø : Porosity, %
h : Net pay, ft.
Sw : Connate water saturation, %
Bgi : Initial gas formation volume factor, $\frac{SCF}{CF}$
Bga : Gas formation volume factor at abandonment, $\frac{SCF}{CF}$
P : Reservoir Pressure, psia
T : Reservoir Temperature, °R
$\not{Z}$: Compressibility factor

II. Calculation of Recoveragle Gas on 160 acres

Assume Abandonment BHP = 75 psia

$G = 43560 \times A \times \emptyset \times h \times (1-Sw) \times (Bgi-Bga)$

Where,

$$Bga = \frac{(35.35)(75)}{(.99)(554)}$$

$$= 4.84 \ \frac{SCF}{Cu\ Ft}$$

Therefore,

$G = (43560)(160)(.120)(105)(1-.271)(114.53-4.84)$

$= 7.0$ BCF

III. Calculation of Unrecoverable Reserves for 160 Acre Proration Unit:

Unrecoverable Reserves = Recoverable Reserves to an Abandonment BHP of 75 psia

- Cumulative Recovery from Shipley "A" WN No. 1

= 7.0 BCF -2.2 BCF

= 4.8 BCF

RESERVE CALCULATIONS
Shipley "A" WN No. 6
160 Acre Proration Unit
NW/4 Section 27-T22S-R36E
Lea County, New Mexico

I. Calculation of Recoverable Gas on 160 Acres by Volumetric Method

Assume Abandonment BHP = 75 psia

Initial BHP from SITP = 200 psia

$G = 43560 \times A \times \emptyset \times h \times (1-Sw) \times (Bgi-Bga)$

Where,

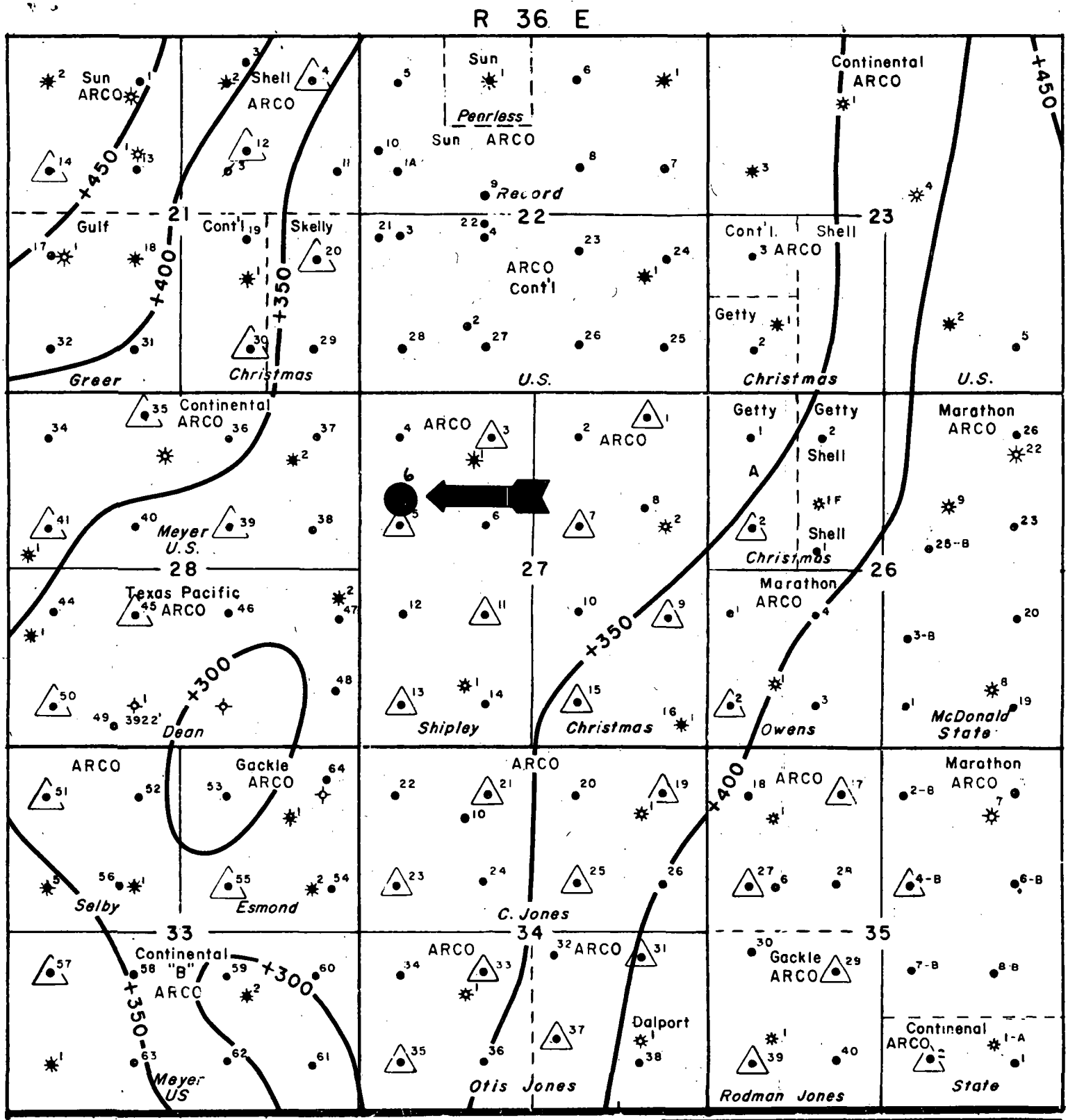
$$Bgi = \frac{(35.35)(200)}{(.96)(554)} = 13.32 \frac{SCF}{Cu\ Ft}$$

$$Bga = \frac{(35.35)(75)}{(.99)(554)} = 4.84 \frac{SCF}{Cu\ Ft}$$

Therefore,

$$G = (43560)(160)(.120)(105)(1-.271)(13.32-4.84)$$

$$= 540\ MMCFG$$



Shipley "A" WN No. 6

ARCO Oil and Gas Company
Division of AtlanticRichfieldCompany
Permian District Midland, Texas

LEA COUNTY, NEW MEXICO

STRUCTURE MAP TOP OF YATES

C. I. = 50'

SCALE : 1" = 2000'

By: S. TIDWELL		Drawn By:	Date: 10-80
Date: 10-80		Revised By:	Date:
Dept: WEST AREA ENGR.		Dwg No.:	

30-025-27196

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OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-101
Revised 1-1-65

5A. Indicate Type of Lease STATE ☐ FEE ☒

5. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

b. Type of Well
DRILL ☒ DEEPEN ☐ PLUG BACK ☐
OIL WELL ☐ GAS WELL ☒ OTHER SINGLE ZONE ☒ MULTIPLE ZONE ☐

7. Unit Agreement Name

8. Farm or Lease Name
Shipley "A" WN

2. Name of Operator
ARCO Oil & Gas Company
Division of Atlantic Richfield Company

9. Well No.
6

3. Address of Operator
Box 1710, Hobbs, New Mexico 88240

10. Field and Pool, or Wildcat
Jalmat Yates Gas

4. Location of Well
UNIT LETTER E LOCATED 1650 FEET FROM THE North LINE
AND 660 FEET FROM THE West LINE OF SEC. 27 TWP. 22S RGE. 36E NMPM

12. County
Lea

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
3750'	Yates Gas	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
3499.1' GR	GCA #8	Hillin Drlg Co.	12/22/80

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
17½"	13-3/8" OD	54.5# K-55	30'	3 yds Redi-mix	Surf
12¼"	8-5/8" OD	24# K-55	1200'	575	Circ to surf
7-//8"	5½" OD	15.5# K-55	3750'	1000	Circ to surf

Propose to drill a development well and recover remaining Jalmat Yates Gas reserves.

Gas Dedicated.

Blowout Preventer Program attached.

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,
EXPIRES 3/18/81

received
1/26/86
central files

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 and belief.

Signed Jerry W. Schmidt Title Dist. Drlg. Supt. Date 12/12/80

(This space for State Use)

APPROVED BY Jerry Sexton TITLE SUPERVISOR DISTRICT II DATE DEC 18 1980

CONDITIONS OF APPROVAL, IF ANY: Prior to producing this well, approval must be obtained for the simultaneous dedication of the NW/4 of Sec. 27 to this well and Hall No. 1.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
ARCO Oil and Gas Company	Shipley "A" WN	6

Unit Letter	Section	Township	Range	County
E	27	22-South	36-East	Lea

Actual Footage Location of Well:
1650 feet from the North line and 660 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3499.1	Yates 7R Queen Gas	Jalmat Gas	160 Acres

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

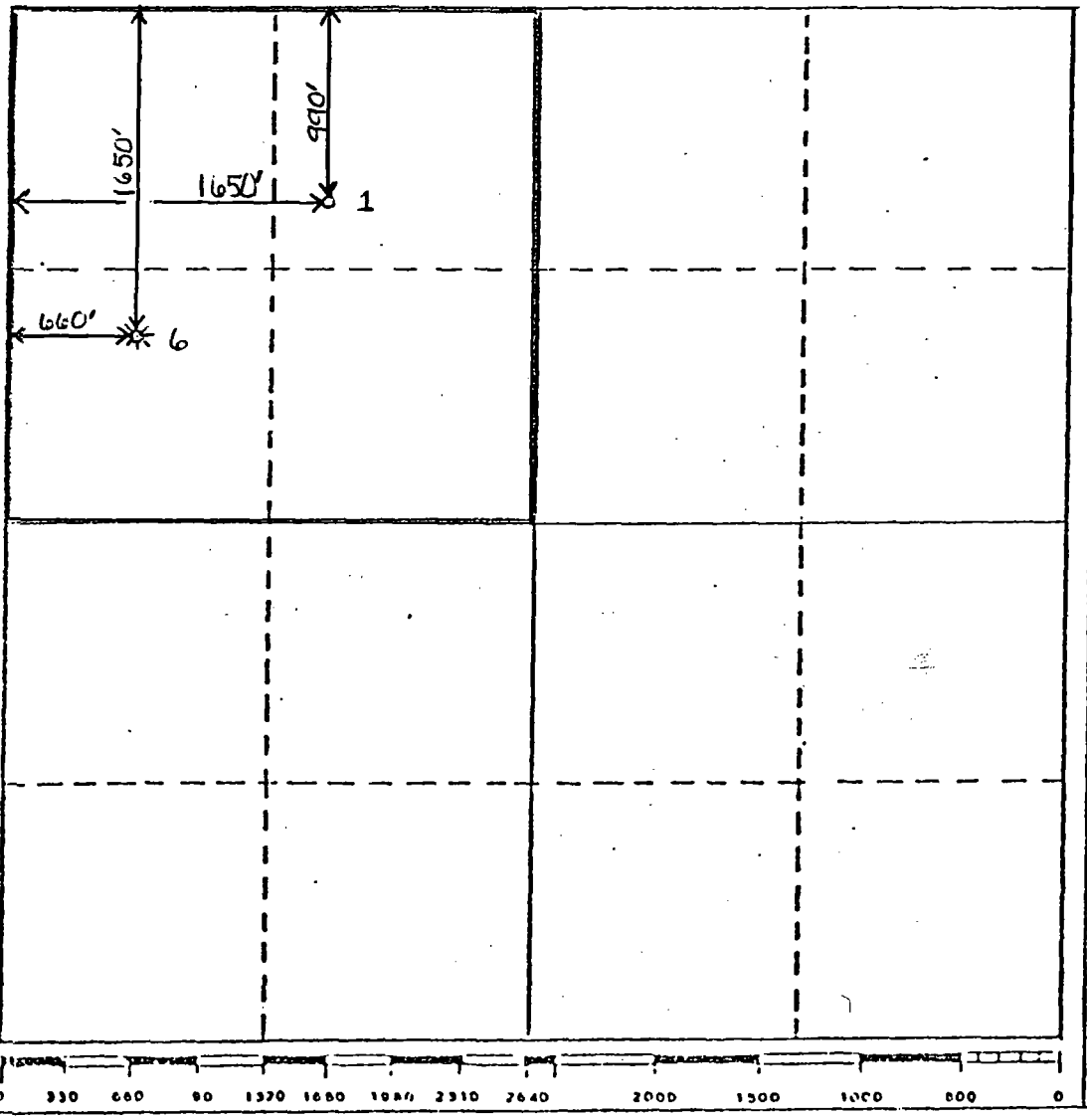
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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 Division.



CERTIFICATION

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

Name: Susan M. Tidwell
Position: Operations Engineer
Company: ARCO Oil and Gas Company
Date: March 26, 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.

☐ A copy of Form C-101 must be submitted.

☐ A copy of Form C-102 must be submitted.

☐ The pool name must be shown.

☐ The standard spacing unit size for the pool must be shown.

☐ Give the Division Order No. which granted the non-standard proration unit.

☐ Please state whether or not the well has been spudded and give the spud date, if any.

☐ Information relative to other wells on the proration unit is incomplete. _____

_____

_____

_____

☐ The geologic and reservoir data is incomplete or insufficient.

_____

_____

_____

_____

☒ Other:
There needs to be a more detailed description of the mechanical problems experienced in the No. 1 well, an explanation of any workover operations performed, and a showing that future workovers would not be expected to be successful.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

April 7, 1981

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

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

ARCO Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Re: Application for NGPA Infill Well
Findings Under Provisions of
Order No. R-6013 Shipley "A" WN
Well No. 6, Sec. 27, T-22-S, R-36-E,
Jalmat Pool, Lea County, N. M.

We may not process the subject application for infill findings until the required information, forms, or plats checked on the reverse side of this letter are submitted.

Sincerely,

R. L. STAMETS
Technical Support Chief

RLS/dr

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0117

C. E. Cardwell, Jr.
Vice President

April 16, 1981

Mr. R. L. Stamets
Oil Conservation Division of the
New Mexico Department of Energy and Minerals
P. O. Box 2088
Sante Fe, New Mexico 87501

Re: Shipley "A" WN No. 6
Infill Finding Application
Jalmat Tansill Yates Seven Rivers Pool
Section 27, T-22-S, R-36-E
Lea County, New Mexico

Dear Mr. Stamets:

This letter is in response to your request for additional information on the Shipley "A" WN No. 1 well.

The Shipley "A" No. 1 well was completed openhole as a Jalmat gas well on May 10, 1946. Initial treatment was 1000 gallons of 15% acid. The well was fractured with 10,000 gallons oil and 10,000 # sand in April, 1955.

During the life of the well there have been problems with formation caving, sand and paraffin plugging pump and tubing. In August, 1977, the well was cleaned out almost once every two weeks to keep it on production. Each time the wellbore had from 100' to 350' of fill after being shut-in overnight. In August, 1978 a fiberglass liner was run in the open hole section in an attempt to keep the wellbore clean and control sand problems. The work, however, proved to be unsuccessful. The very fine sand is still carried by the fluid into the wellbore causing pump sticking problems. Pump runs average 36 hours and frequently it has to be pulled with the tubing. This caused the operating costs to be extremely high and the well became uneconomical to operate.

Other techniques for restoring production of the well have been investigated. A hydraulic jet pump would not be feasible because the sand will erode the throat. Attempts have been made to move the tubing up the hole, but the fine formation material mixed with the fluid and made the pump stick.

Since the well is uneconomical to operate, it was approved to be plugged and

abandoned in the second quarter of 1981. Please advise if you need additional information.

Respectfully,

Susan M. Tidwell

Susan M. Tidwell
Operations Engineer