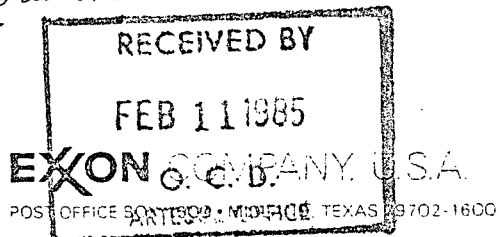


*Application sent to
Artesia. Release Immed.*

By Dec



February 8, 1985

*NISL-2010
RULE-104(LE)*

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION

Unorthodox Location
Happy Valley Federal Com. #1
Section 28-T22S-R26E
Eddy County, New Mexico

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

*Undesignated Happy Valley Narrows
320 acres N1/2 Section 28
1790 FNL & 1830 FEL Section 28
T-22S-R26E*

Dear Mr. Stamets:

Exxon Corporation requests administrative approval of an unorthodox location for the subject well based upon topographic conditions. This location will be located nearer than 1980' to be nearest end boundary of the dedicated tract.

This location was chosen after looking at the regular location. The BLM advised us that drilling at the regular location would cause too much cut and fill.

By copy (certified mail) of this letter, we are notifying all offset operators of our application to complete this well as an unorthodox location. If as an offset operator, you have no objections to this application, we request that you execute the attached waiver and forward a copy to Mr. Richard L. Stamets, Director, Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501, and return one copy to this office.

The offset operators as shown on the attached plat are:

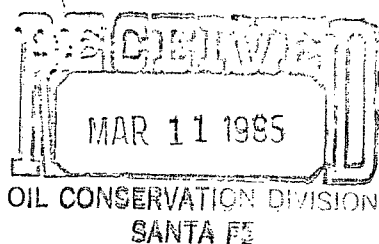
Amoco Production Company, P. O. Box 3092, Houston, Texas 77253, Attn: Proration Section.
Cotton Petroleum Corporation, Box 3501, One Williams Center, Ste. 4200, Tulsa, OK 74172
Gulf Oil Co., Box 1150, Midland, Texas 79702, Attn: Connie Offield
Arco Oil & Gas Company, P. O. Box 1610, Midland, Texas 79702
Read & Stevens, Inc., Box 1518, 314 Security National Bank Building, Roswell, NM 88201

Please grant administrative approval to drill this well as an unorthodox location. If you need additional information, please call me at 915 686-4406.

Sincerely,

Melba Knipling
Melba Knipling, Unit Head
NGPA and Permits

EDR:dc



Form 3160-3
(November 1983)
(formerly 9-331C)

RECEIVED BY

SUBMIT IN TRIPLICATE*
(Other instructions on
reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒

DEEPEN ☐

PLUG BACK ☐

b. TYPE OF WELL

OIL
WELL ☐

GAS
WELL ☒

OTHER

SINGLE
ZONE ☐

MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

Exxon Corporation

3. ADDRESS OF OPERATOR

P. O. Box 1600, Midland, Texas 79702

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

1780' FNL and 1830' FEL of Sec.

At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

5.3 miles SW of Carlsbad

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drlg. unit line, if any) 1780'

18. NO. OF ACRES IN LEASE

320

19. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,

OR APPLIED FOR, ON THIS LEASE, FT.

None

13,600'

17. NO. OF ACRES ASSIGNED
TO THIS WELL

320

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3351' GR

22. APPROX. DATE WORK WILL START*

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2	13 3/8	54.5	450'	250 to surface
12 1/4	9 5/8	36, 40	2600'	600 to surface
8 1/2	5 1/2	17, 20	13,600'	700 to surface

Mud:

0- 450' FW 8.4 - 8.8 ppg
450- 2600' BW 10.0 ppg
2600- 9500' CBW 9.0 - 9.5 ppg
9500- 13,600' BW 10.0 - 10.5 ppg

BOPs

13 3/8" csg.: SA BOP 2000 psi

9 5/8" csg.: RRA 5000 psi

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 Melba Knippling

TITLE Unit Head

DATE 2-8-85

(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

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Exxon Lse. No. _____ NEW MEXICO OIL CONSERVATION COMMISSION
State Lse. No. _____ WELL LOCATION AND ACREAGE DEDICATION PLAT
Federal Lse. No. _____ All distances must be from the outer boundaries of the Section.

Form C-102
Supersedes C-128
Effective 1-1-65

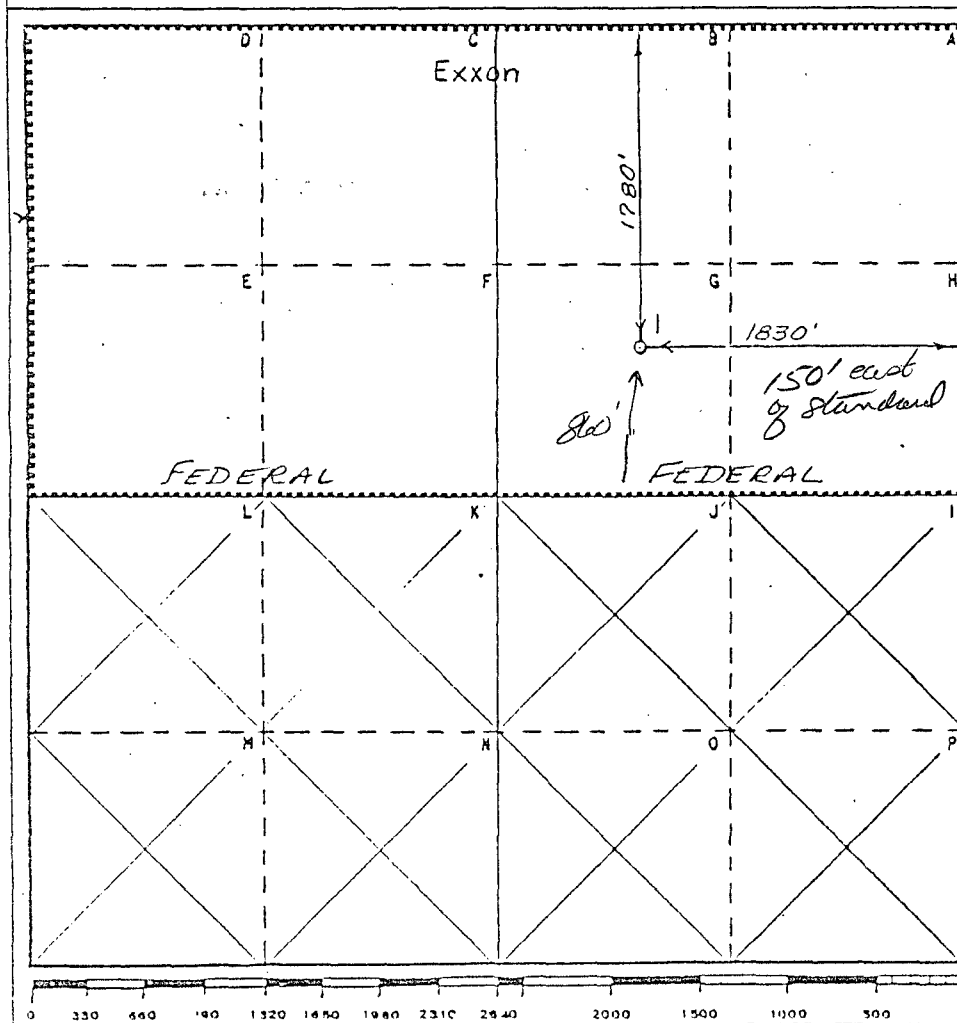
Operator Exxon Corporation		Lease Happy Valley Federal Com.		Well No. 1
Unit Letter G	Section 28	Township 22 S	Range 26 E	County Eddy
Actual Footage Location of Well: 1780 feet from the NORTH line and 1830 feet from the East line				
Ground Level Elev. 3351'	Producing Formation Morrow	Pool Happy Valley	Dedicated Acreage: 320 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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 COMM. PENDING

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

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 Melba Knippling
Position UNIT HEAD
Company Exxon Corporation
Box 1600 Midland, Texas
Date 2-8-85

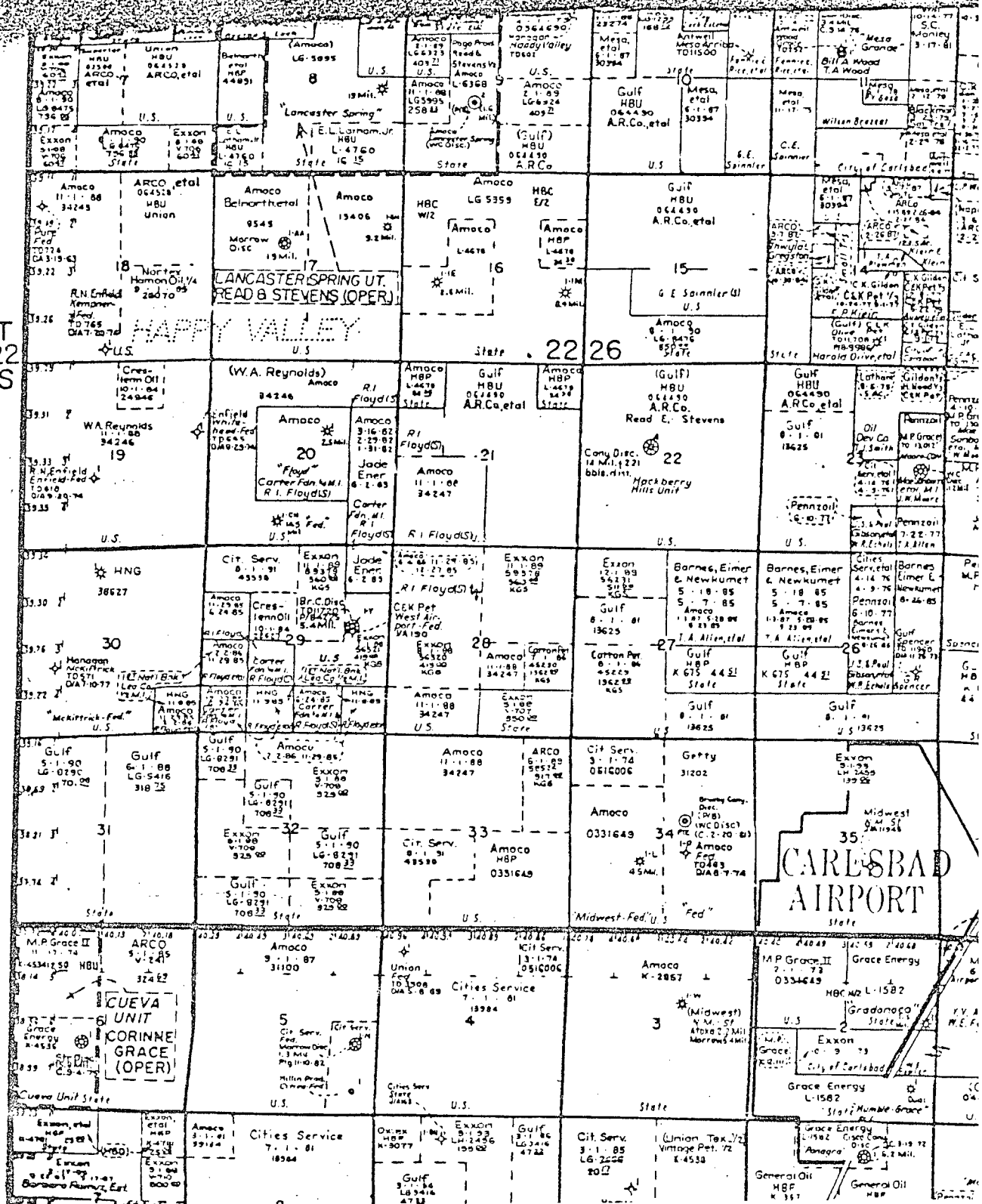
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed 1-23-85
Registered Professional Engineer and/or Land Surveyor
Bruce R. Pennell
Certificate No. 9062

5.3 Miles SIV of Carlsbad, New Mexico

C.E. Sec. File No. WA-8744

T
22
S



W A I V E R

Mr. Richard L. Stamets
Director, Oil Conservation Division
State of New Mexico
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

This is to advise that the undersigned has been given due notice that Exxon Corporation has made application for administrative approval of an unorthodox location for Happy Valley Federal Com. Well No. 1, Undesignated Happy Valley/Morrow Field.

We hereby waive any objections to the granting of the application for the above well which will be located:

1780' FNL and 1830' FEL of Section 28, T22S, R26E, Eddy County, New Mexico

Executed this _____ day of _____ 1985.

Company _____

By _____

W A I V E R

Mr. Richard L. Stamets
Director, Oil Conservation Division
State of New Mexico
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

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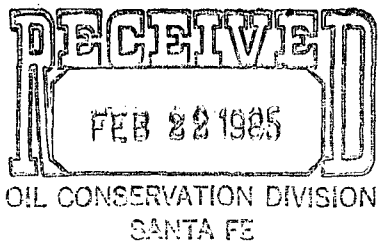
We hereby waive any objections to the granting of the application for the above well which will be located:

1780' FNL and 1830' FEL of Section 28, T22S, R26E, Eddy County, New Mexico

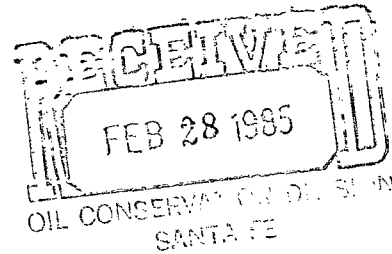
Executed this 20th day of February, 1985.

Company Gulf Oil Exploration and
Production Company

By JR. Frank



W A I V E R



Mr. Richard L. Stamets
Director, Oil Conservation Division
State of New Mexico
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

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We hereby waive any objections to the granting of the application for the above well which will be located:

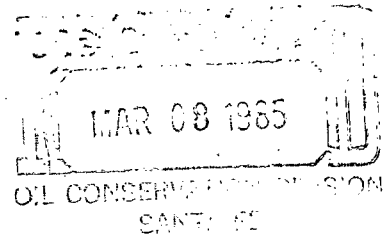
1780' FNL and 1830' FEL of Section 28, T22S, R26E, Eddy County, New Mexico

Executed this 21 day of Feb 1985.

Company Cotton Petroleum Corp

By SL Stamets

W A I V E R



Mr. Richard L. Stamets
Director, Oil Conservation Division
State of New Mexico
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

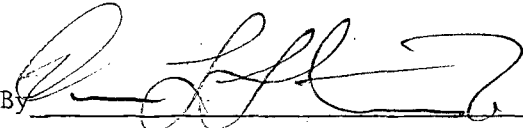
This is to advise that the undersigned has been given due notice that Exxon Corporation has made application for administrative approval of an unorthodox location for Happy Valley Federal Com. Well No. 1, Undesignated Happy Valley/Morrow Field.

We hereby waive any objections to the granting of the application for the above well which will be located:

1780' FNL and 1830' FEL of Section 28, T22S, R26E, Eddy County, New Mexico

Executed this 1st day of March 1985.

Company Read & Stevens, Inc.

By 
Norman L. Stevens, Jr., Vice-President

· W A I V E R

Mr. Richard L. Stamets
Director, Oil Conservation Division
State of New Mexico
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

This is to advise that the undersigned has been given due notice that Exxon Corporation has made application for administrative approval of an unorthodox location for Happy Valley Federal Com. Well No. 1, Undesignated Happy Valley/Morrow Field.

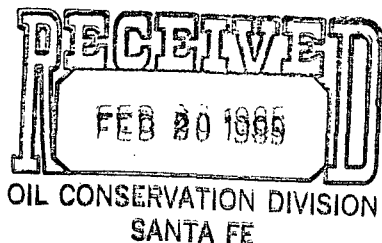
We hereby waive any objections to the granting of the application for the above well which will be located:

1780' FNL and 1830' FEL of Section 28, T22S, R26E, Eddy County, New Mexico

Executed this 14th day of February 1985.

Company ARCO Oil & Gas

By J. R. Hastings



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 9387
ORDER NO. R-8698

APPLICATION OF EXXON CORPORATION
FOR AN UNORTHODOX GAS WELL LOCATION,
DOWNHOLE COMMINGLING, HYDROCARBON
STORAGE AUTHORITY AND RELIEF FROM THE
REPORTING REQUIREMENTS OF DIVISION RULE
1131, EDDY COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on May 25, 1988,
at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 1st day of August, 1988, the Division
Director, having considered the testimony, the record and the
recommendations of the Examiner, and being fully advised in the
premises,

FINDS THAT:

(1) Due public notice having been given as required by law,
the Division has jurisdiction of this cause and the subject
matter thereof.

(2) The applicant, Exxon Corporation, seeks approval to
downhole commingle gas production from the Happy Valley-Morrow
Gas Pool with the Northeast Sheep Draw-Strawn Gas Pool in the
wellbore of its Happy Valley Fed. Com. Well No. 1, located at a
previously approved unorthodox gas well location for the Morrow
zone 1780 feet from the North line and 1830 feet from the East
line (Unit G) of Section 28, Township 22 South, Range 26 East,
NMPM, Eddy County, New Mexico. Applicant further requests
approval to utilize the Strawn zone in said well for storage of
gas from the Morrow zone, for an exemption from the reporting
requirements of Division Rule 1131, and approval of an unorthodox
gas well location for the Strawn zone.

(3) Applicant drilled its Happy Valley Fed. Com. Well No. 1 in 1985 to a depth sufficient to test the Morrow formation. Said well is at a non-standard location approved as to the Morrow formation by Division Administrative Order No. NSL-2010, dated March 22, 1985.

(4) The well encountered substantial porosity in the Strawn formation and was completed as a Strawn producer on July 17, 1985, through perforations 10,294-10,316 feet and 10,326-10,338 feet subsurface.

(5) The well had a calculated absolute open flow potential of 33.3 MMCF of gas per day and could produce at a sustained rate of 10 MMCF of gas per day. After the well was placed on production in August 1987, production rapidly declined and it is now producing at a marginal rate. Pressure in the Strawn formation declined from 3693 PSIA in August 1987 to a current level of approximately 1000 PSIA.

(6) The well has produced approximately 690 MMCF of gas from the Strawn formation. The Strawn reserves are calculated, without compression and at a cut-off pressure of 900 PSIA, at 700 MMCF of gas. With compression an additional 130 MMCF of gas will be recovered from the Strawn reservoir. The remaining Strawn reserves are insufficient to justify compression without commingling.

(7) None of the offsetting wells have similar carbonate reservoir development and porosity in the Strawn formation. In addition, applicant's seismic data in the area indicates that the Strawn reservoir is very limited in extent.

(8) The Strawn reservoir is approximately 22.3 acres in areal extent, which would be the horizontal limits of the reservoir to be injected with gas. Assuming a disc-shaped reservoir, the Strawn reservoir has a radius of 556 feet and is located entirely within the proration unit of the subject well.

(9) Applicant proposes to recomplete the well in the Morrow formation with perforations located at 11,628-11,666 feet subsurface and downhole commingle production from the Morrow and Strawn formations. No additional perforations will be added in the Strawn formation.

(10) Ownership of the Strawn and Morrow reservoirs is common.

(11) The Strawn reservoir is capable of producing at a rate of 10.0 MMCF of gas per day.

(12) The estimated maximum production rate from the Morrow formation is approximately 3.1 MMCF of gas per day. When the well is shut-in or production therefrom is curtailed, gas from the Morrow formation will flow into and recharge the Strawn reservoir. When the well is producing at peak capacity it will produce at a maximum rate of approximately 13.0 MMCF of gas per day, permitting the well to produce at a higher rate than if it is completed in the Morrow formation alone.

(13) The proposed downhole commingling and storage configuration for the subject well will not result in average producing rates greater than the maximum average producing rate of the Morrow formation alone.

(14) Recharging the Strawn reservoir in periods of low demand will allow the well to produce at a higher rate in periods of peak demand, which will result in higher average gas prices.

(15) The estimated maximum bottom hole pressure in the Morrow reservoir is 4400 PSIA, which is substantially less than a calculated Strawn fracture pressure of 6700 PSIA.

(16) The Morrow reservoir is estimated to contain 3100 MMCF of gas, and (with compression) the Strawn reservoir is estimated to contain an additional 130 MMCF of gas. Therefore, gas production should be allocated 96% to the Happy Valley-Morrow Gas Pool and 4% to the Northeast Sheep Draw-Strawn Gas Pool.

(17) The Strawn reservoir produces some condensate, but the Morrow reservoir produces no condensate. Therefore, 100% of condensate production should be allocated to the Northeast Sheep Draw-Strawn Pool.

(19) The gas produced from both the Strawn and Morrow reservoirs is similar in analysis, and thus commingling will not devalue the gas.

(20) Administrative Order NSL-2010 should be amended to include the Strawn formation.

(21) The small Strawn reservoir:

- (a) Is incapable of producing oil in paying quantities;

(b) Does not underlie lands known to contain commercial potash deposits;

(c) Has substantially depleted and has greater value as a gas storage reservoir than for production of its remaining reserves; and

(d) Is not being used by others for injection, storage or withdrawal of natural gas.

(22) The proposed operations will not injure surface or underground water resources.

(23) The small Strawn reservoir is suitable for underground storage of natural gas.

(24) The reporting requirements of Division Rule 1131 are inappropriate and unnecessary in this case and should be waived.

(25) The granting of this application will be in the interest of conservation and the prevention of waste and will protect correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) Applicant, Exxon Corporation, is hereby granted authority to downhole commingle production from the Happy Valley-Morrow Gas Pool and the Northeast Sheep Draw-Strawn Gas Pool in its Happy Valley Fed. Com. Well No. 1, located 1780 feet from the North line and 1830 feet from the East line of Section 28, Township 22 South, Range 26 East, NMPM, Eddy County, New Mexico.

(2) Applicant is further granted the authority to use the Strawn reservoir for underground hydrocarbon storage pursuant to New Mexico Statute Annotated §§ 70-6-1 et seq. (1987 Repl.).

(3) Administrative Order NSL-2010 is hereby amended to include the Strawn formation.

(4) Applicant is hereby granted a waiver from the reporting requirements of Division Rule 1131.

Case No. 9387
Order No. R-8698
Page No. 5

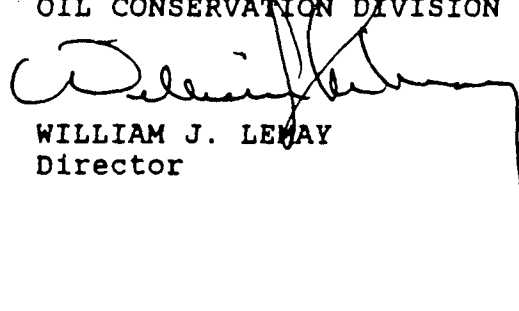
(5) Production from the subject well from the Morrow and Strawn formation shall be allocated as follows:

- (a) Gas
Strawn..... 4%
Morrow.....96%
- (b) Condensate
Strawn.....100%
Morrow..... 0%

(6) 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



WILLIAM J. LEMAY
Director

S E A L