

CASE 6753: AMAX CHEMICAL CORPORATION
FOR AMENDMENT OF ORDER NO. R-111-A, EDDY
COUNTY, NEW MEXICO

Case No.

6753

Application

Transcripts.

Small Exhibits

ETC.

JAMES L. DOW
CHARLES A. FEEZER

OIL CONSERVATION DIVISION
SANTA FE

FEB 24 1981

DOW & FEEZER, P. A.
ATTORNEYS AT LAW
DOW BUILDING
P. O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

February 20, 1981

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

Re: Extension of R-111A - Amax Chemical
Corporation - Cause No. 6753.

ATTN: DIRECTOR.

Dear Sir:

On December 16, 1980, I filed a Motion to Dismiss with Prejudice the notice of appeal filed over one year ago on January 7, 1980, and never pursued by the Petroleum Corporation of Delaware.

I am anxious to close the record on this case and would appreciate your informing me if the attorneys for Petroleum Corporation of Delaware have given you any indication they want to proceed with the appeal; and if not, do you wish me to draw an Order or fix a time for hearing and have me personally appear in connection with this Motion?

Very truly yours,

DOW & FEEZER, P. A.


C. A. Feezer

CAF:ah

cc: Mr. Robert D. Brown
cc: Mr. Harold Hensley



BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

February 20, 1981

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

Re: CASE NO. 6753
ORDER NO. R-111-M-1

Mr. C. A. Feezer
Dow and Feezer
Attorneys at Law
P. O. Box 128
Carlsbad, New Mexico 88220

Applicant:

Amax Chemical Corporation

Dear Sir:

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

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Harold L. Hensley, Jr.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6753
Order No. R-111-M-1

MOTION OF AMAX CHEMICAL
CORPORATION TO DISMISS
WITH PREJUDICE.

ORDER OF THE COMMISSION

This matter having come on before the Commission for its consideration and there being no objection by Petroleum Corporation of Delaware for dismissal of its Application for De Novo Hearing;

IT IS THEREFORE ORDERED:

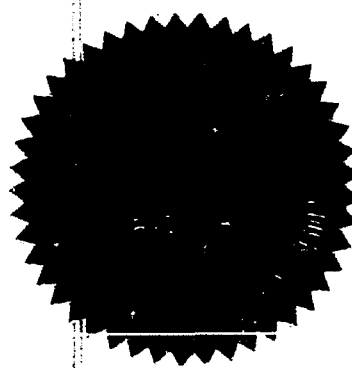
That Amax Chemical Corporation's Motion to Dismiss is granted and that the Application of Petroleum Corporation of Delaware for De Novo Hearing is dismissed with prejudice.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMISTEAD, Member


EMERY C. ARNOLD, Member


JOE D. RAMEY, Member & Secretary


S E A L

fd/

LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR
C. D. MARTIN
PAUL J. KELLY, JR.
JAMES H. BOZARTH
DOUGLAS L. LUNSFORD
PAUL M. BOHANNON

ERNEST R. FINNEY, JR. *
J. DOUGLAS FOSTER
K. DOUGLAS PERRIN
C. RAY ALLEN *
JACQUELINE W. ALLEN *
T. CALDER EZZELL, JR.
WILLIAM S. BURFORD *
JOHN S. NELSON
RICHARD E. OLSON
PHILLIP T. MEYER *

LAW OFFICES
HINKLE, COX, EATON, COFFIELD & HENSLEY

600 HINKLE BUILDING

POST OFFICE BOX 10
ROSWELL, NEW MEXICO 88201

(505) 622-6510

RECEIVED
FEB 04 1981

COUNSEL
CLARENCE E. HINKLE
RICHARD A. STONE *
BO. DURANT, JR. (1914-1973)

MIDLAND, TEXAS OFFICE
1000 FIRST NATIONAL BANK TOWER
(505) 693-4661

SANTA FE DIVISION
TEXAS OFFICE
501 AMERICAN NATIONAL BANK BUILDING
(505) 372-5569

*LICENSED IN
TEXAS ONLY

February 2, 1981

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

Re: Application for Appeal De Novo
Extension of R-111A-Cause No.
6753. Applicant: Amax Chemical
Corporation

Dear Mr. Padilla:

This will confirm that we are in agreement with Mr. Feezer's
Motion to Dismiss the above captioned matter.

Very truly yours,

HINKLE, COX, EATON, COFFIELD & HENSLEY

Harold L. Hensley, Jr.
Harold L. Hensley, Jr.

HLH:jb

JAMES L. DOW
CHARLES A. FEEZER

DOW AND FEEZER, P.A.
ATTORNEYS AT LAW
BUS TERMINAL BUILDING
P. O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

January 21, 1981

JAN 23 1981
OIL & GAS DIVISION
SANTA FE

Mr. Ernest Padilla
Oil Conservation Commission
P. O. Box 2088
Santa Fe, NM 87501

Re: Extension of R-111A - Amax Chemical
Corporation - Cause No. 6753.

Dear Mr. Padilla:

I do not want to labor the matter, but another month has passed since I filed the Motion to Dismiss in the above captioned cause as to the de novo hearing. I am wondering if you can tell me at this time the status of this Motion. Thank you for your past courtesies.

Very truly yours,

C A Feezer

C. A. Feezer

CAF:ah

JAMES L DOW
CHARLES A FEEZER

DOW & FEEZER, P. A.
ATTORNEYS AT LAW
DOW BUILDING
P. O. BOX 128
CARLSBAD, NEW MEXICO 88220

DEC 19 1980
AREA CODE 505

December 17, 1980

Oil Conservation Commission
SANTA FE

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

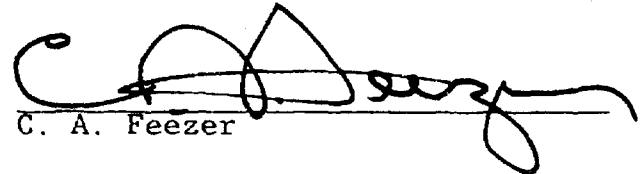
Re: Application for Appeal De Novo
Extension of R-111A - Cause No. 6753.
Applicant - Amax Chemical Corporation.

Dear Sir:

I enclose herein the original and two copies of the Motion
to Dismiss with Prejudice re the above captioned cause.

Very truly yours,

DOW & FEEZER, P. A.



C. A. Feezer

CAF:ah

cc: Mr. Harold Hensley /Encl. copy of Motion.
cc: Mr. Conrad Coffield /Encl. copy of Motion.
cc: Mr. Robert D. Brown /Encl. copy of Motion.
cc: Mr. Bob Kirby / Encl. copy of Motion.

BEFORE THE OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

RECEIVED
DEC 19 1980
OIL CONSERVATION COMMISSION
SANTA FE

APPLICATION OF THE PETROLEUM)
CORPORATION OF DELAWARE FOR)
APPEAL DE NOVO TO THE OIL CON-)
SERVATION COMMISSION.)

CASE NO. 6753

MOTION TO DISMISS WITH PREJUDICE

COMES NOW AMAX CHEMICAL CORPORATION, the Applicant in this cause, and in support of the hereinafter stated Motion to Dismiss, states:

1. The Application in this cause was filed on November 7, 1979. That thereafter a hearing was held after appropriate notice was published and served on all parties in interest to the issues described in the Application and the Examiner, Daniel S. Nutt, heard and considered the evidence and thereafter on December 14, 1979, the Division Director entered an Order determining the issues in favor of the Applicant and against The Petroleum Corporation of Delaware.

2. Subsequently, on or about January 7, 1980, The Petroleum Corporation of Delaware gave notice of an appeal from the Order heretofore described seeking an Appeal De Novo which is on file in this cause.

3. No setting was made before the full Commission following the Application for De Novo hearing for the reason that the parties notified the Director that some negotiations would occur. Such negotiations occurred in the early part of 1980 and the parties failed to achieve any result by reason of their meeting and negotiation.

4. Thereafter, on June 24, 1980, the attorney for Amax Chemical Corporation advised Mr. Harold Hensley, attorney for The Petroleum Corporation of Delaware, that he was forwarding logs of various wells and would like to have the case set during the first two weeks in September, 1980. No response was received from The Petroleum Corporation of Delaware or its attorney re this request.

5. On November 20, 1980, the undersigned attorney communicated with Conrad Coffield regarding his desires to pursue the appeal and subsequently, the undersigned attorney wrote a letter addressed to Harold Hensley and Conrad Coffield, both of whom were attorneys for The Petroleum Corporation of Delaware; a copy of this letter is attached hereto and incorporated herein as though set forth in full. The substance of this letter is that after December 15, 1980, a Motion would be made by Amax Chemical Corporation to dismiss the appeal for lack of prosecution of the same by The Petroleum Corporation of Delaware.

WHEREFORE, AMAX CHEMICAL CORPORATION, by and through its attorney

of record, prays that this Commission fix a time and place for a hearing on the Motion to Dismiss the Application of The Petroleum Corporation of Delaware for an Appeal De Novo. The basis of the Order sought is that more than one year has passed since the entry of the original Order in this cause; that by the conduct of the party seeking the De Novo hearing, they have failed to diligently pursue their remedies and this matter should finally be set at rest by the dismissal of the Application for Appeal De Novo and the original Order in this cause should become the final Order of the Commission as to the lands in question.

AMAX CHEMICAL CORPORATION

By C. A. Feezer
C. A. Feezer
Attorneys for Applicant
P. O. Box 128
Carlsbad, NM 88220
885-2185

STATE OF NEW MEXICO)
) ss.
COUNTY OF EDDY)

C. A. FEEZER, attorney for AMAX CHEMICAL CORPORATION, being first duly sworn upon his oath, states: That the contents in the foregoing Motion to Dismiss with Prejudice are true and correct to the best of his knowledge, information and belief.

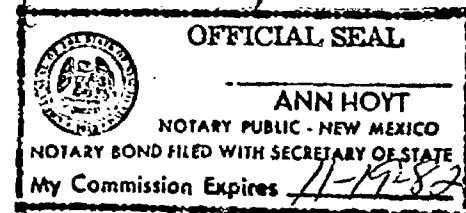
C. A. Feezer
C. A. FEEZER

SUBSCRIBED AND SWORN TO BEFORE ME this 15th day of December, 1980.

Ann Hoyt
NOTARY PUBLIC

I HEREBY CERTIFY that I have mailed a true and correct copy of the foregoing Motion to opposing counsel of record this 15th day of December, 1980.

C. A. Feezer



JAMES L. DOW
CHARLES A. FEEZER

DOW & FEEZER, P. A.
ATTORNEYS AT LAW
DOW BUILDING
P. O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

November 25, 1980

Mr. Harold L. Hensley, Jr.
Hinkle, Cox, Eaton, Coffield & Hensley
P. O. Box 10
Roswell, NM 88201

Re: Energy and Minerals Department
Oil Conservation Division
Case No. 6753
Order No. R-111-M.

Dear Mr. Hensley:

Based on my telephone conversation with Mr. Coffield on November 20, 1980, it is my understanding that your client, The Petroleum Corporation of Delaware, plans to abandon their Application for an Appeal De Novo to the Commission from the Decision dated December 14, 1979.

In view of the fact that December 15, 1980, will be one year from the date of the Order, it is my intention to apply to the Commission for the entry of an Order dismissing the appeal and making the Order above referred to final. Assuming I do not hear from you to the contrary prior to December 15th, I will then file a Motion seeking a dismissal attaching thereto a copy of this letter.

If you seriously desire to proceed with the appeal, I would like to talk with you as to an agreed time for the Oil Conservation Commission to hear it so that both of us may have adequate time to confer with our clients and prepare necessary exhibits and testimony for the de novo hearing.

Very truly yours,

DOW & FEEZER, P. A.

CAF:ah

C. A. Feezer

cc: Mr. Conrad E. Coffield
Hinkle, Cox, Eaton, Coffield & Hensley
1000 First National Bank Tower
Midland, Texas 79701
cc: Amax Chemical Corporation.

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF THE PETROLEUM)
CORPORATION OF DELAWARE FOR)
APPEAL DE NOVO TO THE OIL CON-)
SERVATION COMMISSION.)

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AMAX CHEMICAL CORPORATION

By C. A. Feezer
C. A. Feezer
Attorneys for Applicant
P. O. Box 128
Carlsbad, NM 88220
885-2185

STATE OF NEW MEXICO)
COUNTY OF EDDY) ss.

C. A. FEEZER, attorney for AMAX CHEMICAL CORPORATION, being first duly sworn upon his oath, states: That the contents in the foregoing Motion to Dismiss with Prejudice are true and correct to the best of his knowledge, information and belief.

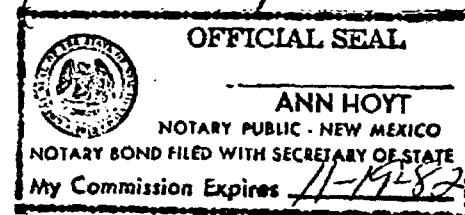
C. A. Feezer
C. A. FEEZER

SUBSCRIBED AND SWORN TO BEFORE ME this 16th day of December, 1980.

Ann Hoyt
NOTARY PUBLIC

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JAMES L. DOW
CHARLES A. FEEZER

DOW & FEEZER, P. A.
ATTORNEYS AT LAW
DOW BUILDING
P.O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

November 25, 1980

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Hinkle, Cox, Eaton, Coffield & Hensley
P. O. Box 10
Roswell, NM 88201

Re: Energy and Minerals Department
Oil Conservation Division
Case No. 6753
Order No. R-111-M.

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CAF:ah

C. A. Feezer

cc: Mr. Conrad E. Coffield
Hinkle, Cox, Eaton, Coffield & Hensley
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Midland, Texas 79701
cc: Amax Chemical Corporation.

BEFORE THE OIL CONSERVATION COMMISSION

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RECEIVED
DEC 19 1980
OIL CONSERVATION COMMISSION
SANTA FE

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AMAX CHEMICAL CORPORATION

By C. A. Feezer
C. A. Feezer
Attorneys for Applicant
P. O. Box 128
Carlsbad, NM 88220
885-2185

STATE OF NEW MEXICO)
) ss.
COUNTY OF EDDY)

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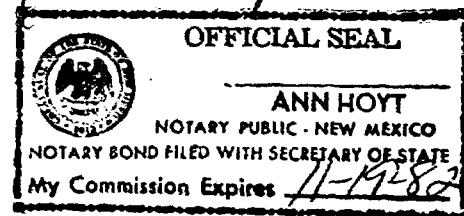
C. A. Feezer
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Ann Hoyt
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JAMES L. DOW
CHARLES A. FEEZER

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ATTORNEYS AT LAW
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CARLSBAD, NEW MEXICO 88220

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November 25, 1980

Mr. Harold L. Hensley, Jr.
Hinkle, Cox, Eaton, Coffield & Hensley
P. O. Box 10
Roswell, NM 88201

Re: Energy and Minerals Department
Oil Conservation Division
Case No. 6753
Order No. R-111-M.

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DOW & FEEZER, P. A.

CAF:ah

C. A. Feezer

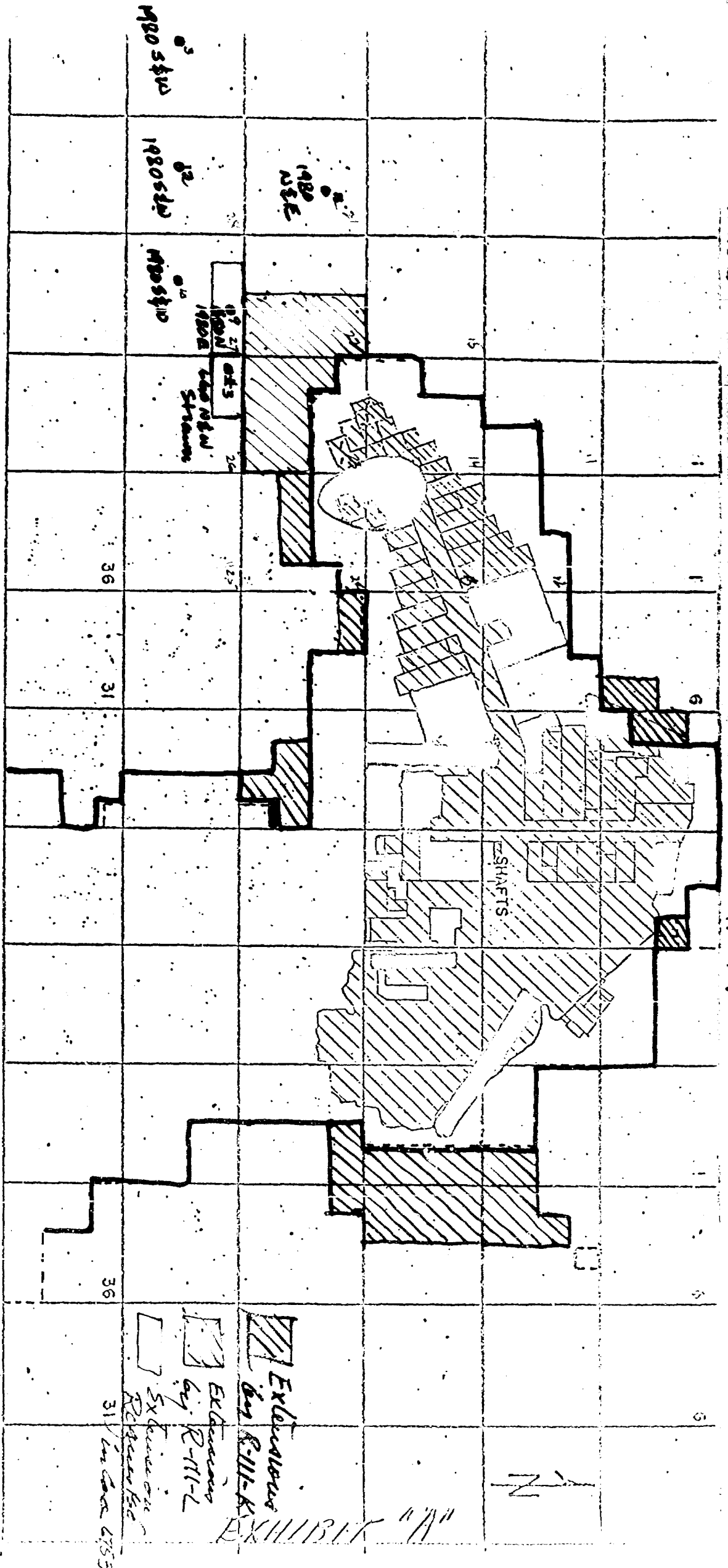
cc: Mr. Conrad E. Coffield
Hinkle, Cox, Eaton, Coffield & Hensley
1000 First National Bank Tower
Midland, Texas 79701
cc: Amax Chemical Corporation.

Dan Nutter

Amay

Exhibits 1 thru 4
complete

Es 6753



OPEN MINE WORKINGS - DEC 31, 1978
 R-III-A OIL - POTASH AREA
 PROJECTION 1979 - 1983

AMAX CHEMICAL CORP.
 FORMERLY
 SOUTHWEST POTASH CORP.
 CARLSBAD, N. M.
 SCALE 1" = 1 MILE
 JAN 1979

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

NEW MEXICO OIL CONSERVATION COMMISSION

RECEIVED

NOV 9 1979

O. C. C.

ARTESIA, OFFICE

Form O-1
Revised 11-65

5A. Indicate Type of Lease

STATE ☒ FEL ☐

5. State Oil & Gas Lease No.

K-6949-2

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work
b. Type of Well
OIL WELL ☐ GAS WELL ☒ OTHER ☐
2. Name of Operator
The Petroleum Corporation
3. Address of Operator
1440 Midland Natl. Bank Tower, Midland, Texas 79701
4. Location of Well
UNIT LETTER B LOCATED 660 FEET FROM THE north LINE
AND 1980 FEET FROM THE east LINE OF SEC. 27 TWP. 19-S REC. 29-E NADRAI
19. Proposed Depth
11,800 ft.
19A. Formation
Morrow
20. Elevation (Show whether DT, RI, etc.)
3335.8 GR
21A. Kind & Status Plug. Bond
Blanket
21B. Drilling Contractor
Warton
22. Approx. Date Work will start
12-24-79

7. Unit Agreement Name
Parkway West
8. Term of Lease Name
Parkway West Unit
9. Well No.
9
10. Field and Pool Name
Undesignated
Parkway West (Morrow)
12. County
Eddy

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|----------|
| 17-1/2" | 13-3/8" | 48# | 350 | 600 | Circ |
| 12-1/4" | 8-5/8" | 24# & 32# | 3100 | 1400 | Circ |
| 7-7/8" | 4-1/2" | 11.6# & 13.5# | 11,000 | 1000 | 8500' |

Set surface casing into T/Salt estimated to be 350', circ. cement. Drill 12-1/4" hole with brine water to prevent washout to 3100', set 8-5/8" casing @ 3100', circ. cement. Drill 7-7/8" hole with fresh water to 9000'. Add brine water @ 9500' to raise mud weight. Drill to TD of 11,800' to test Morrow and intermediate horizons. If commercial, will run casing to TD. Cement with sufficient cement to bind cement above all prospective zones. Estimated T/cement to be 8500'. Perf and stimulate Morrow for production.

NOTE: Gas is not dedicated.

MUD PROGRAM: 0-350': spud mud; 350-3100': 10# brine water; 3100-9000': fresh water; 9000-10,800': cut brine water gel MW 9.4, vis 35; 10,800-TD: starch, salt gel & Drispac MW 9.7, vis 36-40 @ TD. WL 6 cc thru Morrow. Bottom hole pressure @ TD anticipated to be 4700 psi. No abnormal pressures expected.

BOP PROGRAM: BOPs to be installed on 13-3/8" & 8-5/8" casing. Diagram attached. BOP to be tested daily. Test with yellow jacket prior to drilling Wolfcamp formation.

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 J. K. Glitman Title District Engineer Date 11-8-79

(This space for State Use)

APPROVED BY W. A. Gressitt TITLE SUPERVISOR, DISTRICT II DATE NOV 14 1979

CONDITIONS OF APPROVAL, IF ANY:

Cement must be circulated to surface behind 13 3/8" 4852' casing.

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form No. 1
Superseded 4-22-78
Effective 1-1-79

All distances must be from the outer boundaries of the Section

| | | | | | | | |
|--|---|---------|----|-------------------|----------|--------|--------------|
| THE PETROLEUM CORP. OF ILLINOIS | | Lease | | Parkway West Unit | | 9 | |
| Section | B | Section | 27 | Range | 19 South | County | 29 East Eddy |

| | | | | | |
|--------------------------|--------|-------------------------|--------|--------------------|------------------------------------|
| Actual Location of Well: | | 660 feet from the North | | and 1980 feet East | |
| Depth of Well | 3335.8 | Producing Formation | Morrow | Well | Undesignated Parkway West (Morrow) |
| | | | | Section | N/2 320 |

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure.
2. If more than one lease is dedicated to the well, outline each and identify the owner (as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests been consolidated by communitization, unitization, force-pooling, etc?

RECEIVED

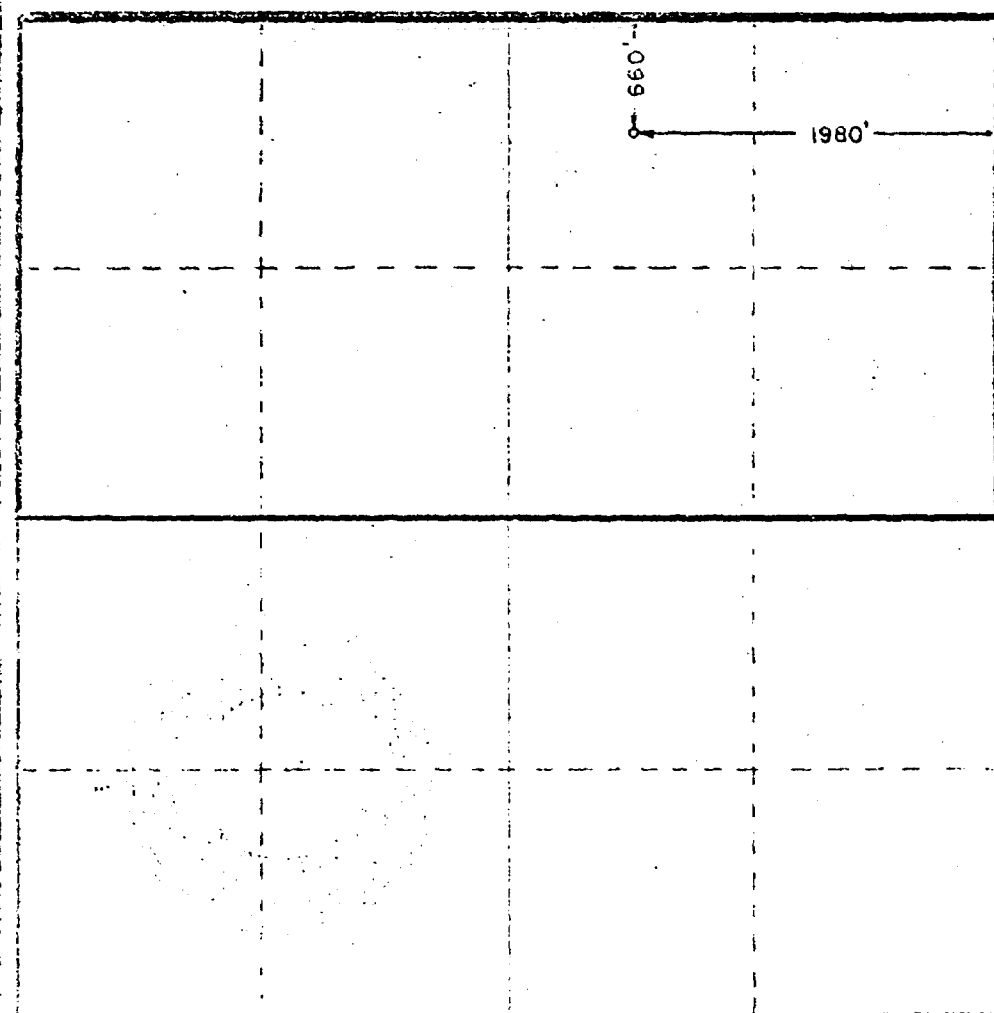
NOV 9 1979

O. C. C.
ARTERIA, OFFICE

☒ Yes ☐ No If answer is "yes," type of consolidation Unitization

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

J. K. Gleithner
District Engineer

The Petroleum Corporation

11-8-79

I hereby certify that the well shown on this plat was located by the 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.

November 2, 1979

Sam W. West

Record J. E. 100 2012

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

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-101
Revised 1-4-65

DEC 4 - 1979

O. C. C.
ARTESIA, OFFICE

| |
|--|
| 5A. Indicate Type of Lease |
| STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/> |
| 5. State Oil & Gas Lease No. |
| K-4169 |

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

| | |
|---|--|
| 1a. Type of Work | 7. Unit Agreement Name |
| b. Type of Well DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/> | 8. Firm or Lease Name Petco State Comm. |
| 2. Name of Operator The Petroleum Corporation | 9. Well No. 3 |
| 3. Address of Operator 1440 Midland National Bank Tower, Midland, TX 79701 | 10. Field and Pool, or Wildcat Parkway Strawn |
| 4. Location of Well UNIT LETTER D LOCATED 600 FEET FROM THE north LINE AND 660 FEET FROM THE west LINE OF SEC. 26 TWP. 19-S RGE. 29-E MAPAI | 12. County Eddy |
| 19. Proposed Depth 11,800 ft. | 19A. Formation Strawn |
| 20. Pointy or C.T. Rotary | 21. Elevations (Show whether DF, RT, etc.) 3336.09 GR |
| 21A. Kind & Status Plug. Bond Blanket | 21B. Drilling Contractor Warton |
| 22. Approx. Date Work will start 2-2-80 | |

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|----------|
| 17-1/2" | 13-3/8" | 48# | 350' | 600 | Circ. |
| 12-1/4" | 8-5/8" | 24# & 32# | 3100' | 1400 | Circ. |
| 7-7/8" | 4-1/2" | 11.6# & 13.5# | 11,000' | 1000 | 8500' |

Set surface casing into T/salt estimated to be 350', circ cement. Drill 12-1/4" hole with brine water to prevent washout to 3100', set 8-5/8" casing at 3100', circ cement. Drill 7-7/8" hole with fresh water to 9000'. Add brine water @ 9500' to raise mud weight. Drill to TD of 11,800' to test Morrow and intermediate horizons. If commercial, will run casing to TD. Cement with sufficient cement to bring cement above all prospective zones. Estimated T/cement to be 8500'. Perf and stimulate for production.

NOTE: Gas and oil are not dedicated.

MUD PROGRAM: 0-350': spud mud; 350-3100': 10# brine water; 3100-9000': fresh water; 9000-10,800': cut brine water gel, MW 9.4, vis 35; 10,800-TD: starch, salt gel and Drispac, MW 9.7, vis 36-40 @ TD. WL 6 cc thru Morrow. Bottom hole pressure @ TD anticipated to be 4700 psi. No abnormal pressures anticipated.

BOP PROGRAM: BOPs to be installed on 13-3/8" and 8-5/8" casing. Diagram attached. BOP to be tested daily. Test with yellow jacket prior to drilling Wolfcamp formation.

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 J. K. G. [Signature] Title District Engineer Date 12-3-79
(This space for State Use)

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

NOT APPROVED YET - WILL WAIT ON AIGAY [Signature]

JAMES L. DOW
CHARLES A. FEEZER

DOW & FEEZER, P. A.
ATTORNEYS AT LAW
DOW BUILDING
P. O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

December 11, 1979

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

| | |
|-----------------------------|------|
| LAWYER: JAMES L. DOW | |
| OIL CONSERVATION COMMISSION | |
| Amey | 4 |
| CASE NO. | 6753 |

Re: Application for Extension of R-111A
et seq. No. 6753 and Application for
Permit to Drill dated November 9,
1979 for Well No. 9, Parkway West Unit,
660 feet from North line and 1980 feet
from East line of Section 27, T19S,
R29E, NMPM, Eddy County, New Mexico.

Gentlemen:

Pursuant to §70-2-29, NMSA, 1978 Comp., the Amax Chemical Corporation, through its undersigned attorney, hereby notifies you that the Application to Extend R-111A, No. 6753, was filed for record on November 8, 1979, in the offices of the Commission in Santa Fe, New Mexico and that the hearing on this cause is to be conducted at 9:00 a.m. on December 12, 1979 at Santa Fe, New Mexico.

On an Application for Permit to Drill, The Petroleum Corporation or Petroleum Corporation of Delaware, which the undersigned believes to be one and the same with offices located at 3303 Lee Parkway No. 505, Dallas, Texas 75219 and/or 1440 Midland National Bank Tower Bldg., Midland, Texas 79701, has commenced to prepare a pad for the drilling of the well pursuant to its Application dated November 9, 1979, above referred to and which was one day after the date on which Amax Chemical Corporation filed its Application with the Oil Conservation Commission in Santa Fe to extend R-111A.

This letter is to advise you that we believe it is a threat to Amax Chemical Corporation if The Petroleum Corporation proceeds with its drilling program and we would, therefore, request the Commission to sue seeking injunction and such other relief as its counsel may deem appropriate to carry out the Commission's general purpose of conservation of natural resources or in the alternative, immediately upon receipt of this request revoke or issue some stay order as against The Petroleum Corporation for its Application to drill the well location hereinbefore described in the Parkway West Unit.

Oil Conservation Commission
December 11, 1979
page 2

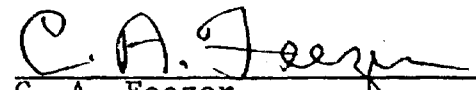
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The violation thereof is that Amax Chemical Corporation recited in its Application the location of an extremely valuable potash deposit very close to the proposed well location and in the event that The Petroleum Corporation proceeds with its drilling program and the Application or Permit is not stayed or revoked, it will cause irreparable harm, injury and damage to the orderly recovery of natural resources, to-wit, potash; and would be inconsistent with all previous established precedents by this Commission in its statutory obligation to protect the natural resources for orderly development within this State.

Your prompt response to this request pursuant to the statute is urgently requested.

Very truly yours,

DOW & FEEZER, P. A.


C. A. Feezer
Attorneys for Amax Chemical Corp.
P. O. Box 128
Carlsbad, New Mexico 88220

CAF:ah

THIS LETTER IS HAND DELIVERED TO THE OIL CONSERVATION COMMISSION OFFICES and to PETROLEUM CORPORATION in Santa Fe, New Mexico on December 12, 1979.

| | | |
|-------------|--------|--------|
| DEPOSIT | AMOUNT | NUMBER |
| OIL COMPANY | AMOUNT | 2 |
| CASE NO. | 5753 | |

200' Radius Solid Pillar
 Area = 125600 SQ FT
 x 4 THICK
 502400 CU FT
 x .064 T/CU FT
 32153.6 tons in Place
 x 90% Extraction
 28938 MINERABLE tons
 x 21.1% K2O
 6106 tons K2O MINERABLE
 x 85% Recov.
 5190 Tons REC K2O
 x .61%
 8508 tons PRODUCT

Area of No 2nd Mining 750' Rad
 Area = 1,766,250 sq ft
 4' THICK
 7065000 CU FT
 502400 Solid Pillar
 6562600 CU FT
 x .064 T/CU FT
 420,896 tons in Place
 x 30% 2nd mining cut
 126002 tons MINERABLE
 x 15% K2O
 18900 tons K2O MINERABLE
 x .85 Recov.
 16065 tons Recov K2O
 x .61%
 2633.6 tons prod lost

26336
 8508
 34844 - tons Prod lost
 x 60/ton
 \$2,090,669 Sales Value

Kirkley:
 \$60/ton is present
 market price of
 pakash in
 Carlsbad Basin

Ames Chemical - Chris Feege
Bob Kirtley - ^{Chief} Mining Eng & Ames
Don Brown - VP - Steel Mfg & Ames
Everett Jourdain - Staff Asst Mining & Metals, PCA
John Merlison - Mining Supervisor USGS not sworn
testimony - Statement only.

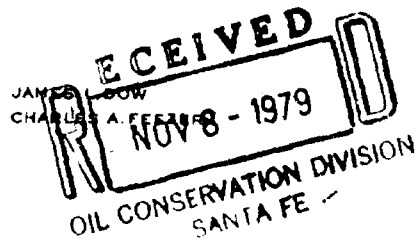
The Pitt Corp - Conrad Coffield
Neil Dean - Asst, Pitt Corp.
Larry Shannon - Sr VP & Mgr of Ops & Engg.

adm. notice

R-4093

R-4638

) Post pieces
for area.



DOW & FEEZER, P. A.
ATTORNEYS AT LAW
BUS TERMINAL BUILDING
P.O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

November 7, 1979

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

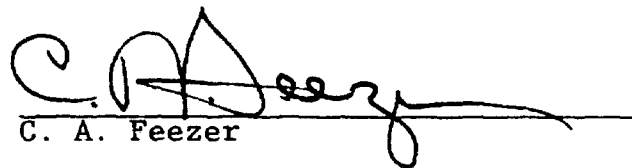
Re: Amax Chemical Corporation
Extension of R-111A

Dear Sir:

I enclose the original and three copies of the Applicant's
Application for extension of R-111A.

Very truly yours,

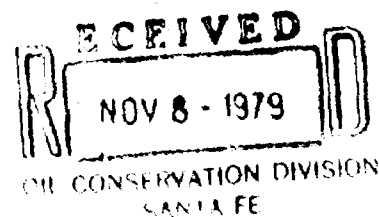
DOW & FEEZER, P. A.


C. A. Feezer

CAF:ah

Encls.

cc: Mr. Bob Kirby w/copy of Application



BEFORE THE NEW MEXICO OIL CONSERVATION
COMMISSION OF THE STATE OF NEW MEXICO

APPLICATION OF AMAX CHEMICAL
CORPORATION FOR AN ORDER AMEND-
ING R-111A AND SEEKING AN EXTENSION
OF THE POTASH-OIL AREA IN EDDY COUNTY,
NEW MEXICO.

No. 6753

A P P L I C A T I O N

COMES NOW Amax Chemical Corporation, a Delaware corporation,
authorized to do business in the State of New Mexico, and states:

| SECTION 27 | TOWNSHIP 19 SOUTH | RANGE 29 EAST |
|------------|--------------------------|---------------|
| NE/4 NW/4 | Containing approximately | 40 acres |
| N/2 NE/4 | " " | 30 acres |

| SECTION 26 | TOWNSHIP 19 SOUTH | RANGE 29 EAST |
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2. Amax Chemical Corporation has heretofore filed its Annual Mining Survey and Potash Development Plan with the Commission, a copy of which is attached hereto and marked Exhibit "A".

3. That all of the lands sought to be included in R-111A, et. seq. boundaries by this Application are believed to contain commercially recoverable quantities of potash ore for the reason that the Applicant is doing exploratory drilling, all of which core tests show commercially recoverable quantities of potash ore reaching from a low of 48 inches of 12.4 percent K₂O to a high of 48 inches of 20 percent K₂O.

4. The name and address of the only known interested party in the Application as known to the Applicant is as follows:

Petroleum Corporation Of Delaware
3303 Lee Parkway #505
Dallas, Texas 75219
Attn: Robert Vick, Engineer

James K. Robinson
915-684-7195
midland

*Potash Survey West
A-111A
Approved 11/10
Does not meet E-111A
Specs.*

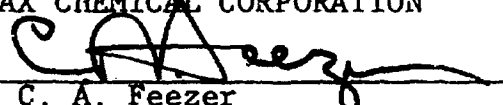
page 2
Application for Order Amending R-111A
Amax Chemical Corporation

WHEREFORE, Amax Chemical Corporation requests that the Commission fix a time and place for hearing before the Commission, after proper notice, to determine the propriety of the request as set forth herein.

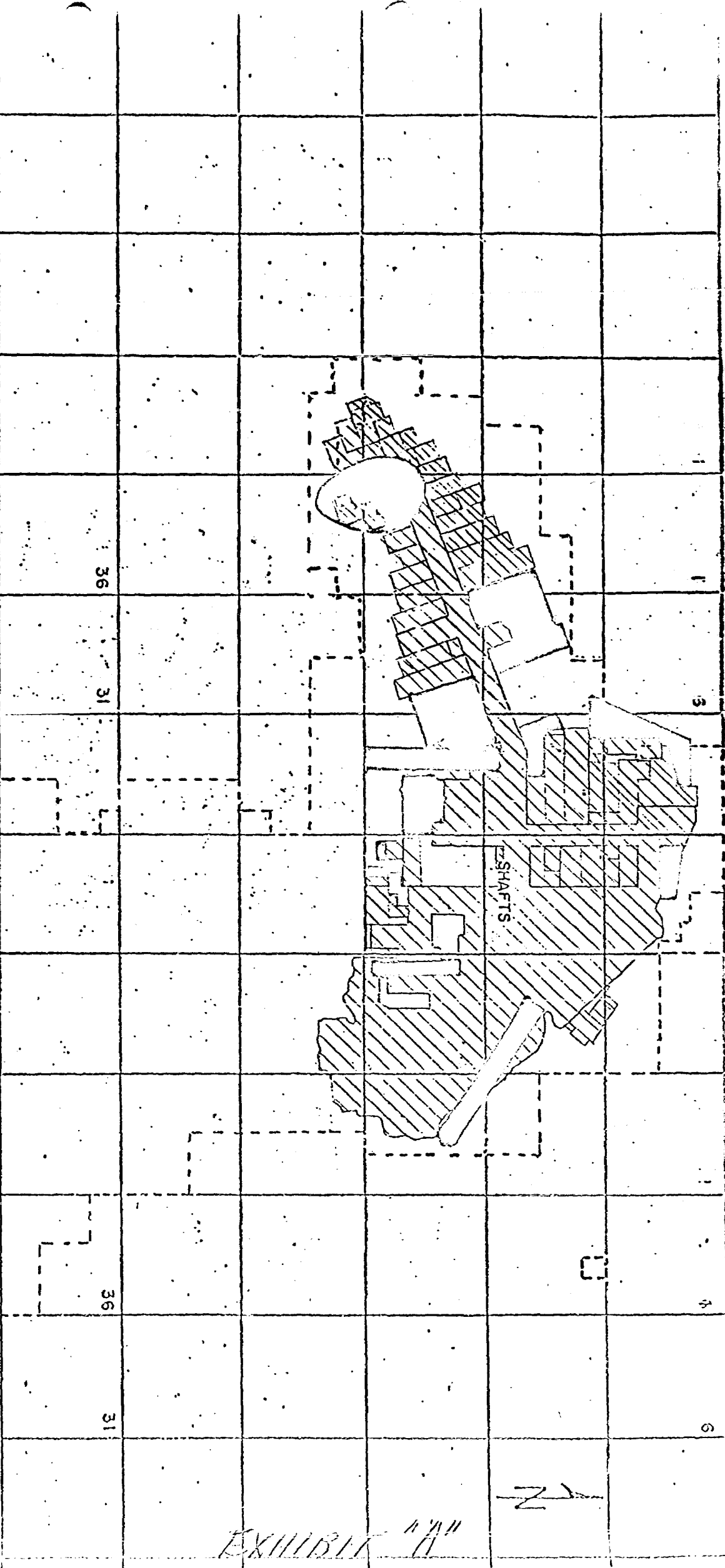
Respectfully submitted,

AMAX CHEMICAL CORPORATION

By



C. A. Feezer
Attorneys for Applicant
DOW & FEEZER, P. A.
P. O. Box 128
Carlsbad, New Mexico 88220



OPEN MINE WORKINGS - DEC 31, 1978

R-III-A OIL - POTASH AREA

PROJECTION 1979 - 1983

AMAX CHEMICAL CORP.

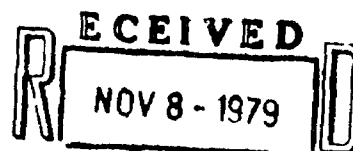
FORMERLY

SOUTHWEST POTASH CORP.

CARLSBAD, N. M.

SCALE 1" = 1 MILE JAN 1979

EXHIBIT "A"



OIL CONSERVATION DIVISION
BEFORE THE NEW MEXICO OIL CONSERVATION
COMMISSION OF THE STATE OF NEW MEXICO

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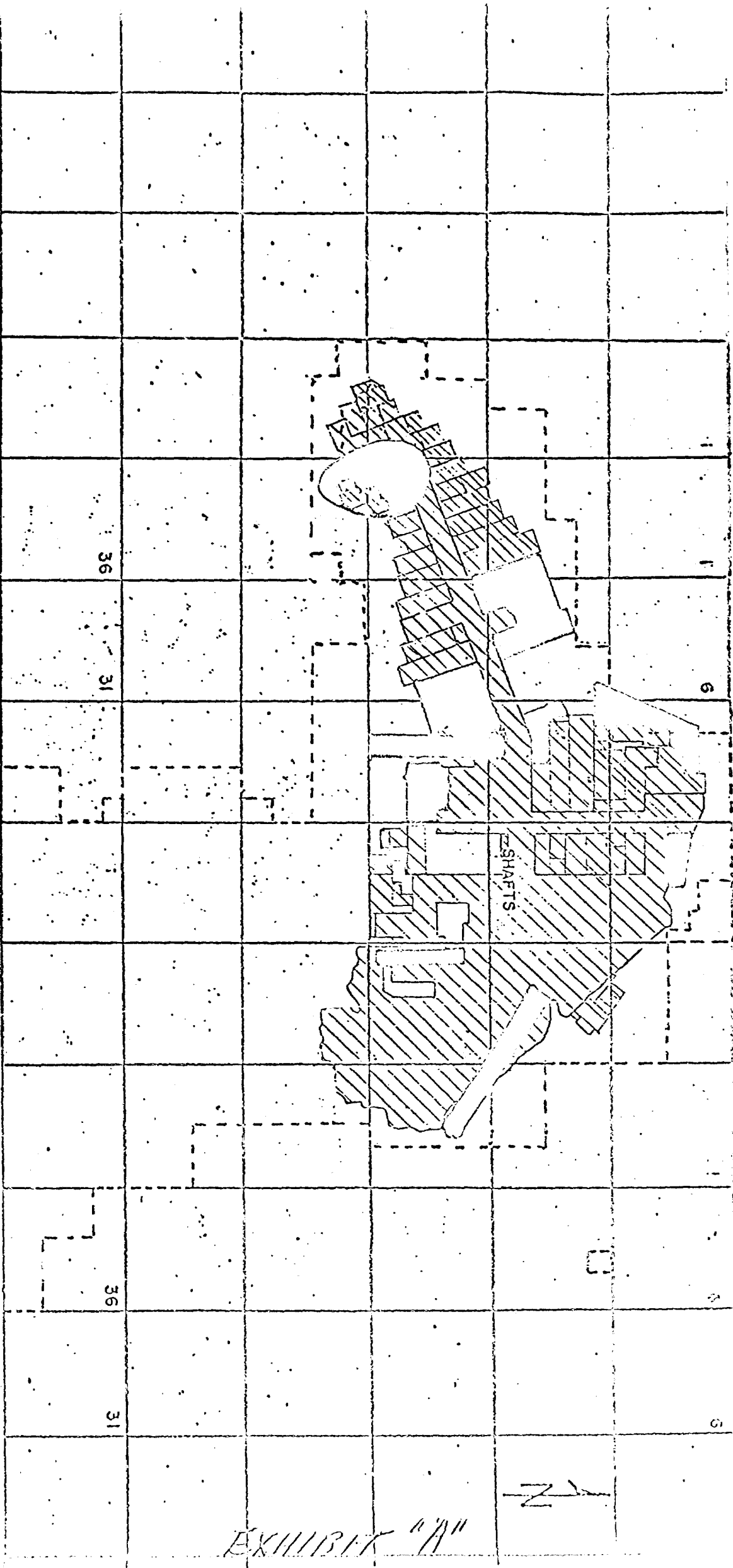
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By C. A. Feezer

C. A. Feezer
Attorneys for Applicant
DOW & FEEZER, P. A.
P. O. Box 128
Carlsbad, New Mexico 88220



OPEN MINE WORKINGS - DEC 31, 1978

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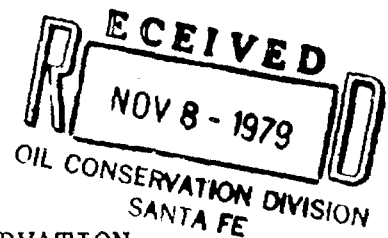
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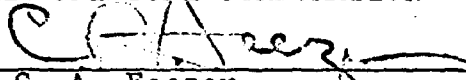
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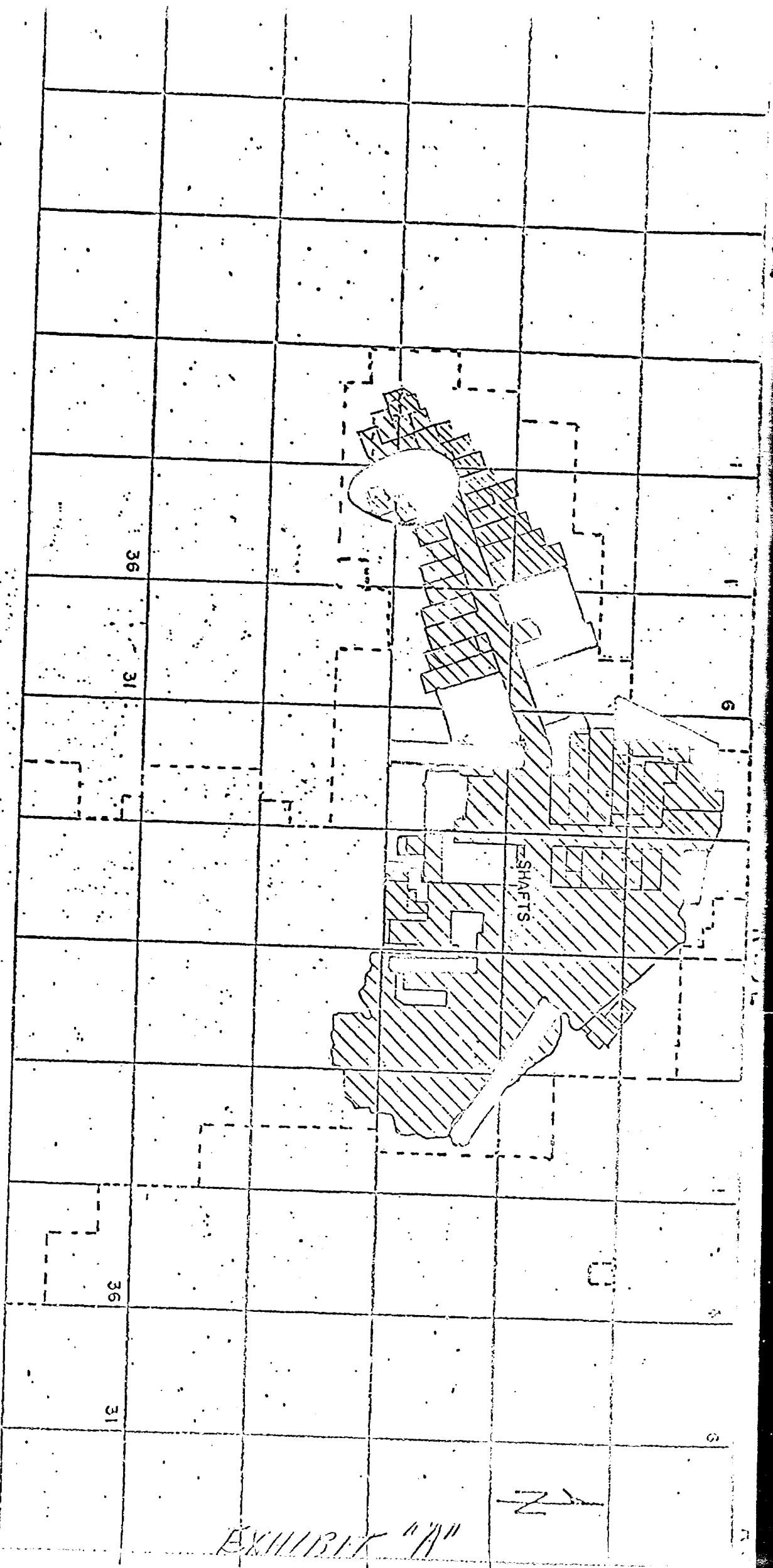

C. A. Feezer

Attorneys for Applicant

DOW & FEEZER, P. A.

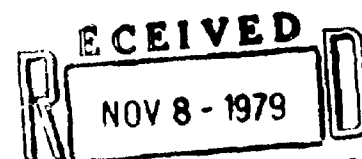
P. O. Box 128

Carlsbad, New Mexico 88220



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 R-III-A OIL - POTASH AREA
 PROJECTION 1979 - 1983

AMAX CHEMICAL CORP.
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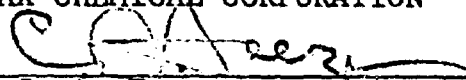
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JAMES A. DOW
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ATTORNEYS AT LAW
DOW BUILDING
P. O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

December 11, 1979

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Oil Conservation Commission
December 11, 1979
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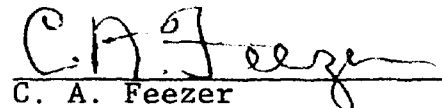
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Carlsbad, New Mexico 88220

CAF:ah

THIS LETTER IS HAND DELIVERED TO THE OIL CONSERVATION COMMISSION OFFICES and to PETROLEUM CORPORATION in Santa Fe, New Mexico on December 12, 1979.



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

January 17, 1980

POST OFFICE BOX 2008
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Conrad E. Coffield, Esq.
Hinkle, Cox, Eaton, Coffield
& Hensley
P. O. Box 3580
Midland, Texas 79702

Charles A. Feezer, Esq.
P. O. Box 128
Carlsbad, New Mexico 88220

Re: ⁶⁷⁵³De Novo Hearing Case ~~6742~~
Application of Amax Chemical
Corporation for Amendment of
Order No. R-111-A, Eddy County

Gentlemen:

Recently I have had telephone conversations with each of you regarding a proposed setting of February 5 as a date for a de novo hearing of Case 6742.

Having been advised by each of you of a possible settlement of the case, we will not set the case for a hearing de novo until we receive further word from you requesting a setting.

Very truly yours,

ERNEST L. PADILLA
General Counsel

ELP/dr

LAW OFFICES

HINKLE, COX, EATON, COFFIELD & HENSLEY

1000 FIRST NATIONAL BANK TOWER

POST OFFICE BOX 3580

MIDLAND, TEXAS 79702

(915) 683-4691

OF COUNSEL

CLARENCE E. HINKLE

W. E. BONDURANT, JR. (1914-1973)

ROSWELL, NEW MEXICO OFFICE

600 HINKLE BUILDING

(505) 622-6510

ONLY ATTYS. COFFIELD, MARTIN, BOZARTH,
BOHANNON, FOSTER, ALLEN, ALLEN & BURFORD
LICENSED IN TEXAS

LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR
C. D. MARTIN
PAUL J. KELLY, JR.
JAMES H. BOZARTH

DOUGLAS L. LUNSFORD
PAUL M. BOHANNON
J. DOUGLAS FOSTER
K. DOUGLAS PERRIN
C. RAY ALLEN
JACQUELINE W. ALLEN
T. CALDER EZZELL, JR.
WILLIAM B. BURFORD
JOHN S. NELSON
RICHARD E. OLSON

January 7, 1980

Mr. Dan Nutter
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Appeal De Novo, Amax
Chemical Corporation Case
No. 6753, Order R-111-M

Dear Dan:

The Petroleum Corporation has decided to appeal de novo the Order which was entered in the above referenced Case. Accordingly transmitted herewith you will find multiple copies of an Application for Appeal De Novo and by copy of this letter I am also transmitting to Chuck Feezer, Attorney for Amax, a copy of the Application.

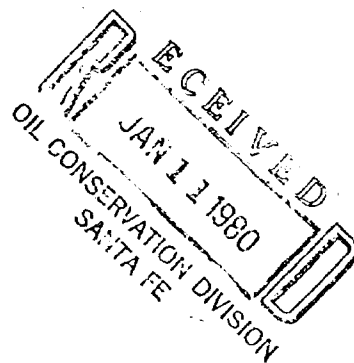
As soon as you have some idea as to when the full Commission will be able to sit for a hearing on this particular case, please let me know so that we may line up our witnesses etc. just as quickly as possible. Also if any additional data or information is needed in order that you may put this appeal de novo on the docket, please call.

Thank you.

Very truly yours,

HINKLE, COX, EATON,
COFFIELD & HENSLEY

Conrad E. Coffield



Page -2-
Mr. Dan Nutter

CEC:cl

xc: Mr. C. A. Feezer
Post Office Box 128
Carlsbad, New Mexico 88220

Mr. Larry Shannon
The Petroleum Corporation
3303 Lee Parkway
Dallas, Texas 75219

Mr. Hal Dear
Midland National Bank Tower
Midland, Texas 79702

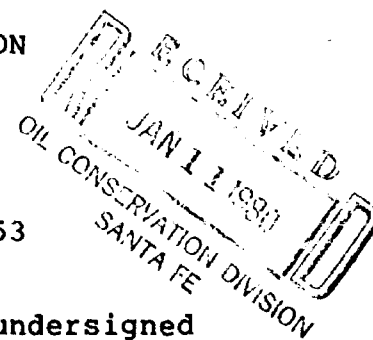
Mr. Harold L. Hensley
Post Office Box 10
Roswell, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF THE PETROLEUM)
CORPORATION OF DELAWARE)
FOR APPEAL DE NOVO TO THE)
OIL CONSERVATION COMMISSION)

CASE NO. 6753



The Petroleum Corporation of Delaware, by its undersigned attorneys, hereby makes application for an Appeal De Novo to the Oil Conservation Commission for the State of New Mexico in connection with Order No. R-111-M, and in support thereof would show:

1. Oil Conservation Division Order No. R-111-M, was entered in Case No. 6753 on December 14, 1979, following a hearing before an examiner of the Oil Conservation Division on December 12, 1979. Said Order adopted and approved the application of Amax Chemical Corporation requesting an expansion of the area embraced within the Oil Conservation Division's Order R-111-A, as amended, and revoked the previously issued Drilling Permit for The Petroleum Corporation of Delaware Parkway West Unit Well No. 9.

2. The Petroleum Corporation of Delaware is adversely affected by said Order R-111-M and accordingly, pursuant to Rule 1220, is entitled to have the matters formerly considered by the examiner in Case No. 6753 to be heard de novo before the full Oil Conservation Commission.

WHEREFORE, applicant respectfully requests the Commission to grant this application for appeal de novo and set this matter for hearing before the full Oil Conservation Commission at the first available hearing date next following the expiration of fifteen (15) days from the date this application is filed pursuant to Rule 1220. Upon such hearing applicant further requests an order be entered denying the application of Amax Chemical Corporation for an expansion of Order R-111-A, as amended, as more particularly sought in the application filed by Amax Chemical Corporation in Case No. 6753 and also requests that the Order for the revocation of the above mentioned drilling permit

be rescinded and said drilling permit be reissued and approved by the Commission as quickly as possible in order to prevent waste, promote conservation and protect correlative rights.

HINKLE, COX, EATON,
COFFIELD & HENSLEY

By: 

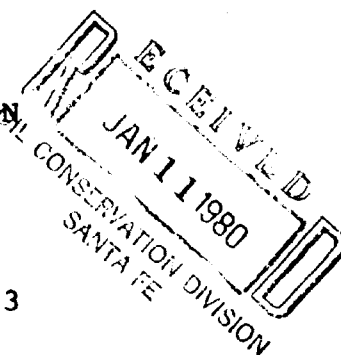
Attorneys for The
Petroleum Corporation
Post Office Box 3580
Midland, Texas 79702

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF THE PETROLEUM)
CORPORATION OF DELAWARE)
FOR APPEAL DE NOVO TO THE)
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HINKLE, COX, EATON,
COFFIELD & HENSLEY

By: 

Attorneys for The
Petroleum Corporation
Post Office Box 3580
Midland, Texas 79702

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF THE PETROLEUM)
CORPORATION OF DELAWARE)
FOR APPEAL DE NOVO TO THE)
OIL CONSERVATION COMMISSION)

CASE NO. 6753

RECEIVED
JAN 11 1980
OIL CONSERVATION DIVISION
SANTA FE

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waste, promote conservation and protect correlative rights.

HINKLE, COX, EATON,
COFFIELD & HENSLEY

By: 

Attorneys for The
Petroleum Corporation
Post Office Box 3580
Midland, Texas 79702

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF THE PETROLEUM)
CORPORATION OF DELAWARE)
FOR APPEAL DE NOVO TO THE)
OIL CONSERVATION COMMISSION)

CASE NO. 6753

RECEIVED
JAN 11 1980
OIL CONSERVATION DIVISION
SANTA FE

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be rescinded and said drilling permit be reissued and approved by the Commission as quickly as possible in order to prevent waste, promote conservation and protect correlative rights.

HINKLE, COX, EATON,
COFFIELD & HENSLEY

By: 

Attorneys for The
Petroleum Corporation
Post Office Box 3580
Midland, Texas 79702

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6753
Order No. R-111-M

APPLICATION OF AMAX CHEMICAL
CORPORATION FOR THE AMENDMENT
OF ORDER NO. R-111-A, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on December 12, 1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 14th day of December, 1979, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant herein, Amax Chemical Corporation, seeks the expansion of the Potash-Oil Area as defined by Division Order No. R-111-A, as amended by Orders Nos. R-111-B through R-111-L, inclusive, by the inclusion therein of the following described lands in Eddy County, New Mexico:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 26: N/2 NW/4
Section 27: N/2 NE/4 and NE/4 NW/4

(3) That section 70-2-12 B(17) NMSA 1978 Comp. empowers the Division "...to regulate and where necessary prohibit drilling or producing operations for oil or gas within any area containing commercial deposits of potash where such operations would have the effect unduly to reduce the total quantity of such commercial deposits of potash which may reasonably be recovered in commercial quantities or where such operations would interfere unduly with the orderly commercial development of such potash deposits;"

(4) That in order to carry out its statutory mandate to prevent the waste of potash and to regulate and where necessary prevent drilling operations within any area containing commercial deposits of potash, the Division by its Order No. R-111-A, as amended, has promulgated the "Potash-Oil Area" wherein it has found to exist such commercial deposits of potash and has prescribed special casing and cementing rules as well as certain procedures for issuance of drilling permits.

(5) That pursuant to Order No. R-111-A and the Rules and Regulations of the Division, Amax Chemical Corporation did on November 8, 1979, file its application for hearing to consider the expansion of the Potash-Oil Area as described in Finding No. (2) above, alleging that the lands sought to be included in the Potash-Oil Area "...are believed to contain commercially recoverable quantities of potash ore for the reason that applicant is doing exploratory drilling, all of which core tests show commercially recoverable quantities of potash ore reaching from a low of 48 inches of 12.4 percent K_2O to a high of 48 inches of 20 percent K_2O ."

(6) That the presently defined Potash-Oil Area in the vicinity of the lands under consideration in this case includes the E/2 of Section 22 and all of Section 23, Township 19 South, Range 29 East, NMPM, Eddy County, New Mexico, and the proposed extension is contiguous thereto.

(7) That the applicant has drilled its Core Hole No. 146-A at a point approximately 1520 feet from the North line and 500 feet from the West line of Section 26, Township 19 South, Range 29 East, NMPM, and said core hole indicates a 3rd ore zone accumulation of 48 inches of 12.4 percent K_2O ore.

(8) That the applicant has drilled its Core Hole No. 156 approximately 700 feet from the North line and 2500 feet from the East line of Section 27, Township 19 South, Range 29 East, NMPM, and said core hole indicates a 3rd ore zone accumulation of 48 inches of 21.1 percent K_2O ore.

(9) That the grades of potash encountered in the above-described core holes constitute commercially recoverable potash reserves, particularly in view of Amax Chemical Corporation's method of blending the higher grade ores and lower grade ores together for processing.

(10) That it is reasonable to extrapolate the commercial deposits of potash in the E/2 of Section 22 and in Section 23, Township 19 South, Range 29 East, NMPM, and which are already

included in R-111-A, across the lands sought to be included in R-111-A to the core holes described in Findings Nos. (7) and (8) above, and to thereby determine that said lands sought to be included in the Potash-Oil Area do contain commercial deposits of potash.

(11) That the N/2 NW/4 of Section 26 and the NE/4 NW/4 and N/2 NE/4 of Section 27, all in Township 19 South, Range 29 East, NMPM, contain commercial deposits of potash, and that said lands should be included in the Potash-Oil Area as defined by Order No. R-111-A, as amended.

(12) That The Petroleum Corporation of Delaware proposes to drill a Morrow test well at a point 660 feet from the North line and 1980 feet from the East line of Section 27, Township 19 South, Range 29 East, NMPM, and that said location is within the proposed extension to the Potash-Oil Area described in Finding No. (11) above.

(13) That the drilling of said well, if completed as a high-pressure natural gas well at the location proposed, would require applicant Amax Chemical Corporation to forego primary mining operations anywhere within a 200 foot radius of the well bore where it penetrates the potash beds, and to forego secondary mining operations anywhere within a 750 foot radius of the well bore where it penetrates the potash beds, in order to avoid the hazard of the shear forces which would be exerted on the well during subsidence following secondary mining, and the possible entry of natural gas into the potash mine.

(14) That assuming an average K₂O content of 21.1 percent in the 200 foot radius of no mining and 15 percent in the 750 foot radius of no secondary mining, it is estimated that 34,844 tons of finished potash product would be lost if the well described in Finding No. (12) above were to be drilled at the proposed location.

(15) That at the current market price of \$60.00 per ton for the finished product, the lost potash described in Finding No. (14) above would have a value in excess of \$2 million.

(16) That the casing and cementing program for The Petroleum Corporation of Delaware well described in Finding No. (12) above does not comply with the casing and cementing program for deep wells prescribed by Order No. R-111-A.

-4-

Case No. 6753
Order No. R-111-M

(17) That in the interest of mine safety and the protection of human life, and in the interest of the protection of commercial deposits of potash and the prevention of waste thereof, the aforesaid well should not be drilled at the above-described location.

(18) That in order to afford The Petroleum Corporation of Delaware the opportunity to produce its just and equitable share of the gas in the reservoir underlying the subject lands, and to protect correlative rights, said company should be permitted to drill at a standard location in the N/2 of Section 27 other than in the NE/4 NW/4 or the NW/4 NE/4, or should request an unorthodox location in the S/2 NE/4 of said Section 27.

IT IS THEREFORE ORDERED:

(1) That the application of Amax Chemical Corporation for the extension of the Potash-Oil Area, as defined by Division Order No. R-111-A, as amended, is hereby approved, and said Potash-Oil Area is extended to include therein the following described lands, all in Eddy County, New Mexico:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 26: N/2 NW/4
Section 27: NE/4 NW/4 and N/2 NE/4

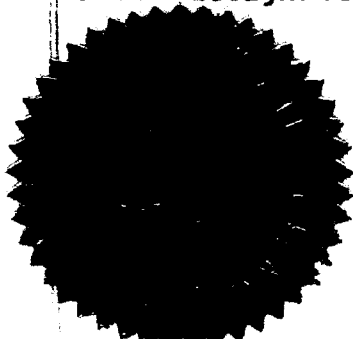
(2) That no well not already drilled in the above-described lands shall be drilled unless a permit therefor has been obtained in accordance with the provisions of Order No. R-111-A and/or unless the casing-cementing program for such well complies with the casing-cementing program prescribed by Order No. R-111-A.

(3) That the Drilling Permit for The Petroleum Corporation of Delaware Parkway West Unit Well No. 9, proposed to be drilled to the Morrow formation at a point 660 feet from the North line and 1980 feet from the East line of Section 27, Township 19 South, Range 29 East, NMPM, Eddy County, New Mexico, is hereby revoked.

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

-5-
Case No. 6753
Order No. R-111-M

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



S E A L

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Joe D. Ramey
JOE D. RAMEY
Director

fd/



BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

December 14, 1979

POST OFFICE BOX 2008
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. Charles A. Feezer
Dow & Feezer
Attorneys at Law
P. O. Box 128
Carlsbad, New Mexico 88220

Re: CASE NO. 6753
ORDER NO. R-III-M

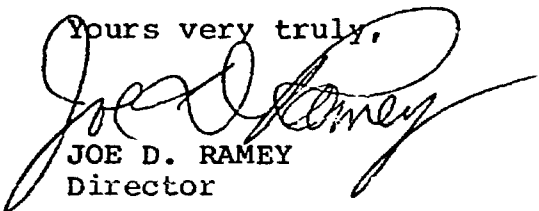
Applicant:

Amax Chemical Corporation

Dear Sir:

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

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD X
Artesia OCD X
Aztec OCD

Other Harold Hensley, Conrad Coffield

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 December 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of Amax Chemical Corporation) CASE
for the amendment of Order R-111-A, Eddy) 6753
County, New Mexico.)

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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

For the Applicant: Charles A. Feezer, Esq.
DOW & FEEZER
305 McKay Street
Carlsbad, New Mexico 88220

For Petroleum Corp. of Delaware: Harold Hensley, Esq.
HINKLE LAW FIRM
Roswell, New Mexico

reporting service
General Court Reporting Service
Santa Fe, New Mexico 87501

A P P E A R A N C E S

For Petroleum Corp. of Conrad Coffield, Esq.
Delaware: HINKIE LAW FIRM
P. O. Box 3580
Midland, Texas 79701

I N D E X

BOB KIRBY

| | |
|------------------------------------|----|
| Direct Examination by Mr. Feezer | 6 |
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BOB D. BROWN

| | |
|----------------------------------|----|
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EVERETT C. JOURDAN

| | |
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Santa Fe, New Mexico 87501

I N D E X

HAL DEAN

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LARRY SHANNON

| | |
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reporting service
General Court Reporting Service
San Francisco, New Mexico 87501

EXHIBITS

| | | |
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| 4 | Amax Exhibit One, Map | 7 |
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| 10 | Petroleum Exhibit One, Map | 59 |
| 11 | Petroleum Exhibit Two, Structure Map | 63 |
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| 13 | Petroleum Exhibit Four, Cross Section | 66 |
| 14 | Petroleum Exhibit Five, Cross Section | 67 |
| 15 | Petroleum Exhibit Six, Tabulation | 91 |
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San Francisco, New Mexico 87501

1 MR. NUTTER: We'll call next Case Number
2 6753.

3 MR. PADILLA: Application of Amax Chemical
4 Corporation for amendment of Order No. R-111-A, Eddy County,
5 New Mexico.

6 MR. NUTTER: We'll call for appearances in
7 Case Number 6753.

8 MR. FEEZER: My name is Charles A. Feezer,
9 of the firm of Dow and Feezer in Carlsbad, New Mexico, and
10 I'm appearing on behalf of Amax Chemical Corporation.

11 MR. COFFIELD: Conrad Coffield and Harold
12 Hensley, of the Hinkle Law Firm, appearing on behalf of the
13 Petroleum Corporation.

14 We will have two witnesses.

15 MR. NUTTER: Other appearances? Would you
16 proceed, Mr. Feezer?

17 MR. FEEZER: Yes. I have four witnesses,
18 Mr. Examiner, Mr. Bob Kirby, Mr. Bob Brown, Mr. Everett
19 Jourdan, and while not a witness, Mr. John Burleson of the
20 USGS will be making a statement.

21 Would those three that I first named step
22 forward and raise your right hands and be sworn, please?

23 MR. NUTTER: Mr. Coffield, would you have
24 your witnesses also stand and be sworn?

25 MR. COFFIELD: Mr. Hal Dean and Mr. Larry

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General Court Reporting Service
Santa Fe, New Mexico 87501

1 Shannon.

2

3

(Witnesses sworn.)

4

5

MR. FEEZER: Mr. Bob Kirby is my first

6

witness.

7

8

BOB KIRBY

9

being called as a witness and having been duly sworn upon his

10

oath, testified as follows, to-wit:

11

12

DIRECT EXAMINATION

13

BY MR. FEEZER:

14

Q

Would you please state your name, address,

15

and occupation?

16

A

Robert Kirby, 1504 Jefferson, Carlsbad..

17

Q

And --

18

A

I'm a Mine Superintendent.

19

Q

Are you also a mining engineer by training?

20

A

Yes, I am .

21

Q

Have you previously testified before the

22

Oil Conservation Commission in other matters relating to

23

the extension of R-111-A and oil and gas in the potash in-

24

terests?

25

A

Yes, I have.

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Santa Fe, New Mexico 87501

1 MR. FLEESER: Mr. Examiner, do you care to
2 go further into his qualifications?

3 MR. NUTTER: No, sir. Mr. Kirby is quali-
4 fied. We're acquainted with him from previous cases.

5 Q Mr. Kirby, in your capacity as Mine Super-
6 intendent and as a mining engineer, has there been prepared
7 what has been marked here in this case Exhibit Number One
8 under your direction and supervision, which discloses the
9 area of interest which is set forth in the application of
10 120 acres in Sections 26 and 27 of 19 South, 29 East?

11 A Yes..

12 Q And would you briefly take a copy which
13 you have before you while I hand this to the Examiner so
14 that he may follow it, and referring to Exhibit One, would
15 you outline first in reference to the scale at the top left-
16 hand corner, what the heavy dashed blue line in Sections 26
17 and 27 indicates?

18 A The heavy dashed blue line indicates the
19 area applied for as extension to the R-111-A.

20 Q And in connection with the land sought to
21 be included, has drilling been done of a core test nature
22 to determine whether or not commercially recoverable deposits
23 of potash ore exist in this area?

24 A Yes, they have.

25 Q Referring first to the north half of the

1 northwest quarter of Section 26, would you tell the Examiner
2 what information you have touching upon this tract?

3 A. We have drilled Hole No. 146-A. Our core
4 results show a 48-inch thickness of 12.4 percent K_2O .

5 Q. Is this 146-A actually within the north
6 half of the northwest or slightly below the --

7 A. It's slightly below. It's in the south
8 half of the northwest quarter.

9 Q. And what distance is there, if you can tell
10 me, from there to the north half of the northwest quarter?

11 A. Approximately 200 feet.

12 Q. Now, referring to the exhibit, Hole No. 142
13 above, in Section 23, does that indicate a commercially re-
14 coverable quantity of potash ore 48 inches thick?

15 A. Yes, it does.

16 Q. Has this whole area where core tests have
17 been run in the past, does it represent, at least in the
18 shaded area, an exploration program and development program
19 that Amax is undertaking at this time?

20 A. Yes, it does.

21 Q. Is it your opinion that based upon Hole
22 No. 146-A and Hole No. 142 above in the adjoining Section 23,
23 that commercially recoverable quantities of potash exist
24 within the area sought to be included within P-111-A?

25 A. Yes, they do.

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1 Q Is there anything further that you can tell
2 the Examiner about your -- the information you have regarding
3 this proposed tract of land in Section 26?

4 A No, there's no -- that's all the informa-
5 tion we have.

6 Q Yesterday did you discover, or within the
7 last 48 hours, the possible existence of a previous plugged
8 and abandoned well that was not known to you much before 48
9 hours ago, in Section 26, in this area?

10 A Yes, that Union State No. 1.

11 Q What can you tell the Examiner about that
12 Union State No. 1 Well?

13 A It's plugged and abandoned. I think the
14 date of abandonment was 1962. The location that is plotted
15 on here is from the records.

16 Q And the TD, if you know?

17 MR. FEEZER: Does that show on your map,
18 Mr. Examiner?

19 MR. NUTTER: No, it doesn't.

20 A 4622 feet.

21 MR. FEEZER: We have penciled in on the
22 exhibit I have before me. Perhaps we had better substitute
23 this one for the one you're looking at, and would you mark it
24 Exhibit One for me, Mr. Nutter, please?

25 Q Assuming there is a plugged and abandoned

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1 well there, do you know anything about what sort of a plugging
2 program occurred? Do you have any information at all about
3 it?

4 A. I have no information on the plugging of
5 this well.

6 Q. In spite of the fact that there may be a
7 plugged and abandoned well within the area under discussion,
8 what would be the process utilized by Amax to recover com-
9 mercially valuable ore with that well in that place at this
10 time?

11 A. As our mining progressed nearer that well,
12 we would leave a 100-foot radius pillar, solid pillar, around
13 the well, and not second mine for a radius of approximately
14 750 feet from that well.

15 Q. For the record, why would the company not
16 second mine in the area around the well?

17 A. The second mining operation causes subsi-
18 dence of the overlying ground to the surface and this subsi-
19 dence would disturb the well section.

20 Q. Would it present a potential hazard to the
21 entire mine operation if there should be any sour residual
22 gas that would escape into the mine per se?

23 A. A disturbance would open up possibilities
24 of this gas getting into our mine workings.

25 Q. Is there anything further about the north

1 half of the northwest of Section 26 that you can advise the
2 Commission about at this time?

3 A. No, sir.

4 Q Referring now to the north half of the
5 northeast of Section 27, will you tell the Examiner about your
6 test Hole No. 156, as shown on Exhibit One?

7 A Hole No. 156 intercepted a third ore zone
8 assaying 21.1 percent sylvite, or K_2O as sylvite, of 48-inch
9 thickness.

10 Q Is that thickness and grade of potash ore
11 commercially recoverable at this time?

12 A. Yes, it is.

13 Q Can you tell us a little more about how
14 good this core test appears to be in reference to some of the
15 other core tests on the map above it in Section 22, for
16 example?

17 A. Well, in Section 22 we are -- our core tests
18 show anywhere from 11 to 15 percent K_2O . This well down here
19 in Section 27 assayed 21.1 percent K_2O , so it's extremely
20 good well, today's economics.

21 Q Have you done a calculation of the economics
22 of what would occur if, with this value of K_2O at this thick-
23 ness, would do if a well were drilled within the north half
24 of the northeast quarter of Section 27?

25 A. Yes, I have.

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1 Q I hand you what has been marked Exhibit Two.
2 What does Exhibit Number Two in this case reflect?

3 A Calculation as reflects the tonnage of pro-
4 duct which would be lost, first, in the 200-foot radius pil-
5 lar. I assume that we would leave a 200-foot radius pillar
6 in this area in Section 27 because of the possibility of a
7 deep gas well with high pressure.

8 Q Let's run down Exhibit Number Two at this
9 time so there's a full understanding of the material on the
10 exhibit.

11 First of all, is it prepared in your own
12 handwriting?

13 A Yes, it is.

14 Q Would you start at the top of the page and
15 briefly give the analysis of how you reached your conclusions,
16 translated to dollars on the righthand column?

17 A The area of a solid 200-foot radius pillar
18 is 125,600 square feet times the 4-foot thickness, which is
19 our mining thickness, results in a cubic foot loss of 502,400
20 square feet -- cubic feet, multiplied times our tonnage factor,
21 which is .064 tons per cubic feet, gives us 32,153 tons in
22 place, which would be lost in the solid pillar.

23 Our mining extraction 90 percent, which we
24 would then lose 28,938 tons, mineable tons, times our ore
25 grade of 21.1 percent, which is in the Hole No. 156 --

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1 Q Let me stop you and ask you if in using the
2 21.1 percent, is it a reasonable assumption on your part as
3 a mining engineer that that is the proper factor to utilize
4 in view of a proposed Parkway West Unit No. 9 within a short
5 distance from Hole No. 156?

6 A I think so; it's reasonable.

7 Q Carry on with your testimony, please.

8 A This would result in 6106 tons of K_2O mine-
9 able, which we would lose. Our mill recovery is 85 percent,
10 and that would leave us 5190 tons of K_2O . Our product grade
11 is 61 percent K_2O , so that results in a net loss of product
12 in the solid pillar of 3508 tons.

13 Now I went down to the area of second mining,
14 which we would not do, 750-foot radius around that --

15 Q Let me stop and ask you -- yes, tell us
16 about the 750-foot radius.

17 A We would not second mine within an area of
18 750 -- described by an area within the 750-foot radius. This
19 is due to the subsidence picture we described before.

20 Q All right.

21 A This area in total would be 1,766,250 square
22 feet times a 4-foot thickness, would result in a cubic footage
23 of 7,065,000. I deducted then the 502,400 square feet, or
24 cubic feet from the solid pillar, which I'd accounted for a-
25 bove, leaving us a cubic foot factor of 6,562,600. Converting

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1 this to tons in place, we result -- we have 420,000 --

2 Q And 6 tons in place?

3 A I believe that's zero-zero-six tons in
4 place.

5 Now, in our second mining we extract 30 per-
6 cent of the total area, and this leaves us 126,002 tons mine-
7 able, and in this case, I dropped back off the 21 percent ore
8 grade and assumed an average of 15 percent, and leaving us
9 18,900 tons of mineable K_2O , which would be lost in this area.
10 Multiplying by our mill recovery factor, we'd have then 16,065
11 tons of recoverable K_2O lost times -- or divided by our 61
12 percent product grade, this gives us 26,336 tons of product
13 lost in the second mining area.

14 Added together with the solid pillar, we
15 have lost, then, a total of 34,844 tons of product.

16 Q That is, if a well is drilled there and you
17 have to take the precautions you've discussed to support that
18 and avoid subsidence?

19 A Yes.

20 Q All right. You multiply that times a factor
21 of \$60 per ton, is that the present marketplace at this time
22 for potash from the Carlsbad Basin?

23 A Yes, it is.

24 Q And your final figure in estimated lost pro-
25 duct value ?

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1 A. \$2,090,669 sales value.

2 Q. In view of your extensions of figures on
3 Exhibit Number Two, and in view of the fact that the Petro-
4 leum Corporation of Delaware has been granted an application
5 and/or permit, or both, I believe now, to drill a well within
6 a short, relatively short distance from Hole No. 156, do you
7 believe these figures on Exhibit Number Two fairly represent
8 what would be lost in the way of dollars to the company if
9 the well was permitted to go ahead?

10 A. Yes, I really do.

11 Q. Do you know what the status of that well is
12 at this time?

13 A. My information is that the location was
14 prepared. The preparation was completed on Monday of this
15 week.

16 Q. And have you been monitoring it on an every
17 day or two basis?

18 A. This week we have, yes.

19 Q. And did you discover yesterday that a pad
20 or other preparatory groundwork had been done for this well?

21 A. Yes, we did.

22 Q. Is it your opinion that with these two holes
23 within Sections 26 and 27, that the north half of the north-
24 east of 27 and the north half of the northwest, contain
25 commercially recoverable potash ore?

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1 A Yes, it is.

2 Q And do you feel they should be included
3 within R-111-A to promote the conservation of natural resource
4 and the orderly development of those resources in this area?

5 A Yes I do.

6 Q There was another test hole on the west edge
7 of the proposed included area, No. 169. Will you tell the
8 Examiner about that?

9 A That was essentially a barren hole. The
10 reason we have included that particular 40-acre tract is be-
11 cause of the strength of the Hole 156 and that ore running
12 over into that quarter -- that 40-acre tract, the northeast
13 of the northwest of Section 27.

14 Q And is it a reasonable mining engineering
15 assumption that the quality of the ore shown in Hole No. 156
16 would extend into at least the east half of the 40 in the west
17 half of 27?

18 A Yes.

19 MR. FREEZER: We would move the admission of
20 Exhibits One and Two into the record.

21 MR. NUTTER: Applicant's Exhibits One and
22 Two will be admitted in evidence.

23 Are there any questions of the witness?

24 MR. HENSLEY: Yes, Your Honor.

25 MR. NUTTER: Mr. Hensley.

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CROSS EXAMINATION

BY MR. HENSLEY:

Q Mr. Kirby, as I understand it, you're a mining engineer, is that correct?

A Yes, sir.

Q And it's your opinion from my interpretation of your direct testimony, that commercial deposits of potash exist in all of the area which Amax proposes to be included in the extension of R-111-A.

A A commercial deposit of potash exists in each of the 40-acre tracts we have asked for.

Q Would you say that the deposits are marginal at best?

A No, I would not.

Q Is mineable ore normally determined and discussed in terms of foot percent?

A Yes, we have to relate it to thickness.

Q And would it be accurate, Mr. Kirby, to say that if you had 4 feet of 12 percent ore that you would have 48-foot percent?

A Yes.

Q And, for example, some of these holes that you've got, these core holes, indicate less than 50-foot per-

1 cent, do they not?

2 A Yes.

3 Q For example, No. --

4 A Yes.

5 Q You testified on direct examination that
6 Hole No. 142 in the southwest corner of Section 23 was a com-
7 mercial hole.

8 A Yes.

9 Q And that's less than 50-foot percent, is
10 it not?

11 A Yes, it is.

12 Q Is 50-foot percent considered an economic
13 cutoff?

14 A No, it isn't.

15 Q It's not?

16 A No.

17 Q Does anyone in the industry, other than
18 Amax, consider that commercial?

19 A I can't speak for the others in the industry,
20 sir.

21 Q Now, directing your attention, Mr. Kirby,
22 to the test hole which is in the northwest quarter of Section
23 26, north half northwest quarter, labeled 146-A, this hole,
24 as I understand it, had 4 feet of 12.4 percent K_2O , is that
25 correct?

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1 A Yes, it is.

2 Q What percentage of this K_2O in this area
3 is sylvite?

4 A These figures on here are sylvite K_2O . We
5 have deducted any carnallite K_2O from it. These are sylvite
6 K_2O .

7 Q These are not gross ore assays, then. You
8 have chemically assayed them and broken down the sylvite con-
9 tent.

10 A Yes, sir.

11 Q Is it correct that none of these ore grades
12 represented on this exhibit contain any carnallite value?

13 A The ore -- the beds themselves did contain
14 carnallite. We have deducted the carnallite K_2O from the
15 analysis to put on these maps.

16 Q You deducted it from your analysis on Hole
17 146-A, and my question is, has it also been deducted, sir, on
18 the rest of these holes in the area where you show a percentage?

19 A I believe so. We put these maps together
20 over a period of years, and I believe they're all sylvite
21 K_2O .

22 Q What was the percent carnallite in 146-A,
23 in that core test?

24 A I don't know right offhand, sir. My recol-
25 lection is it was quite low.

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1 Q Now, as a matter of fact, and I believe you
2 made this clear on your direct examination, the core hole
3 designated 146-A is outside the boundary of the proposed ex-
4 tension.

5 A It is.

6 Q The only other core hole in the immediate
7 proximity is 147, which is immediately to the east of the
8 proposed inclusion of the north half northwest quarter, and
9 that purports to be, on Exhibit A, a barren hole, is that
10 right?

11 A That's right, sir.

12 Q So there has been no core drilling at all
13 in the area proposed to be included, which lies in the north
14 half northwest quarter of 27.

15 A No, sir.

16 Q And yet, as I understand your testimony,
17 you are testifying before this Examiner Hearing that in your
18 opinion, that all of the area contained in that proposed ex-
19 tension contains commercial deposits of K_2O .

20 A From our mining experience in this particular
21 ore zone, the consistency of the bed from the edge -- from
22 the edge of the ore outlined, throughout the interior is very
23 good, and we can project across a short distance like this
24 between two commercially recoverable well tests, we can pro-
25 ject ore in there very confidently.

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1 Q Is this in the third ore zone?

2 A This is in the third ore zone.

3 Q Which lies above the first ore zone?

4 A Yes. Yes, sir.

5 Q And the first ore zone is the main ore body,
6 is it not?

7 A It has been the main ore producer in this
8 area, sir.

9 Q Now you indicated that there is some type
10 of continuity to this stratigraphic laydown of these deposits,
11 at least insofar as the percentage ore grade is concerned.
12 Let me call your attention, Mr. Kirby, to the hole which you
13 testified about in Section 27, No. 156, showed a 21.1 percent
14 assay content. The hole immediately adjacent to it on the
15 west showed .3 of a percent. The hole immediately south
16 showed 1.3 percent. The hole immediately north and east
17 showed 11.3 percent. Isn't it a fact, sir, that there is no
18 continuity at all in that bed in this area, on these marginal
19 limits of this intercept extension?

20 A There is continuity within the ore body.
21 You're talking about between the ore -- the ore body and the
22 edge -- and the outside of the ore body. There is no continuity
23 there. It goes -- it's barren, yes, that's right. We've
24 been drilling quite consistently over the past year trying
25 to find the edge of this ore body. We think we've got it

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1 narrowed down right now.

2 Q Now, with respect to the proposed extension
3 in Section 26, if I may direct your attention to that area
4 again, please, you indicated on direct examination that you
5 had just discovered a day or so ago that there was a well
6 which had been drilled in that area back in 1961 or 1962, is
7 that correct?

8 A Yes.

9 Q The Union State No. 1, total depth of 4622
10 feet.

11 A Yes.

12 Q And that would -- that would have gone
13 completely through the potash zones, would it not, at that
14 depth?

15 A Yes.

16 Q Do you know anything about the casing pro-
17 gram on that well or whether it was plugged or how it was
18 plugged?

19 A I don't. We don't have the records on that
20 well.

21 Q And you indicated that by virtue of the
22 fact that this -- this hole -- this Union State No. 1 Well
23 had intersected a geologic depth below the potash salt beds,
24 that it would be necessary for you to leave a 100-foot pillar
25 around the well, is that correct?

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1 A Yes, sir.

2 Q For safety purposes?

3 MR. FEEZER: A 100-foot radius, Counsel.

4 Q A 100-foot radius pillar around the well?

5 A Yes, sir.

6 Q Now, do you know anything about the appli-

7 cation of Petroleum Corporation to drill a well in the north

8 half northwest quarter of Section 26, Mr. Kirby?

9 A I do.

10 Q You are aware, are you not, sir, that that

11 application has been filed with this Commission?

12 A Yes.

13 Q And are you aware, sir, that the application

14 proposed to twin the Union State No. 1?

15 A Would you repeat that, please?

16 Q Yes, sir.

17 A I don't understand the question.

18 Q The proposed location for the No. 3 -- for

19 the No. 3 Petco State Com Well in the north half northwest

20 quarter of Section 26, proposes to drill a test well in that

21 location in the same geographical location as the Union State

22 Well which is plugged, is that correct?

23 A Yes, sir.

24 Q And isn't it a fact, Mr. Kirby, that the

25 only reason that you as a mining engineer are concerned about

1 the loss of potash by virtue of having to leave this proposed
2 pillar there, is because of the angle of incidence which
3 mining engineers have testified about many times in this Com-
4 mission, for safety factors, 45 degree angle of incidence
5 around the hole?

6 A Yes. I'm also concerned about drilling any
7 new wells with the high pressure gas you're getting.

8 Q But the fact of the matter is, is it not,
9 sir, that the drilling of the Petco State Com No. 3 Well at
10 that location will not cause the loss or interference with
11 any additional potash, other than what has already been lost
12 by virtue of the fact that this well was drilled and plugged
13 back in 1962?

14 A No, you're -- I can't agree with that. If
15 you drill this No. 3 Well, complete it, we would leave a 200-
16 foot radius around that well, but there's another factor here.
17 We have an option which we would investigate as we are mining
18 in that area. We could apply to re-open that present plugged
19 and abandoned well and cement it to the surface, depending on
20 conditions when we get in that area.

21 Q You mean you would consider it safe for
22 mining purposes if you put a cement plug from the total depth
23 to the surface?

24 A We have done this in the past in another
25 area, cemented, and then we would still leave the 100-foot

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1 radius pillar, but we would be able to second mine it.

2 Q It wouldn't have any effect on the leaving
3 of the pillar, though?

4 A No, not the solid pillar, no.

5 Q Because the same risk with respect to the
6 possibility of shearing would be present, notwithstanding the
7 placement of cement in the hole?

8 A Well, there wouldn't be the same case be-
9 cause if we cemented that hole solid from the bottom of the
10 well to the surface, we would be very confident of not having
11 any gas coming from the underlying formations.

12 Q Is that --

13 A Then your subsidence wouldn't have that much
14 effect on the upper part of the well, you see. These old
15 wells, the casing, the abandonment program they have on those
16 is certainly not acceptable to the potash industry.

17 Q But as I understand it, you, speaking for
18 Amax, would have no difficulty at all with later coming in
19 and leaving only 100-foot pillar and doing your second mining
20 if this casing string was cemented all the way through the
21 potash section.

22 A Well, this is a -- this is a -- we would
23 want the casing removed, if it was possible, below the salt
24 section, or below our mining level. The hole cemented com-
25 pletely, no casing. If there was casing in below our mining

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1 level, no, we would not second mine.

2 Q How why would you leave a 200-foot radius
3 pillar if this No. 3 Well is drilled as proposed in the appli-
4 cation now filed with this Commission, rather than 100-foot?

5 A Because of the pressures encountered in
6 that deeper formation. We have evidence that the pressures
7 on these wells up in Section 23 -- we're very concerned with
8 that.

9 Q Has there ever been an instance where you've
10 left more than 100-foot pillar?

11 A There's never been an instance where we've
12 had a high pressure gas well in the mining area.

13 Q Do you know anything about the geological
14 strata of the -- of the stratigraphic section which is pro-
15 ductive of oil or gas in this area?

16 A Not very much, no.

17 Q When did you become aware of the application
18 for the Petco State Com No. 3 Well, Mr. Kirby?

19 A My -- one of my engineers was doing some
20 surveying out in that area and found the location staked.
21 It's been several weeks ago, or a month, maybe.

22 Q Is there any publication or engineering
23 manual which would prescribe a 200-foot radius in this in-
24 stance as opposed to a 100-foot, which is the standard pillar
25 size around casing?

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1 A. No, I don't think so.

2 Q. Now, directing your attention, if I may,
3 sir, to the area in the north half north half of Section 27,
4 which Amax proposes to include in this extension of the R-111
5 area, you've already discussed your core Hole 156 as being
6 commercial.

7 A. Yes, sir.

8 Q. The other three holes drilled in Section
9 27 are noncommercial, is that accurate?

10 A. Right, yes, sir.

11 + And based on this sub-surface control, Mr.
12 Kirby, I assume it is your belief as an engineer, sir, that
13 the potash deposit would extend throughout this entire area,
14 even though on the west we have a barren hole; on the south
15 we have, for all practical purposes, a barren hole; and to
16 the southwest we have a completely barren hole, is that
17 correct?

18 A. Yes. We -- our judgment is, as is shown
19 on the map, the limits of our mining -- mineable ore.

20 Q. I assume you are aware, if I understood
21 your direct testimony properly, that Petroleum Corporation
22 has filed an application to drill what it designates as the
23 Parkway West Unit No. 9 Well in the area shown on the plat?

24 A. Yes, sir.

25 Q. Are you aware, sir, when that application

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1 was filed with the Commission?

2 A. Yes, sir.

3 Q. When was it filed?

4 A. November 9th.

5 Q. And are you also aware, sir, that that ap-
6 plication has been approved by this Commission?

7 A. Yes, sir.

8 Q. And do you propose by this application to
9 extend the R-111 area to have the Commission withdraw its
10 approval, or perhaps some other action, to interfere with the
11 orderly development of this pool?

12 A. I would hope so, yes, sir.

13 Q. Is that the purpose of the application?

14 A. I believe our application was filed prior
15 to yours, sir.

16 Q. Now, in testifying as to what economic loss
17 would be sustained, I suppose, by Amax, do you have potash
18 leases, sir, on this property?

19 A. Yes, sir.

20 Q. On all the property --

21 A. Section -- Amax has a lease on Section 27;
22 Section 26 is subleased from Potash Company of America.

23 Q. Subleased to Amax?

24 A. To Amax, yes, sir.

25 Q. And does your lease on Section 27 cover all

1 of the area proposed to be included in the extension in Section
2 27?

3 A Yes, it does.

4 Q Now, you testified with respect to this
5 economic loss, as evidenced by Applicant's Exhibit Number Two,
6 that by leaving a 750-foot radius on your second mining, that
7 you would sustain a loss in sales value based on today's price
8 of \$2,090,669, is that correct, sir?

9 A Yes, sir.

10 Q Before I get into the details of these cal-
11 culations with you, I would like to ask you if there's any
12 reason why there's been no cost allocation included in this
13 economic survey.

14 MR. NUTTER: What do you mean by a cost al-
15 location, Mr. Hensley?

16 MR. HENSLEY: As I understand the exhibit,
17 Mr. Examiner, this is nothing but just his gross sales value
18 product. I would assume that --

19 A Yes, we would have mining -- we would have
20 production costs.

21 MR. HENSLEY: -- he would have mining costs,
22 production costs, refining costs, none of which is shown on
23 the economic exhibit.

24 Q Is that correct, sir?

25 A That's correct, yes, sir.

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1 Q Have you also prepared an economic survey,
2 Mr. Kirby, to determine what the cost of recovering this ore
3 would be and what the cost of refining the ore would be?

4 A No, I haven't. We do this continually in
5 our daily operation, but I have not prepared one for this.
6 We testified that this was economically recoverable ore.

7 Q Yes, sir, I understand that.

8 MR. NUTTER: In other words, Mr. Hensley,
9 I think I understand. This would be the gross value of the
10 potash when it -- after it has been mined, lifted, refined,
11 and put in a sack and sent out.

12 A That's right.

13 MR. NUTTER: And this does not reflect net
14 profit at all.

15 A It does not reflect net profit, no, sir.

16 MR. NUTTER: Okay, just gross profit.

17 A Just gross --

18 MR. NUTTER: Gross value.

19 A Just gross value.

20 MR. NUTTER: Okay.

21 Q When speaking in terms of economic loss,
22 with this particular grade ore in the third ore zone, you're
23 talking about just a very marginal operation, are you not,
24 sir? You're not talking about a \$2,000,000 loss.

25 A It's a \$2,000,000 loss in sales. It's not

1 a \$2,000,000 loss in net profit, no.

2 Q But you have not prepared any of the calcu-
3 lations on cost?

4 A No, I haven't.

5 Q Now, have you any idea, sir, as to what the
6 proposed economic loss would be if Petroleum Corporation were
7 not permitted to drill its development well, designated the
8 Parkway West Unit No. 9?

9 A No, it would be very difficult for me to
10 do it, and I'm sure, others.

11 Q Have you made any attempt to determine what
12 the economic loss to Petroleum Corporation would be if they
13 were not permitted to drill a well for which they already have
14 an approved application?

15 A No, sir.

16 Q Mr. Kirby, are you familiar with the propose
17 plan of Amax to extend your drilling and mining operations in
18 the area under consideration, or is that --

19 MR. HENSLEY: If I may address this to you,
20 Mr. Feezer, do you have another witness who's going to dis-
21 cuss the plan of --

22 MR. FEEZER: You may take it up with this
23 witness, if you like. He knows.

24 Q Are you familiar, sir, with the proposed
25 plan of development?

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1 A Yes, sir.

2 Q Where is Amax mining at the present time?

3 A Our mining, our open mining, working faces
4 are in Section 23, in that cross-hatched area.

5 Q What -- what ore zone, sir?

6 A That's third ore zone.

7 Q And what has been the rate of progress, say,
8 in the past six months?

9 A We have temporarily discontinued mining that
10 particular area probably in the past four months; however, our
11 plans are to be back in there probably in February.

12 Q Why was the operation abandoned, or tempo-
13 rarily abandoned, excuse me.

14 A Because of operational difficulties in other
15 parts of the mine.

16 Q Did it have anything to do with the unecon-
17 omic recovery of ore?

18 A No, sir.

19 Q Now, do you propose to extend this area of
20 mining in a straight line?

21 A Yes, sir.

22 Q And so if you lay a pencil or a straightedge
23 on that proposed mining face, as shown by your Exhibit One,
24 you would not intersect any of the area proposed to be in-
25 cluded in this extension of R-111, would you?

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1 A Not on that straight line, you wouldn't,
2 no, sir. We would intersect a producing gas well in Section
3 23.

4 Q And you would leave a pillar there.

5 A Leave a pillar, yes, sir.

6 MR. HENSLEY: We pass the witness.

7 MR. NUTTER: Are there any further questions
8 of the witness?

9
10 REDIRECT EXAMINATION

11 BY MR. FEEZER:

12 Q Isn't it a fact that you don't stop your
13 mining after you go out in a straight line from the projection
14 you go out in all directions to recover the total ore body
15 to its extreme limits throughout the shaded area?

16 A Right.

17 MR. FEEZER: That's all.

18 MR. NUTTER: The witness may be excused.

19 MR. FEEZER: The next witness is Mr. Bob
20 Brown.

21
22 BOB BROWN

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

25

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DIRECT EXAMINATION

BY MR. FREEZER:

Q Would you please state your name, address, and occupation?

A Robert D. Brown, 610 West Riverside Drive, Carlsbad, New Mexico; Vice President - General Manager of Amax Chemical Corporation.

Q How long have you been connected with Amax Chemical Corporation, Mr. Brown?

A Over twenty-six years.

Q And are you, as General Manager, fully familiar with all of the aspects of the operation at this time?

A Yes, I am.

Q Have you previously --

MR. NUTTER: Mr. Brown is qualified.

Q You've previously testified here before the Commission, all right.

In connection with the hearing today, have you been present in the room and heard the examination and cross examination of your Chief Mine Engineer, Mr. Kirby?

A Yes, I have.

Q First of all, in connection with the Applicant's Exhibit Number Two, in reference to the economic data, is there any information you can give the Commission about

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1 that document?

2 A Well, nothing except there was an allegation
3 that this was marginal ore. It's very high grade ore; very
4 good ore, and it would be very economical ore that we're
5 talking about right here; not marginal ore at all.

6 Q I would like you to tell the Examiner what
7 the cutoff point is now insofar as Amax' operations are con-
8 cerned as to percentage of K_2O within a given footage.

9 A We're looking at 9 percent at 48 inches at
10 the present time as our economic cutoff.

11 Q Would there be an economic loss to your sub-
12 lessee, PCA, if you were unable to mine the commercially re-
13 coverable ore that you believe to exist in 26?

14 A Yes, sir, there would.

15 Q And you pay them a royalty, do you not?

16 A Yes.

17 Q In reference to the current market conditions
18 for potash, and demand, can you tell the Commission what is
19 happening in the potash markets?

20 A The potash market is very strong. We are
21 almost to the floor in inventories. We have strong demand.
22 We're doing everything that we can to produce as much potash
23 as we can to supply our customers. We think the market is
24 going to be very strong for the foreseeable future and we are
25 looking at expansion possibilities to mine this ore faster to

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1 take care of our customers at the present time. The price of
2 potash is high, at the highest it's ever been in its history,
3 and a new price list is out that's going to bring it even
4 higher in the coming year.

5 Q In an examination of Applicant's Exhibit
6 Number One, the shaded area on the map, has it been -- has
7 it been and is it now the practice of your mining engineers
8 under your direction to located the core tests in a somewhat
9 random fashion to outline ore bodies?

10 A Very definitely.

11 Q Are all of the core tests as shown on this
12 map at this time commercially recoverable bodies of ore?

13 A Very definitely.

14 Q Can you recall when you last testified be-
15 fore this Commission on extension of R-111-A?

16 A No, I really don't.

17 Q Was it within this calendar year?

18 A I believe so.

19 Q Has the price of potash risen since your
20 last testimony within this year?

21 A I believe it has. I'm not sure, but I be-
22 lieve so.

23 Q Did it rise from \$50 a ton, from your last
24 testimony here, to its present price?

25 A That sounds reasonable, yes.

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1 Q At your direction was the application in
2 6753 filed on November 8th before this Commission for this
3 extension?

4 A Yes, sir, it was.

5 Q And what has been your policy in reference
6 to seeking extensions as core tests were developed?

7 A Well, as we -- as we have been able to find
8 economic ore, we've been trying to protect that ore as best
9 we can, to try to avoid loss of -- there's only a small amount
10 of potash reserves in southeastern New Mexico. We think it's
11 in the best interest of the people of New Mexico and the
12 United States to conserve those potash reserves, and we feel
13 within a reasonable period of time we will be out of there.
14 We will have mined and abandoned those, and then the oil and
15 gas will still be there and can be recovered.

16 If you go the other way, there's a certain
17 amount of potash that will never be recovered.

18 Q In view of the hazard explained by your
19 mining engineer, what process are you following, and what is
20 your desire, in reference to safety factors for men under-
21 ground in these operations?

22 A We have over 300 men working every day
23 underground in our mine and we're going to take every safety
24 precaution that we possibly can, and we certainly think it's
25 prudent to follow the safety precautions as outlined by Mr.

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1 Kirby, and we're going to do it.

2 We think it would be ridiculous to do other-
3 wise.

4 Q Has Amax had any experience drilling in and
5 around high pressure gas wells up to now?

6 A No, sir.

7 Q And is this a source of concern to the in-
8 dustry? Potash industry?

9 A It certainly is.

10 Q Do you know of any way to avoid it other
11 than to either not allow the drilling or to allow the very
12 large pillars which are now under discussion?

13 A No, sir, I do not.

14 Q Is there anything further you can advise
15 the Commission about the application on file by Amax?

16 A No, sir, except to say that we have tried
17 in our last application to work with the oil and gas company,
18 and it's our desire, where possible, to allow locations where
19 when we can, even though it's within the R-111-A area, and we
20 have done it recently, where it will not interfere or will
21 not intersect commercial potash, where it will not be harmful
22 to the safety of our employees. We have tried to work with
23 the various oil companies and we intend to continue to do so.

24 MR. FEEZER: We'd ask the Hearing Examiner
25 to take notice of Case Number 6495 and the stipulations on

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1 file reflecting that, and in which an order is now pending.

2 MR. NUTTER: We'll take administrative
3 notice of that.

4 MR. FEEZER: Thank you, sir. Pass the wit-
5 ness.

6 MR. NUTTER: Are there questions of Mr.
7 Brown?

8 MR. HENSLEY: Yes, sir, Mr. Examiner.

9
10 CROSS EXAMINATION

11 BY MR. HENSLEY:

12 Q Mr. Brown, on Applicant's Exhibit Two, the
13 price used for the conomic sales projections is \$60 per ton.
14 Is the price of potash at the present time less than that?

15 A No, it is not. The price of potash is
16 about that to Amax. It might not be to any other producer
17 because we sell primarily premium products at Amax.

18 But at Amax right now the average price is
19 approximately \$60. We expect it to be higher very quickly.

20 Q Do you know what the average price is to the
21 other producers --

22 A No, I don't.

23 Q You indicated that you expected that the
24 demand for potash would continue?

25 A Yes, sir.

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1 Q What is the interrelation of your production
2 with the Canadian production?
3 A None.
4 Q Does Amax operate in Canada, too?
5 A No. We did at one time but we do not now.
6 Q So you have no mines at all in that area?
7 A No.
8 Q Is your only production from the Carlsbad
9 area?
10 A That's correct.
11 Q Now, you indicated that the policy of Amax
12 was to work with the oil companies and to permit the drilling
13 of oil and gas wells where possible?
14 A Absolutely.
15 Q Is that only in situations where Amax has
16 determined that there is not -- does not exist any commercial
17 deposit of ore?
18 A Absolutely.
19 Q Well, in those situations it shouldn't have
20 been included in R-111 anyway, should it? Because it only
21 contemplates an area which is underlined with commercial de-
22 posits of ore.
23 A In determining R-111-A they didn't always
24 find every little spot that contained potash or didn't contain
25 potash.

1 Q You are aware, in connection with your testi-
2 mony, are you not, sir, of the full contents of R-111 as it
3 exists on the records of the Commission?

4 A I'm fairly familiar with it, yes.

5 Q And you indicated that in your opinion
6 potash ought to be recovered first, where there are both
7 potash and oil and gas reserves.

8 A That's my opinion, yes.

9 Q You are aware, are you not, sir, that the
10 express provisions of R-111 provide that no mining operation
11 will be conducted which would reasonably interfere with the
12 orderly development of an oil and gas pool?

13 A And you're aware that they also state that
14 there will be no oil and gas operations that will bother the
15 orderly mining of potash, also.

16 Q Well, I'm asking you if you're aware of the
17 provision which I made reference to?

18 A I've read the whole thing, yes, sir.

19 Q I assume, Mr. Brown, as vice president, you
20 are intimately familiar with your company's proposed plan of
21 development in this area.

22 A Yes, sir.

23 Q When do you propose to begin operations
24 again in Section 23?

25 A In January or February; by February at the

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1 latest, but probably in January.

2 Q All right, sir, and what area do you pro-
3 pose to extend that work?

4 A We will be extending the 13 West entry,
5 where the arrow is there, where the cutoff is. We'll be
6 extending that in a southwesterly direction.

7 Q Is it your belief that Amax will eventually
8 mine the potash in the area which is included in the proposed
9 extension?

10 A I sure -- certainly do; every bit of it.

11 Q How many years hence are we talking about
12 if that occurs?

13 A I really can't answer that. I will say
14 this, that we are looking at an expansion program where we
15 think we will mine all of our ore reserves within the next
16 twenty years; about nineteen and half years.

17 Now, that depends on many things, but that's
18 our plans as best as we can formulate them at the present
19 time.

20 Q You indicated that in your experience with
21 this joint resource development situation between potash and
22 oil and gas, that Amax had not had occasion in the past, to
23 your knowledge, to mine in the area of a high pressure gas
24 well, is that right?

25 A Yes, sir.

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1 Q Have other potash companies in the area had
2 that experience, to your knowledge?

3 A I don't know, I really don't.

4 Q Is the pillar size which is recommended
5 around abandoned holes, or producing holes, as a matter of
6 fact, 100 feet in the literature? The radius of a pillar?

7 A It's a practice. I don't know whether there
8 is any literature on it or not, but we want to be as -- we
9 want to be very careful about the safety of our employees --

10 Q I understand.

11 A -- and we're certainly going to take at
12 least that amount and leave it, to insure safety of our em-
13 ployees.

14 Q And the same would be true, I presume, if
15 your operations extend, as you indicate you hope they will,
16 into the southwest quarter of Section 23, where there --

17 A That's correct.

18 Q -- is an existing well.

19 A That's correct.

20 MR. HENSLEY: We pass the witness.

21 MR. NOTTER: Are there any further questions
22 of the witness? He may be excused.

23 Let's take a fifteen minute recess.

24

25

(Thereupon a recess was taken.)

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MR. NUTTER: The hearing will come to order.
Mr. Feezer, would you call your next witness, please?

MR. FEEZER: Mr. Everett Jourdan is in the
witness chair, Mr. Examiner. May I proceed?

MR. NUTTER: Yes, sir.

EVERETT C. JOURDAN

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

DIRECT EXAMINATION

BY MR. FEEZER:

Q Please state your name, address, and occu-
pation?

A Everett C. Jourdan, 1106 Tracy Place,
Carlsbad, New Mexico. I am Staff Assistant for Mining and
Lands for Potash Company of America.

Q Are you a mining engineer?

A Yes.

Q How long have you been connected with PCA
as a mining engineer?

A Approximately 35 years.

Q Have you previously testified before this
Commission --

1 A Yes.

2 Q -- as an expert witness in that capacity?

3 A I have.

4 MR. FEETZER: Is the Commission satisfied

5 with the --

6 MR. NUTTER: Yes, sir, Mr. Jourdan is qual-

7 ified.

8 Q Mr. Jourdan, you've been present during the

9 hearing so far this morning, have you not?

10 A I have.

11 Q Calling your attention to the applicant's

12 Exhibit Number One, in reference to the lower portion of 26

13 and 27, does PCA, your employer corporation, have an interest

14 in either of those sections?

15 A Section 26 we have a State lease, which is

16 now subleased to Amax.

17 Q And in view of the testimony here today,

18 can you tell the Examiner about the commercially recoverable

19 quality of ore that is shown by this exhibit, in your opinion?

20 A 48 inches at 12 percent, is that right?

21 Q Uh-huh.

22 A 26?

23 Q 12.4.

24 A That is commercial ore.

25 Q In reference to that section and 142 Core

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1 Hole above that in the southwest of 23, is the fact that there
2 is no core test in the north half of the northwest of Section
3 26 disturbing to you in any way as to whether or not there
4 is or is not commercially recoverable ore between those two
5 holes?

6 A No. I would say there is probably -- there
7 is ore. That's just probably a low grade hole within the ore
8 body itself.

9 Q The 10.1, you say?

10 A Yes. That would be the way I would inter-
11 pret it, since it's surrounded by good ore. You'd probably
12 go, oh, 5 feet from there and you may find a different grade
13 of ore.

14 Q Has it been the practice of PCA and other
15 mines within the industry to drill core tests in a random
16 fashion, somewhat similar to that shown on Applicant's Exhibit
17 One?

18 A Yes, it is.

19 Q Is there anything unusual about the core
20 patterns as shown on this exhibit?

21 A Not that I notice.

22 Q Are you familiar with the cutoff grades that
23 are applicable in the potash basin at this time?

24 A They vary with different companies, depending
25 on efficiency, mining costs, and types of mining, and of course,

1 your price of potash changes every day, every three or four
2 months.

3 Q And consequently, it is not exact for the
4 entire industry?

5 A No, I wouldn't say that.

6 Q Now, in reference to the existence or anti-
7 cipated existence of a well in Section 26, to achieve the
8 largest possible amount of recovery of a natural resource,
9 you have heard the testimony so far today in reference to what
10 is done around a plugged and abandoned hole, have you not?

11 A Yes, I have.

12 Q Have you had experience and been familiar
13 with the process in the potash basin as to what's done in
14 these cases?

15 A We leave -- the normal procedure is to leave
16 100-foot radius solid barrier, and then we expect in an active
17 well or one that's poorly plugged, a subsidence angle of 45
18 degrees. We do not second mine within that area.

19 Q How big a radius would you leave where you
20 would not second mine?

21 A That would be the depth of the -- a re-
22 flection of the depth of the potash bed from the surface.

23 Q We have heard testimony today that in this
24 instance it would be 750 feet. In your judgment as a mining
25 engineer, would that be consistent with what is known to be

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1 the practice or anticipate practice around high pressure wells
2 at this time?

3 A. That would be, if that's the depth of the
4 ore, which I don't have the information that that is the
5 depth from the surface, that would be proper.

6 Q. In reference to the north half of the north-
7 east of 27, what comment do you have for the Examiner with
8 reference to Hole No. 156 and the proposed Parkway West Unit
9 as shown on Exhibit One?

10 A. I would say that that drill hole there is
11 a very good drill hole, 21 percent.

12 Q. And what recommendation would you make in
13 the event that a well was drilled, an oil or gas well, to
14 11,000 plus feet, as close as it is apparently shown on this
15 exhibit, to Core Test Hole 156?

16 A. If that hole was drilled there, I would
17 probably agree that a solid barrier of 200 to 250 feet should
18 be left around it.

19 Q. What would you say in reference to second
20 mining?

21 A. There would be no second mining.

22 Q. Would you have any controversy with the
23 figures that you heard testified to by Mr. Kirby on Exhibit
24 Number Two in reference to values of lost product if such an
25 event occurred? Do they seem reasonable to you?

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1 A They seem reasonable to me. The price of
2 potash varies from company to company, depending on the pro-
3 ducts they make, chemical standard; that's a reasonable price.

4 Q Insofar as a mining plan is concerned, are
5 you in PCA involved with the mining plan for that company?

6 A Yes, I am.

7 Q You heard the testimony of Mr. Brown and Mr.
8 Kirby in reference to the projected plans to mine within the
9 shaded area on this exhibit. Would this be, in your judgment,
10 a reasonable plan of development for a potash mine?

11 A Yes.

12 MR. FEEZER: Pass the witness.

13 MR. NUTTER: Are there any questions of Mr.
14 Jourdan?

15 MR. HENSLEY: Yes, Mr. Examiner.

16
17 CROSS EXAMINATION

18 BY MR. HENSLEY:

19 Q The only interest that PCA has, Mr. Jourdan,
20 is in the north half northwest quarter of Section 26?

21 A That's right. We have a sublease. We're
22 interested only in the royalties.

23 Q And you're aware, are you not, from this
24 plat, that there aren't any core holes at all in the proposed
25 projected limits for R-111 in the north half north half --

1 north half northwest?

2 A I am now.

3 Q You weren't aware of that before?

4 A No, I haven't studied this map.

5 Q And you were asked questions about whether
6 or not this ore was commercial, have you ever seen any of the
7 data which is represented on this map before?

8 A We -- I've seen some of it but not all of
9 it. The recent holes, we have not received the analysis from
10 Amax yet.

11 Q Have you -- have you seen the chemical ana-
12 lysis of Hole 146-A?

13 A No, I don't believe so.

14 Q What percent carnallite is in these holes,
15 in this area?

16 A I'm not interested in carnallite, only
17 sylvite.

18 Q I understand.

19 A We don't -- we don't --

20 Q What percent sylvite?

21 A Whether we get a royalty out of is really
22 what we're interested in. If Amax is willing to pay it, why,
23 we will accept it.

24 In other words, I can't tell you what their
25 cutoff is. I don't know.

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1 Q Well, as far as PCA is concerned, being
2 your employer, 48 inches at 12.4 percent is not economic, is
3 it?

4 A Let me qualify that. If we had another --
5 we use mining machines. If we had one machine that was mining
6 say, 25 percent ore, then we would probably take that to get
7 a blend while the price is high, so that isn't a -- when you
8 say a cutoff, that's not quite true, because if you blend it
9 with a higher grade ore, then you will mine it.

10 Q Well, let me restate the question, then, Mr.
11 Jourdan.

12 You testified in these proceedings before
13 that -- that that would not be an economic limit, have you
14 not?

15 A That depends on what time; how far past.
16 I mean when the price of potash changes your economic limit
17 changes.

18 Q I see. Isn't it a fact that under no cir-
19 cumstances would this grade ore of that thickness be commer-
20 cial unless you were able to blend it with a higher grade ore
21 from some other source?

22 A As far as my company is concerned, probably
23 true. I can't answer for Amax.

24 MR. NUTTER: What grade ore are you talking
25 about, Mr. Hensley?

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1 MR. HENSLEY: I'm talking about 12.4 percent.

2 A. 12.4 percent.

3 MR. NUTTER: At 48 inches?

4 MR. HENSLEY: At 48 inches.

5 Q. Now, do you know anything about the sub-
6 surface geological characteristics of the oil and gas horizons
7 in the Strawn-Morrow?

8 A. Absolutely very little; only what I read
9 in the paper.

10 Q. Would you have to make a detailed study of
11 those characteristics, the life of those wells, the decline
12 curve analysis, and other such projections, before as a mining
13 engineer you could ever make a projection as to the radius
14 of a pillar to be left around an abandoned casing?

15 A. I'd have to think about that question. I
16 wouldn't try to do it, first of all. I'd probably go to
17 petroleum engineers for consultation and read past -- other
18 literature. This is merely practice in the basin and it
19 works so far.

20 Q. You've made no study at all of this area,
21 have you, as far as hydrocarbons are concerned?

22 A. No, I haven't. Absolutely not. No, I'm
23 not familiar with this area because it's three miles from our
24 mine.

25 Q. And your estimate of 200 to 250 feet which

1 you gave on direct is just a guess, is it not?

2 A That's probably what we would do, figuring
3 we had enough information on the gas and the pressures and
4 everything. It's a generality. We may want to make a study,
5 but I doubt it.

6 Q Now you indicated that on this plugged and
7 abandoned hole, which is the Union State No. 1, if you'll
8 look at the plat, Exhibit Number One, in the north half
9 northwest of Section 26, Mr. Jourdan, that your company, if
10 it was mining this, would leave 100-foot radius for first
11 mining; a pillar 100-foot radius.

12 A If it was an oil -- if it was a deep gas
13 test, we would probably leave a bigger one.

14 Q Did you testify earlier that you would leave
15 100-foot?

16 A I may have said that. I mean I just took it
17 as an oil well. I agree with the -- with a deep gas test and
18 with high pressure we would leave a larger barrier. I correct
19 my previous testimony if I said 100-foot automatically.

20 Q And your 45 degree angle of incidence, which
21 has been used throughout these potash proceedings for years
22 before the Commission, has only application insofar as second
23 mining is concerned.

24 A That's right.

25 Q Would a prudent potash operator even consi-

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1 der second mining of this type grade?

2 A. It depends on what his costs were.

3 Q. You don't know what their costs are, do
4 you?

5 A. I don't know what Amax's costs are, no.
6 They wouldn't tell me.

7 Q. They wouldn't tell you?

8 A. Huh-uh.

9 MR. HENSLEY: We pass the witness.

10 MR. NUTTER: Are there any further questions
11 of Mr. Jourdan?

12 MR. FREEZER: No, Mr. Examiner.

13 MR. NUTTER: He may be excused.

14 Mr. Kirby, I would like to ask you a ques-
15 tion, please. Mr. Jourdan referred to the angle of incidence
16 there being 45 degrees, and also, you had referred to a 700
17 or 750-foot radius on secondary mining.

18 What is the depth of the third ore zone at
19 this -- in this area?

20 MR. KIRBY: I believe, I don't have that
21 info, I believe it's right at 750 feet, and I used that in
22 my answer.

23 MR. NUTTER: Okay, thank you. I'd assumed
24 that it was but I wanted it in the record.

25 Mr. Freezer, did you have another witness?

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1 MR. PEMMER: Mr. Burleson, Mr. Examiner, is
2 with the USGS and would not be sworn as a witness, but I
3 understand that he has some commentary that he may wish to
4 make in view of what testimony has come in today.

5 MR. NUTTER: Will you state your full name,
6 please, Mr. Burleson?

7 MR. BURLESON: John B. Burleson. I'm the
8 Mining Supervisor for the U. S. Geological Survey in New
9 Mexico, and I would appreciate the opportunity to make a
10 statement.

11 MR. NUTTER: Please do.

12 MR. BURLESON: The Geological Survey does
13 not feel that oil and gas production and potash mining is
14 compatible, and we are very concerned when there is gas or
15 oil wells this near to a producing mine.

16 Granted, this is State land. We have no
17 say over what has --- what takes place on it, but what takes
18 place on one part of the mine affects the other parts of the
19 mine in that they are connected.

20 The presence of gas in any of the potash
21 mines could cause enormous repercussions, not only to the
22 safety but to the economics if they had to replace the present
23 equipment with permissible equipment, such as is used in the
24 Trona Mines in Wyoming, or the coal mines.

25 MR. NUTTER: Now, you're talking about

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1 equipment that would be safe in a gas atmosphere.

2 MR. BURNESON: That is true, sir.

3 And as for leaving ore in place of pillars,
4 which has to be done where there are oil or gas wells, we
5 must remember that that is ore that will be lost forever.
6 That will affect our balance of payments in that each ton
7 lost will have to be replaced by Canadian potash, and I'm sure
8 they would be very willing to get the business if we cannot
9 satisfy it, the potash producers' customers.

10 For the pillar to protect, whether it be a
11 shaft or an oil and gas well, it was referred to that maybe
12 there was publication on just what was the right size of
13 pillar. Unfortunately, there is none.

14 Since the first shafts were sunk, we have,
15 the U. S. Geological Survey, on Federal lands has insisted
16 upon this 45 degrees of no second mining. It has varied as
17 to the solid pillar left around a shaft, depending upon geo-
18 logic conditions present, but a pillar must be left. There's
19 no denying that. The integrity of the shaft or the oil and
20 gas well string has to be protected. It varies with each com-
21 pany because there is no way to calculate to the exact foot
22 what would be necessary to be left.

23 Each company determines what size of pillar
24 will be left to protect their employees and their investment.
25 To my knowledge, there's no way to say whether you are under

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1 in the size of your pillar or you are over. I certainly
2 agree that a minimum size of pillar around a gas well should
3 be 200-foot radius. There again, if the potash contained
4 clay seams through which a leak in the gas string could trans-
5 mit, it might be wise to leave a larger size pillar. That
6 will vary from condition to condition.

7 I'm very much in favor of this Commission's
8 procedure and the R-111-A, and I respectfully request that
9 considerate consideration be given to the inclusion of these
10 lands applied for to be encompassed in the R-111-A boundary.

11 Thank you.

12 MR. NUTTER: Thank you.

13 Does that conclude your direct testimony?

14 MR. FREEZER: Yes, sir. I would like this
15 record to include copies of the applications of the Petroleum
16 Corporation in reference to the Parkway West Unit Well No. 9
17 and Petco's -- I think it's Parkway Strawn Well No. 3, the
18 two wells under discussion in Section -- or proposed wells,
19 in Sections 26 and 27, and I'd like to offer this in exhibit,
20 part of the record.

21 MR. NUTTER: Okay. Is that all one exhibit
22 there?

23 MR. FREEZER: Yes, three pages, Mr. Examiner.
24 I haven't marked it yet, but I will.

25 MR. NUTTER: That will be your Exhibit

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1 Number Three I assume.

2 MR. FENZLER: Yes, sir. And that concludes
3 our live testimony.

4 MR. NUTTER: Mr. Hensley, would you call
5 your witness, please?

6 MR. HENSLEY: Mr. Coffield will call our
7 witnesses, Mr. Examiner.

8 MR. NUTTER: Mr. Coffield.

9 MR. COFFIELD: Yes, sir. Mr. Hal Dean will
10 be our first witness.

11 MR. NUTTER: Amax Exhibit Number Three will
12 be admitted in evidence.

13
14 HAL DEAN
15 being called as a witness and having been duly sworn upon
16 his oath, testified as follows, to-wit:

17
18 DIRECT EXAMINATION

19 BY MR. COFFIELD:

20 Q Mr. Dean, would you please state your name
21 for the record?

22 A My name is Hal Dean.

23 Q And where do you live?

24 A I live in Midland, Texas.

25 Q And your occupation is what?

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1 A I'm a geologist for the Petroleum Corporation
2 of Delaware.

3 Q Have you previously testified before this
4 Oil Conservation Division?

5 A Yes, sir, I have.

6 Q Are you familiar with the geology of the
7 area affected by the application of Amax?

8 A Yes. I've made a study of this area for
9 over ten years.

10 Q And are you familiar with Petroleum Corpor-
11 ation's drilling and development program and activities in
12 this area?

13 A Yes. I am in charge of the exploration and
14 development activities.

15 MR. COFFIELD: Mr. Examiner, do you have
16 any other questions of Mr. Dean?

17 MR. NUTTER: Mr. Dean is qualified.

18 Q Mr. Dean, please refer to what we've marked
19 as Exhibit One and explain to the Examiner what this reflects
20 and what it shows.

21 A Okay. Exhibit One is a land map showing
22 the acreage which is under lease or held by production by the
23 The Petroleum Corporation in this specific Parkway area.
24 To the north we have the Turkey Track area; to the south we
25 have the Burton Flats area; to the west we have the Winchester

1 area.

2 This land map shows the wells which we have
3 drilled in the Parkway West Unit; also illustrates the wells
4 that we have drilled in Section 26. It also shows the offsets
5 to the unit as drilled by other operators.

6 In the east half of Section 22 is a cross
7 hatched area which shows the area which has been previously
8 deleted this year under this R-111-A.

9 Q Does the exhibit show when the wells were
10 drilled, Mr. Dean?

11 A No, it --

12 Q Could you explain when the wells were
13 drilled?

14 A Okay. The first well we drilled in this
15 area was in 1970. It's the No. 1 Petco State in the southeast
16 southeast of Section 26. That well was completed as a Strawn
17 discovery.

18 After doing additional exploration work
19 we put together a six-section unit, which is called Parkway
20 West Unit. This unit involves the putting together of 12
21 different companies and we were given a designation as the
22 Parkway West State Unit.

23 We drilled the No. 1 Parkway West in the
24 northeast northwest of Section 28, which was a discovery of
25 Atoka and Strawn. That was done in 1972. We also have Morrow

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1 gas behind pipe.

2 We have since that date submitted a plan of
3 development to the State yearly, and we are now drilling on
4 our Well No. 8, which is located in the northeast of the
5 southwest of Section 22. That well is drilling now at a depth
6 of 11,338 feet, and we plan to continue this orderly develop-
7 ment until we have completely exploited the entire Pennsyl-
8 vanian section. That includes the Strawn, Atoka, and Morrow
9 Sand.

10 Q Mr. Dean, I believe you stated earlier that
11 this plat reflects also the locations of wells yet to be
12 drilled?

13 A Yes sir.

14 Q And have permits been filed in connection
15 with each of those wells?

16 A Yes, sir, they have. We have filed permits
17 for -- in Section -- No. 10 in Section 27; No. 11 in the north
18 half of Section 21; No. 12 in the south half of 28; No. 3 in
19 the south half of 29; and then over in Section 26 we've ap-
20 plied for a -- the Petco State No. 3 in the northwest north-
21 west.

22 Q And which of those permits which you've
23 filed have actually been approved by the Oil Conservation
24 Division?

25 A The well in Section 27, No. 9.

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1 Q Are you familiar with what the pool rules
2 are in connection with this particular -- these particular
3 areas?

4 A Yes, I am. In Section 26 is the Parkway
5 Strawn discovery, and we were given 160-acre spacing on the
6 Strawn reservoir.

7 The Morrow is on statewide 320-acre spacing,
8 at the present time.

9 Q All right. What about the Parkway West
10 Unit itself?

11 A That is the -- the Morrow Well was in the
12 statewide rules.

13 MR. COFFIELD: Mr. Examiner, Orders -- Oil
14 Conservation Division Orders R-4093 and R-4638 established
15 pool rules in connection with these areas, and we would re-
16 spectfully request that the Examiner take administrative
17 notice of those orders.

18 MR. NUTTER: That's administrative notice
19 of Orders Nos. --

20 MR. COFFIELD: R-4093 and R-3638.

21 MR. NUTTER: We will take notice of those
22 orders.

23 Q Did you have anything further to add, Mr.
24 Dean, in connection with this exhibit?

25 A I would just like to point out that the

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1 offset operators have done this development, primarily South-
2 land Royalty, in 1978 and 1979, and are continuing as to this
3 date. They have completed their well, Southland Royalty No.
4 125, in the east of Section 26.

5 Q So you're saying not only is Petroleum Cor-
6 poration active in the development of this pool but there are
7 other operators as well?

8 A That is correct.

9 Q All right. Let's go to what we've marked
10 as Exhibit Number Two, and would you please explain that ex-
11 hibit to the Examiner?

12 A Okay.

13 MR. NUTTER: Mr. Dean, before you get on
14 that, what well were you talking about that's just now being
15 completed?

16 A Southland Royalty No. 125 in Section 25.

17 MR. NUTTER: Oh, I thought you said Section
18 26.

19 MR. FEEZER: Do you have that located, sir?

20 A It's an offset to Section 26.

21 MR. NUTTER: Okay.

22 A Okay. Exhibit Number Two is a structure
23 contour map drawn on the Morrow formation. This is a marker
24 within the Morrow which is commonly used by all the geologists
25 in this area, and accurately reflects the structure of the

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1 producing Morrow zone.

2 As you can see, it is a -- the highest part
3 of the structure is over there in the southwest portion of
4 Section 29, and we have a terracing and a monoclinial dip to
5 the east and south.

6 The Morrow formation, from our drilling and
7 from our subsurface control, the zones appear continuous with
8 individual members interfingering across this entire six
9 sections. There -- to date there has been no specific gas/
10 water contact established, but all of our productive area is
11 up-dip from production established by Southland Royalty in
12 Section 24 and Section 25.

13 This map shows, in my opinion, that we have
14 a continuous development program here over the Parkway West
15 Unit until we have completely developed it as to the State
16 rules.

17 Q Mr. Dean, in the event that you were not
18 permitted to drill the two wells which are located within the
19 proposed expansion of R-111-A, what would be that result
20 from a geological standpoint?

21 A I think that we would result in losing
22 drainage and production from the Southland Royalty established
23 in Section 23, Section 24, and now they're in Section 25.

24 Q In other words, it would result in a viola-
25 tion of your correlative rights as well as prospective waste?

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1 A Yes, sir.

2 Q Do you have any further features of this
3 particular exhibit that you want to bring out?

4 A No, sir. I might point out that in these
5 wells that we have completed in the Strawn, we still have
6 Morrow Sand behind pipe, which is productive.

7 Q All right. Relative to the --

8 MR. NUTTER: While you're on that one, Mr.
9 Dean, what is the color code here? Are the red wells Morrow
10 and the green wells Strawn?

11 A Yes, sir. Those are the -- the color code
12 that we have. The Strawn wells are in the southeast southeast
13 of 26, that's green; and then the Strawn well is in Section
14 28, the northeast of the northwest.

15 MR. NUTTER: Thank you.

16 Q Is that color code consistent throughout
17 your exhibits, Mr. Dean?

18 A Yes, sir.

19 Q All right. Going now to what we've marked
20 as Exhibit Number Three, would you please similarly explain
21 that to the Examiner?

22 A Exhibit Number Three is a structure map
23 based on the top of the Strawn formation. This formation is
24 found at approximately 10,500 feet and is a continuous marker
25 throughout the area.

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1 We have to drill, of course, to get to our
2 Morrow zones. The key well in this is our Strawn well in
3 Section 26, which completed as an oil well about 1971 and is
4 still producing as of this date. This well was cored, indi-
5 cated excellent reservoir possibilities, similar to the type
6 of Strawn over in Lusk Field to the east here, and the problem
7 was we produced considerable amount of water.

8 Our second Strawn well was over in Section
9 28 and that well tested gas with a high content of liquids,
10 water-free.

11 This Strawn formation, as you know, is not
12 connected 100 percent with water or structure. It is the
13 porosity developed as what we call an algal bank, and it can
14 go across strike, and we project that the Strawn production
15 there will contain -- continue out of the north half of 28,
16 north half of 27, north half of 26, and it's excellently --
17 we'll go to a cross section later -- it's excellently deve-
18 loped in Section 23 in the Southland Royalty No. 1-23 Well.

19 Q Anything further on this?

20 A No.

21 Q All right, then, Mr. Dean, let's go to what
22 has been marked Exhibit Four and explain this to the Examiner

23 A Section Four is a stratigraphic cross sec-
24 tion of the Parkway West Unit, tying in to our Petroleum
25 Corporation No. 1-26 in Section 26. This cross section is

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1 indicated on your map, starting on the west from A to A'.

2 This map shows in the Strawn horizon where
3 we expect the core of the thick, clean, algal bank of lime-
4 stone to be maximumly developed and be productive.

5 The Morrow Sands, which are indicated in
6 red, are shown to be also consistently across from the --- goin
7 from the west to the east across the entire unit. Although
8 we know from experience that the zones are present, the pro-
9 duction varies within the members of the Morrow. This indi-
10 cates to me that there is an excellent possibility for this
11 Morrow and Strawn to be present over the areas which are re-
12 quested be placed within this R-111-A.

13 Q All right, Mr. Dean, let's now go to Exhibit
14 Five and explain it.

15 A Okay. Five is a cross section of two wells,
16 showing the productive Strawn zone. It goes from A to C,
17 A' to C, I'm sorry, on your map. In other words, from the
18 Petco State No. 1-26 to the 23-1 of Southland Royalty.

19 As you can see, this Petco State Well was
20 completed for 49 barrels of oil and 289 barrels of salt
21 water; gas rate of 650,000 with initial gas ratio of 13,265-
22 to-1. The cumulated production of this to November 1, 1979,
23 is 33,464 barrels of oil, 228,000 Mcf of gas, and over
24 300,000 barrels of salt water. This well is presently pro-
25 ducing at a rate of 4.4 barrels of day, 62,000 of gas, and

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1 60 barrels of salt water.

2 This indicates to me as a geologist that
3 this is a tremendous water-drive reservoir, and being able to
4 produce these marginal amounts over a 9-year period.

5 Well No. -- Southland Royalty No. 1-23-1,
6 which is indicated No. C, as you can look at the dual lateral
7 micro-log, in correlating between the Strawn and Atoka, that
8 this zone fits, correlates, as being a part of the same zone.
9 And as you can see, from our structural point, the Well State
10 Com 23-1, is approximately 100 feet high structurally. This
11 well was not cored or tested during the drilling of this thing
12 because they were primarily looking for Morrow Sand, but
13 electric log analysis indicates it has excellent porosity and
14 low water saturations and should be productive.

15 Our location in Section 3 -- I mean Well
16 No. 3 in Section 26, is located on our Strawn map to obtain
17 the highest structural position on our lease, which we hope
18 will then permit us to develop on the 160-acre spacing of the
19 Strawn Parkway Field that entire section.

20 Q Mr Dean, in that connection, and in the
21 event it were to be suggested by someone that you could as
22 well locate your No. 3 Well at an unorthodox location in the
23 40-acre tract south of the tract where you propose to locate
24 it, what would your answer be to that?

25 A As a geologist I would want to obtain the

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1 highest structural position and minimize our risk of drilling
2 a dry hole.

3 Q Do you have anything further to add, Mr.
4 Dean, in connection with matters that have been discussed by
5 you and the exhibits which you have presented?

6 A No, sir.

7 Q Were these Exhibits One through Five pre-
8 pared by you or under your direction?

9 A They were all prepared by me or under my
10 direction. The large cross section, which is Exhibit Number
11 Four, was prepared by Martin Vernon.

12 Q Have you reviewed the matters reflected
13 there and --

14 A Yes, sir, it was under my direct supervision.

15 Q Mr. Dean, if the Amax application is ap-
16 proved, is it your opinion that this will result in waste
17 and the violation of correlative rights as far as Petroleum
18 Corporation is concerned?

19 A Yes, sir, from a geological standpoint, it
20 certainly is.

21 MR. COFFIELD: Mr. Examiner, I move the
22 admission of Exhibits One through Five.

23 MR. NUTTER: Petco Exhibits One through
24 Five will be admitted in evidence.

25 MR. COFFIELD: I have nothing further on

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1 direct examination.

2 MR. NUTTER: Are there any questions of
3 this witness?

4 MR. FEEZER: Yes, sir.

6 CROSS EXAMINATION

7 BY MR. FEEZER:

8 Q Mr. Dean, your proposed Putco Parkway West
9 Unit No. 9 is how close, if you have a scale, I don't only
10 mean offhand, to the test Hole No. 156 in the north half of
11 the northeast of 27?

12 A I don't -- do you have a survey plat on
13 that hole that you're talking about, or is that scaled on
14 your map?

15 Q It's not scaled. I wonder if you know.

16 A No, I don't know.

17 Q All right. Well, I need to move on. I
18 really don't -- unless you can do it, I don't want to delay
19 the hearing here.

20 A Okay.

21 Q Does it appear to you from what evidence
22 you've seen so far that it's within 200 feet more or less of
23 your proposed location?

24 A Sir, I really haven't seen that map. May
25 I examine it, please?

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1 Q Certainly.

2 A Our location is 1980 and 660, which is a

3 standard location.

4 Q I don't see a scale on here. That appears

5 to be substantially more than 200 feet.

6 A You have it located here at 650 feet, 660

7 feet.

8 Q Thank you. Is it then your geological

9 estimate that Parkway West Unit No. 9 would be a high pres-

10 sured gas well, if it is completed?

11 A Yes, I do.

12 Q Do you have any idea what pressures would

13 be?

14 A Do you mean bottom hole pressure?

15 Q Yes.

16 A Bottom hole pressure?

17 Q Yes.

18 A In excess of 3000 pounds; probably 3500

19 pounds, from the Morrow.

20 Q You made your application -- did you have

21 anything to do with making the application in this case for

22 this well in 27?

23 A The well in 27?

24 Q Yes.

25 A It was done by our Dallas Engineering/pro-

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1 duction Office. I made the location.

2 Q But you did not handle the application?

3 A I did not make the casing design or things
4 like that. I'm a geologist.

5 Q You know nothing about that, then.

6 A I just know that we followed the Statewide
7 rules.

8 Q Have you ever seen it, handled it, or looked
9 at it, the application to drill this well?

10 A I looked at the location plat, that is, and
11 the geology.

12 Q Well, let's put it another way. This is
13 Exhibit Number Three in this case, I hand you a copy of it.
14 Have you ever seen that before today?

15 A I have this right here.

16 Q All right. You have seen it.

17 A Yes.

18 Q And this was filed on November the 9th, is
19 that right? According to the filing stamp of the OCC?

20 A November 9th.

21 Q All right. Now, did you have any knowledge
22 of the fact that Amari was pursuing a core drilling program
23 in the north half of the northeast in Section 27 before you
24 prepared this data which is present on Applicant's Exhibit
25 Number Three?

1 A I had no knowledge. I had no knowledge of
2 any core drilling, either, in Section 22.

3 Q You mean 26?

4 A 22, up here.

5 Q 22.

6 A Up higher, in here. We were not notified
7 of any core drilling up there, either.

8 Q Okay. Now, in reference to the Petco Well
9 No. 1 in the southeast of the southeast of 26, 19, 29, is
10 that a producing well at this time?

11 A Yes, sir, it is.

12 Q And Petco No. 2, is this a producing well?

13 A No, that is a dry hole. It was originally
14 completed in the Wolfcamp and was plugged and abandoned.

15 Q And that's in the northwest of the north-
16 west, is that right? In 26?

17 A No, sir, that is in the southeast of the
18 southwest.

19 Q Southeast of the southwest, okay.

20 On Exhibit Number Three, you said the key
21 well in Section 26, how do you designate that again, as
22 S-7067? Exhibit Number Three?

23 A Exhibit Number Three?

24 Q Yes, sir.

25 A I have it right here. Now, what do you want

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1 to know about that?

2 Q You say the key well, if I understood your
3 testimony correctly, in that section is S-7067, is that
4 right?

5 A S-7067.

6 Q The bottom of 26?

7 A Key well, no, I said the key well was No. 1.

8 Q All right, and where is that located in 26?

9 A That's in the southeast of the southeast.

10 Q Is it designated as S-7146?

11 A Sir, those are structure markers at the
12 datum point. The S stands for Strawn, 7146 is the subsea
13 datum.

14 Q All right, and A-1 designates what on your
15 exhibit, sir?

16 A That is A', which is a cross section, which
17 is on --

18 Q Okay.

19 A -- what, Exhibits Four and Five.

20 Q And it's your projection that there is re-
21 coverable oil and gas, and is it on a line -- or you estimate
22 a line over into Section 28, which appears to be Petroleum
23 Corporation -- and here I again use the Strawn designation,
24 6881, a green circle?

25 A Yes, I feel that it is between there, and

1 probably more. Our best subsurface control is, oh, up there
2 to Section 23, which is located Well No. C, Southland Royalty,
3 No. 1-23.

4 Q All right. Are you familiar with the
5 economics to any extent at all, of what would allegedly be
6 lost if the 120 acres sought in this application were included
7 and you could not drill it and produce, at least at this
8 time?

9 A Sir, we have a reservoir engineer who will
10 testify as to those conditions.

11 Q All right. It's out of your expertise?

12 A Yes, sir.

13 Q During the course of your study of this
14 area do you know whether or not any core or log tests showed
15 the presence of sylvite or other recoverable type of potash
16 ore, langbeinite, or otherwise?

17 A No.

18 Q Do you even examine your core logs from
19 the first 1000 feet for such mineralization?

20 A No. We don't have the rights to those, sir.

21 Q I understand that. I just want to know
22 if you examine them.

23 A No. No.

24 Q All right.

25 A The only thing, we do run a log up through

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1 there.

2 Q Well, do you know anything about those logs,
3 what they reflect?

4 A Yes, sir.

5 Q Do they reflect anything in reference to
6 potash ore?

7 A No, not the logs we run. There are logs
8 that do, that -- but not the logs that we run.

9 Q All right. They're not designed to test
10 for that.

11 A Yes, sir.

12 Q In your Exhibit Number Five, do you have
13 that in front of you?

14 A Yes, sir.

15 Q All right. This is the cross section where
16 you're testifying about two wells. Do I understand that
17 Parkway West Unit wants to go in again on the approximate
18 location of the plugged and abandoned Union State No. 1? Or
19 very close to it?

20 A That's correct.

21 Q Do you know anything about the status of
22 that well, as to how it was plugged?

23 A Yes, sir, I do.

24 Q Would you tell the Commission about that?

25 A This well, which has been drilled and

1 plugged in 1961, 20 sacks at 4622 to 4571; 20 sacks, 1813 to
2 1780; 20 sacks, 1332 to 1300; 20 sacks, 283 to 250; left
3 9-5/8ths at 260 feet; cemented with 50 sacks.

4 Q Would that indicate to you that that is
5 cemented to the bottom?

6 A No, it's not cemented to the bottom.

7 Q No way. No way, is it?

8 A No, sir.

9 Q How much do you think is uncemented of that?

10 A Sir, I have no way of telling. This was
11 not done under my supervision, but I understand it was done
12 under the supervision of the New Mexico Oil and Gas Conser-
13 vation Commission.

14 Q All right. And does the document, what-
15 ever it may be, that you have in your hand reflect whether
16 or not the casing or string was left in the hole?

17 A Yes, sir, it said they left 250 -- 263 feet,
18 9-5/8ths.

19 MR. NUTTER: Was there any other pipe left
20 in the hole or run in the hole? Do you know?

21 A No, sir, not according to the records we
22 have here, sir.

23 Q What document are you referring to?

24 A This document we have in the files in the
25 New Mexico Oil and Gas Commission, and it was -- here it is.

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1 Want to look at it?

2 Q Please.

3 If I may, I'd like to copy some data off
4 that without delaying the hearing.

5 MR. NUTTER: Yes, sir. And I'd presume
6 it would be satisfactory with all parties that we will take
7 administrative notice of the well file that we have on that
8 Union State No. 1 Well.

9 MR. FEEZER: I was about to ask you to do
10 that.

11 Q What is the status of the activity in Sec-
12 tion 27 at Parkway West Unit No. 9 right now?

13 A No. 9, we have a location cleared, made,
14 and you'll have to -- as I understand, we have a conductor
15 pipe set.

16 Q And are you ready to proceed with the drilling
17 as soon as you can get a rig on the site?

18 A We have a rig, sir, that is drilling at
19 11,400, approximately, and will be through in about two days
20 and we intend to move it immediately down to that location.

21 Q Are you telling the Commission you intend
22 to start drilling within -- or set the rig within two days?

23 A If at all possible.

24 Q Okay. And in reference to your well in the
25 north half of the northwest of Section 26, what's your proposed

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1 drilling program for that well?

2 A Well, we have to get approval. We would

3 continue to drill that immediately after we've completed

4 Well No. 9 in Section 27.

5 Q Do you have any time frame in which you

6 think you would start that, assuming you got a permit issued

7 to drill that well?

8 A I imagine in -- the 10 will take about 30

9 days.

10 Q In view of the testimony here today in

11 reference to the well in Section 27, Parkway Unit -- Parkway

12 West Unit No. 9, would you proceed without a casing program,

13 in view of the evidence of commercially recoverable potash

14 ore in that area?

15 A Sir, this is not a geologic consideration.

16 Q What do you mean it's not a geologic con-

17 sideration?

18 A That's what I mean. I'm testifying as to

19 geology but I am not a casing man. What you're talking

20 about is --

21 Q You know nothing about the protective --

22 A I know that it has to be, but I am a geolo-

23 gist, and we'll have engineers to testify as to that, sir.

24 Q And the question is out of your expertise,

25 is that what you're saying?

1 A That's right.

2 Q All right.

3 MR. FREEZER: And I believe that's all.

4 Pass the witness.

5 MR. NUTTER: Are there any further ques-
6 tions of Mr. Dean?

7
8 REDIRECT EXAMINATION

9 BY MR. COFFIELD:

10 Q Mr. Dean, in Petroleum Corporation's de-
11 velopment of this pool and area, have any of these wells
12 been planned and proposed in reference to potash activities?
13 As far as you know, were your plans predicated on --

14 A Well, we had planned to drill Well No. 8,
15 as you know, that these are -- 320-acre units have south
16 half and north half, and we had planned to move over 1320
17 feet east of our Section 8 in the east half of Section 22,
18 to protect our drainage better from the Southland Royalty
19 23-1A, but when we were informed that we could not get a
20 permit there, we moved 8 over there as close as we could to
21 that 1-A.

22 Q Has your activity in the area and your
23 drilling of the wells, at any rate, been generated by the
24 potash matters or has it been generated by economic matters
25 relative to the oil and gas recoveries?

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1 A. It has been entirely generated by economic
2 matters as related to the oil and gas activity and the mar-
3 ketability of our gas.

4 MR. COFFIELD: I have no other questions.

5
6 CROSS EXAMINATION

7 BY MR. NUTTER:

8 Q Mr. Dean, with respect to your structure
9 map, Exhibit Number Three, on the Strawn --

10 A Yes, sir.

11 Q -- you mentioned that you had located this
12 Well No. 3 in such a position as to be structurally as high
13 as possible, and anticipating my question, you stated that
14 to move the well to a location directly south of that you
15 would lose some of that structural position. Now, what is
16 the top of the Strawn there on your location?

17 A The top of the Strawn, we anticipate hitting
18 at approximately 10,375 feet.

19 Q Well, on your subsea structure map here --

20 A Oh, we would -- it would be a -7015.

21 Q Wait minute.

22 A Strawn.

23 Q Your first line there that runs to the
24 right of Well No. 9 is a -7000.

25 A Yes, sir.

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1 Q Or the well that's to the -- the line that's
2 to the right of your location No. 3 is a -7050, isn't it?

3 A Yes, sir, so -7015, and that would be mid-
4 way between -7000 -- wait a minute --

5 Q -7025.

6 A 7000, it's 50-foot contours.

7 Q Right.

8 A So it would be -7015, similar to 1-A,
9 basically, maybe a little over.

10 Q I would interpret it as being about a
11 -7025 there.

12 A 7025, well --

13 Q About halfway between --

14 A Yes, sir.

15 Q -- the two contour lines.

16 A That's about it, yes, sir.

17 Q And then how much structural position would
18 you lose by moving just one location south?

19 A Well, probably, from this mapping, you
20 wouldn't lose any structural, hardly at all.

21 Q Now, the Southland Royalty well that you
22 consider pertinent to the Strawn development in this area,
23 being the north end of your C-to-A' cross section, --

24 A Uh-huh.

25 Q -- it has a good development in the Strawn.

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1 A. Uh-huh.

2 Q. But no tests were made, is that it?

3 A. That is correct. I have visited with South-

4 land Royalty and they feel that they'll plug back to that

5 zone.

6 Q. They think they eventually --

7 A. Yes, sir.

8 Q. -- will produce that.

9 A. They are producing out of the Morrow at

10 this particular time.

11 Q. I see. Okay.

12 MR. NUTTER: Are there any further questions

13 for Mr. Dean?

14 MR. FEEZER: May I ask one or two further

15 questions?

16

17 RECROSS EXAMINATION

18 BY MR. FEEZER:

19 Q. You just informed the Examiner, if I under-

20 stand you correctly, that you could move south from the

21 present -- former location of Union State No. 1, plugged and

22 abandoned, to a location which would be unorthodox but not

23 lose much of your structural position, is that correct?

24 A. Other than -- that is basically correct,

25 but also we would like to protect ourselves against drainage,

1 and this is a 660 deal that Southland Royalty could come down
2 there and put a well right there in the southwest of southwest
3 and drain our oil.

4 Q Do you understand that that's within the
5 R-111-A and they would have to get -- go through processes
6 to obtain a new well?

7 A If it was economically possible, they
8 probably would do that. They are doing that right now, as
9 I understand it.

10 Q Well, could you do the same on the Parkway
11 West Unit No. 9, move south and not lose structural strength?

12 A No, we would not lose structure; however,
13 we -- one thing that we're doing here, we're staying as close
14 as we can to known well control, plus protecting our corre-
15 lative rights, and we would be moving farther away from
16 known well control. These are stratigraphic, not entirely
17 structural traps.

18 Q Assume you move to the approximate mid-line
19 of the northwest of the northeast of the northeast in 27, is
20 there any reason why, if the Commission granted it, you
21 could slant drill to the same location, at least eleven eight
22 in Unit 9?

23 MR. NUTTER: Where was the location, Mr.
24 Feezer?

25 MR. FEEZER: At the same location and slant

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1 drill to that presumed recovery zone.

2 A Anything is possible, though it might not
3 be economically possible. This is what Southland Royalty is
4 contemplating, and we don't feel that that might be a com-
5 mercial way to do things.

6 MR. COFFIELD: If the Examiner please, our
7 petroleum engineer witness is more qualified to answer ques-
8 tions in regard to that.

9 Q Do you feel you're not qualified, then, to
10 pursue that line of questioning?

11 A On the --

12 Q Yes. Slant drilling?

13 A No, I'm not qualified to do that.

14 MR. FEEZER: Pass the witness.

15 MR. NUTTER: If there are no further ques-
16 tions, the witness may be excused.

17 MR. COFFIELD: Our second witness is Mr.
18 Larry Shannon.

19
20 LARRY SHANNON
21 being called as a witness and having been duly sworn upon
22 his oath, testified as follows, to-wit:

23
24 DIRECT EXAMINATION

25 BY MR. COFFIELD:

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Q Mr. Shannon, for the record would you please state your name?

A Larry Shannon.

Q And where do you live?

A I live in Dallas, Texas.

Q And what is your occupation and who is your employer?

A I'm a Senior Vice President of the Petroleum Corporation. I have an engineering degree, a petroleum engineering degree professionally.

Q And you are -- you work with Petroleum Corporation as -- in your capacity as --

A I manage the operations and engineering for Petroleum.

Q Have you previously testified before the Division?

A Yes, sir, I have.

Q Are you familiar with the petroleum engineering factors which are pertinent to this area covered by the application in question?

A Yes, sir.

Q Are you familiar with Petroleum Corporation's drilling and development program and activities in this area?

A Yes, sir.

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1 MR. COFFIELD: Mr. Examiner, do you have
2 any other questions of Mr. Shannon?

3 MR. NUTTER: No, Mr. Shannon is qualified.

4 Q Mr. Shannon, I assume you were in the room
5 and heard the testimony of Mr. Brown of Amax that it would be
6 their proposal that we first mine the potash and then the
7 oil companies could come in and recover oil and gas. Did
8 you not hear that testimony?

9 A Yes.

10 Q And if that procedure were followed, how
11 would you propose that an oil or gas well would be drilled
12 through an abandoned open mine shaft?

13 A I have no way of knowing how we'd do this,
14 because we have to circulate drilling fluids, and once you
15 drill into the open mine shaft, I don't know what you'd do.
16 It would be a nightmare and extremely expensive operation to
17 try to encounter. I don't know of anyone who's ever done
18 this. There may be techniques, but they'd have to be developed.
19 I don't know of any proven techniques to do this.

20 Q So would it be your opinion that it would
21 be extremely, much more expensive, and --

22 A And much more hazardous, as well, because
23 you'd have to run pipe through it. You'd have to cement it.
24 All the evaporite section has to be cemented off, and I don't
25 know how you'd do it.

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1 Q Would it raise a serious question in your
2 mind as to the ability to recover the oil and gas deposits
3 at all?

4 A Yes, sir, it would. We think we confine
5 any pressures that we have with the casing programs that
6 we're utilizing, but we'd have to change it completely, and
7 I'm not sure how we'd do this.

8 Q Mr. Shannon, you may have also heard testi-
9 mony and remarks by Mr. Feezer with respect to questions of
10 gas pressure in the wells that you have drilled and the wells
11 that are proposed to be drilled. Can you give us some idea
12 as to precisely what those pressures would be initially and
13 what they would be later in the life of the well?

14 A Yes, sir. Bottom hole pressures in the
15 Morrow zone initially are normally in the range of 4500
16 pounds. You'll see surface pressures of 3000-3300 pounds
17 initially, and as you produce the wells, the pressures de-
18 crease and decline, and that's part of the completion mechanism
19 we use in recovering the hydrocarbons.

20 I have pressures of the flowing wells in
21 the mining area right now, those of Southland Royalty's.
22 There's one well that's flowing on 2000 pressure; one at 500
23 pounds; there's one at 800 pounds; there's two at 1000; one
24 at 1200, you know, so it's in that range. Normally we're
25 restricted to the pressure we can lower the pressure of a

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1 wellhead, to that of what we sell our gas to the gas buyer,
2 and El Paso, Llano, and others, are in the area, and most of
3 their line pressures now are in the 800 pound range. So,
4 until we put compression in, which is a subsequent operation,
5 normally, in the depletion of the gas reservoirs, the pres-
6 sures will be probably no lower than 800 pounds. 500, I don't
7 know how -- Southland must have a little bit lower line pres-
8 sure there that must have occurred at that time. It's kind of
9 unusual.

10 Q Is it your opinion that after a certain
11 period of time, six months or so after the well is put on
12 production, that the well -- the well pressures do drop sig-
13 nificantly?

14 A Oh, yes, and they continue to drop through-
15 out the life of the well.

16 Q Relative to the life of the well, what would
17 you say would the life of the well be?

18 A Anywhere from ten to fifteen years under
19 normal completion techniques. It's what we've seen in this
20 area, and depending upon the reservoir characteristics, it
21 seems to be in that life span.

22 Q Now, in this particular instance, Mr.
23 Shannon, it has been indicated earlier by Mr. Dean that the
24 plan is to develop this area, the Parkway West area, and the
25 Petco Com area, in a rather rapid fashion, as I understood

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1 the testimony.

2 A Yes. Back in August we commenced the Parkway
3 West Unit No. 6 Well, and we put a drilling rig in the area
4 at that time, and our plans were to continue drilling and
5 keep the rig there as long as we continued to drill and com-
6 plete successful wells. We're now drilling the third well
7 and the location and all is prepared for the -- for the
8 fourth development well under this continuous program, the
9 No. 9 location in question, that we talked about earlier, but
10 our plans were, and we didn't really realize that the east
11 half of Section 22 was going to come under R-111-A, and so
12 we feel that the No. 9 location is very important where it's
13 spaced to adequately drain the reservoir to protect our cor-
14 relative rights from existing wells to the east of us, those
15 drilled by Southland Royalty. And if we have to move it,
16 then we'll not be able to recover the reserves that we feel
17 is our -- our share of the reserves in the reservoir. They
18 will drain them from us, and their wells are there, and in
19 essence, they could get our reserves without adequate
20 spacing of the wells.

21 MR. NUTTER: Where are you drilling now,
22 Mr. Shannon?

23 A The No. 8, which is the southwest quarter
24 of Section 22. That well will be down in about two days,
25 Mr. Nutter.

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1 MR. HUTTER: Thank you.

2 Q All right, Mr. Shannon, let's go to what
3 we've marked as Exhibit Six and would you please explain that
4 exhibit and why we tendered it as an exhibit?

5 A All right. Exhibit Six is a key well and
6 probably our most disappointing well that we've drilled in
7 this area, and it was the first well that we drilled. It's
8 the production history of the well that, what we think it's
9 told us all along is that there are significant reserves in
10 the area and we had to move out and find them.

11 This well is probably the poorest perfor-
12 mance well that we have, economically speaking, and yet we
13 think that it -- because of this performance, it indicates
14 that we're definitely on the edge of a larger reservoir, and
15 all we need to do is get up-dip structurally.

16 Q Okay, let's go on now to Exhibit Number
17 Seven. Would you please explain that exhibit?

18 A Yes, sir. Exhibit Seven really covers the
19 economics, as we see them, for three wells in the area.

20 The first two pages shows the economics of
21 the Parkway West Unit No. 6 Well, which we have recently
22 completed but not yet put on production. This shows the
23 economics of our working interest, which is 38.514 percent,
24 and you can find this on the second page. All the input
25 data is there. It does show what we believe the gross re-

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1 serves will be, the net reserves to us, the expenses neces-
2 sary for us to get those reserves out of the ground, and the
3 future income before Federal income taxes, and a cumulative
4 present worth -- value of this cash flow, discounted at 10
5 percent, and we all know that money has value, and that's the
6 idea of showing that.

7 Now, the Parkway No. 6 Well is the one
8 that -- if I may look at a map here a second -- it's in the --
9 it's in 21. It's in the southeast quarter of Section 21.
10 That was the first well we drilled in this current develop-
11 ment program that we started in August.

12 Now, the next one is the Parkway West Unit
13 No. 9 Well, the location in the northeast of Section 27.
14 This we believe is a reasonable conservative estimate of what
15 we think the reserves will mean to us. In this economic fore-
16 cast we show not only the operating costs necessary to lift
17 the hydrocarbons to the surface and sell them, but also the
18 costs to drill the well. In other words, it's net. It's
19 cash. It's our sales less any costs that we anticipate, for
20 just the Petroleum Corporation's interest, which we say is
21 worth \$2,219,000. Now, if you gross that number up from
22 our 38.5 percent working interest to the full 100 percent
23 working interest, which is the value of everyone that we
24 represent in this well, that comes out to \$5,762,000 in value
25 net of all costs.

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1 So we think it's significant, and I'd like
2 to also point out in this economics, that I think the reserves
3 are very conservative. We've seen some areas we can get
4 4-billion cubic feet of gas, double what I'm showing right
5 here. 2 is just something that we used because it's an un-
6 developed location, and it is risk adjusted.

7 Now, the next two pages, or the last two
8 pages of this exhibit, Petco State No. 3, and this shows what
9 we think the economics are for the location in the northwest
10 quarter of Section 26. Here again, it's for only our interest
11 but in this area Petroleum Corporation owns 51.6 percent,
12 and you can gross that out to something over \$4,000,000 in
13 future net revenue for that well, looking at the Strawn zone
14 only, the economics of the Strawn, not the Morrow zones.

15 Q Do you have any further details on this
16 exhibit that you'd like to discuss?

17 A No, other than I'd like to qualify it in
18 the fact that -- that reserves, and the estimation of reserves,
19 and cash flows in the oil business, is still difficult to do,
20 and of course, the more production history you have, the more
21 accurate you can be, and all three of these locations we
22 don't have any production history, and in two of them we
23 haven't drilled the well yet, so, you know, it's much more
24 difficult to do, but it's something that we use as economic
25 outlines.

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1 Q Mr. Shannon, if Amax' application is granted,
2 what would be the impact on the Petroleum Corporation's de-
3 velopment of the oil and gas pool in this particular area?

4 A Well, to begin with --

5 Q First of all, let's assume two different
6 things could occur. First of all, if the well were not
7 drilled; that is, by virtue of the expansion of the area, if
8 in effect, it can't be drilled, number one.

9 And number two, if the wells are allowed
10 but with restrictive casing procedures as are outlined in
11 R-111-A.

12 A Well, if we're not allowed to drill there,
13 we will lose our correlative rights because of the drainage
14 pattern, I believe, because we've already given up the east
15 half of Section 22, and we feel in fairness to everyone, that
16 we've got to have a well somewhere to drain part of the re-
17 serves, and it's partly State reserves, too, State land, in
18 Section -- and by placing a well where we have positioned it,
19 we believe we've optimized the drainage pattern.

20 Now, we of course have a drilling rig, and
21 that drilling rig costs us something like \$5000 a day, and if
22 we don't have another location to go to, we'll be penalized
23 \$5000 a day, plus we've spent another \$15,000 preparing -- in
24 preparation of the location, and to build another location
25 takes five days, so that would be another \$15,000, \$20,000

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1 for the dirt work, plus the \$25,000 standby on the drilling
2 rig. That's the economics we're talking about short term.

3 Now, the other question, the second part of
4 that, I'm not sure.

5 Q The restrictive casing procedures which can
6 be imposed, or would be imposed, pursuant to the provisions
7 of R-111-A.

8 A Oh, right. The way we look at R-111-A,
9 where we have to run 20-inch casing to about 400 feet,
10 13-3/8ths casing down to about 1500 feet, and 8-5/8ths inch
11 casing then down to 3000 feet, adds approximately \$70,000
12 to the cost of our drilling this well. That's in additional
13 cementing, the additional casing that we have to buy, the
14 additional rig time that's involved in this. That's give,
15 then, two cemented zones of pipe to protect the potash, as
16 well as our production string of pipe that would later be
17 placed there, or cement inside the casing if the well is
18 plugged and abandoned.

19 Q Okay. In the cross examination of Mr. Dean,
20 Mr. Feezer had indicated an interest in knowing about the
21 feasibility of whipstocking or slant hole drilling, and you
22 would be our witness who can testify to that matter. Would
23 you please expound on that possibility?

24 A Okay. In Section 9, to begin with ---
25 MR. FEEZER: In Section 9?

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1 A Or excuse me, our location 9 in Section 27,
2 to build another location, just in the next week or so, we
3 would have to spend another -- we've already said we spent
4 \$15,000 now. We move down here, we'll spend \$20,000 building
5 another location, \$25,000 for the standby of the rig, plus
6 for directional control, at least \$50,000, to try to get the
7 directionally controlled well up-dip underneath that acreage.
8 It's a considerable amount of money, and we don't own all the
9 interest in the well. We'd have to get all of our partners'
10 approval, and it may take time, which may even delay, and
11 with that \$5000 a day in the rig, if we lose the rig we may
12 not get it back for six months. The rig availability is
13 terrible right now, I mean there's such a demand for drilling
14 rigs, and we talk about economics, and you know, with 8-million
15 barrels a day that we're importing of oil in the United States
16 it's -- it's quite a burden on us.

17 Q Mr. Shannon, do you have any further com-
18 ments to make with respect to the engineering and economic
19 aspects in this particular project?

20 A No, sir.

21 Q Were these Exhibits Six and Seven prepared
22 by you or under your supervision?

23 A Yes, sir, they were.

24 Q And again to reiterate, if Amax' application
25 is approved, is it your opinion that this will result in waste

1 and the violation of correlative rights?

2 A. Definitely.

3 MR. COFFIELD: Mr. Examiner, I move the
4 admission of Exhibits Six and Seven.

5 MR. NUTTER: Petco Exhibits Six and Seven
6 will be admitted in evidence.

7 MR. COFFIELD: And I have no other questions
8 of Mr. Shannon on direct examination.

9 MR. NUTTER: Are there questions of Mr.
10 Shannon?

11 MR. FEEZER: Yes, sir.

12 CROSS EXAMINATION

13 BY MR. FEEZER:

14 Q Mr. Shannon, your Exhibit Six reflects a
15 well located in Section 21, as I understood your testimony?

16 A 26. It's this well in Section 26. Down
17 here. It's not on your map, but it's --

18 Q In the southeast quarter of Section 26?

19 A. Yes, sir.

20 Q And your geologist testified that he thought
21 the best well, or key well, was up here in the northeast
22 corner, running on a line up here into the -- through the
23 northwest quarter of 26 and maybe touching the northeast
24 quarter of 27?
25

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1 A I'm not a geologist and maybe we should ask
2 Hal this, but my understanding is, and let's look at our map
3 because these are core holes, and I --

4 Q Well, let's rephrase the question. These
5 locations which you've applied for, in the engineers and
6 geologists judgment are the ideal locations.

7 A The optimum locations, that's correct.

8 Q All right. And --

9 A For not only structure, geologically, but
10 also engineeringwise for drainage.

11 Q All right, and you offer Exhibit Six because
12 you think a projection of what you're getting here in the
13 poorest well of the bunch, in the southeast quarter of Section
14 26, will greatly improve as you drill these wells going in
15 the northwesterly direction from that point.

16 A Yes, sir, and it also tries to show the
17 fortitude of our staying in there with marginally an unattractive
18 well to begin with.

19 Q All right.

20 A The first one we drilled.

21 Q And you offered and received Exhibit Seven,
22 shwoing Parkway West 6, plus 9, and Petco State 3, are pure
23 projections. computer projections, are they not?

24 A Well, when you figure the mathematics, that's
25 right, and I -- I tried to qualify that, and I think we're

1 conservative in this, though, too. We try to be.

2 Q And in your Exhibit Seven, you showed or
3 testified to a 2,219,000 dollar future net income after in-
4 vestment, but I did not see the 5,000,000 you spoke of.

5 A No, sir, I did --- I did a mathematical cal-
6 culation on it.

7 Q All right, that 5,000,000 does not show on
8 the Parkway West exhibit, does it, at all?

9 A No. Let me tell you the method that --

10 Q If you would, please.

11 A I took the 2, 219,388 and divided it by
12 .385140. That's our working interest in the well, so that
13 grosses it up into 100 percent of the working interest.

14 These cash flows apply to only our interest
15 and this, you know, there are twelve of us that own this.

16 Q And at what price rate do you calculate
17 this gas being sold to make these projections?

18 A All right, on the second page, if you'll
19 look.

20 Q Parkway West 9?

21 A Uh-huh, look at the second page, input data
22 it shows that by year, oil and gas price. We show the percent
23 of escalation by year.

24 Q Projected to '94?

25 A Yes, sir.

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1 Q Okay.

2 A The price is up to \$6.00 and oil up to

3 \$50 a barrel in 1994.

4 Q And you're telling the Commission and those

5 here that these are conservative estimates.

6 A We think they are.

7 Q Okay. Do you have the expertise to give

8 answers in connection with the engineering or drilling of a

9 slant well to reach the structure you want to reach in 26 and

10 27?

11 A I thought we discussed that a few minutes

12 ago.

13 Q Well, do you feel that you can answer

14 questions about it?

15 A Yes, sir.

16 Q All right. Assuming that the potash com-

17 pany in some attempt to work out a solution to the problem,

18 agreed to leave a column, mine around it but without a well

19 going through it, would that make you alarmed if -- less

20 alarmed, so that you could live with it, if you knew that

21 there was a column with 100-foot radius at the location where

22 you want to drill Parkway West No. 9 and get it at a future

23 time? I'm talking just about the risk of drilling, the

24 hazard, et cetera.

25 A Forgetting the time value of our product?

1 Q Yes, forgetting the time value, for ---

2 A It certainly has a time value.

3 Q Oh, it has, okay, I understand.

4 A 100 or 200-foot radius? I thought it was
5 originally 200.

6 Q Well, depending on if it's second mined or
7 not. Starting with a 100-foot radius, 200-foot diameter.

8 MR. NUTTER: Now, Mr. Feezer, as I under-
9 stand what you're talking about here, would be that --

10 MR. FEEZER: The mine would proceed but
11 leave the column and no well there.

12 MR. NUTTER: And you would leave a column.
13 Then this would remove his doubts about drilling through a
14 mined area.

15 MR. FEEZER: Yes, sir.

16 MR. NUTTER: Is that what you're talking
17 about?

18 MR. FEEZER: Yes, sir.

19 MR. NUTTER: I see.

20 Q What's your reaction to that thought?

21 A We're talking about --- what is your mining
22 level, from 700 to 1000?

23 Q 750 to 950, maybe 1000. And you're opening
24 up about four feet of open ground.

25 A Four feet, is that the maximum height?

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1 Q Fifty inches, maybe a little bit more. Bob
2 Brown can ---

3 MR. BROWN: Chuck, after you second mine.
4 We take 90 percent extraction. You don't have over that much.

5 Q With the subsidence.

6 A Uh-huh.

7 Q But I'm not --- I haven't asked the subsi-
8 dence question yet.

9 A Uh-huh.

10 Q I'm talking about just the first mining.

11 A It's theoretical. I've never tried.

12 Q I understand that. Neither have we, under-
13 stand.

14 A Yes, sir.

15 MR. NUTTER: Well, Mr. Shannon, if you were
16 drilling a hole through the middle of 100-foot column of
17 salt that's only just surrounded by a 4-foot cavern around
18 that, I don't think it would disturb your drilling operations.

19 A Probably not, you know, it would certainly
20 be a lot better --

21 MR. NUTTER: As long as you were going through
22 the middle of that column of salt or potash.

23 A I'd rather do that than to drill into the
24 mine shaft, because that's what, you know, I suppose there is
25 a chance that you could do it.

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1 Q That's what I wanted to know.

2 Now, when did you first learn that Amax was
3 pursuing a core drilling program in 26 and 27?

4 A We didn't know that, and as far as I know,
5 we were never notified of the core drilling program.

6 The first we knew was the hearing on your
7 extension of the east half of Section 22, and we thought that
8 was all you wanted, because that was just a few months ago
9 that the half of Section 22 was added into R-111.

10 Q Did you attend that hearing or one of your
11 representatives?

12 A We had a representative attend but we
13 didn't try to contest it or anything at that time. We thought
14 we could still live with that, but we didn't know that there
15 were others coming subsequent to that.

16 Q Were you informed by your representative
17 that we were pursuing an active core drilling program, both
18 to the south and east at that time?

19 A I personally was not informed. There may
20 have been someone in our organization that was.

21 Q Did you obtain a copy of the record of that
22 hearing and review it after it was over?

23 A I did last week, but I did not before that
24 time.

25 Q Did that reflect in the record? Did you

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1 pick that up?

2 A Yes, I noticed it then, but, you know ---

3 Q did you receive a letter from me dated
4 November 26th?

5 A Yes, sir, I did.

6 Q And was that the first notice you had that
7 we had a problem?

8 A Yes, it is. It's the first I knew that
9 this was even docketed.

10 Q And you get your mail at 13 whatever it is -

11 A 3303 Lee Parkway.

12 Q And what's the correct name of your cor-
13 poration, Petroleum Corporation, or Petroleum Corporation of
14 Delaware?

15 A The Petroleum Corporation of Delaware.
16 Now, we're bonded in New Mexico under just The Petroleum
17 Corporation.

18 Q Are there two different companies?

19 A Well, there's a Petroleum Corporation of
20 Texas in Texas, and because of that we added the Delaware
21 because that's the state we incorporated; not where the cor-
22 porate headquarters are.

23 Q How are you registered to do business in
24 the State of New Mexico?

25 A I'm not positive on that. I'd have to

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1 double check that. I don't know.
2 Q Now, who is your statutory agent here, then,
3 do you know that?
4 A Can you --
5 MR. COFFIELD: I'm advised it's C. T. Cor-
6 poration.
7 MR. FREEZER: C. T. Corporation, thank you.
8 MR. COFFIELD: Yes.
9 Q Do you know anything about potash or potash
10 mining?
11 A No, I really don't. I'm not an expert in
12 that.
13 Q Are you aware of the fact that your appli-
14 cation, as shown by Applicant's Exhibit Number Three, was
15 one day after Amax filed its application to extend R-111-A?
16 Do you understand that we filed on the 8th
17 of November?
18 A Which well are we talking about now?
19 Q We're talking about the one in Section 27.
20 A No, I knew nothing about that at all. You
21 know, the first I knew that -- was a letter I received from
22 you sometime after the 26th of November.
23 Q And you were not aware of the fact that
24 we filed our application one day prior to the time you filed
25 your application?

1 A. Sir?

2 Q. You were not aware of the fact that we filed
3 our application on the 8th and yours, of course, was filed on
4 the 9th, until later on?

5 A. Yes, sir, of course, you know, it took a
6 few days before that. We had to stake the well and it was
7 probably two weeks involved before that was filed, you know,
8 the time you send a surveyor, and --

9 Q. And your --

10 A. I mean that's not an instantaneous type re-
11 quest. It takes one to two weeks to --

12 Q. When you filed this, it was handled in the
13 Artesia Office, was it not?

14 A. Yes, sir, it was.

15 Q. And you did not have any communication with
16 the office here in Santa Fe for the application to drill
17 Parkway West No. 9.

18 A. No. I had no communications with them, no.
19 We did in drilling No. 8 Well.

20 Q. Yes, sir, I understand that.

21 A. We were concerned about that; even 7 and 8.

22 Q. Now, you're concerned about the economic
23 impact of the -- whatever this Commission may do about this
24 location. Is there any way that you can deflect this rig to
25 some other location to mitigate your costs until this issue

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1 is decided?

2 A It would be very expensive. I don't have
3 the authority to do it, because, you know, we don't have
4 another location to move the rig. It takes weeks to get a
5 permit, get the location built. We don't have our partnership
6 approval and that takes thirty days. We'd lose the rig. We
7 would really have a difficult time with our current develop-
8 ment program, because we have approval from all the other
9 interest owners. Like I've said all along, that we own about
10 38 percent of the oil and gas lease there and we went to all
11 the other twelve interest owners with what we call an author-
12 ity for expenditure, AFE, and they had thirty days in which
13 to reply, and they all approved of our drilling this well,
14 and that was all taken care of before we spotted the well and
15 everything, and we've working on it for --

16 Q Before you made your application on the
17 9th?

18 A Yes, sir, it was two months before that,
19 before the application. That's just kind of behind the fact.
20 I've got correspondence in my file that shows we were working
21 on it two months before that, I'm sure.

22 Q Assuming the Commission, or the Examiner,
23 could expedite a decision in this matter, could you obtain
24 within a five-day period authorization to drill a slant well
25 from some place below the north half of the northeast of 27

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1 to reach your oil or gas bearing strata?

2 A Who pays for the extra cost?

3 Q I haven't reached that question yet. We
4 will later on.

5 A Well, I don't have the authority myself to
6 move a location. Only the president of our corporation has
7 that authority.

8 Q All right, at least at this time it's not
9 a possibility.

10 MR. FREEZER: I believe that's all.

12 CROSS EXAMINATION

13 BY MR. NUTTER:

14 Q Mr. Shannon, on your Well No. 6, your pro-
15 jections here for future performance.

16 A Yes, sir.

17 Q It looks as though you've just arbitrarily
18 for some reason selected 3-billion cubic feet as the ultimate
19 reserves for this well and then the computer backed up from
20 there with all the interests and costs, and so forth, allo-
21 cated.

22 A It's really not arbitrary.

23 Q No, I ---

24 A We have production history in the area.

25 We think this well is better than our No. 2 Well. The No. 2

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1 Well has already produced over 2-billion cubic feet. We
2 think that really it probably is more in the 4-billion range,
3 but since it's early, I don't try to round them off any
4 closer than to try to get them in a billion or a billion and
5 a half range, because I can't actually estimate it any closer
6 than that.

7 Q But everything --

8 A That's our best estimate at this time.

9 Q Everything is based on backing up from a
10 preselected ultimate reserve of gas for the well of 3-billion
11 feet, right?

12 A Essentially that's the way the computer
13 program works. That's the mechanics of the computer program,
14 but that is not the mechanics of how we actually arrived at
15 the numbers, Mr. Nutter.

16 Q No, probably a reservoir engineer with a
17 little Texas Instrument calculator selected 2-billion feet
18 on his desk and then gave it to the computer to figure out,
19 isn't that right?

20 A That's a lot of it, yes, sir. And we have
21 we have an excellent well. This -- this well will produce
22 about 4-million cubic feet and we haven't even acidized it,
23 and we have probably four other zones to perforate, so we
24 felt comfortable --

25 Q With 3-billion?

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1 A With 3 billion.

2 Q And then likewise, on the No. 9, you took
3 a 2-billion cubic foot figure and backed up --

4 A Risk adjusted, Mr. Nutter.

5 Q And then on your costs you decided somehow
6 or other that by 1994 gas would be \$6.00 a barrel.

7 A It's 10 percent a year escalation is where
8 we got that.

9 Q I mean gas would be \$6.00 an Mcf and the
10 Ayatollah would be charging us \$50 a barrel for oil.

11 A I've seen major oil companies use higher
12 numbers than that.

13 Q Oh, I'm sure that the Ayatollah would agree
14 with you that \$50 is conservative here.

15 A Well, we're receiving \$34.50.

16 Q He's going to want \$150 by then.

17 A Mr. Nutter, we're receiving \$34.50 for those
18 four barrels a day we're producing in that Petco State No. 1
19 right now. Now, how long it will stay there, I don't know.

20 Q And then with respect to Well No. 3, it
21 looks like the basic figure that was backed -- that was
22 selected and then everything backed out of it, was 140,000
23 barrels of oil from that well.

24 A That's the Strawn zone.

25 Q And that's a Strawn well.

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1 A And we anticipate oil in a different ratio.
2 The ratios in that area normally come out around 7000-to-1.
3 We've, you know, that's -- it's just the way that we look at
4 it.

5 Q Well, your performance on the No. 1 Well
6 has been approximately 7000-to-1, hasn't it?

7 A Yes, sir.

8 Q Over the life of the well.

9 A Net, it has, and the No. 1 Parkway West Unit
10 has, too.

11 Q Now, the No. 1 Parkway West, it's not an
12 oil well, is it?

13 A It's classified as a gas well, but it has
14 a high GOR, and we --

15 Q And it's run in the neighborhood of 7000,
16 also?

17 A Yes, sir, it does. We have special pool
18 rules for that, Mr. Nutter. We came up right after we dis-
19 covered that and asked for the special rules.

20 Q Well, now this calculation for the Well No.
21 3, that's not a 7000-to-1 ratio you've got there.

22 A No, I know. So that's why I'm saying con-
23 servative.

24 Q Well, you're figuring you're going to get
25 a low ratio oil well right in the middle of these two gas

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1 wells, is that it, or high ratio oil wells, whatever they
2 are?

3 A We're looking at only the reserves from the
4 Strawn, which we think have the lowest risk to develop. If
5 we can get the Morrow gas and the others, that's gravy to us,
6 an additional income.

7 Q Well, now what about Morrow development in
8 Section 26? Have you given any thought to Morrow wells in
9 Section 26?

10 A Yes. Well, we -- we want to drill the pro-
11 posed location to the Morrow.

12 Q The No. 3 is projected to the Morrow?

13 A Yes, sir.

14 Q Well, it's a non-standard location for the
15 Morrow.

16 A That's right. We couldn't produce from it
17 without a special application, no. Of course, we don't have
18 a drilling permit there, either.

19 Q Well, you haven't even filed for a Morrow
20 well there, have you?

21 A Yes, sir, we did, but only to drill and
22 expose it, and if we have adequate zone, then we would come
23 to the Commission again and ask for approval to maybe dual
24 complete or produce that zone as well.

25 Q Well, your Form C-101, which is part of

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1 Amax's Exhibit Three, states it's projected to the Strawn
2 formation, although it does give the depth as being 11,800.

3 A 11,800, see, it's to the -- to the Morrow.

4 Q But you haven't said that you were going
5 to the Morrow here, nor that you're at an unorthodox location
6 for the Morrow.

7 A We are that, an unorthodox location.

8 Q Okay. Now, the No. 9, do you intend to
9 complete it as a Strawn well if it's productive in the Strawn?

10 A We would dully complete it.

11 Q Uh-huh, so it's been projected to Morrow,
12 which would take care of the Strawn, subject to the approval
13 of a dual completion.

14 A Yes, sir.

15 Q And it is a standard location --

16 A Standard location in the Morrow.

17 Q -- in the Morrow.

18 A We're more worried about correlative rights
19 on the Morrow there. Hopefully, serendipity will come in and
20 we'll have them both, so --

21 Q I see.

22 A But we have to identify which is the primary
23 objective.

24 Q Now, when you mentioned that it would cost
25 you an additional \$70,000 to comply with the casing and cementing

program in R-111-A, what were you talking about? You said you'd have to run 20 inch to 400 feet?

A. That's our understanding.

Q. And 13-3/8ths to what depth?

A. 1500 feet.

Q. And then you mentioned 8-5/8ths.

A. 8-5/8ths to 3000 feet. Now, we run 8-5/8ths to the 3000; that's not an added expense.

Q. Right, so that's not an additional cost.

A. And we normally run 13-3/8ths to 400 feet and then circulate cement to the surface, so we would have to add the 1100 feet of 13-3/8ths, plus the 400 feet of 20-inch.

Q. And that, and the cementing thereof.

A. And the cementing -- cementing and drilling time.

Q. Would cost an additional \$70,000.

A. That's what we're estimating. We've not done this, so, you know, we don't have the actual cost behind us, but that's a reasonable estimate, we believe.

Q. Now, in the event that the Commission should allow the continued effectiveness of your drilling permit for Well No. 9, would Petco be amenable to altering the casing-cementing program to comply with R-111-A, if the area were extended? To include that 40-acre tract?

A I, you know, that's up to our --

Q You'd be drilling in R-111.

A You know, but I think we would. We've always tried to get along with everyone, Mr. Nutter. I don't have the authority to say that, but I can anticipate that we probably would.

Q A solution like that, I realize wouldn't make anybody happy.

A No, sir.

Q We'd be extending the area and altering your casing program.

A Yes, sir.

Q But we would also be permitting a well in R-111-A territory.

Sometimes that's our best solutions, the ones that don't make anybody happy.

A Yes, sir. Well, at least we could still drill.

Q Now, you mentioned that the rig on No. 8 would be through in about two days. What was the drilling depth this morning?

A Well, it will be at total depth in two days. It's really going to be four or five days before we can log it, and then if we are fortunate, to run pipe and be in a position to move.

Q If it reaches TD in 48 hours there would be another 72 hours in which --

A I think in either plugging or --

Q Before you could move the rig off.

A Yes, sir, before you plug the well or run pipe, and --

Q You know, did you test the Strawn in that well?

A No, sir, we did not drill stem test it.

Q How did it look? Have you gotten --

A We had a drilling break. Hal's -- we'd have to go back to Hal on that. He's more up-to-date on that.

MR. DEAN: We had a drilling break but we did not open hole test it.

MR. HUTTER: And you don't have any logs on it yet.

MR. DEAN: No, sir.

A No, sir. We do not.

Q So that well may have a potential in the Strawn, then.

MR. DEAN: Yes.

A We hope so.

Q And you're not deep enough to really know if you've got anything in the Morrow or not.

MR. DEAN: No, sir, We have this bottom 400 feet where our pay's coming in.

A But we've made good -- the No. 6 is an excellent well and the No. 7, we've just flowed gas out of it at rates from 2 to 3-1/2-million cubic feet. It's not as good a well, we don't believe, as the No. 6 Well, but it's certainly an economically attractive venture for us to drill the No. 7.

Q Now, I presume the No. 7 has the north half of Section 22 dedicated to it and the No. 8 has the south half of the section dedicated to it.

What are you proposing to dedicate here to this No. 9?

A The north half.

Q So there would be another location.

A Yes.

Q Then the No. 10 would have the south half.

A I think Hal shows that.

Q The No. --

A If you'll notice in Exhibit One, or any of them, there.

MR. NUTTER: I believe that's all I have. Does anyone have any further questions of Mr. Shannon?

MR. COFFIELD: Yes.

MR. NUTTER: Mr. Coffield.

REDIRECT EXAMINATION

BY MR. COFFIELD:

Q On these economic analyses, Mr. Shannon, were these prepared specifically for this hearing?

A No, they were not. That's just an in-house type work that we do, and it wasn't --

Q A work plan? Is that the reason they are a conservative --

A Sure. It has nothing to do with the hearing at all. We just brought all the data we could.

Q And in view of the urgency of Petroleum Corporation's proposed development in this area, which has been alluded to many times, I trust that you are formally requesting that the Examiner expedite this matter.

A It certainly would help us.

MR. COFFIELD: Thank you.

MR. NUTTER: Are there any further questions of Mr. Shannon? He may be excused.

Okay, I'll call for closing statements. Mr. Feezer, as Applicant, you're entitled to go last.

MR. COFFIELD: Mr. Hensley is prepared

to make a closing statement.

MR. NUTTER: Mr. Hensley.

MR. HENSLEY: If the Commission please --

MR. NUTTER: Just a second. I forgot to ask if anyone else has anything to offer in this case.

Proceed, Mr. Hensley.

MR. HENSLEY: I'll make this very brief, Mr. Examiner.

First of all, I would like to say that I think that there is a serious question in this record as to whether or not there's been a prima facie showing in the R-111 that any commercial deposit of ore exists. I think the only thing that can be said is that if this ore is in fact ultimately mined, which might occur, I believe, as Mr. Brown has indicated, somewhere between the next few years and nineteen and a half years, that it could not be commercial unless it were blended with a higher grade ore.

In addition, there's been no core drilling at all in the area in the north half of the northwest quarter of Section 26, and I don't see how a reasonable projection of mineable ore can be made in the absence of even one core hole being sunk in the proposed area to be extended.

In addition, I think -- and by the way, in connection with this blending, I believe Mr. Feezer re-

requested that the transcript in Case Number 6495 be incorporated, and that transcript is replete with evidence from Amax as to the necessity to blend this low grade ore in order for it to be commercial at all.

Secondly, I think this case can be analogized to some extent to a companion case back in 1978 that I participated in on behalf of Bass Enterprises Production Company, Case 6077. That case, as is true in this case, involves the provisions of Article II of R-111, and that is that under the express provisions of the order itself there can be no mining operations which would unreasonably interfere with the orderly development and production from any oil or gas pool.

Now, I don't think there's any evidence in this record to the contrary except the evidence to the effect that Petroleum Corporation is involved in the development of an existing pool, both in the stratigraphic horizons of the Strawn and the Morrow, and I believe it would be a violation of the intent and purpose of R-111 to cause an extension of this area to be made if the effect of the extension would be to deny to Petroleum Corporation, or any other oil and gas operator, the right to proceed with the orderly development of an existing pool.

I think the record is uncontroverted, likewise, that the -- to extend this area and not permit

Petroleum Corporation to drill the proposed wells, Nos. 3 and 9, would result in a loss of correlative rights to them and would constitute economic waste.

If the Commission feels that the boundaries for R-111 should be extended to incorporate the proposed area requested, I would respectfully submit that under no circumstances should the existing permit for the No. 9 Well be changed. The permit has been granted. There has been reliance upon the application. The location has been built. The rig has been contracted for, and I certainly don't need to state into this record for this Commission, because you can take administrative notice as to the effect of a delay on that drilling activity, or the imposition of an additional casing program. I think it would, in effect, be an *expos facto* effect of R-111, if it were in fact extended.

And finally, with respect to number three, I think that the record, likewise, with respect to that area, is uncontroverted, and that is that the Union State No. 1 Well was drilled to a depth below 4000 feet; was plugged and abandoned back in 1961; and that no additional loss of potash could possibly occur from the twinning at that location, unless the radius proposed to be left for a pillar around an existing wellbore was increased arbitrarily to more than 100 feet.

Thank you, sir.

MR. HUTTER: Mr. Feezer?

MR. FEEZER: The economics of oil vis-a-vis potash is getting worse all the time. And we understand it and the oil people understand it, and assuming first of all, that you talk about the casing program and allow the well in 27, our projected economic loss is 2-million plus, and the oil company's is the 70,000 plus for a differential casing program to comply with potash bed casing regulations. So when you talk about the equities of that alone, there's a substantial difference.

The point made by Mr. Hensley in regard to the old Union State No. 1 has considerable merit. I don't think that the safety factor is such that no matter what happens here today, Amax is going to leave a pillar around there in view of the fact that it's not cemented to the bottom; it's an old hole; the risk of endangering \$120-million investment in the mine, plus millions of dollars of potential further production over the next 19 to 20 years, is such that they wouldn't take the risk of turning it into a gassy operation.

So, I can't argue strenuously that at least as to that old Union State No. 1, that we won't leave it no matter what you decide to do. If you include it in R-111-A, as we've asked for, we still feel that we must -- and I feel, I don't make technical decisions, but I feel

that that's probably the safest process, which they will pursue.

We are concerned, extremely concerned, with Unit No. 9 in 27. We've been pursuing a good faith process of exploratory drilling; coming up here when we had 80 or 100 acres of new core drilling, and advanced our known geological area of recoverable ore, and we made our application in a timely fashion; we've been coming here on a regular basis; the witness knew of the previous case numbers; knew that we were going ahead with the program; had access to the record of that fact; and they sat back assuming we weren't moving, too. We've made our move and we made it on the 8th. They made theirs on the 9th, and without being critical of anybody, the communication between the Artesia office and the Santa Fe office as to what was happening, brought about a problem that is now here in front of us.

The application on the 8th by Amax was probably unknown in the Artesia office. So, in the regular course of business, you subsequently authorized and entered into the permit with Petco to go ahead and drill. Then it became apparent to both of us that there was a conflict, and it sets up the problem of, one, how quickly do we get a decision, because a large number of dollars are immediately at stake, and in that connection, I'm going to

offer, if I may, a letter styled Exhibit Number Four, addressed to the Oil Conservation Commission, and I deliver, hand-deliver, a copy to the Director's office, Mr. Ramey. I think it should be made a part of this record for what probitive value it may have, indicating that under Section 70-2-29 we are concerned about the economic threat, and we have to pursue this process, as I read the statute.

So I would move to offer this at this time as part of the record.

I would hope that whichever way you deem is the appropriate way to go, that you can, in the words of a former judge in the Fifth District, give us justice or if you don't, make it damned sure swift. We need a quick answer. I think both of us do under these circumstances.

MR. NUTTER: Okay, gentlemen, I'm going to -- thank you, Mr. Feezer.

MR. FREEZER: Yes, sir.

MR. NUTTER: I'm going to read a portion of the statute here, concerning hearings before the Examiner. Among other things it says, "In the absence of any limiting order, an Examiner appointed to hear any particular case shall have the power to regulate all proceedings before him and to perform all acts and take all measures necessary or proper for the efficient and orderly conduct of such hearings, including the swearing of witnesses, receiving of testimony,

and exhibits offered in evidence, subject to such exhibits that may be imposed, and shall cause a complete record of the proceedings to be made and transcribed, and shall certify the same to the Commission"-- that has been changed to Division, now -- "for consideration together therewith" -- "together with the report of the Examiner and his recommendations in connection therewith.

The Commission shall base its decision rendered in any matter or proceeding heard by an Examiner upon the transcript of testimony and record made by or under the supervision of the Examiner in connection with such proceeding, and such decision shall have the same force and effect as if said hearing had been conducted before the members of said Commission."

In the interest of expediting it, I wonder if the parties to this hearing would waive the requirement that I wait until I've got a complete record, a transcript of the hearing, before making a recommendation to the Division for disposition of the case, because I think Sally's going to -- this has been a lengthy hearing, and she's not going to be able to get a transcript to us for a few days at the best.

MR. COFFIELD: Yes, sir, I would.

MR. FREEZER: Yes, sir, we will.

MR. NUTTER: You would waive the require-

ment that I wait for a transcript?

MR. FREEZER: Yes, sir.

MR. NUTTER: Thank you, gentlemen. I think with that, if there is nothing further in Case Number 6753, we will take the case under advisement.

MR. FREEZER: And will you receive Exhibit Four, sir?

MR. NUTTER: And Exhibit Four will be admitted.

MR. FREEZER: Thank you.

MR. NUTTER: And we'll recess the hearing until 2:15.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter,
DO HEREBY CERTIFY that the foregoing and attached Transcript
of Hearing before the Oil Conservation Division was reported
by me; that the said hearing transcript is a full, true,
and correct record of the hearing, prepared by me to the
best of my ability from my notes taken at the time of the
hearing.

Sally W. Boyd C.S.R.
Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 6753
heard by me on 12/12 1979.

[Signature], Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 December 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of Amax Chemical Corporation) CASE
for the amendment of Order R-111-A, Eddy) 6753
County, New Mexico.)

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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1 MR. NUTTER: We'll call next Case Number
2 6753.

3 MR. PADILLA: Application of Amax Chemical
4 Corporation for amendment of Order No. R-111-A, Eddy County,
5 New Mexico.

6 MR. NUTTER: We'll call for appearances in
7 Case Number 6753.

8 MR. FEEZER: My name is Charles A. Feezer,
9 of the firm of Dow and Feezer in Carlsbad, New Mexico, and
10 I'm appearing on behalf of Amax Chemical Corporation.

11 MR. COFFIELD: Conrad Coffield and Harold
12 Hensley, of the Hinkle Law Firm, appearing on behalf of the
13 Petroleum Corporation.

14 We will have two witnesses.

15 MR. NUTTER: Other appearances? Would you
16 proceed, Mr. Feezer?

17 MR. FEEZER: Yes. I have four witnesses,
18 Mr. Examiner, Mr. Bob Kirby, Mr. Bob Brown, Mr. Everett
19 Jourdan, and while not a witness, Mr. John Burleson of the
20 USGS will be making a statement.

21 Would those three that I first named step
22 forward and raise your right hands and be sworn, please?

23 MR. NUTTER: Mr. Coffield, would you have
24 your witnesses also stand and be sworn?

25 MR. COFFIELD: Mr. Hal Dean and Mr. Larry

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1 Shannon.

2

3

(Witnesses sworn.)

4

5

MR. FEEZER: Mr. Bob Kirby is my first

6

witness.

7

8

BOB KIRBY

9

being called as a witness and having been duly sworn upon his

10

oath, testified as follows, to-wit:

11

12

DIRECT EXAMINATION

13

BY MR. FEEZER:

14

Q

Would you please state your name, address,

15

and occupation?

16

A

Robert Kirby, 1504 Jefferson, Carlsbad..

17

Q

And --

18

A

I'm a Mine Superintendent.

19

Q

Are you also a mining engineer by training?

20

A

Yes, I am .

21

Q

Have you previously testified before the

22

Oil Conservation Commission in other matters relating to

23

the extension of R-111-A and oil and gas in the potash in-

24

terests?

25

A

Yes, I have.

1 MR. FEEZER: Mr. Examiner, do you care to
2 go further into his qualifications?

3 MR. NUTTER: No, sir. Mr. Kirby is quali-
4 fied. We're acquainted with him from previous cases.

5 Q Mr. Kirby, in your capacity as Mine Super-
6 intendent and as a mining engineer, has there been prepared
7 what has been marked here in this case Exhibit Number One
8 under your direction and supervision, which discloses the
9 area of interest which is set forth in the application of
10 120 acres in Sections 26 and 27 of 19 South, 29 East?

11 A Yes..

12 Q And would you briefly take a copy which
13 you have before you while I hand this to the Examiner so
14 that he may follow it, and referring to Exhibit One, would
15 you outline first in reference to the scale at the top left-
16 hand corner, what the heavy dashed blue line in Sections 26
17 and 27 indicates?

18 A The heavy dashed blue line indicates the
19 area applied for as extension to the R-111-A.

20 Q And in connection with the land sought to
21 be included, has drilling been done of a core test nature
22 to determine whether or not commercially recoverable deposits
23 of potash ore exist in this area?

24 A Yes, they have.

25 Q Referring first to the north half of the

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1 northwest quarter of Section 26, would you tell the Examiner
2 what information you have touching upon this tract?

3 A. We have drilled Hole No. 146-A. Our core
4 results show a 48-inch thickness of 12.4 percent K_2O .

5 Q. Is this 146-A actually within the north
6 half of the northwest or slightly below the --

7 A. It's slightly below. It's in the south
8 half of the northwest quarter.

9 Q. And what distance is there, if you can tell
10 me, from there to the north half of the northwest quarter?

11 A. Approximately 200 feet.

12 Q. Now, referring to the exhibit, Hole No. 142
13 above, in Section 23, does that indicate a commercially re-
14 coverable quantity of potash ore 48 inches thick?

15 A. Yes, it does.

16 Q. Has this whole area where core tests have
17 been run in the past, does it represent, at least in the
18 shaded area, an exploration program and development program
19 that Amax is undertaking at this time?

20 A. Yes, it does.

21 Q. Is it your opinion that based upon Hole
22 No. 146-A and Hole No. 142 above in the adjoining Section 23,
23 that commercially recoverable quantities of potash exist
24 within the area sought to be included within R-111-A?

25 A. Yes, they do.

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1 Q Is there anything further that you can tell
2 the Examiner about your -- the information you have regarding
3 this proposed tract of land in Section 26?

4 A No, there's no -- that's all the informa-
5 tion we have.

6 Q Yesterday did you discover, or within the
7 last 48 hours, the possible existence of a previous plugged
8 and abandoned well that was not known to you much before 48
9 hours ago, in Section 26, in this area?

10 A Yes, that Union State No. 1.

11 Q What can you tell the Examiner about that
12 Union State No. 1 Well?

13 A It's plugged and abandoned. I think the
14 date of abandonment was 1962. The location that is plotted
15 on here is from the records.

16 Q And the TD, if you know?

17 MR. FEEZER: Does that show on your map,
18 Mr. Examiner?

19 MR. NUTTER: No, it doesn't.

20 A 4622 feet.

21 MR. FEEZER: We have penciled in on the
22 exhibit I have before me. Perhaps we had better substitute
23 this one for the one you're looking at, and would you mark it
24 Exhibit One for me, Mr. Nutter, please?

25 Q Assuming there is a plugged and abandoned

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1 well there, do you know anything about what sort of a plugging
2 program occurred? Do you have any information at all about
3 it?

4 A. I have no information on the plugging of
5 this well.

6 Q. In spite of the fact that there may be a
7 plugged and abandoned well within the area under discussion,
8 what would be the process utilized by Amax to recover com-
9 mercially valuable ore with that well in that place at this
10 time?

11 A. As our mining progressed nearer that well,
12 we would leave a 100-foot radius pillar, solid pillar, around
13 the well, and not second mine for a radius of approximately
14 750 feet from that well.

15 Q. For the record, why would the company not
16 second mine in the area around the well?

17 A. The second mining operation causes subsi-
18 dence of the overlying ground to the surface and this subsi-
19 dence would disturb the well section.

20 Q. Would it present a potential hazard to the
21 entire mine operation if there should be any sour residual
22 gas that would escape into the mine per se?

23 A. A disturbance would open up possibilities
24 of this gas getting into our mine workings.

25 Q. Is there anything further about the north

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1 half of the northwest of Section 26 that you can advise the
2 Commission about at this time?

3 A. No, sir.

4 Q Referring now to the north half of the
5 northeast of Section 27, will you tell the Examiner about your
6 test Hole No. 156, as shown on Exhibit One?

7 A Hole No. 156 intercepted a third ore zone
8 assaying 21.1 percent sylvite, or K_2O as sylvite, of 48-inch
9 thickness.

10 Q Is that thickness and grade of potash ore
11 commercially recoverable at this time?

12 A Yes, it is.

13 Q Can you tell us a little more about how
14 good this core test appears to be in reference to some of the
15 other core tests on the map above it in Section 22, for
16 example?

17 A Well, in Section 22 we are -- our core tests
18 show anywhere from 11 to 15 percent K_2O . This well down here
19 in Section 27 assayed 21.1 percent K_2O , so it's extremely
20 good well, today's economics.

21 Q Have you done a calculation of the economics
22 of what would occur if, with this value of K_2O at this thick-
23 ness, would do if a well were drilled within the north half
24 of the northeast quarter of Section 27?

25 A Yes, I have.

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1 Q I hand you what has been marked Exhibit Two.
2 What does Exhibit Number Two in this case reflect?

3 A Calculation as reflects the tonnage of pro-
4 duct which would be lost, first, in the 200-foot radius pil-
5 lar. I assume that we would leave a 200-foot radius pillar
6 in this area in Section 27 because of the possibility of a
7 deep gas well with high pressure.

8 Q Let's run down Exhibit Number Two at this
9 time so there's a full understanding of the material on the
10 exhibit.

11 First of all, is it prepared in your own
12 handwriting?

13 A Yes, it is.

14 Q Would you start at the top of the page and
15 briefly give the analysis of how you reached your conclusions,
16 translated to dollars on the righthand column?

17 A The area of a solid 200-foot radius pillar
18 is 125,600 square feet times the 4-foot thickness, which is
19 our mining thickness, results in a cubic foot loss of 502,400
20 square feet -- cubic feet, multiplied times our tonnage factor
21 which is .064 tons per cubic feet, gives us 32,153 tons in
22 place, which would be lost in the solid pillar.

23 Our mining extraction 90 percent, which we
24 would then lose 28,938 tons, mineable tons, times our ore
25 grade of 21.1 percent, which is in the Hole No. 156 --

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1 Q Let me stop you and ask you if in using the
2 21.1 percent, is it a reasonable assumption on your part as
3 a mining engineer that that is the proper factor to utilize
4 in view of a proposed Parkway West Unit No. 9 within a short
5 distance from Hole No. 156?

6 A I think so; it's reasonable.

7 Q Carry on with your testimony, please.

8 A This would result in 6106 tons of K_2O mine-
9 able, which we would lose. Our mill recovery is 85 percent,
10 and that would leave us 5190 tons of K_2O . Our product grade
11 is 61 percent K_2O , so that results in a net loss of product
12 in the solid pillar of 8508 tons.

13 Now I went down to the area of second mining,
14 which we would not do, 750-foot radius around that --

15 Q Let me stop and ask you -- yes, tell us
16 about the 750-foot radius.

17 A We would not second mine within an area of
18 750 -- described by an area within the 750-foot radius. This
19 is due to the subsidence picture we described before.

20 Q All right.

21 A This area in total would be 1,766,250 square
22 feet times a 4-foot thickness, would result in a cubic footage
23 of 7,065,000. I deducted then the 502,400 square feet, or
24 cubic feet from the solid pillar, which I'd accounted for a-
25 bove, leaving us a cubic foot factor of 6,562,600. Converting

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1 this to tons in place, we result -- we have 420,000 --

2 Q And 6 tons in place?

3 A I believe that's zero-zero-six tons in
4 place.

5 Now, in our second mining we extract 30 per-
6 cent of the total area, and this leaves us 126,002 tons mine-
7 able, and in this case, I dropped back off the 21 percent ore
8 grade and assumed an average of 15 percent, and leaving us
9 18,900 tons of mineable K_2O , which would be lost in this area.
10 Multiplying by our mill recovery factor, we'd have then 16,065
11 tons of recoverable K_2O lost times -- or divided by our 61
12 percent product grade, this gives us 26,336 tons of product
13 lost in the second mining area.

14 Added together with the solid pillar, we
15 have lost, then, a total of 34,844 tons of product.

16 Q That is, if a well is drilled there and you
17 have to take the precautions you've discussed to support that
18 and avoid subsidence?

19 A Yes.

20 Q All right. You multiply that times a factor
21 of \$60 per ton, is that the present marketplace at this time
22 for potash from the Carlsbad Basin?

23 A Yes, it is.

24 Q And your final figure in estimated lost pro-
25 duct value ?

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1 A. \$2,090,669 sales value.

2 Q. In view of your extensions of figures on
3 Exhibit Number Two, and in view of the fact that the Petro-
4 leum Corporation of Delaware has been granted an application
5 and/or permit, or both, I believe now, to drill a well within
6 a short, relatively short distance from Hole No. 156, do you
7 believe these figures on Exhibit Number Two fairly represent
8 what would be lost in the way of dollars to the company if
9 the well was permitted to go ahead?

10 A. Yes, I really do.

11 Q. Do you know what the status of that well is
12 at this time?

13 A. My information is that the location was
14 prepared. The preparation was completed on Monday of this
15 week.

16 Q. And have you been monitoring it on an every
17 day or two basis?

18 A. This week we have, yes.

19 Q. And did you discover yesterday that a pad
20 or other preparatory groundwork had been done for this well?

21 A. Yes, we did.

22 Q. Is it your opinion that with these two holes
23 within Sections 26 and 27, that the north half of the north-
24 east of 27 and the north half of the northwest, contain
25 commercially recoverable potash ore?

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1 A Yes, it is.

2 Q And do you feel they should be included
3 within R-111-A to promote the conservation of natural resource
4 and the orderly development of those resources in this area?

5 A Yes, I do.

6 Q There was another test hole on the west edge
7 of the proposed included area, No. 169. Will you tell the
8 Examiner about that?

9 A That was essentially a barren hole. The
10 reason we have included that particular 40-acre tract is be-
11 cause of the strength of the Hole 156 and that ore running
12 over into that quarter -- that 40-acre tract, the northeast
13 of the northwest of Section 27.

14 Q And is it a reasonable mining engineering
15 assumption that the quality of the ore shown in Hole No. 156
16 would extend into at least the east half of the 40 in the west
17 half of 27?

18 A Yes.

19 MR. FEEZER: We would move the admission of
20 Exhibits One and Two into the record.

21 MR. NUTTER: Applicant's Exhibits One and
22 Two will be admitted in evidence.

23 Are there any questions of the witness?

24 MR. HENSLEY: Yes, Your Honor.

25 MR. NUTTER: Mr. Hensley.

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CROSS EXAMINATION

BY MR. HENSLEY:

Q Mr. Kirby, as I understand it, you're a mining engineer, is that correct?

A Yes, sir.

Q And it's your opinion from my interpretation of your direct testimony, that commercial deposits of potash exist in all of the area which Amax proposes to be included in the extension of R-111-A.

A A commercial deposit of potash exists in each of the 40-acre tracts we have asked for.

Q Would you say that the deposits are marginal at best?

A No, I would not.

Q Is mineable ore normally determined and discussed in terms of foot percent?

A Yes, we have to relate it to thickness.

Q And would it be accurate, Mr. Kirby, to say that if you had 4 feet of 12 percent ore that you would have 48-foot percent?

A Yes.

Q And, for example, some of these holes that you've got, these core holes, indicate less than 50-foot per-

1 cent, do they not?

2 A Yes.

3 Q For example, No. --

4 A Yes.

5 Q You testified on direct examination that
6 Hole No. 142 in the southwest corner of Section 23 was a com-
7 mercial hole.

8 A Yes.

9 Q And that's less than 50-foot percent, is
10 it not?

11 A Yes, it is.

12 Q Is 50-foot percent considered an economic
13 cutoff?

14 A No, it isn't.

15 Q It's not?

16 A No.

17 Q Does anyone in the industry, other than
18 Amax, consider that commercial?

19 A I can't speak for the others in the industry,
20 sir.

21 Q Now, directing your attention, Mr. Kirby,
22 to the test hole which is in the northwest quarter of Section
23 26, north half northwest quarter, labeled 146-A, this hole,
24 as I understand it, had 4 feet of 12.4 percent K_2O , is that
25 correct?

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1 A. Yes, it is.

2 Q. What percentage of this K_2O in this area
3 is sylvite?

4 A. These figures on here are sylvite K_2O . We
5 have deducted any carnallite K_2O from it. These are sylvite
6 K_2O .

7 Q. These are not gross ore assays, then. You
8 have chemically assayed them and broken down the sylvite con-
9 tent.

10 A. Yes, sir.

11 Q. Is it correct that none of these ore grades
12 represented on this exhibit contain any carnallite value?

13 A. The ore -- the beds themselves did contain
14 carnallite. We have deducted the carnallite K_2O from the
15 analysis to put on these maps.

16 Q. You deducted it from your analysis on Hole
17 146-A, and my question is, has it also been deducted, sir, on
18 the rest of these holes in the area where you show a percentage?

19 A. I believe so. We put these maps together
20 over a period of years, and I believe they're all sylvite
21 K_2O .

22 Q. What was the percent carnallite in 146-A,
23 in that core test?

24 A. I don't know right offhand, sir. My recol-
25 lection is it was quite low.

1 Q Now, as a matter of fact, and I believe you
2 made this clear on your direct examination, the core hole
3 designated 146-A is outside the boundary of the proposed ex-
4 tension.

5 A It is.

6 Q The only other core hole in the immediate
7 proximity is 147, which is immediately to the east of the
8 proposed inclusion of the north half northwest quarter, and
9 that purports to be, on Exhibit A, a barren hole, is that
10 right?

11 A That's right, sir.

12 Q So there has been no core drilling at all
13 in the area proposed to be included, which lies in the north
14 half northwest quarter of 27.

15 A No, sir.

16 Q And yet, as I understand your testimony,
17 you are testifying before this Examiner Hearing that in your
18 opinion, that all of the area contained in that proposed ex-
19 tension contains commercial deposits of K_2O .

20 A From our mining experience in this particular
21 ore zone, the consistency of the bed from the edge -- from
22 the edge of the ore outlined, throughout the interior is very
23 good, and we can project across a short distance like this
24 between two commercially recoverable well tests, we can pro-
25 ject ore in there very confidently.

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1 Q Is this in the third ore zone?

2 A This is in the third ore zone.

3 Q Which lies above the first ore zone?

4 A Yes. Yes, sir.

5 Q And the first ore zone is the main ore body,
6 is it not?

7 A It has been the main ore producer in this
8 area, sir.

9 Q Now you indicated that there is some type
10 of continuity to this stratigraphic laydown of these deposits,
11 at least insofar as the percentage ore grade is concerned.
12 Let me call your attention, Mr. Kirby, to the hole which you
13 testified about in Section 27, No. 156, showed a 21.1 percent
14 assay content. The hole immediately adjacent to it on the
15 west showed .3 of a percent. The hole immediately south
16 showed 1.3 percent. The hole immediately north and east
17 showed 11.3 percent. Isn't it a fact, sir, that there is no
18 continuity at all in that bed in this area, on these marginal
19 limits of this intercept extension?

20 A There is continuity within the ore body.
21 You're talking about between the ore -- the ore body and the
22 edge -- and the outside of the ore body. There is no continuity
23 there. It goes -- it's barren, yes, that's right. We've
24 been drilling quite consistently over the past year trying
25 to find the edge of this ore body. We think we've got it

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1 narrowed down right now.

2 Q Now, with respect to the proposed extension
3 in Section 26, if I may direct your attention to that area
4 again, please, you indicated on direct examination that you
5 had just discovered a day or so ago that there was a well
6 which had been drilled in that area back in 1961 or 1962, is
7 that correct?

8 A Yes.

9 Q The Union State No. 1, total depth of 4622
10 feet.

11 A Yes.

12 Q And that would -- that would have gone
13 completely through the potash zones, would it not, at that
14 depth?

15 A Yes.

16 Q Do you know anything about the casing pro-
17 gram on that well or whether it was plugged or how it was
18 plugged?

19 A I don't. We don't have the records on that
20 well.

21 Q And you indicated that by virtue of the
22 fact that this -- this hole -- this Union State No. 1 Well
23 had intersected a geologic depth below the potash salt beds,
24 that it would be necessary for you to leave a 100-foot pillar
25 around the well, is that correct?

1 A Yes, sir.

2 Q For safety purposes?

3 MR. FEEZER: A 100-foot radius, Counsel.

4 Q A 100-foot radius pillar around the well?

5 A Yes, sir.

6 Q Now, do you know anything about the appli-
7 cation of Petroleum Corporation to drill a well in the north
8 half northwest quarter of Section 26, Mr. Kirby?

9 A I do.

10 Q You are aware, are you not, sir, that that
11 application has been filed with this Commission?

12 A Yes.

13 Q And are you aware, sir, that the application
14 proposed to twin the Union State No. 1?

15 A Would you repeat that, please?

16 Q Yes, sir.

17 A I don't understand the question.

18 Q The proposed location for the No. 3 -- for
19 the No. 3 Petco State Com Well in the north half northwest
20 quarter of Section 26, proposes to drill a test well in that
21 location in the same geographical location as the Union State
22 Well which is plugged, is that correct?

23 A Yes, sir.

24 Q And isn't it a fact, Mr. Kirby, that the
25 only reason that you as a mining engineer are concerned about

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1 the loss of potash by virtue of having to leave this proposed
2 pillar there, is because of the angle of incidence which
3 mining engineers have testified about many times in this Com-
4 mission, for safety factors, 45 degree angle of incidence
5 around the hole?

6 A. Yes. I'm also concerned about drilling any
7 new wells with the high pressure gas you're getting.

8 Q. But the fact of the matter is, is it not,
9 sir, that the drilling of the Petco State Com No. 3 Well at
10 that location will not cause the loss or interference with
11 any additional potash, other than what has already been lost
12 by virtue of the fact that this well was drilled and plugged
13 back in 1962?

14 A. No, you're -- I can't agree with that. If
15 you drill this No. 3 Well, complete it, we would leave a 200-
16 foot radius around that well, but there's another factor here.
17 We have an option which we would investigate as we are mining
18 in that area. We could apply to re-open that present plugged
19 and abandoned well and cement it to the surface, depending on
20 conditions when we get in that area.

21 Q. You mean you would consider it safe for
22 mining purposes if you put a cement plug from the total depth
23 to the surface?

24 A. We have done this in the past in another
25 area, cemented, and then we would still leave the 100-foot

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1 radius pillar, but we would be able to second mine it.

2 Q It wouldn't have any effect on the leaving
3 of the pillar, though?

4 A No, not the solid pillar, no.

5 Q Because the same risk with respect to the
6 possibility of shearing would be present, notwithstanding the
7 placement of cement in the hole?

8 A Well, there wouldn't be the same case be-
9 cause if we cemented that hole solid from the bottom of the
10 well to the surface, we would be very confident of not having
11 any gas coming from the underlying formations.

12 Q Is that --

13 A Then your subsidence wouldn't have that much
14 effect on the upper part of the well, you see. These old
15 wells, the casing, the abandonment program they have on those
16 is certainly not acceptable to the potash industry.

17 Q But as I understand it, you, speaking for
18 Amax, would have no difficulty at all with later coming in
19 and leaving only 100-foot pillar and doing your second mining
20 if this casing string was cemented all the way through the
21 potash section.

22 A Well, this is a -- this is a -- we would
23 want the casing removed, if it was possible, below the salt
24 section, or below our mining level. The hole cemented com-
25 pletely, no casing. If there was casing in below our mining

1 level, no, we would not second mine.

2 Q Now why would you leave a 200-foot radius
3 pillar if this No. 3 Well is drilled as proposed in the appli-
4 cation now filed with this Commission, rather than 100-foot?

5 A Because of the pressures encountered in
6 that deeper formation. We have evidence that the pressures
7 on these wells up in Section 23 -- we're very concerned with
8 that.

9 Q Has there ever been an instance where you've
10 left more than 100-foot pillar?

11 A There's never been an instance where we've
12 had a high pressure gas well in the mining area.

13 Q Do you know anything about the geological
14 strata of the -- of the stratigraphic section which is pro-
15 ductive of oil or gas in this area?

16 A Not very much, no.

17 Q When did you become aware of the application
18 for the Petco State Com No. 3 Well, Mr. Kirby?

19 A My -- one of my engineers was doing some
20 surveying out in that area and found the location staked.
21 It's been several weeks ago, or a month, maybe.

22 Q Is there any publication or engineering
23 manual which would prescribe a 200-foot radius in this in-
24 stance as opposed to a 100-foot, which is the standard pillar
25 size around casing?

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1 A No, I don't think so.

2 Q Now, directing your attention, if I may,
3 sir, to the area in the north half north half of Section 27,
4 which Amax proposes to include in this extension of the R-111
5 area, you've already discussed your core Hole 156 as being
6 commercial.

7 A Yes, sir.

8 Q The other three holes drilled in Section
9 27 are noncommercial, is that accurate?

10 A Right, yes, sir.

11 + And based on this sub-surface control, Mr.
12 Kirby, I assume it is your belief as an engineer, sir, that
13 the potash deposit would extend throughout this entire area,
14 even though on the west we have a barren hole; on the south
15 we have, for all practical purposes, a barren hole; and to
16 the southwest we have a completely barren hole, is that
17 correct?

18 A Yes. We -- our judgment is, as is shown
19 on the map, the limits of our mining -- mineable ore.

20 Q I assume you are aware, if I understood
21 your direct testimony properly, that Petroleum Corporation
22 has filed an application to drill what it designates as the
23 Parkway West Unit No. 9 Well in the area shown on the plat?

24 A Yes, sir.

25 Q Are you aware, sir, when that application

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1 was filed with the Commission?

2 A. Yes, sir.

3 Q. When was it filed?

4 A. November 9th.

5 Q. And are you also aware, sir, that that ap-

6 plication has been approved by this Commission?

7 A. Yes, sir.

8 Q. And do you propose by this application to

9 extend the R-111 area to have the Commission withdraw its

10 approval, or perhaps some other action, to interfere with the

11 orderly development of this pool?

12 A. I would hope so, yes, sir.

13 Q. Is that the purpose of the application?

14 A. I believe our application was filed prior

15 to yours, sir.

16 Q. Now, in testifying as to what economic loss

17 would be sustained, I suppose, by Amax, do you have potash

18 leases, sir, on this property?

19 A. Yes, sir.

20 Q. On all the property --

21 A. Section -- Amax has a lease on Section 27;

22 Section 26 is subleased from Potash Company of America.

23 Q. Subleased to Amax?

24 A. To Amax, yes, sir.

25 Q. And does your lease on Section 27 cover all

1 of the area proposed to be included in the extension in Section
2 27?

3 A Yes, it does.

4 Q Now, you testified with respect to this
5 economic loss, as evidenced by Applicant's Exhibit Number Two,
6 that by leaving a 750-foot radius on your second mining, that
7 you would sustain a loss in sales value based on today's price
8 of \$2,090,669, is that correct, sir?

9 A Yes, sir.

10 Q Before I get into the details of these cal-
11 culations with you, I would like to ask you if there's any
12 reason why there's been no cost allocation included in this
13 economic survey.

14 MR. NUTTER: What do you mean by a cost al-
15 location, Mr. Hensley?

16 MR. HENSLEY: As I understand the exhibit,
17 Mr. Examiner, this is nothing but just his gross sales value
18 product. I would assume that --

19 A Yes, we would have mining -- we would have
20 production costs.

21 MR. HENSLEY: -- he would have mining costs,
22 production costs, refining costs, none of which is shown on
23 the economic exhibit.

24 Q Is that correct, sir?

25 A That's correct, yes, sir.

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1 Q Have you also prepared an economic survey,
2 Mr. Kirby, to determine what the cost of recovering this ore
3 would be and what the cost of refining the ore would be?

4 A No, I haven't. We do this continually in
5 our daily operation, but I have not prepared one for this.
6 We testified that this was economically recoverable ore.

7 Q Yes, sir, I understand that.

8 MR. NUTTER: In other words, Mr. Hensley,
9 I think I understand. This would be the gross value of the
10 potash when it -- after it has been mined, lifted, refined,
11 and put in a sack and sent out.

12 A That's right.

13 MR. NUTTER: And this does not reflect net
14 profit at all.

15 A It does not reflect net profit, no, sir.

16 MR. NUTTER: Okay, just gross profit.

17 A Just gross --

18 MR. NUTTER: Gross value.

19 A Just gross value.

20 MR. NUTTER: Okay.

21 Q When speaking in terms of economic loss,
22 with this particular grade ore in the third ore zone, you're
23 talking about just a very marginal operation, are you not,
24 sir? You're not talking about a \$2,000,000 loss.

25 A It's a \$2,000,000 loss in sales. It's not

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1 a \$2,000,000 loss in net profit, no.

2 Q But you have not prepared any of the calcu-
3 lations on cost?

4 A No, I haven't.

5 Q Now, have you any idea, sir, as to what the
6 proposed economic loss would be if Petroleum Corporation were
7 not permitted to drill its development well, designated the
8 Parkway West Unit No. 9?

9 A No, it would be very difficult for me to
10 do it, and I'm sure, others.

11 Q Have you made any attempt to determine what
12 the economic loss to Petroleum Corporation would be if they
13 were not permitted to drill a well for which they already have
14 an approved application?

15 A No, sir.

16 Q Mr. Kirby, are you familiar with the proposed
17 plan of Amax to extend your drilling and mining operations in
18 the area under consideration, or is that --

19 MR. HENSLEY: If I may address this to you,
20 Mr. Feezer, do you have another witness who's going to dis-
21 cuss the plan of --

22 MR. FEEZER: You may take it up with this
23 witness, if you like. He knows.

24 Q Are you familiar, sir, with the proposed
25 plan of development?

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1 A. Yes, sir.

2 Q. Where is Amax mining at the present time?

3 A. Our mining, our open mining, working faces
4 are in Section 23, in that cross-hatched area.

5 Q. What -- what ore zone, sir?

6 A. That's third ore zone.

7 Q. And what has been the rate of progress, say,
8 in the past six months?

9 A. We have temporarily discontinued mining that
10 particular area probably in the past four months; however, our
11 plans are to be back in there probably in February.

12 Q. Why was the operation abandoned, or tempo-
13 rarily abandoned, excuse me.

14 A. Because of operational difficulties in other
15 parts of the mine.

16 Q. Did it have anything to do with the unecon-
17 omic recovery of ore?

18 A. No, sir.

19 Q. Now, do you propose to extend this area of
20 mining in a straight line?

21 A. Yes, sir.

22 Q. And so if you lay a pencil or a straightedge
23 on that proposed mining face, as shown by your Exhibit One,
24 you would not intersect any of the area proposed to be in-
25 cluded in this extension of R-111, would you?

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1 A Not on that straight line, you wouldn't,
2 no, sir. We would intersect a producing gas well in Section
3 23.

4 Q And you would leave a pillar there.

5 A Leave a pillar, yes, sir.

6 MR. HENSLEY: We pass the witness.

7 MR. NUTTER: Are there any further questions
8 of the witness?

9
10 REDIRECT EXAMINATION

11 BY MR. FEEZER:

12 Q Isn't it a fact that you don't stop your
13 mining after you go out in a straight line from the projection,
14 you go out in all directions to recover the total ore body
15 to its extreme limits throughout the shaded area?

16 A Right.

17 MR. FEEZER: That's all.

18 MR. NUTTER: The witness may be excused.

19 MR. FEEZER: The next witness is Mr. Bob
20 Brown.

21
22 BOB BROWN

23 being called as a witness and having been duly sworn upon his
24 oath, testified as follows, to-wit:
25

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DIRECT EXAMINATION

BY MR. FEEZER:

Q Would you please state your name, address, and occupation?

A Robert D. Brown, 610 West Riverside Drive, Carlsbad, New Mexico; Vice President - General Manager of Amax Chemical Corporation.

Q How long have you been connected with Amax Chemical Corporation, Mr. Brown?

A Over twenty-six years.

Q And are you, as General Manager, fully familiar with all of the aspects of the operation at this time?

A Yes, I am.

Q Have you previously --

MR. NUTTER: Mr. Brown is qualified.

Q You've previously testified here before the Commission, all right.

In connection with the hearing today, have you been present in the room and heard the examination and cross examination of your Chief Mine Engineer, Mr. Kirby?

A Yes, I have.

Q First of all, in connection with the Applicant's Exhibit Number Two, in reference to the economic data, is there any information you can give the Commission about

1 that document?

2 A. Well, nothing except there was an allegation
3 that this was marginal ore. It's very high grade ore; very
4 good ore, and it would be very economical ore that we're
5 talking about right here; not marginal ore at all.

6 Q. I would like you to tell the Examiner what
7 the cutoff point is now insofar as Amax' operations are con-
8 cerned as to percentage of K_2O within a given footage.

9 A. We're looking at 9 percent at 48 inches at
10 the present time as our economic cutoff.

11 Q. Would there be an economic loss to your sub-
12 lessee, PCA, if you were unable to mine the commercially re-
13 coverable ore that you believe to exist in 26?

14 A. Yes, sir, there would.

15 Q. And you pay them a royalty, do you not?

16 A. Yes.

17 Q. In reference to the current market conditions
18 for potash, and demand, can you tell the Commission what is
19 happening in the potash markets?

20 A. The potash market is very strong. We are
21 almost to the floor in inventories. We have strong demand.
22 We're doing everything that we can to produce as much potash
23 as we can to supply our customers. We think the market is
24 going to be very strong for the foreseeable future and we are
25 looking at expansion possibilities to mine this ore faster to

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1 take care of our customers at the present time. The price of
2 potash is high, at the highest it's ever been in its history,
3 and a new price list is out that's going to bring it even
4 higher in the coming year.

5 Q In an examination of Applicant's Exhibit
6 Number One, the shaded area on the map, has it been -- has
7 it been and is it now the practice of your mining engineers
8 under your direction to located the core tests in a somewhat
9 random fashion to outline ore bodies?

10 A Very definitely.

11 Q Are all of the core tests as shown on this
12 map at this time commercially recoverable bodies of ore?

13 A Very definitely.

14 Q Can you recall when you last testified be-
15 fore this Commission on extension of R-111-A?

16 A No, I really don't.

17 Q Was it within this calendar year?

18 A I believe so.

19 Q Has the price of potash risen since your
20 last testimony within this year?

21 A I believe it has. I'm not sure, but I be-
22 lieve so.

23 Q Did it rise from \$50 a ton, from your last
24 testimony here, to its present price?

25 A That sounds reasonable, yes.

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1 Q At your direction was the application in
2 6753 filed on November 8th before this Commission for this
3 extension?

4 A Yes, sir, it was.

5 Q And what has been your policy in reference
6 to seeking extensions as core tests were developed?

7 A Well, as we -- as we have been able to find
8 economic ore, we've been trying to protect that ore as best
9 we can, to try to avoid loss of -- there's only a small amount
10 of potash reserves in southeastern New Mexico. We think it's
11 in the best interest of the people of New Mexico and the
12 United States to conserve those potash reserves, and we feel
13 within a reasonable period of time we will be out of there.
14 We will have mined and abandoned those, and then the oil and
15 gas will still be there and can be recovered.

16 If you go the other way, there's a certain
17 amount of potash that will never be recovered.

18 Q In view of the hazard explained by your
19 mining engineer, what process are you following, and what is
20 your desire, in reference to safety factors for men under-
21 ground in these operations?

22 A We have over 300 men working every day
23 underground in our mine and we're going to take every safety
24 precaution that we possibly can, and we certainly think it's
25 prudent to follow the safety precautions as outlined by Mr.

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1 Kirby, and we're going to do it.

2 We think it would be ridiculous to do other-
3 wise.

4 Q Has Amax had any experience drilling in and
5 around high pressure gas wells up to now?

6 A No, sir.

7 Q And is this a source of concern to the in-
8 dustry? Potash industry?

9 A It certainly is.

10 Q Do you know of any way to avoid it other
11 than to either not allow the drilling or to allow the very
12 large pillars which are now under discussion?

13 A No, sir, I do not.

14 Q Is there anything further you can advise
15 the Commission about the application on file by Amax?

16 A No, sir, except to say that we have tried
17 in our last application to work with the oil and gas company,
18 and it's our desire, where possible, to allow locations where
19 when we can, even though it's within the R-111-A area, and we
20 have done it recently, where it will not interfere or will
21 not intersect commercial potash, where it will not be harmful
22 to the safety of our employees. We have tried to work with
23 the various oil companies and we intend to continue to do so.

24 MR. FEEZER: We'd ask the Hearing Examiner
25 to take notice of Case Number 6495 and the stipulations on

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1 file reflecting that, and in which an order is now pending.

2 MR. NUTTER: We'll take administrative
3 notice of that.

4 MR. FEEZER: Thank you, sir. Pass the wit-
5 ness.

6 MR. NUTTER: Are there questions of Mr.
7 Brown?

8 MR. HENSLEY: Yes, sir, Mr. Examiner.

9
10 CROSS EXAMINATION

11 BY MR. HENSLEY:

12 Q Mr. Brown, on Applicant's Exhibit Two, the
13 price used for the conomic sales projections is \$60 per ton.
14 Is the price of potash at the present time less than that?

15 A No, it is not. The price of potash is
16 about that to Amax. It might not be to any other producer
17 because we sell primarily premium products at Amax.

18 But at Amax right now the average price is
19 approximately \$60. We expect it to be higher very quickly.

20 Q Do you know what the average price is to the
21 other producers --

22 A No, I don't.

23 Q You indicated that you expected that the
24 demand for potash would continue?

25 A Yes, sir.

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1 Q What is the interrelation of your production
2 with the Canadian production?

3 A None.

4 Q Does Amax operate in Canada, too?

5 A No. We did at one time but we do not now.

6 Q So you have no mines at all in that area?

7 A No.

8 Q Is your only production from the Carlsbad
9 area?

10 A That's correct.

11 Q Now, you indicated that the policy of Amax
12 was to work with the oil companies and to permit the drilling
13 of oil and gas wells where possible?

14 A Absolutely.

15 Q Is that only in situations where Amax has
16 determined that there is not -- does not exist any commercial
17 deposit of ore?

18 A Absolutely.

19 Q Well, in those situations it shouldn't have
20 been included in R-111 anyway, should it? Because it only
21 contemplates an area which is underlined with commercial de-
22 posits of ore.

23 A In determining R-111-A they didn't always
24 find every little spot that contained potash or didn't contain
25 potash.

1 Q You are aware, in connection with your testi-
2 mony, are you not, sir, of the full contents of R-111 as it
3 exists on the records of the Commission?

4 A I'm fairly familiar with it, yes.

5 Q And you indicated that in your opinion
6 potash ought to be recovered first, where there are both
7 potash and oil and gas reserves.

8 A That's my opinion, yes.

9 Q You are aware, are you not, sir, that the
10 express provisions of R-111 provide that no mining operation
11 will be conducted which would reasonably interfere with the
12 orderly development of an oil and gas pool?

13 A And you're aware that they also state that
14 there will be no oil and gas operations that will bother the
15 orderly mining of potash, also.

16 Q Well, I'm asking you if you're aware of the
17 provision which I made reference to?

18 A I've read the whole thing, yes, sir.

19 Q I assume, Mr. Brown, as vice president, you
20 are intimately familiar with your company's proposed plan of
21 development in this area.

22 A Yes, sir.

23 Q When do you propose to begin operations
24 again in Section 23?

25 A In January or February; by February at the

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1 latest, but probably in January.

2 Q All right, sir, and what area do you pro-
3 pose to extend that work?

4 A We will be extending the 13 West entry,
5 where the arrow is there, where the cutoff is. We'll be
6 extending that in a southwesterly direction.

7 Q Is it your belief that Amax will eventually
8 mine the potash in the area which is included in the proposed
9 extension?

10 A I sure -- certainly do; every bit of it.

11 Q How many years hence are we talking about
12 if that occurs?

13 A I really can't answer that. I will say
14 this, that we are looking at an expansion program where we
15 think we will mine all of our ore reserves within the next
16 twenty years; about nineteen and half years.

17 Now, that depends on many things, but that's
18 our plans as best as we can formulate them at the present
19 time.

20 Q You indicated that in your experience with
21 this joint resource development situation between potash and
22 oil and gas, that Amax had not had occasion in the past, to
23 your knowledge, to mine in the area of a high pressure gas
24 well, is that right?

25 A Yes, sir.

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1 Q Have other potash companies in the area had
2 that experience, to your knowledge?
3 A I don't know, I really don't.
4 Q Is the pillar size which is recommended
5 around abandoned holes, or producing holes, as a matter of
6 fact, 100 feet in the literature? The radius of a pillar?
7 A It's a practice. I don't know whether there
8 is any literature on it or not, but we want to be as -- we
9 want to be very careful about the safety of our employees --
10 Q I understand.
11 A -- and we're certainly going to take at
12 least that amount and leave it, to insure safety of our em-
13 ployees.
14 Q And the same would be true, I presume, if
15 your operations extend, as you indicate you hope they will,
16 into the southwest quarter of Section 23, where there --
17 A That's correct.
18 Q -- is an existing well.
19 A That's correct.
20 MR. HENSLEY: We pass the witness.
21 MR. NUTTER: Are there any further questions
22 of the witness? He may be excused.
23 Let's take a fifteen minute recess.
24
25 (Thereupon a recess was taken.)

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MR. NUTTER: The hearing will come to order.
Mr. Feezer, would you call your next witness, please?

MR. FEEZER: Mr. Everett Jourdan is in the
witness chair, Mr. Examiner. May I proceed?

MR. NUTTER: Yes, sir.

EVERETT C. JOURDAN

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

DIRECT EXAMINATION

BY MR. FEEZER:

Q. Please state your name, address, and occu-
pation?

A. Everett C. Jourdan, 1106 Tracy Place,
Carlsbad, New Mexico. I am Staff Assistant for Mining and
Lands for Potash Company of America.

Q. Are you a mining engineer?

A. Yes.

Q. How long have you been connected with PCA
as a mining engineer?

A. Approximately 35 years.

Q. Have you previously testified before this
Commission --

1 A. Yes.

2 Q -- as an expert witness in that capacity?

3 A. I have.

4 MR. FEEZER: Is the Commission satisfied

5 with the --

6 MR. NUTTER: Yes, sir, Mr. Jourdan is qual-

7 ified.

8 Q Mr. Jourdan, you've been present during the

9 hearing so far this morning, have you not?

10 A. I have.

11 Q Calling your attention to the applicant's

12 Exhibit Number One, in reference to the lower portion of 26

13 and 27, does PCA, your employer corporation, have an interest

14 in either of those sections?

15 A. Section 26 we have a State lease, which is

16 now subleased to Amax.

17 Q And in view of the testimony here today,

18 can you tell the Examiner about the commercially recoverable

19 quality of ore that is shown by this exhibit, in your opinion?

20 A. 48 inches at 12 percent, is that right?

21 Q Uh-huh.

22 A. 26?

23 Q. 12.4.

24 A. That is commercial ore.

25 Q. In reference to that section and 142 Core

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1 Hole above that in the southwest of 23, is the fact that there
2 is no core test in the north half of the northwest of Section
3 26 disturbing to you in any way as to whether or not there
4 is or is not commercially recoverable ore between those two
5 holes?

6 A. No. I would say there is probably -- there
7 is ore. That's just probably a low grade hole within the ore
8 body itself.

9 Q. The 10.1, you say?

10 A. Yes. That would be the way I would inter-
11 pret it, since it's surrounded by good ore. You'd probably
12 go, oh, 5 feet from there and you may find a different grade
13 of ore.

14 Q. Has it been the practice of PCA and other
15 mines within the industry to drill core tests in a random
16 fashion, somewhat similar to that shown on Applicant's Exhibit
17 One?

18 A. Yes, it is.

19 Q. Is there anything unusual about the core
20 patterns as shown on this exhibit?

21 A. Not that I notice.

22 Q. Are you familiar with the cutoff grades that
23 are applicable in the potash basin at this time?

24 A. They vary with different companies, depending
25 on efficiency, mining costs, and types of mining, and of course,

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1 your price of potash changes every day, every three or four
2 months.

3 Q And consequently, it is not exact for the
4 entire industry?

5 A No, I wouldn't say that.

6 Q Now, in reference to the existence or anti-
7 cipated existence of a well in Section 26, to achieve the
8 largest possible amount of recovery of a natural resource,
9 you have heard the testimony so far today in reference to what
10 is done around a plugged and abandoned hole, have you not?

11 A Yes, I have.

12 Q Have you had experience and been familiar
13 with the process in the potash basin as to what's done in
14 these cases?

15 A We leave -- the normal procedure is to leave
16 100-foot radius solid barrier, and then we expect in an active
17 well or one that's poorly plugged, a subsidence angle of 45
18 degrees. We do not second mine within that area.

19 Q How big a radius would you leave where you
20 would not second mine?

21 A That would be the depth of the -- a re-
22 flection of the depth of the potash bed from the surface.

23 Q We have heard testimony today that in this
24 instance it would be 750 feet. In your judgment as a mining
25 engineer, would that be consistent with what is known to be

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1 the practice or anticipate practice around high pressure wells
2 at this time?

3 A That would be, if that's the depth of the
4 ore, which I don't have the information that that is the
5 depth from the surface, that would be proper.

6 Q In reference to the north half of the north-
7 east of 27, what comment do you have for the Examiner with
8 reference to Hole No. 156 and the proposed Parkway West Unit
9 as shown on Exhibit One?

10 A I would say that that drill hole there is
11 a very good drill hole, 21 percent.

12 Q And what recommendation would you make in
13 the event that a well was drilled, an oil or gas well, to
14 11,000 plus feet, as close as it is apparently shown on this
15 exhibit, to Core Test Hole 156?

16 A If that hole was drilled there, I would
17 probably agree that a solid barrier of 200 to 250 feet should
18 be left around it.

19 Q What would you say in reference to second
20 mining?

21 A There would be no second mining.

22 Q Would you have any controversy with the
23 figures that you heard testified to by Mr. Kirby on Exhibit
24 Number Two in reference to values of lost product if such an
25 event occurred? Do they seem reasonable to you?

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1 A. They seem reasonable to me. The price of
2 potash varies from company to company, depending on the pro-
3 ducts they make, chemical standard; that's a reasonable price.
4 Q. Insofar as a mining plan is concerned, are
5 you in PCA involved with the mining plan for that company?
6 A. Yes, I am.
7 Q. You heard the testimony of Mr. Brown and Mr.
8 Kirby in reference to the projected plans to mine within the
9 shaded area on this exhibit. Would this be, in your judgment,
10 a reasonable plan of development for a potash mine?
11 A. Yes.
12 MR. FEEZER: Pass the witness.
13 MR. NUTTER: Are there any questions of Mr.
14 Jourdan?
15 MR. HENSLEY: Yes, Mr. Examiner.
16
17 CROSS EXAMINATION
18 BY MR. HENSLEY:
19 Q. The only interest that PCA has, Mr. Jourdan,
20 is in the north half northwest quarter of Section 26?
21 A. That's right. We have a sublease. We're
22 interested only in the royalties.
23 Q. And you're aware, are you not, from this
24 plat, that there aren't any core holes at all in the proposed
25 projected limits for R-111 in the north half north half --

1 north half northwest?

2 A I am now.

3 Q You weren't aware of that before?

4 A No, I haven't studied this map.

5 Q And you were asked questions about whether
6 or not this ore was commercial, have you ever seen any of the
7 data which is represented on this map before?

8 A We -- I've seen some of it but not all of
9 it. The recent holes, we have not received the analysis from
10 Amax yet.

11 Q Have you -- have you seen the chemical ana-
12 lysis of Hole 146-A?

13 A No, I don't believe so.

14 Q What percent carnallite is in these holes,
15 in this area?

16 A I'm not interested in carnallite, only
17 sylvite.

18 Q I understand.

19 A We don't -- we don't --

20 Q What percent sylvite?

21 A Whether we get a royalty out of is really
22 what we're interested in. If Amax is willing to pay it, why,
23 we will accept it.

24 In other words, I can't tell you what their
25 cutoff is. I don't know.

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1 Q Well, as far as PCA is concerned, being
2 your employer, 48 inches at 12.4 percent is not economic, is
3 it?

4 A Let me qualify that. If we had another --
5 we use mining machines. If we had one machine that was mining,
6 say, 25 percent ore, then we would probably take that to get
7 a blend while the price is high, so that isn't a -- when you
8 say a cutoff, that's not quite true, because if you blend it
9 with a higher grade ore, then you will mine it.

10 Q Well, let me restate the question, then, Mr.
11 Jourdan.

12 You testified in these proceedings before
13 that -- that that would not be an economic limit, have you
14 not?

15 A That depends on what time; how far past.
16 I mean when the price of potash changes your economic limit
17 changes.

18 Q I see. Isn't it a fact that under no cir-
19 cumstances would this grade ore of that thickness be commer-
20 cial unless you were able to blend it with a higher grade ore
21 from some other source?

22 A As far as my company is concerned, probably
23 true. I can't answer for Amax.

24 MR. NUTTER: What grade ore are you talking
25 about, Mr. Hensley?

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1 MR. HENSLEY: I'm talking about 12.4 percent.

2 A. 12.4 percent.

3 MR. NUTTER: At 48 inches?

4 MR. HENSLEY: At 48 inches.

5 Q. Now, do you know anything about the sub-
6 surface geological characteristics of the oil and gas horizons
7 in the Strawn-Morrow?

8 A. Absolutely very little; only what I read
9 in the paper.

10 Q. Would you have to make a detailed study of
11 those characteristics, the life of those wells, the decline
12 curve analysis, and other such projections, before as a mining
13 engineer you could ever make a projection as to the radius
14 of a pillar to be left around an abandoned casing?

15 A. I'd have to think about that question. I
16 wouldn't try to do it, first of all. I'd probably go to
17 petroleum engineers for consultation and read past -- other
18 literature. This is merely practice in the basin and it
19 works so far.

20 Q. You've made no study at all of this area,
21 have you, as far as hydrocarbons are concerned?

22 A. No, I haven't. Absolutely not. No, I'm
23 not familiar with this area because it's three miles from our
24 mine.

25 Q. And your estimate of 200 to 250 feet which

1 you gave on direct is just a guess, is it not?

2 A That's probably what we would do, figuring
3 we had enough information on the gas and the pressures and
4 everything. It's a generality. We may want to make a study,
5 but I doubt it.

6 Q Now you indicated that on this plugged and
7 abandoned hole, which is the Union State No. 1, if you'll
8 look at the plat, Exhibit Number One, in the north half
9 northwest of Section 26, Mr. Jourdan, that your company, if
10 it was mining this, would leave 100-foot radius for first
11 mining; a pillar 100-foot radius.

12 A If it was an oil -- if it was a deep gas
13 test, we would probably leave a bigger one.

14 Q Did you testify earlier that you would leave
15 100-foot?

16 A I may have said that. I mean I just took it
17 as an oil well. I agree with the -- with a deep gas test and
18 with high pressure we would leave a larger barrier. I correct
19 my previous testimony if I said 100-foot automatically.

20 Q And your 45 degree angle of incidence, which
21 has been used throughout these potash proceedings for years
22 before the Commission, has only application insofar as second
23 mining is concerned.

24 A That's right.

25 Q Would a prudent potash operator even consi-

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1 der second mining of this type grade?

2 A. It depends on what his costs were.

3 Q. You don't know what their costs are, do
4 you?

5 A. I don't know what Amax's costs are, no.
6 They wouldn't tell me.

7 Q. They wouldn't tell you?

8 A. Huh-uh.

9 MR. HENSLEY: We pass the witness.

10 MR. NUTTER: Are there any further questions
11 of Mr. Jourdan?

12 MR. FEEZER: No, Mr. Examiner.

13 MR. NUTTER: He may be excused.

14 Mr. Kirby, I would like to ask you a ques-
15 tion, please. Mr. Jourdan referred to the angle of incidence
16 there being 45 degrees, and also, you had referred to a 700
17 or 750-foot radius on secondary mining.

18 What is the depth of the third ore zone at
19 this -- in this area?

20 MR. KIRBY: I believe, I don't have that
21 info, I believe it's right at 750 feet, and I used that in
22 my answer.

23 MR. NUTTER: Okay, thank you. I'd assumed
24 that it was but I wanted it in the record.

25 Mr. Feezer, did you have another witness?

1 MR. FEEZER: Mr. Burleson, Mr. Examiner, is
2 with the USGS and would not be sworn as a witness, but I
3 understand that he has some commentary that he may wish to
4 make in view of what testimony has come in today.

5 MR. NUTTER: Will you state your full name,
6 please, Mr. Burleson?

7 MR. BURLESON: John B. Burleson. I'm the
8 Mining Supervisor for the U. S. Geological Survey in New
9 Mexico, and I would appreciate the opportunity to make a
10 statement.

11 MR. NUTTER: Please do.

12 MR. BURLESON: The Geological Survey does
13 not feel that oil and gas production and potash mining is
14 compatible, and we are very concerned when there is gas or
15 oil wells this near to a producing mine.

16 Granted, this is State land. We have no
17 say over what has -- what takes place on it, but what takes
18 place on one part of the mine affects the other parts of the
19 mine in that they are connected.

20 The presence of gas in any of the potash
21 mines could cause enormous repercussions, not only to the
22 safety but to the economics if they had to replace the present
23 equipment with permissible equipment, such as is used in the
24 Trona Mines in Wyoming, or the coal mines.

25 MR. NUTTER: Now, you're talking about

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1 equipment that would be safe in a gas atmosphere.

2 MR. BURLESON: That is true, sir.

3 And as for leaving ore in place of pillars,
4 which has to be done where there are oil or gas wells, we
5 must remember that that is ore that will be lost forever.
6 That will affect our balance of payments in that each ton
7 lost will have to be replaced by Canadian potash, and I'm sure
8 they would be very willing to get the business if we cannot
9 satisfy it, the potash producers' customers.

10 For the pillar to protect, whether it be a
11 shaft or an oil and gas well, it was referred to that maybe
12 there was publication on just what was the right size of
13 pillar. Unfortunately, there is none.

14 Since the first shafts were sunk, we have,
15 the U. S. Geological Survey, on Federal lands has insisted
16 upon this 45 degrees of no second mining. It has varied as
17 to the solid pillar left around a shaft, depending upon geo-
18 logic conditions present, but a pillar must be left. There's
19 no denying that. The integrity of the shaft or the oil and
20 gas well string has to be protected. It varies with each com-
21 pany because there is no way to calculate to the exact foot
22 what would be necessary to be left.

23 Each company determines what size of pillar
24 will be left to protect their employees and their investment.
25 To my knowledge, there's no way to say whether you are under

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1 in the size of your pillar or you are over. I certainly
2 agree that a minimum size of pillar around a gas well should
3 be 200-foot radius. There again, if the potash contained
4 clay seams through which a leak in the gas string could trans-
5 mit, it might be wise to leave a larger size pillar. That
6 will vary from condition to condition.

7 I'm very much in favor of this Commission's
8 procedure and the R-111-A, and I respectfully request that
9 considerate consideration be given to the inclusion of these
10 lands applied for to be encompassed in the R-111-A boundary.

11 Thank you.

12 MR. NUTTER: Thank you.

13 Does that conclude your direct testimony?

14 MR. FEEZER: Yes, sir. I would like this
15 record to include copies of the applications of the Petroleum
16 Corporation in reference to the Parkway West Unit Well No. 9
17 and Petco's -- I think it's Parkway Strawn Well No. 3, the
18 two wells under discussion in Section -- or proposed wells,
19 in Sections 26 and 27, and I'd like to offer this in exhibit,
20 part of the record.

21 MR. NUTTER: Okay. Is that all one exhibit
22 there?

23 MR. FEEZER: Yes, three pages, Mr. Examiner.
24 I haven't marked it yet, but I will.

25 MR. NUTTER: That will be your Exhibit

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1 Number Three, I assume.
2
3 MR. FEEZER: Yes, sir. And that concludes
4 our live testimony.
5 MR. NUTTER: Mr. Hensley, would you call
6 your witness, please?
7 MR. HENSLEY: Mr. Coffield will call our
8 witnesses, Mr. Examiner.
9 MR. NUTTER: Mr. Coffield.
10 MR. COFFIELD: Yes, sir. Mr. Hal Dean will
11 be our first witness.
12 MR. NUTTER: Amax Exhibit Number Three will
13 be admitted in evidence.
14
15 HAL DEAN
16 being called as a witness and having been duly sworn upon
17 his oath, testified as follows, to-wit:
18
19 DIRECT EXAMINATION
20 BY MR. COFFIELD:
21 Q Mr. Dean, would you please state your name
22 for the record?
23 A. My name is Hal Dean.
24 Q And where do you live?
25 A. I live in Midland, Texas.
Q And your occupation is what?

1 A I'm a geologist for the Petroleum Corporation
2 of Delaware.

3 Q Have you previously testified before this
4 Oil Conservation Division?

5 A Yes, sir, I have.

6 Q Are you familiar with the geology of the
7 area affected by the application of Amax?

8 A Yes. I've made a study of this area for
9 over ten years.

10 Q And are you familiar with Petroleum Corpor-
11 ation's drilling and development program and activities in
12 this area?

13 A Yes. I am in charge of the exploration and
14 development activities.

15 MR. COFFIELD: Mr. Examiner, do you have
16 any other questions of Mr. Dean?

17 MR. NUTTER: Mr. Dean is qualified.

18 Q Mr. Dean, please refer to what we've marked
19 as Exhibit One and explain to the Examiner what this reflects
20 and what it shows.

21 A Okay. Exhibit One is a land map showing
22 the acreage which is under lease or held by production by the
23 The Petroleum Corporation in this specific Parkway area.
24 To the north we have the Turkey Track area; to the south we
25 have the Burton Flats area; to the west we have the Winchester

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1 area.

2 This land map shows the wells which we have
3 drilled in the Parkway West Unit; also illustrates the wells
4 that we have drilled in Section 26. It also shows the offsets
5 to the unit as drilled by other operators.

6 In the east half of Section 22 is a cross
7 hatched area which shows the area which has been previously
8 deleted this year under this R-111-A.

9 Q Does the exhibit show when the wells were
10 drilled, Mr. Dean?

11 A No, it --

12 Q Could you explain when the wells were
13 drilled?

14 A Okay. The first well we drilled in this
15 area was in 1970. It's the No. 1 Petco State in the southeast
16 southeast of Section 26. That well was completed as a Strawn
17 discovery.

18 After doing additional exploration work
19 we put together a six-section unit, which is called Parkway
20 West Unit. This unit involves the putting together of 12
21 different companies and we were given a designation as the
22 Parkway West State Unit.

23 We drilled the No. 1 Parkway West in the
24 northeast northwest of Section 28, which was a discovery of
25 Atoka and Strawn. That was done in 1972. We also have Morrow

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1 gas behind pipe.

2 We have since that date submitted a plan of
3 development to the State yearly, and we are now drilling on
4 our Well No. 8, which is located in the northeast of the
5 southwest of Section 22. That well is drilling now at a depth
6 of 11,338 feet, and we plan to continue this orderly develop-
7 ment until we have completely exploited the entire Pennsyl-
8 vanian section. That includes the Strawn, Atoka, and Morrow
9 Sand.

10 Q Mr. Dean, I believe you stated earlier that
11 this plat reflects also the locations of wells yet to be
12 drilled?

13 A Yes, sir.

14 Q And have permits been filed in connection
15 with each of those wells?

16 A Yes, sir, they have. We have filed permits
17 for -- in Section -- No. 10 in Section 27; No. 11 in the north
18 half of Section 21; No. 12 in the south half of 28; No. 3 in
19 the south half of 29; and then over in Section 26 we've ap-
20 plied for a -- the Petco State No. 3 in the northwest north-
21 west.

22 Q And which of those permits which you've
23 filed have actually been approved by the Oil Conservation
24 Division?

25 A The well in Section 27, No. 9.

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1 Q Are you familiar with what the pool rules
2 are in connection with this particular -- these particular
3 areas?

4 A Yes, I am. In Section 26 is the Parkway
5 Strawn discovery, and we were given 160-acre spacing on the
6 Strawn reservoir.

7 The Morrow is on statewide 320-acre spacing,
8 at the present time.

9 Q All right. What about the Parkway West
10 Unit itself?

11 A That is the -- the Morrow Well was in the
12 statewide rules.

13 MR. COFFIELD: Mr. Examiner, Orders -- Oil
14 Conservation Division Orders R-4093 and R-4638 established
15 pool rules in connection with these areas, and we would re-
16 spectfully request that the Examiner take administrative
17 notice of those orders.

18 MR. NUTTER: That's administrative notice
19 of Orders Nos. --

20 MR. COFFIELD: R-4093 and R-3638.

21 MR. NUTTER: We will take notice of those
22 orders.

23 Q Did you have anything further to add, Mr.
24 Dean, in connection with this exhibit?

25 A I would just like to point out that the

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1 offset operators have done this development, primarily South-
2 land Royalty, in 1978 and 1979, and are continuing as to this
3 date. They have completed their well, Southland Royalty No.
4 125, in the east of Section 26.

5 Q So you're saying not only is Petroleum Cor-
6 poration active in the development of this pool but there are
7 other operators as well?

8 A That is correct.

9 Q All right. Let's go to what we've marked
10 as Exhibit Number Two, and would you please explain that ex-
11 hibit to the Examiner?

12 A Okay.

13 MR. NUTTER: Mr. Dean, before you get on
14 that, what well were you talking about that's just now being
15 completed?

16 A Southland Royalty No. 125 in Section 25.

17 MR. NUTTER: Oh, I thought you said Section
18 26.

19 MR. FEEZER: Do you have that located, sir?

20 A It's an offset to Section 26.

21 MR. NUTTER: Okay.

22 A Okay. Exhibit Number Two is a structure
23 contour map drawn on the Morrow formation. This is a marker
24 within the Morrow which is commonly used by all the geologists
25 in this area, and accurately reflects the structure of the

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1 producing Morrow zone.

2 As you can see, it is a -- the highest part
3 of the structure is over there in the southwest portion of
4 Section 29, and we have a terracing and a monoclinal dip to
5 the east and south.

6 The Morrow formation, from our drilling and
7 from our subsurface control, the zones appear continuous with
8 individual members interfingering across this entire six
9 sections. There -- to date there has been no specific gas/
10 water contact established, but all of our productive area is
11 up-dip from production established by Southland Royalty in
12 Section 24 and Section 25.

13 This map shows, in my opinion, that we have
14 a continuous development program here over the Parkway West
15 Unit until we have completely developed it as to the State
16 rules.

17 Q Mr. Dean, in the event that you were not
18 permitted to drill the two wells which are located within the
19 proposed expansion of R-111-A, what would be that result
20 from a geological standpoint?

21 A I think that we would result in losing
22 drainage and production from the Southland Royalty established
23 in Section 23, Section 24, and now they're in Section 25.

24 Q In other words, it would result in a viola-
25 tion of your correlative rights as well as prospective waste?

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1 A. Yes, sir.

2 Q. Do you have any further features of this
3 particular exhibit that you want to bring out?

4 A. No, sir. I might point out that in these
5 wells that we have completed in the Strawn, we still have
6 Morrow Sand behind pipe, which is productive.

7 Q. All right. Relative to the --

8 MR. NUTTER: While you're on that one, Mr.
9 Dean, what is the color code here? Are the red wells Morrow
10 and the green wells Strawn?

11 A. Yes, sir. Those are the -- the color code
12 that we have. The Strawn wells are in the southeast southeast
13 of 26, that's green; and then the Strawn well is in Section
14 28, the northeast of the northwest.

15 MR. NUTTER: Thank you.

16 Q. Is that color code consistent throughout
17 your exhibits, Mr. Dean?

18 A. Yes, sir.

19 Q. All right. Going now to what we've marked
20 as Exhibit Number Three, would you please similarly explain
21 that to the Examiner?

22 A. Exhibit Number Three is a structure map
23 based on the top of the Strawn formation. This formation is
24 found at approximately 10,500 feet and is a continuous marker
25 throughout the area.

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1 We have to drill, of course, to get to our
2 Morrow zones. The key well in this is our Strawn well in
3 Section 26, which completed as an oil well about 1971 and is
4 still producing as of this date. This well was cored, indi-
5 cated excellent reservoir possibilities, similar to the type
6 of Strawn over in Lusk Field to the east here, and the problem
7 was we produced considerable amount of water.

8 Our second Strawn well was over in Section
9 28 and that well tested gas with a high content of liquids,
10 water-free.

11 This Strawn formation, as you know, is not
12 connected 100 percent with water or structure. It is the
13 porosity developed as what we call an algal bank, and it can
14 go across strike, and we project that the Strawn production
15 there will contain -- continue out of the north half of 28,
16 north half of 27, north half of 26, and it's excellently --
17 we'll go to a cross section later -- it's excellently deve-
18 loped in Section 23 in the Southland Royalty No. 1-23 Well.

19 Q Anything further on this?

20 A No.

21 Q All right, then, Mr. Dean, let's go to what
22 has been marked Exhibit Four and explain this to the Examiner.

23 A Section Four is a stratigraphic cross sec-
24 tion of the Parkway West Unit, tying in to our Petroleum
25 Corporation No. 1-26 in Section 26. This cross section is

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1 indicated on your map, starting on the west from A to A'.

2 This map shows in the Strawn horizon where
3 we expect the core of the thick, clean, algal bank of lime-
4 stone to be maximumly developed and be productive.

5 The Morrow Sands, which are indicated in
6 red, are shown to be also consistently across from the -- going
7 from the west to the east across the entire unit. Although
8 we know from experience that the zones are present, the pro-
9 duction varies within the members of the Morrow. This indi-
10 cates to me that there is an excellent possibility for this
11 Morrow and Strawn to be present over the areas which are re-
12 quested be placed within this R-111-A.

13 Q All right, Mr. Dean, let's now go to Exhibit
14 Five and explain it.

15 A Okay. Five is a cross section of two wells,
16 showing the productive Strawn zone. It goes from A to C,
17 A' to C, I'm sorry, on your map. In other words, from the
18 Petco State No. 1-26 to the 23-1 of Southland Royalty.

19 As you can see, this Petco State Well was
20 completed for 49 barrels of oil and 289 barrels of salt
21 water; gas rate of 650,000 with initial gas ratio of 13,265-
22 to-1. The cumulated production of this to November 1, 1979,
23 is 33,464 barrels of oil, 228,000 Mcf of gas, and over
24 300,000 barrels of salt water. This well is presently pro-
25 ducing at a rate of 4.4 barrels of day, 62,000 of gas, and

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1 60 barrels of salt water.

2 This indicates to me as a geologist that
3 this is a tremendous water-drive reservoir, and being able to
4 produce these marginal amounts over a 9-year period.

5 Well No. -- Southland Royalty No. 1-23-1,
6 which is indicated No. C, as you can look at the dual lateral
7 micro-log, in correlating between the Strawn and Atoka, that
8 this zone fits, correlates, as being a part of the same zone.
9 And as you can see, from our structural point, the Well State
10 Com 23-1, is approximately 100 feet high structurally. This
11 well was not cored or tested during the drilling of this thing
12 because they were primarily looking for Morrow Sand, but
13 electric log analysis indicates it has excellent porosity and
14 low water saturations and should be productive.

15 Our location in Section 3 -- I mean Well
16 No. 3 in Section 26, is located on our Strawn map to obtain
17 the highest structural position on our lease, which we hope
18 will then permit us to develop on the 160-acre spacing of the
19 Strawn Parkway Field that entire section.

20 Q Mr. Dean, in that connection, and in the
21 event it were to be suggested by someone that you could as
22 well locate your No. 3 Well at an unorthodox location in the
23 40-acre tract south of the tract where you propose to locate
24 it, what would your answer be to that?

25 A As a geologist I would want to obtain the

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1 highest structural position and minimize our risk of drilling
2 a dry hole.

3 Q Do you have anything further to add, Mr.
4 Dean, in connection with matters that have been discussed by
5 you and the exhibits which you have presented?

6 A No, sir.

7 Q Were these Exhibits One through Five pre-
8 pared by you or under your direction?

9 A They were all prepared by me or under my
10 direction. The large cross section, which is Exhibit Number
11 Four, was prepared by Martin Vernon.

12 Q Have you reviewed the matters reflected
13 there and --

14 A Yes, sir, it was under my direct supervision.

15 Q Mr. Dean, if the Amax application is ap-
16 proved, is it your opinion that this will result in waste
17 and the violation of correlative rights as far as Petroleum
18 Corporation is concerned?

19 A Yes, sir, from a geological standpoint, it
20 certainly is.

21 MR. COFFIELD: Mr. Examiner, I move the
22 admission of Exhibits One through Five.

23 MR. NUTTER: Petco Exhibits One through
24 Five will be admitted in evidence.

25 MR. COFFIELD: I have nothing further on

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1 direct examination.

2 MR. NUTTER: Are there any questions of
3 this witness?

4 MR. FREEZER: Yes, sir.

5
6 CROSS EXAMINATION

7 BY MR. FREEZER:

8 Q Mr. Dean, your proposed Petco Parkway West
9 Unit No. 9 is how close, if you have a scale, I don't only
10 mean offhand, to the test Hole No. 156 in the north half of
11 the northeast of 27?

12 A I don't -- do you have a survey plat on
13 that hole that you're talking about, or is that scaled on
14 your map?

15 Q It's not scaled. I wonder if you know.

16 A No, I don't know.

17 Q All right. Well, I need to move on. I
18 really don't -- unless you can do it, I don't want to delay
19 the hearing here.

20 A Okay.

21 Q Does it appear to you from what evidence
22 you've seen so far that it's within 200 feet more or less of
23 your proposed location?

24 A Sir, I really haven't seen that map. May
25 I examine it, please?

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1 Q Certainly.

2 A Our location is 1980 and 660, which is a

3 standard location.

4 Q I don't see a scale on here. That appears

5 to be substantially more than 200 feet.

6 A You have it located here at 650 feet, 660

7 feet.

8 Q Thank you. Is it then your geological

9 estimate that Parkway West Unit No. 9 would be a high pres-

10 sured gas well, if it is completed?

11 A Yes, I do.

12 Q Do you have any idea what pressures would

13 be?

14 A Do you mean bottom hole pressure?

15 Q Yes.

16 A Bottom hole pressure?

17 Q Yes.

18 A In excess of 3000 pounds; probably 3500

19 pounds, from the Morrow.

20 Q You made your application -- did you have

21 anything to do with making the application in this case for

22 this well in 27?

23 A The well in 27?

24 Q Yes.

25 A It was done by our Dallas Engineering/pro-

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1 duction Office. I made the location.

2 Q But you did not handle the application?

3 A I did not make the casing design or things
4 like that. I'm a geologist.

5 Q You know nothing about that, then.

6 A I just know that we followed the Statewide
7 rules.

8 Q Have you ever seen it, handled it, or looked
9 at it, the application to drill this well?

10 A I looked at the location plat, that is, and
11 the geology.

12 Q Well, let's put it another way. This is
13 Exhibit Number Three in this case, I hand you a copy of it.
14 Have you ever seen that before today?

15 A I have this right here.

16 Q All right. You have seen it.

17 A Yes.

18 Q And this was filed on November the 9th, is
19 that right? According to the filing stamp of the OCC?

20 A November 9th.

21 Q All right. Now, did you have any knowledge
22 of the fact that Amax was pursuing a core drilling program
23 in the north half of the northeast in Section 27 before you
24 prepared this data which is present on Applicant's Exhibit
25 Number Three?

1 A I had no knowledge. I had no knowledge of
2 any core drilling, either, in Section 22.

3 Q You mean 26?

4 A 22, up here.

5 Q 22.

6 A Up higher, in here. We were not notified
7 of any core drilling up there, either.

8 Q Okay. Now, in reference to the Petco Well
9 No. 1 in the southeast of the southeast of 26, 19, 29, is
10 that a producing well at this time?

11 A Yes, sir, it is.

12 Q And Petco No. 2, is this a producing well?

13 A No, that is a dry hole. It was originally
14 completed in the Wolfcamp and was plugged and abandoned.

15 Q And that's in the northwest of the north-
16 west, is that right? In 26?

17 A No, sir, that is in the southeast of the
18 southwest.

19 Q Southeast of the southwest, okay.

20 On Exhibit Number Three, you said the key
21 well in Section 26, how do you designate that again, as
22 S-7067? Exhibit Number Three?

23 A Exhibit Number Three?

24 Q Yes, sir.

25 A I have it right here. Now, what do you want

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1 to know about that?

2 Q You say the key well, if I understood your
3 testimony correctly, in that section is S-7067, is that
4 right?

5 A S-7067.

6 Q The bottom of 26?

7 A Key well, no, I said the key well was No. 1.

8 Q All right, and where is that located in 26?

9 A That's in the southeast of the southeast.

10 Q Is it designated as S-7146?

11 A Sir, those are structure markers at the
12 datum point. The S stands for Strawn, 7146 is the subsea
13 datum.

14 Q All right, and A-1 designates what on your
15 exhibit, sir?

16 A That is A', which is a cross section, which
17 is on --

18 Q Okay.

19 A -- what, Exhibits Four and Five.

20 Q And it's your projection that there is re-
21 coverable oil and gas, and is it on a line -- or you estimate
22 a line over into Section 28, which appears to be Petroleum
23 Corporation -- and here I again use the Strawn designation,
24 6881, a green circle?

25 A Yes, I feel that it is between there, and

1 probably more. Our best subsurface control is, oh, up there
2 to Section 23, which is located Well No. C, Southland Royalty,
3 No. 1-23.

4 Q All right. Are you familiar with the
5 economics to any extent at all, of what would allegedly be
6 lost if the 120 acres sought in this application were included
7 and you could not drill it and produce, at least at this
8 time?

9 A Sir, we have a reservoir engineer who will
10 testify as to those conditions.

11 Q All right. It's out of your expertise?

12 A Yes, sir.

13 Q During the course of your study of this
14 area do you know whether or not any core or log tests showed
15 the presence of sylvite or other recoverable type of potash
16 ore, langbeinite, or otherwise?

17 A No.

18 Q Do you even examine your core logs from
19 the first 1000 feet for such mineralization?

20 A No. We don't have the rights to those, sir.

21 Q I understand that. I just want to know
22 if you examine them.

23 A No. No.

24 Q All right.

25 A The only thing, we do run a log up through

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1 there.

2 Q Well, do you know anything about those logs,
3 what they reflect?

4 A Yes, sir.

5 Q Do they reflect anything in reference to
6 potash ore?

7 A No, not the logs we run. There are logs
8 that do, that -- but not the logs that we run.

9 Q All right. They're not designed to test
10 for that.

11 A Yes, sir.

12 Q In your Exhibit Number Five, do you have
13 that in front of you?

14 A Yes, sir.

15 Q All right. This is the cross section where
16 you're testifying about two wells. Do I understand that
17 Parkway West Unit wants to go in again on the approximate
18 location of the plugged and abandoned Union State No. 1? Or
19 very close to it?

20 A That's correct.

21 Q Do you know anything about the status of
22 that well, as to how it was plugged?

23 A Yes, sir, I do.

24 Q Would you tell the Commission about that?

25 A This well, which has been drilled and

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1 plugged in 1961, 20 sacks at 4622 to 4571; 20 sacks, 1813 to
2 1780; 20 sacks, 1332 to 1300; 20 sacks, 283 to 250; left
3 9-5/8ths at 260 feet; cemented with 50 sacks.

4 Q Would that indicate to you that that is
5 cemented to the bottom?

6 A No, it's not cemented to the bottom.

7 Q No way. No way, is it?

8 A No, sir.

9 Q How much do you think is uncemented of that?

10 A Sir, I have no way of telling. This was
11 not done under my supervision, but I understand it was done
12 under the supervision of the New Mexico Oil and Gas Conser-
13 vation Commission.

14 Q All right. And does the document, what-
15 ever it may be, that you have in your hand reflect whether
16 or not the casing or string was left in the hole?

17 A Yes, sir, it said they left 250 -- 268 feet,
18 9-5/8ths.

19 MR. NUTTER: Was there any other pipe left
20 in the hole or run in the hole? Do you know?

21 A No, sir, not according to the records we
22 have here, sir.

23 Q What document are you referring to?

24 A This document we have in the files in the
25 New Mexico Oil and Gas Commission, and it was -- here it is.

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1 Want to look at it?

2 Q Please.

3 If I may, I'd like to copy some data off
4 that without delaying the hearing.

5 MR. NUTTER: Yes, sir. And I'd presume
6 it would be satisfactory with all parties that we will take
7 administrative notice of the well file that we have on that
8 Union State No. 1 Well.

9 MR. FEEZER: I was about to ask you to do
10 that.

11 Q What is the status of the activity in Sec-
12 tion 27 at Parkway West Unit No. 9 right now?

13 A No. 9, we have a location cleared, made,
14 and you'll have to -- as I understand, we have a conductor
15 pipe set.

16 Q And are you ready to proceed with the drilling
17 as soon as you can get a rig on the site?

18 A We have a rig, sir, that is drilling at
19 11,400, approximately, and will be through in about two days
20 and we intend to move it immediately down to that location.

21 Q Are you telling the Commission you intend
22 to start drilling within -- or set the rig within two days?

23 A If at all possible.

24 Q Okay. And in reference to your well in the
25 north half of the northwest of Section 26, what's your proposed

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1 drilling program for that well?

2 A Well, we have to get approval. We would
3 continue to drill that immediately after we've completed
4 Well No. 9 in Section 27.

5 Q Do you have any time frame in which you
6 think you would start that, assuming you got a permit issued
7 to drill that well?

8 A I imagine in -- the 10 will take about 30
9 days.

10 Q In view of the testimony here today in
11 reference to the well in Section 27, Parkway Unit -- Parkway
12 West Unit No. 9, would you proceed without a casing program,
13 in view of the evidence of commercially recoverable potash
14 ore in that area?

15 A Sir, this is not a geologic consideration.

16 Q What do you mean it's not a geologic con-
17 sideration?

18 A That's what I mean. I'm testifying as to
19 geology but I am not a casing man. What you're talking
20 about is --

21 Q You know nothing about the protective --

22 A I know that it has to be, but I am a geolo-
23 gist, and we'll have engineers to testify as to that, sir.

24 Q And the question is out of your expertise,
25 is that what you're saying?

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1 A That's right.

2 Q All right.

3 MR. FEEZER: And I believe that's all.

4 Pass the witness.

5 MR. NUTTER: Are there any further ques-
6 tions of Mr. Dean?

7
8 REDIRECT EXAMINATION

9 BY MR. COFFIELD:

10 Q Mr. Dean, in Petroleum Corporation's de-
11 velopment of this pool and area, have any of these wells
12 been planned and proposed in reference to potash activities?
13 As far as you know, were your plans predicated on --

14 A Well, we had planned to drill Well No. 8,
15 as you know, that these are -- 320-acre units have south
16 half and north half, and we had planned to move over 1320
17 feet east of our Section 8 in the east half of Section 22,
18 to protect our drainage better from the Southland Royalty
19 23-1A, but when we were informed that we could not get a
20 permit there, we moved 8 over there as close as we could to
21 that 1-A.

22 Q Has your activity in the area and your
23 drilling of the wells, at any rate, been generated by the
24 potash matters or has it been generated by economic matters
25 relative to the oil and gas recoveries?

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1 A It has been entirely generated by economic
2 matters as related to the oil and gas activity and the mar-
3 ketability of our gas.

4 MR. COFFIELD: I have no other questions.

6 CROSS EXAMINATION

7 BY MR. NUTTER:

8 Q Mr. Dean, with respect to your structure
9 map, Exhibit Number Three, on the Strawn --

10 A Yes, sir.

11 Q -- you mentioned that you had located this
12 Well No. 3 in such a position as to be structurally as high
13 as possible, and anticipating my question, you stated that
14 to move the well to a location directly south of that you
15 would lose some of that structural position. Now, what is
16 the top of the Strawn there on your location?

17 A The top of the Strawn, we anticipate hitting
18 at approximately 10,375 feet.

19 Q Well, on your subsea structure map here --

20 A Oh, we would -- it would be a -7015.

21 Q Wait minute.

22 A Strawn.

23 Q Your first line there that runs to the
24 right of Well No. 9 is a -7000.

25 A Yes, sir.

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1 Q Or the well that's to the -- the line that's
2 to the right of your location No. 3 is a -7050, isn't it?

3 A Yes, sir, so -7015, and that would be mid-
4 way between -7000 -- wait a minute --

5 Q -7025.

6 A 7000, it's 50-foot contours.

7 Q Right.

8 A So it would be -7015, similar to 1-A,
9 basically, maybe a little over.

10 Q I would interpret it as being about a
11 -7025 there.

12 A 7025, well --

13 Q About halfway between --

14 A Yes, sir.

15 Q -- the two contour lines.

16 A That's about it, yes, sir.

17 Q And then how much structural position would
18 you lose by moving just one location south?

19 A Well, probably, from this mapping, you
20 wouldn't lose any structural, hardly at all.

21 Q Now, the Southland Royalty well that you
22 consider pertinent to the Strawn development in this area,
23 being the north end of your C-to-A' cross section, --

24 A Uh-huh.

25 Q -- it has a good development in the Strawn.

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A. Uh-huh.

Q. But no tests were made, is that it?

A. That is correct. I have visited with South-land Royalty and they feel that they'll plug back to that zone.

Q. They think they eventually --

A. Yes, sir.

Q. -- will produce that.

A. They are producing out of the Morrow at this particular time.

Q. I see. Okay.

MR. NUTTER: Are there any further questions for Mr. Dean?

MR. FEEZER: May I ask one or two further questions?

RECROSS EXAMINATION

BY MR. FEEZER:

Q. You just informed the Examiner, if I understand you correctly, that you could move south from the present -- former location of Union State No. 1, plugged and abandoned, to a location which would be unorthodox but not lose much of your structural position, is that correct?

A. Other than -- that is basically correct, but also we would like to protect ourselves against drainage,

1 and this is a 660 deal that Southland Royalty could come down
2 there and put a well right there in the southwest of southwest
3 and drain our oil.

4 Q Do you understand that that's within the
5 R-111-A and they would have to get -- go through processes
6 to obtain a new well?

7 A If it was economically possible, they
8 probably would do that. They are doing that right now, as
9 I understand it.

10 Q Well, could you do the same on the Parkway
11 West Unit No. 9, move south and not lose structural strength?

12 A No, we would not lose structure; however,
13 we -- one thing that we're doing here, we're staying as close
14 as we can to known well control, plus protecting our corre-
15 lative rights, and we would be moving farther away from
16 known well control. These are stratigraphic, not entirely
17 structural traps.

18 Q Assume you move to the approximate mid-line
19 of the northwest of the northeast of the northeast in 27, is
20 there any reason why, if the Commission granted it, you
21 could slant drill to the same location, at least eleven eight
22 in Unit 9?

23 MR. NUTTER: Where was the location, Mr.
24 Feezer?

25 MR. FEEZER: At the same location and slant

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1 drill to that presumed recovery zone.

2 A Anything is possible, though it might not
3 be economically possible. This is what Southland Royalty is
4 contemplating, and we don't feel that that might be a com-
5 mercial way to do things.

6 MR. COFFIELD: If the Examiner please, our
7 petroleum engineer witness is more qualified to answer ques-
8 tions in regard to that.

9 Q Do you feel you're not qualified, then, to
10 pursue that line of questioning?

11 A On the --

12 Q Yes. Slant drilling?

13 A No, I'm not qualified to do that.

14 MR. FEEZER: Pass the witness.

15 MR. NUTTER: If there are no further ques-
16 tions, the witness may be excused.

17 MR. COFFIELD: Our second witness is Mr.
18 Larry Shannon.

19
20 LARRY SHANNON
21 being called as a witness and having been duly sworn upon
22 his oath, testified as follows, to-wit:

23
24 DIRECT EXAMINATION

25 BY MR. COFFIELD:

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Q. Mr. Shannon, for the record would you please state your name?

A. Larry Shannon.

Q. And where do you live?

A. I live in Dallas, Texas.

Q. And what is your occupation and who is your employer?

A. I'm a Senior Vice President of the Petroleum Corporation. I have an engineering degree, a petroleum engineering degree professionally.

Q. And you are -- you work with Petroleum Corporation as -- in your capacity as --

A. I manage the operations and engineering for Petroleum.

Q. Have you previously testified before the Division?

A. Yes, sir, I have.

Q. Are you familiar with the petroleum engineering factors which are pertinent to this area covered by the application in question?

A. Yes, sir.

Q. Are you familiar with Petroleum Corporation's drilling and development program and activities in this area?

A. Yes, sir.

1 MR. COFFIELD: Mr. Examiner, do you have
2 any other questions of Mr. Shannon?

3 MR. NUTTER: No, Mr. Shannon is qualified.

4 Q Mr. Shannon, I assume you were in the room
5 and heard the testimony of Mr. Brown of Amax that it would be
6 their proposal that we first mine the potash and then the
7 oil companies could come in and recover oil and gas. Did
8 you not hear that testimony?

9 A Yes.

10 Q And if that procedure were followed, how
11 would you propose that an oil or gas well would be drilled
12 through an abandoned open mine shaft?

13 A I have no way of knowing how we'd do this,
14 because we have to circulate drilling fluids, and once you
15 drill into the open mine shaft, I don't know what you'd do.
16 It would be a nightmare and extremely expensive operation to
17 try to encounter. I don't know of anyone who's ever done
18 this. There may be techniques, but they'd have to be developed.
19 I don't know of any proven techniques to do this.

20 Q So would it be your opinion that it would
21 be extremely, much more expensive, and --

22 A And much more hazardous, as well, because
23 you'd have to run pipe through it. You'd have to cement it.
24 All the evaporite section has to be cemented off, and I don't
25 know how you'd do it.

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1 Q Would it raise a serious question in your
2 mind as to the ability to recover the oil and gas deposits
3 at all?

4 A Yes, sir, it would. We think we confine
5 any pressures that we have with the casing programs that
6 we're utilizing, but we'd have to change it completely, and
7 I'm not sure how we'd do this.

8 Q Mr. Shannon, you may have also heard testi-
9 mony and remarks by Mr. Feezer with respect to questions of
10 gas pressure in the wells that you have drilled and the wells
11 that are proposed to be drilled. Can you give us some idea
12 as to precisely what those pressures would be initially and
13 what they would be later in the life of the well?

14 A Yes, sir. Bottom hole pressures in the
15 Morrow zone initially are normally in the range of 4500
16 pounds. You'll see surface pressures of 3000-3300 pounds
17 initially, and as you produce the wells, the pressures de-
18 crease and decline, and that's part of the completion mechanism
19 we use in recovering the hydrocarbons.

20 I have pressures of the flowing wells in
21 the mining area right now, those of Southland Royalty's.
22 There's one well that's flowing on 2000 pressure; one at 500
23 pounds; there's one at 800 pounds; there's two at 1000; one
24 at 1200, you know, so it's in that range. Normally we're
25 restricted to the pressure we can lower the pressure of a

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1 wellhead, to that of what we sell our gas to the gas buyer,
2 and El Paso, Llano, and others, are in the area, and most of
3 their line pressures now are in the 800 pound range. So,
4 until we put compression in, which is a subsequent operation,
5 normally, in the depletion of the gas reservoirs, the pres-
6 sures will be probably no lower than 800 pounds. 500, I don't
7 know how -- Southland must have a little bit lower line pres-
8 sure there that must have occurred at that time. It's kind of
9 unusual.

10 Q Is it your opinion that after a certain
11 period of time, six months or so after the well is put on
12 production, that the well -- the well pressures do drop sig-
13 nificantly?

14 A Oh, yes, and they continue to drop through-
15 out the life of the well.

16 Q Relative to the life of the well, what would
17 you say would the life of the well be?

18 A Anywhere from ten to fifteen years under
19 normal completion techniques. It's what we've seen in this
20 area, and depending upon the reservoir characteristics, it
21 seems to be in that life span.

22 Q Now, in this particular instance, Mr.
23 Shannon, it has been indicated earlier by Mr. Dean that the
24 plan is to develop this area, the Parkway West area, and the
25 Petco Com area, in a rather rapid fashion, as I understood

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1 the testimony.

2 A Yes. Back in August we commenced the Parkway
3 West Unit No. 6 Well, and we put a drilling rig in the area
4 at that time, and our plans were to continue drilling and
5 keep the rig there as long as we continued to drill and com-
6 plete successful wells. We're now drilling the third well
7 and the location and all is prepared for the -- for the
8 fourth development well under this continuous program, the
9 No. 9 location in question, that we talked about earlier, but
10 our plans were, and we didn't really realize that the east
11 half of Section 22 was going to come under R-111-A, and so
12 we feel that the No. 9 location is very important where it's
13 spaced to adequately drain the reservoir to protect our cor-
14 relative rights from existing wells to the east of us, those
15 drilled by Southland Royalty. And if we have to move it,
16 then we'll not be able to recover the reserves that we feel
17 is our -- our share of the reserves in the reservoir. They
18 will drain them from us, and their wells are there, and in
19 essence, they could get our reserves without adequate
20 spacing of the wells.

21 MR. NUTTER: Where are you drilling now,
22 Mr. Shannon?

23 A The No. 8, which is the southwest quarter
24 of Section 22. That well will be down in about two days,
25 Mr. Nutter.

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1 MR. NUTTER: Thank you.

2 Q All right, Mr. Shannon, let's go to what
3 we've marked as Exhibit Six and would you please explain that
4 exhibit and why we tendered it as an exhibit?

5 A All right. Exhibit Six is a key well and
6 probably our most disappointing well that we've drilled in
7 this area, and it was the first well that we drilled. It's
8 the production history of the well that, what we think it's
9 told us all along is that there are significant reserves in
10 the area and we had to move out and find them.

11 This well is probably the poorest perfor-
12 mance well that we have, economically speaking, and yet we
13 think that it -- because of this performance, it indicates
14 that we're definitely on the edge of a larger reservoir, and
15 all we need to do is get up-dip structurally.

16 Q Okay, let's go on now to Exhibit Number
17 Seven. Would you please explain that exhibit?

18 A Yes, sir. Exhibit Seven really covers the
19 economics, as we see them, for three wells in the area.

20 The first two pages shows the economics of
21 the Parkway West Unit No. 6 Well, which we have recently
22 completed but not yet put on production. This shows the
23 economics of our working interest, which is 38.514 percent,
24 and you can find this on the second page. All the input
25 data is there. It does show what we believe the gross re-

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1 serves will be, the net reserves to us, the expenses neces-
2 sary for us to get those reserves out of the ground, and the
3 future income before Federal income taxes, and a cumulative
4 present worth -- value of this cash flow, discounted at 10
5 percent, and we all know that money has value, and that's the
6 idea of showing that.

7 Now, the Parkway No. 6 Well is the one
8 that -- if I may look at a map here a second -- it's in the --
9 it's in 21. It's in the southeast quarter of Section 21.
10 That was the first well we drilled in this current develop-
11 ment program that we started in August.

12 Now, the next one is the Parkway West Unit
13 No. 9 Well, the location in the northeast of Section 27.
14 This we believe is a reasonable conservative estimate of what
15 we think the reserves will mean to us. In this economic fore-
16 cast we show not only the operating costs necessary to lift
17 the hydrocarbons to the surface and sell them, but also the
18 costs to drill the well. In other words, it's net. It's
19 cash. It's our sales less any costs that we anticipate, for
20 just the Petroleum Corporation's interest, which we say is
21 worth \$2,219,000. Now, if you gross that number up from
22 our 38.5 percent working interest to the full 100 percent
23 working interest, which is the value of everyone that we
24 represent in this well, that comes out to \$5,762,000 in value,
25 net of all costs.

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1 So we think it's significant, and I'd like
2 to also point out in this economics, that I think the reserves
3 are very conservative. We've seen some areas we can get
4 4-billion cubic feet of gas, double what I'm showing right
5 here. 2 is just something that we used because it's an un-
6 developed location, and it is risk adjusted.

7 Now, the next two pages, or the last two
8 pages of this exhibit, Petco State No. 3, and this shows what
9 we think the economics are for the location in the northwest
10 quarter of Section 26. Here again, it's for only our interest,
11 but in this area Petroleum Corporation owns 51.6 percent,
12 and you can gross that out to something over \$4,000,000 in
13 future net revenue for that well, looking at the Strawn zone
14 only, the economics of the Strawn, not the Morrow zones.

15 Q Do you have any further details on this
16 exhibit that you'd like to discuss?

17 A No, other than I'd like to qualify it in
18 the fact that -- that reserves, and the stimulation of reserves
19 and cash flows in the oil business, is still difficult to do,
20 and of course, the more production history you have, the more
21 accurate you can be, and all three of these locations we
22 don't have any production history, and in two of them we
23 haven't drilled the well yet, so, you know, it's much more
24 difficult to do, but it's something that we use as economic
25 outlines.

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1 Q Mr. Shannon, if Amax' application is granted
2 what would be the impact on the Petroleum Corporation's de-
3 velopment of the oil and gas pool in this particular area?

4 A Well, to begin with --

5 Q First of all, let's assume two different
6 things could occur. First of all, if the well were not
7 drilled; that is, by virtue of the expansion of the area, if
8 in effect, it can't be drilled, number one.

9 And number two, if the wells are allowed
10 but with restrictive casing procedures as are outlined in
11 R-111-A.

12 A Well, if we're not allowed to drill there,
13 we will lose our correlative rights because of the drainage
14 pattern, I believe, because we've already given up the east
15 half of Section 22, and we feel in fairness to everyone, that
16 we've got to have a well somewhere to drain part of the re-
17 serves, and it's partly State reserves, too, State land, in
18 Section -- and by placing a well where we have positioned it,
19 we believe we've optimized the drainage pattern.

20 Now, we of course have a drilling rig, and
21 that drilling rig costs us something like \$5000 a day, and if
22 we don't have another location to go to, we'll be penalized
23 \$5000 a day, plus we've spent another \$15,000 preparing -- in
24 preparation of the location, and to build another location
25 takes five days, so that would be another \$15,000, \$20,000

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1 for the dirt work, plus the \$25,000 standby on the drilling
2 rig. That's the economics we're talking about short term.

3 Now, the other question, the second part of
4 that, I'm not sure.

5 Q The restrictive casing procedures which can
6 be imposed, or would be imposed, pursuant to the provisions
7 of R-111-A.

8 A Oh, right. The way we look at R-111-A,
9 where we have to run 20-inch casing to about 400 feet,
10 13-3/8ths casing down to about 1500 feet, and 8-5/8ths inch
11 casing then down to 3000 feet, adds approximately \$70,000
12 to the cost of our drilling this well. That's in additional
13 cementing, the additional casing that we have to buy, the
14 additional rig time that's involved in this. That's give,
15 then, two cemented zones of pipe to protect the potash, as
16 well as our production string of pipe that would later be
17 placed there, or cement inside the casing if the well is
18 plugged and abandoned.

19 Q Okay. In the cross examination of Mr. Dean,
20 Mr. Feezer had indicated an interest in knowing about the
21 feasibility of whipstocking or slant hole drilling, and you
22 would be our witness who can testify to that matter. Would
23 you please expound on that possibility?

24 A Okay. In Section 9, to begin with --
25 MR. FEEZER: In Section 9?

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1 A. Or excuse me, our location 9 in Section 27,
2 to build another location, just in the next week or so, we
3 would have to spend another -- we've already said we spent
4 \$15,000 now. We move down here, we'll spend \$20,000 building
5 another location, \$25,000 for the standby of the rig, plus
6 for directional control, at least \$50,000, to try to get the
7 directionally controlled well up-dip underneath that acreage.
8 It's a considerable amount of money, and we don't own all the
9 interest in the well. We'd have to get all of our partners'
10 approval, and it may take time, which may even delay, and
11 with that \$5000 a day in the rig, if we lose the rig we may
12 not get it back for six months. The rig availability is
13 terrible right now, I mean there's such a demand for drilling
14 rigs, and we talk about economics, and you know, with 8-million
15 barrels a day that we're importing of oil in the United States,
16 it's -- it's quite a burden on us.

17 Q. Mr. Shannon, do you have any further com-
18 ments to make with respect to the engineering and economic
19 aspects in this particular project?

20 A. No, sir.

21 Q. Were these Exhibits Six and Seven prepared
22 by you or under your supervision?

23 A. Yes, sir, they were.

24 Q. And again to reiterate, if Amax' application
25 is approved, is it your opinion that this will result in waste

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1 and the violation of correlative rights?

2 A. Definitely.

3 MR. COFFIELD: Mr. Examiner, I move the
4 admission of Exhibits Six and Seven.

5 MR. NUTTER: Petco Exhibits Six and Seven
6 will be admitted in evidence.

7 MR. COFFIELD: And I have no other questions
8 of Mr. Shannon on direct examination.

9 MR. NUTTER: Are there questions of Mr.
10 Shannon?

11 MR. FEEZER: Yes, sir.

12
13 CROSS EXAMINATION

14 BY MR. FEEZER:

15 Q. Mr. Shannon, your Exhibit Six reflects a
16 well located in Section 21, as I understood your testimony?

17 A. 26. It's this well in Section 26. Down
18 here. It's not on your map, but it's --

19 Q. In the southeast quarter of Section 26?

20 A. Yes, sir.

21 Q. And your geologist testified that he thought
22 the best well, or key well, was up here in the northeast
23 corner, running on a line up here into the -- through the
24 northwest quarter of 26 and maybe touching the northeast
25 quarter of 27?

1 A I'm not a geologist and maybe we should ask
2 Hal this, but my understanding is, and let's look at our map
3 because these are core holes, and I --

4 Q Well, let's rephrase the question. These
5 locations which you've applied for, in the engineers and
6 geologists judgment are the ideal locations.

7 A The optimum locations, that's correct.

8 Q All right. And --

9 A For not only structure, geologically, but
10 also engineeringwise for drainage.

11 Q All right, and you offer Exhibit Six because
12 you think a projection of what you're getting here in the
13 poorest well of the bunch, in the southeast quarter of Section
14 26, will greatly improve as you drill these wells going in
15 the northwesterly direction from that point.

16 A Yes, sir, and it also tries to show the
17 fortitude of our staying in there with marginally an unattractive
18 well to begin with.

19 Q All right.

20 A The first one we drilled.

21 Q And you offered and received Exhibit Seven,
22 shwoing Parkway West 6, plus 9, and Petco State 3, are pure
23 projections, computer projections, are they not?

24 A Well, when you figure the mathematics, that's
25 right, and I -- I tried to qualify that, and I think we're

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1 conservative in this, though, too. We try to be.

2 Q And in your Exhibit Seven, you showed or
3 testified to a 2,219,000 dollar future net income after in-
4 vestment, but I did not see the 5,000,000 you spoke of.

5 A No, sir, I did -- I did a mathematical cal-
6 culation on it.

7 Q All right, that 5,000,000 does not show on
8 the Parkway West exhibit, does it, at all?

9 A No. Let me tell you the method that --

10 Q If you would, please.

11 A I took the 2, 219,388 and divided it by
12 .385140. That's our working interest in the well, so that
13 grosses it up into 100 percent of the working interest.

14 These cash flows apply to only our interest
15 and this, you know, there are twelve of us that own this.

16 Q And at what price rate do you calculate
17 this gas being sold to make these projections?

18 A All right, on the second page, if you'll
19 look.

20 Q Parkway West 9?

21 A Uh-huh, look at the second page, input data.
22 it shows that by year, oil and gas price. We show the percent
23 of escalation by year.

24 Q Projected to '94?

25 A Yes, sir.

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1 Q Okay.

2 A The price is up to \$6.00 and oil up to
3 \$50 a barrel in 1994.

4 Q And you're telling the Commission and those
5 here that these are conservative estimates.

6 A We think they are.

7 Q Okay. Do you have the expertise to give
8 answers in connection with the engineering or drilling of a
9 slant well to reach the structure you want to reach in 26 and
10 27?

11 A I thought we discussed that a few minutes
12 ago.

13 Q Well, do you feel that you can answer
14 questions about it?

15 A Yes, sir.

16 Q All right. Assuming that the potash com-
17 pany in some attempt to work out a solution to the problem,
18 agreed to leave a column, mine around it but without a well
19 going through it, would that make you alarmed if -- less
20 alarmed, so that you could live with it, if you knew that
21 there was a column with 100-foot radius at the location where
22 you want to drill Parkway West No. 9 and get it at a future
23 time? I'm talking just about the risk of drilling, the
24 hazard, et cetera.

25 A Forgetting the time value of our product?

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1 Q Yes, forgetting the time value, for --

2 A It certainly has a time value.

3 Q Oh, it has, okay, I understand.

4 A 100 or 200-foot radius? I thought it was
5 originally 200.

6 Q Well, depending on if it's second mined or
7 not. Starting with a 100-foot radius, 200-foot diameter.

8 MR. NUTTER: Now, Mr. Feezer, as I under-
9 stand what you're talking about here, would be that --

10 MR. FEEZER: The mine would proceed but
11 leave the column and no well there.

12 MR. NUTTER: And you would leave a column.
13 Then this would remove his doubts about drilling through a
14 mined area.

15 MR. FEEZER: Yes, sir.

16 MR. NUTTER: Is that what you're talking
17 about?

18 MR. FEEZER: Yes, sir.

19 MR. NUTTER: I see.

20 Q What's your reaction to that thought?

21 A We're talking about -- what is your mining
22 level, from 700 to 1000?

23 Q 750 to 950, maybe 1000. And you're opening
24 up about four feet of open ground.

25 A Four feet, is that the maximum height?

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1 Q Fifty inches, maybe a little bit more. Bob
2 Brown can --

3 MR. BROWN: Chuck, after you second mine.
4 We take 90 percent extraction. You don't have over that much.

5 Q With the subsidence.

6 A Uh-huh.

7 Q But I'm not -- I haven't asked the subsi-
8 dence question yet.

9 A Uh-huh.

10 Q I'm talking about just the first mining.

11 A It's theoretical. I've never tried.

12 Q I understand that. Neither have we, under-
13 stand.

14 A Yes, sir.

15 MR. NUTTER: Well, Mr. Shannon, if you were
16 drilling a hole through the middle of 100-foot column of
17 salt that's only just surrounded by a 4-foot cavern around
18 that, I don't think it would disturb your drilling operations.

19 A Probably not, you know, it would certainly
20 be a lot better --

21 MR. NUTTER: As long as you were going through
22 the middle of that column of salt or potash.

23 A I'd rather do that than to drill into the
24 mine shaft, because that's what, you know, I suppose there is
25 a chance that you could do it.

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1 Q That's what I wanted to know.

2 Now, when did you first learn that Amax was
3 pursuing a core drilling program in 26 and 27?

4 A We didn't know that, and as far as I know,
5 we were never notified of the core drilling program.

6 The first we knew was the hearing on your
7 extension of the east half of Section 22, and we thought that
8 was all you wanted, because that was just a few months ago
9 that the half of Section 22 was added into R-111.

10 Q Did you attend that hearing or one of your
11 representatives?

12 A We had a representative attend but we
13 didn't try to contest it or anything at that time. We thought
14 we could still live with that, but we didn't know that there
15 were others coming subsequent to that.

16 Q Were you informed by your representative
17 that we were pursuing an active core drilling program, both
18 to the south and east at that time?

19 A I personally was not informed. There may
20 have been someone in our organization that was.

21 Q Did you obtain a copy of the record of that
22 hearing and review it after it was over?

23 A I did last week, but I did not before that
24 time.

25 Q Did that reflect in the record? Did you

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1 pick that up?

2 A Yes, I noticed it then, but, you know --

3 Q Did you receive a letter from me dated
4 November 26th?

5 A Yes, sir, I did.

6 Q And was that the first notice you had that
7 we had a problem?

8 A Yes, it is. It's the first I knew that
9 this was even docketed.

10 Q And you get your mail at 13 whatever it is

11 A 3303 Lee Parkway.

12 Q And what's the correct name of your cor-
13 poration, Petroleum Corporation, or Petroleum Corporation of
14 Delaware?

15 A The Petroleum Corporation of Delaware.
16 Now, we're bonded in New Mexico under just The Petroleum
17 Corporation.

18 Q Are there two different companies?

19 A Well, there's a Petroleum Corporation of
20 Texas in Texas, and because of that we added the Delaware
21 because that's the state we incorporated; not where the cor-
22 porate headquarters are.

23 Q How are you registered to do business in
24 the State of New Mexico?

25 A I'm not positive on that. I'd have to

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1 double check that. I don't know.

2 Q Now, who is your statutory agent here, then,
3 do you know that?

4 A Can you --

5 MR. COFFIELD: I'm advised it's C. T. Cor-
6 poration.

7 MR. FEEZER: C. T. Corporation, thank you.

8 MR. COFFIELD: Yes.

9 Q Do you know anything about potash or potash
10 mining?

11 A No, I really don't. I'm not an expert in
12 that.

13 Q Are you aware of the fact that your appli-
14 cation, as shown by Applicant's Exhibit Number Three, was
15 one day after Amax filed its application to extend R-111-A?

16 Do you understand that we filed on the 8th
17 of November?

18 A Which well are we talking about now?

19 Q We're talking about the one in Section 27.

20 A No, I knew nothing about that at all. You
21 know, the first I knew that -- was a letter I received from
22 you sometime after the 26th of November.

23 Q And you were not aware of the fact that
24 we filed our application one day prior to the time you filed
25 your application?

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1 A Sir?

2 Q You were not aware of the fact that we filed
3 our application on the 8th and yours, of course, was filed on
4 the 9th, until later on?

5 A Yes, sir, of course, you know, it took a
6 few days before that. We had to stake the well and it was
7 probably two weeks involved before that was filed, you know,
8 the time you send a surveyor, and --

9 Q And your --

10 A I mean that's not an instantaneous type re-
11 quest. It takes one to two weeks to --

12 Q When you filed this, it was handled in the
13 Artesia Office, was it not?

14 A Yes, sir, it was.

15 Q And you did not have any communication with
16 the office here in Santa Fe for the application to drill
17 Parkway West No. 9.

18 A No. I had no communications with them, no.
19 We did in drilling No. 3 Well.

20 Q Yes, sir, I understand that.

21 A We were concerned about that; even 7 and 8.

22 Q Now, you're concerned about the economic
23 impact of the -- whatever this Commission may do about this
24 location. Is there any way that you can deflect this rig to
25 some other location to mitigate your costs until this issue

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1 is decided?

2 A. It would be very expensive. I don't have
3 the authority to do it, because, you know, we don't have
4 another location to move the rig. It takes weeks to get a
5 permit, get the location built. We don't have our partnership
6 approval and that takes thirty days. We'd lose the rig. We
7 would really have a difficult time with our current develop-
8 ment program, because we have approval from all the other
9 interest owners. Like I've said all along, that we own about
10 38 percent of the oil and gas lease there and we went to all
11 the other twelve interest owners with what we call an author-
12 ity for expenditure, AFE, and they had thirty days in which
13 to reply, and they all approved of our drilling this well,
14 and that was all taken care of before we spotted the well and
15 everything, and we've working on it for --

16 Q. Before you made your application on the
17 9th?

18 A. Yes, sir, it was two months before that,
19 before the application. That's just kind of behind the fact.
20 I've got correspondence in my file that shows we were working
21 on it two months before that, I'm sure.

22 Q. Assuming the Commission, or the Examiner,
23 could expedite a decision in this matter, could you obtain
24 within a five-day period authorization to drill a slant well
25 from some place below the north half of the northeast of 27

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1 to reach your oil or gas bearing strata?

2 A Who pays for the extra cost?

3 Q I haven't reached that question yet. We
4 will later on.

5 A Well, I don't have the authority myself to
6 move a location. Only the president of our corporation has
7 that authority.

8 Q All right, at least at this time it's not
9 a possibility.

10 MR. FEEZER: I believe that's all.

11
12 CROSS EXAMINATION

13 BY MR. NUTTER:

14 Q Mr. Shannon, on your Well No. 6, your pro-
15 jections here for future performance.

16 A Yes, sir.

17 Q It looks as though you've just arbitrarily
18 for some reason selected 3-billion cubic feet as the ultimate
19 reserves for this well and then the computer backed up from
20 there with all the interests and costs, and so forth, allo-
21 cated.

22 A It's really not arbitrary.

23 Q No, I --

24 A We have production history in the area.

25 We think this well is better than our No. 2 Well. The No. 2

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1 Well has already produced over 2-billion cubic feet. We
2 think that really it probably is more in the 4-billion range,
3 but since it's early, I don't try to round them off any
4 closer than to try to get them in a billion or a billion and
5 a half range, because I can't actually estimate it any closer
6 than that.

7 Q But everything --

8 A That's our best estimate at this time.

9 Q Everything is based on backing up from a
10 preselected ultimate reserve of gas for the well of 3-billion
11 feet, right?

12 A Essentially that's the way the computer
13 program works. That's the mechanics of the computer program,
14 but that is not the mechanics of how we actually arrived at
15 the numbers, Mr. Nutter.

16 Q No, probably a reservoir engineer with a
17 little Texas Instrument calculator selected 2-billion feet
18 on his desk and then gave it to the computer to figure out,
19 isn't that right?

20 A That's a lot of it, yes, sir. And we have
21 we have an excellent well. This -- this well will produce
22 about 4-million cubic feet and we haven't even acidized it,
23 and we have probably four other zones to perforate, so we
24 felt comfortable --

25 Q With 3-billion?

1 A With 3-billion.

2 Q And then likewise, on the No. 9, you took
3 a 2-billion cubic foot figure and backed up --

4 A Risk adjusted, Mr. Nutter.

5 Q And then on your costs you decided somehow
6 or other that by 1994 gas would be \$6.00 a barrel.

7 A It's 10 percent a year escalation is where
8 we got that.

9 Q I mean gas would be \$6.00 an Mcf and the
10 Ayatollah would be charging us \$50 a barrel for oil.

11 A I've seen major oil companies use higher
12 numbers than that.

13 Q Oh, I'm sure that the Ayatollah would agree
14 with you that \$50 is conservative here.

15 A Well, we're receiving \$34.50.

16 Q He's going to want \$150 by then.

17 A Mr. Nutter, we're receiving \$34.50 for those
18 four barrels a day we're producing in that Petco State No. 1
19 right now. Now, how long it will stay there, I don't know.

20 Q And then with respect to Well No. 3, it
21 looks like the basic figure that was backed -- that was
22 selected and then everything backed out of it, was 140,000
23 barrels of oil from that well.

24 A That's the Strawn zone.

25 Q And that's a Strawn well.

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1 A And we anticipate oil in a different ratio.
2 The ratios in that area normally come out around 7000-to-1.
3 We've, you know, that's -- it's just the way that we look at
4 it.

5 Q Well, your performance on the No. 1 Well
6 has been approximately 7000-to-1, hasn't it?

7 A Yes, sir.

8 Q Over the life of the well.

9 A Net, it has, and the No. 1 Parkway West Unit
10 has, too.

11 Q Now, the No. 1 Parkway West, it's not an
12 oil well, is it?

13 A It's classified as a gas well, but it has
14 a high GOR, and we --

15 Q And it's run in the neighborhood of 7000,
16 also?

17 A Yes, sir, it does. We have special pool
18 rules for that, Mr. Nutter. We came up right after we dis-
19 covered that and asked for the special rules.

20 Q Well, now this calculation for the Well No.
21 3, that's not a 7000-to-1 ratio you've got there.

22 A No, I know. So that's why I'm saying con-
23 servative.

24 Q Well, you're figuring you're going to get
25 a low ratio oil well right in the middle of these two gas

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1 wells, is that it, or high ratio oil wells, whatever they
2 are?

3 A We're looking at only the reserves from the
4 Strawn, which we think have the lowest risk to develop. If
5 we can get the Morrow gas and the others, that's gravy to us,
6 an additional income.

7 Q Well, now what about Morrow development in
8 Section 26? Have you given any thought to Morrow wells in
9 Section 26?

10 A Yes. Well, we -- we want to drill the pro-
11 posed location to the Morrow.

12 Q The No. 3 is projected to the Morrow?

13 A Yes, sir.

14 Q Well, it's a non-standard location for the
15 Morrow.

16 A That's right. We couldn't produce from it
17 without a special application, no. Of course, we don't have
18 a drilling permit there, either.

19 Q Well, you haven't even filed for a Morrow
20 well there, have you?

21 A Yes, sir, we did, but only to drill and
22 expose it, and if we have adequate zone, then we would come
23 to the Commission again and ask for approval to maybe dual
24 complete or produce that zone as well.

25 Q Well, your Form C-101, which is part of

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1 Amax's Exhibit Three, states it's projected to the Strawn
2 formation, although it does give the depth as being 11,800.

3 A. 11,800, see, it's to the -- to the Morrow.

4 Q. But you haven't said that you were going
5 to the Morrow here, nor that you're at an unorthodox location
6 for the Morrow.

7 A. We are that, an unorthodox location.

8 Q. Okay. Now, the No. 9, do you intend to
9 complete it as a Strawn well if it's productive in the Strawn?

10 A. We would dully complete it.

11 Q. Uh-huh, so it's been projected to Morrow,
12 which would take care of the Strawn, subject to the approval
13 of a dual completion.

14 A. Yes, sir.

15 Q. And it is a standard location --

16 A. Standard location in the Morrow.

17 Q. -- in the Morrow.

18 A. We're more worried about correlative rights
19 on the Morrow there. Hopefully, serendipity will come in and
20 we'll have them both, so --

21 Q. I see.

22 A. But we have to identify which is the primary
23 objective.

24 Q. Now, when you mentioned that it would cost
25 you an additional \$70,000 to comply with the casing and cementing

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1 program in R-111-A, what were you talking about? You said
2 you'd have to run 20 inch to 400 feet?

3 A. That's our understanding.

4 Q. And 13-3/8ths to what depth?

5 A. 1500 feet.

6 Q. And then you mentioned 8-5/8ths.

7 A. 8-5/8ths to 3000 feet. Now, we run 8-5/8ths
8 to the 3000; that's not an added expense.

9 Q. Right, so that's not an additional cost.

10 A. And we normally run 13-3/8ths to 400 feet
11 and then circulate cement to the surface, so we would have
12 to add the 1100 feet of 13-3/8ths, plus the 400 feet of 20-
13 inch.

14 Q. And that, and the cementing thereof.

15 A. And the cementing -- cementing and drilling
16 time.

17 Q. Would cost an additional \$70,000.

18 A. That's what we're estimating. We've not
19 done this, so, you know, we don't have the actual cost behind
20 us, but that's a reasonable estimate, we believe.

21 Q. Now, in the event that the Commission should
22 allow the continued effectiveness of your drilling permit
23 for Well No. 9, would Petco be amenable to altering the
24 casing-cementing program to comply with R-111-A, if the area
25 were extended? To include that 40-acre tract?

A I, you know, that's up to our --

Q You'd be drilling in R-111.

A You know, but I think we would. We've always tried to get along with everyone, Mr. Nutter. I don't have the authority to say that, but I can anticipate that we probably would.

Q A solution like that, I realize wouldn't make anybody happy.

A No, sir.

Q We'd be extending the area and altering your casing program.

A Yes, sir.

Q But we would also be permitting a well in R-111-A territory.

Sometimes that's our best solutions, the ones that don't make anybody happy.

A Yes, sir. Well, at least we could still drill.

Q Now, you mentioned that the rig on No. 8 would be through in about two days. What was the drilling depth this morning?

A Well, it will be at total depth in two days. It's really going to be four or five days before we can log it, and then if we are fortunate, to run pipe and be in a position to move.

Q If it reaches TD in 48 hours there would be another 72 hours in which --

A I think in either plugging or --

Q Before you could move the rig off.

A Yes, sir, before you plug the well or run pipe, and --

Q You know, did you test the Strawn in that well?

A No, sir, we did not drill stem test it.

Q How did it look? Have you gotten --

A We had a drilling break. Hal's -- we'd have to go back to Hal on that. He's more up-to-date on that.

MR. DEAN: We had a drilling break but we did not open hole test it.

MR. NUTTER: And you don't have any logs on it yet.

MR. DEAN: No, sir.

A No, sir. We do not.

Q So that well may have a potential in the Strawn, then.

MR. DEAN: Yes.

A We hope so.

Q And you're not deep enough to really know if you've got anything in the Morrow or not.

MR. DEAN: No, sir, We have this bottom 400 feet where our pay's coming in.

A. But we've made good -- the No. 6 is an excellent well and the No. 7, we've just flowed gas out of it at rates from 2 to 3-1/2 million cubic feet. It's not as good a well, we don't believe, as the No. 6 Well, but it's certainly an economically attractive venture for us to drill the No. 7.

Q. Now, I presume the No. 7 has the north half of Section 22 dedicated to it and the No. 8 has the south half of the section dedicated to it.

What are you proposing to dedicate here to this No. 9?

A. The north half.

Q. So there would be another location.

A. Yes.

Q. Then the No. 10 would have the south half.

A. I think Hal shows that.

Q. The No. --

A. If you'll notice in Exhibit One, or any of them, there.

MR. NUTTER: I believe that's all I have. Does anyone have any further questions of Mr. Shannon?

MR. COFFIELD: Yes.

MR. NUTTER: Mr. Coffield.

REDIRECT EXAMINATION

BY MR. COFFIELD:

Q On these economic analyses, Mr. Shannon, were these prepared specifically for this hearing?

A No, they were not. That's just an in-house type work that we do, and it wasn't --

Q A work plan? Is that the reason they are a conservative --

A Sure. It has nothing to do with the hearing at all. We just brought all the data we could.

Q And in view of the urgency of Petroleum Corporation's proposed development in this area, which has been alluded to many times, I trust that you are formally requesting that the Examiner expedite this matter.

A It certainly would help us.

MR. COFFIELD: Thank you.

MR. NUTTER: Are there any further questions of Mr. Shannon? He may be excused.

Okay, I'll call for closing statements. Mr. Feezer, as Applicant, you're entitled to go last.

MR. COFFIELD: Mr. Hensley is prepared

to make a closing statement.

MR. NUTTER: Mr. Hensley.

MR. HENSLEY: If the Commission please --

MR. NUTTER: Just a second. I forgot to ask if anyone else has anything to offer in this case.

Proceed, Mr. Hensley.

MR. HENSLEY: I'll make this very brief, Mr. Examiner.

First of all, I would like to say that I think that there is a serious question in this record as to whether or not there's been a prima facie showing in the R-111 that any commercial deposit of ore exists. I think the only thing that can be said is that if this ore is in fact ultimately mined, which might occur, I believe, as Mr. Brown has indicated, somewhere between the next few years and nineteen and a half years, that it could not be commercial unless it were blended with a higher grade ore.

In addition, there's been no core drilling at all in the area in the north half of the northwest quarter of Section 26, and I don't see how a reasonable projection of mineable ore can be made in the absence of even one core hole being sunk in the proposed area to be extended.

In addition, I think -- and by the way, in connection with this blending, I believe Mr. Feezer re-

requested that the transcript in Case Number 6495 be incorporated, and that transcript is replete with evidence from Amax as to the necessity to blend this low grade ore in order for it to be commercial at all.

Secondly, I think this case can be analogized to some extent to a companion case back in 1978 that I participated in on behalf of Bass Enterprises Production Company, Case 6077. That case, as is true in this case, involves the provisions of Article II of R-111, and that is that under the express provisions of the order itself there can be no mining operations which would unreasonably interfere with the orderly development and production from any oil or gas pool.

Now, I don't think there's any evidence in this record to the contrary except the evidence to the effect that Petroleum Corporation is involved in the development of an existing pool, both in the stratigraphic horizons of the Strawn and the Morrow, and I believe it would be a violation of the intent and purpose of R-111 to cause an extension of this area to be made if the effect of the extension would be to deny to Petroleum Corporation, or any other oil and gas operator, the right to proceed with the orderly development of an existing pool.

I think the record is uncontroverted, likewise, that the -- to extend this area and not permit

Petroleum Corporation to drill the proposed wells, Nos. 3 and 9, would result in a loss of correlative rights to them and would constitute economic waste.

If the Commission feels that the boundaries for R-111 should be extended to incorporate the proposed area requested, I would respectfully submit that under no circumstances should the existing permit for the No. 9 Well be changed. The permit has been granted. There has been reliance upon the application. The location has been built. The rig has been contracted for, and I certainly don't need to state into this record for this Commission, because you can take administrative notice as to the effect of a delay on that drilling activity, or the imposition of an additional casing program. I think it would, in effect, be an expos facto effect of R-111, if it were in fact extended.

And finally, with respect to number three, I think that the record, likewise, with respect to that area, is uncontroverted, and that is that the Union State No. 1 Well was drilled to a depth below 4000 feet; was plugged and abandoned back in 1961; and that no additional loss of potash could possibly occur from the twinning at that location, unless the radius proposed to be left for a pillar around an existing wellbore was increased arbitrarily to more than 100 feet.

Thank you, sir.

MR. NUTTER: Mr. Feezer?

MR. FEEZER: The economics of oil vis-a-vis potash is getting worse all the time. And we understand it and the oil people understand it, and assuming first of all, that you talk about the casing program and allow the well in 27, our projected economic loss is 2-million plus, and the oil company's is the 70,000 plus for a differential casing program to comply with potash bed casing regulations. So when you talk about the equities of that alone, there's a substantial difference.

The point made by Mr. Hensley in regard to the old Union State No. 1 has considerable merit. I don't think that the safety factor is such that no matter what happens here today, Amax is going to leave a pillar around there in view of the fact that it's not cemented to the bottom; it's an old hole; the risk of endangering \$120-million investment in the mine, plus millions of dollars of potential further production over the next 19 to 20 years, is such that they wouldn't take the risk of turning it into a gassy operation.

So, I can't argue strenuously that at least as to that old Union State No. 1, that we won't leave it no matter what you decide to do. If you include it in R-111-A, as we've asked for, we still feel that we must -- and I feel, I don't make technical decisions, but I feel

that that's probably the safest process, which they will pursue.

We are concerned, extremely concerned, with Unit No. 9 in 27. We've been pursuing a good faith process of exploratory drilling; coming up here when we had 80 or 100 acres of new core drilling, and advanced our known geological area of recoverable ore, and we made our application in a timely fashion; we've been coming here on a regular basis; the witness knew of the previous case numbers; knew that we were going ahead with the program; had access to the record of that fact; and they sat back assuming we weren't moving, too. We've made our move and we made it on the 8th. They made theirs on the 9th, and without being critical of anybody, the communication between the Artesia office and the Santa Fe office as to what was happening, brought about a problem that is now here in front of us.

The application on the 8th by Amax was probably unknown in the Artesia office. So, in the regular course of business, you subsequently authorized and entered into the permit with Petco to go ahead and drill. Then it became apparent to both of us that there was a conflict, and it sets up the problem of, one, how quickly do we get a decision, because a large number of dollars are immediately at stake, and in that connection, I'm going to

offer, if I may, a letter styled Exhibit Number Four, addressed to the Oil Conservation Commission, and I deliver, hand-deliver, a copy to the Director's office, Mr. Ramey. I think it should be made a part of this record for what probitive value it may have, indicating that under Section 70-2-29 we are concerned about the economic threat, and we have to pursue this process, as I read the statute.

So I would move to offer this at this time as part of the record.

I would hope that whichever way you deem is the appropriate way to go, that you can, in the words of a former judge in the Fifth District, give us justice or if you don't, make it damned sure swift. We need a quick answer. I think both of us do under these circumstances.

MR. NUTTER: Okay, gentlemen, I'm going to -- thank you, Mr. Feezer.

MR. FEEZER: Yes, sir.

MR. NUTTER: I'm going to read a portion of the statute here, concerning hearings before the Examiner. Among other things it says, "In the absence of any limiting order, an Examiner appointed to hear any particular case shall have the power to regulate all proceedings before him and to perform all acts and take all measures necessary or proper for the efficient and orderly conduct of such hearings, including the swearing of witnesses, receiving of testimony,

and exhibits offered in evidence, subject to such exhibits that may be imposed, and shall cause a complete record of the proceedings to be made and transcribed, and shall certify the same to the Commission"-- that has been changed to Division, now -- "for consideration together therewith" -- "together with the report of the Examiner and his recommendations in connection therewith.

The Commission shall base its decision rendered in any matter or proceeding heard by an Examiner upon the transcript of testimony and record made by or under the supervision of the Examiner in connection with such proceeding, and such decision shall have the same force and effect as if said hearing had been conducted before the members of said Commission."

In the interest of expediting it, I wonder if the parties to this hearing would waive the requirement that I wait until I've got a complete record, a transcript of the hearing, before making a recommendation to the Division for disposition of the case, because I think Sally's going to -- this has been a lengthy hearing, and she's not going to be able to get a transcript to us for a few days at the best.

MR. COFFIELD: Yes, sir, I would.

MR. FEEZER: Yes, sir, we will.

MR. NUTTER: You would waive the require-

ment that I wait for a transcript?

MR. FEEZER: Yes, sir.

MR. NUTTER: Thank you, gentlemen. I think with that, if there is nothing further in Case Number 6753, we will take the case under advisement.

MR. FEEZER: And will you receive Exhibit Four, sir?

MR. NUTTER: And Exhibit Four will be admitted.

MR. FEEZER: Thank you.

MR. NUTTER: And we'll recess the hearing until 2:15.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter,
DO HEREBY CERTIFY that the foregoing and attached Transcript
of Hearing before the Oil Conservation Division was reported
by me; that the said hearing transcript is a full, true,
and correct record of the hearing, prepared by me to the
best of my ability from my notes taken at the time of the
hearing.

Sally W. Boyd C.S.R.
Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 6753,
heard by me on 12/12 1979.

[Signature], Examiner
Oil Conservation Division

Dan Nutter

Petroleum Corp of Delaware

Exhibits 1 thru 7
complete

Cs 6753

DEPARTMENT OF REVENUE
 OIL COMPANY
 Petco
 CASE NO. 6753

THE PETROLEUM CORPORATION OF DELAWARE
 PARKWAY WEST POOL
 EDDY COUNTY, NEW MEXICO
 MONTHLY PRODUCTION STATISTICS

(1)

(2)

| Line No. | Month/Year | Petco-State Corporation No. 1 Well (Strawn) | |
|----------|---------------|---|---------------------------------------|
| | | Monthly Oil Production (Bbls./Month) | Monthly Gas Production (MCF/Month) |
| (1) | December 1970 | 1,431 | - |
| | 1971 | | |
| (2) | January | 813 | - |
| (3) | February | 631 | - |
| (4) | March | 595 | - |
| (5) | April | 606 | - |
| (6) | May | 426 | - |
| (7) | June | 561 | - |
| (8) | July | 976 | - |
| (9) | August | 31 | - |
| (10) | September | 22 | - |
| (11) | October | 17 | - |
| (12) | November | 512 | 4,099 |
| (13) | December | 713 | 8,630 |
| (14) | Total 1971 | 5,933 | 12,729 |
| | 1972 | | |
| (15) | January | 733 | 11,210 |
| (16) | February | 629 | 8,720 |
| (17) | March | 463 | 8,316 |
| (18) | April | 404 | 6,900 |
| (19) | May | 475 | 4,800 |
| (20) | June | 388 | 4,800 |
| (21) | July | 423 | 4,810 |
| (22) | August | 267 | 4,226 |
| (23) | September | 329 | 3,797 |
| (24) | October | 276 | 3,360 |
| (25) | November | 284 | 2,910 |
| (26) | December | 272 | 2,970 |
| (27) | Total 1972 | 4,943 | 66,819 |
| | 1973 | | |
| (28) | January | 322 | 2,650 |
| (29) | February | 113 | 826 |
| (30) | March | 319 | 2,594 |
| (31) | April | 256 | 2,113 |
| (32) | May | 267 | 2,759 |
| (33) | June | 350 | 2,800 |
| (34) | July | 229 | 2,063 |
| (35) | August | 240 | 2,178 |
| (36) | September | 219 | 1,412 |
| (37) | October | 291 | 2,176 |
| (38) | November | 248 | 2,051 |
| (39) | December | 235 | 168 |
| (40) | Total 1973 | 3,082 | 23,790 |
| | 1974 | | |
| (41) | January | 292 | 1,574 |
| (42) | February | 415 | 1,258 |
| (43) | March | 364 | 1,547 |
| (44) | April | 416 | 3,276 |
| (45) | May | 305 | 3,978 |
| (46) | June | 379 | 4,215 |
| (47) | July | 386 | 885 |
| (48) | August | 409 | 2,006 |
| (49) | September | 503 | 4,706 |

| | | | |
|-------|--------------------|--------------|---------------|
| (53) | Total 1974 | 4,641 | 31,353 |
| | <u>1975</u> | | |
| (54) | January | 217 | 1,715 |
| (55) | February | 213 | 2,137 |
| (56) | March | 300 | 3,100 |
| (57) | April | 109 | 2,323 |
| (58) | May | 304 | 293 |
| (59) | June | 365 | 319 |
| (60) | July | 384 | 2,217 |
| (61) | August | 369 | 4,104 |
| (62) | September | 398 | 4,208 |
| (63) | October | 497 | 4,507 |
| (64) | November | 353 | 4,183 |
| (65) | December | 381 | 1,531 |
| (66) | Total 1975 | <u>3,890</u> | <u>30,637</u> |
| | <u>1976</u> | | |
| (67) | January | 457 | 3,406 |
| (68) | February | 127 | 1,943 |
| (69) | March | 567 | 3,518 |
| (70) | April | 127 | 2,703 |
| (71) | May | 339 | 2,460 |
| (72) | June | 203 | 1,576 |
| (73) | July | 211 | 1,149 |
| (74) | August | 505 | - |
| (75) | September | 231 | - |
| (76) | October | 232 | - |
| (77) | November | 199 | - |
| (78) | December | 149 | - |
| (79) | Total 1976 | <u>3,347</u> | <u>16,755</u> |
| | <u>1977</u> | | |
| (80) | January | 331 | - |
| (81) | February | 277 | - |
| (82) | March | 257 | 1,437 |
| (83) | April | 274 | 2,291 |
| (84) | May | 249 | 2,059 |
| (85) | June | 188 | 1,658 |
| (86) | July | 100 | 441 |
| (87) | August | 245 | 1,086 |
| (88) | September | 31 | 513 |
| (89) | October | 257 | 1,766 |
| (90) | November | 369 | 3,515 |
| (91) | December | 297 | 1,617 |
| (92) | Total 1977 | <u>2,875</u> | <u>16,383</u> |
| | <u>1978</u> | | |
| (93) | January | 330 | 1,502 |
| (94) | February | 135 | 609 |
| (95) | March | 196 | 2,467 |
| (96) | April | 181 | 2,477 |
| (97) | May | 182 | 2,339 |
| (98) | June | 179 | 2,010 |
| (99) | July | 163 | 2,263 |
| (100) | August | 99 | 1,393 |
| (101) | September | 83 | 857 |
| (102) | October | 102 | 510 |
| (103) | November | 110 | 648 |
| (104) | December | 120 | 426 |
| (105) | Total 1978 | <u>1,880</u> | <u>17,501</u> |
| | <u>1979</u> | | |
| (106) | January | 134 | 408 |
| (107) | February | 201 | 1,012 |
| (108) | March | 127 | 1,866 |
| (109) | April | 173 | 2,021 |
| (110) | May | 165 | 1,039 |
| (111) | June | 124 | 922 |
| (112) | July | - | - |
| (113) | August | 201 | 1,416 |
| (114) | September | 173 | 1,734 |
| (115) | October | 137 | 1,932 |
| (116) | Total 1979 to Date | <u>1,435</u> | <u>12,350</u> |
| (117) | Grand Total | 33,461 | 228,217 |

THE PETROLEUM CORP
3303 LEE PARKWAY
DALLAS, TEXAS 75219

ECONOMIC ANALYSIS OF PREDICTED FUTURE PERFORMANCE
AS OF JULY 1, 1979

LEASE : PARKWAY WEST NO. 6
FIELD : PARKWAY (MORROW)
STATE : NEW MEXICO
COUNTY : EDDY
OPERATOR: THE PETROLEUM CORP

Pet Corp

6753

| YEAR ENDING | GROSS OIL PRODUCTION | NET OIL PRODUCTION | GROSS GAS PRODUCTION | NET GAS PRODUCTION | REVENUE TO NET INTEREST | OPERATING COSTS PLUS AD VAL TAX | NET CAPITAL INVESTMENT | FUTURE NET INCOME AFTER INVESTMENT | CUMULATIVE FUTURE NET INCOME | CUMULATIVE PRES WORTH DISC 10.0% |
|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------------|---------------------------------------|------------------------------|--|------------------------------------|--|
| ----- | ---BBL--- | ---BBL--- | ---MCF--- | ---MCF--- | ----- | ----- | ----- | ----- | ----- | ----- |
| CUMULATIVE 07-01-79 | 0. | . | 0. | | | | | | | |
| 06-30-80 | 5200. | 1693. | 258200. | 84047. | 201546. | 10038. | 0. | 191508. | 191508. | 182596. |
| 06-30-81 | 9000. | 2930. | 451900. | 147098. | 387518. | 19664. | 0. | 367854. | 559362. | 501446. |
| 06-30-82 | 7600. | 2474. | 377700. | 122945. | 356703. | 18635. | 0. | 338068. | 897430. | 767838. |
| 06-30-83 | 6300. | 2051. | 315700. | 102764. | 327649. | 17698. | 0. | 309951. | 1207381. | 989872. |
| 06-30-84 | 5300. | 1725. | 263800. | 85870. | 301399. | 16896. | 0. | 284503. | 1491884. | 1175149. |
| 06-30-85 | 4400. | 1432. | 220500. | 71775. | 276902. | 16186. | 0. | 260716. | 1752600. | 1329500. |
| 06-30-86 | 3700. | 1204. | 184300. | 59991. | 254765. | 15267. | 0. | 239498. | 1992098. | 1458399. |
| 06-30-87 | 3100. | 1009. | 154000. | 50129. | 234242. | 14416. | 0. | 219826. | 2211924. | 1565955. |
| 06-30-88 | 2600. | 846. | 128700. | 41893. | 215425. | 13635. | 0. | 201790. | 2413714. | 1655711. |
| 06-30-89 | 2200. | 716. | 107600. | 35025. | 198397. | 12920. | 0. | 185469. | 2599103. | 1730707. |
| 06-30-90 | 1800. | 586. | 89900. | 29263. | 181891. | 12243. | 0. | 169648. | 2768931. | 1793070. |
| 06-30-91 | 1500. | 488. | 75100. | 24446. | 160576. | 11358. | 0. | 149218. | 2918049. | 1842936. |
| 06-30-92 | 1300. | 423. | 62800. | 20442. | 136538. | 10360. | 0. | 126178. | 3044227. | 1881269. |
| 06-30-93 | 1000. | 326. | 52500. | 17089. | 114331. | 9438. | 0. | 104893. | 3149120. | 1910239. |
| 06-30-94 | 880. | 286. | 43900. | 14290. | 96455. | 8696. | 0. | 87759. | 3236879. | 1932273. |
| SUB TOTAL | 55880. | 18189. | 2786600. | 907067. | 3444337. | 207458. | 0. | 3236879. | 3236879. | 1732273. |
| THEREAFTER | 4300. | 1400. | 213400. | 69464. | 469226. | 101211. | 0. | 368015. | 3604894. | 1972567. |
| TOTALS | 60180. | 19589. | 3000000. | 976531. | 3913563. | 308669. | 0. | 3604894. | 3604894. | 1972567. |
| ULTIMATES | 60180. | | 3000000. | | | | | | | |

| INCOME BEFORE AND AFTER CAPITAL COSTS | | BEFORE | AFTER |
|---------------------------------------|--|----------|----------|
| DISCOUNTED 12.0 PCT/YEAR - \$ | | 1802840. | 1802840. |
| DISCOUNTED 14.0 PCT/YEAR - \$ | | 1658949. | 1658949. |
| DISCOUNTED 16.0 PCT/YEAR - \$ | | 1535555. | 1535555. |

INPUT DATA

| | | -7- | -17- | -27- | -37- | -47- | -57- | -67- | |
|--------------------------|------|--------------------|------------------|--------------------|-------|---------|---------|------|--------------------|
| LEASE, FIELD, OTHER DATA | : 41 | PARKWAY WEST NO. 6 | PARKWAY (MORROW) | | | | | | LIFE (YRS) : 32.42 |
| STATE, COUNTY, OPERATOR | : 46 | NEW MEXICO | EDDY | THE PETROLEUM CORP | | | | | PAYOUT (YRS): 0.00 |
| GAS WELL PROJECTION | : 62 | 0. | 0. | 700. | 13.64 | .385140 | .325510 | | |
| <hr/> | | | | | | | | | |
| | | -7- | -17- | -27- | -37- | -47- | -57- | -67- | |
| PRODUCTION DECLINE | : 64 | 0. | 0. | 0.5 | | | | | |
| | : 65 | 45000. | | 3000000. | 20. | 20. | | | |
| GAS PRICE ESCALATION | : 06 | 2.20 | | | 10. | | | | |
| TAXES AND PAYOUT | : 90 | 1.0309 | 1.0369 | .04 | | | | | |
| | | -7- | -17- | -27- | -37- | -47- | -57- | -67- | |

C A L C U L A T E D A V E R A G E A N N U A L D A T A U S E D

| YEAR ENDING | OIL PRICE | GAS PRICE | 8/8 OPRING EXPENSES | PERCENT ESCALATIONS | | | EXPENSE INTEREST | REVENUE INTEREST | 8/8 CAPITAL INVESTMENT | SEVERANCE TAX | AD VALOREM TAX | DECLINE RATES | |
|----------------|--------------|--------------|------------------------|---------------------|--------------|----------------|---------------------|---------------------|---------------------------|------------------|-------------------|------------------|------|
| | | | | OIL PRICE | GAS PRICE | OPRTG EXPNS | | | | | | OIL | GAS |
| 06-30-80 | 14.306 | 2.200 | 362. | 0.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 7571. | 8365. | 0.0 | 0. |
| 06-30-81 | 15.736 | 2.420 | 775. | 10.0 | 10.0 | 114.0 | 0.3851400 | 0.3255100 | 0. | 14561. | 16083. | -73.0 | -74. |
| 06-30-82 | 17.310 | 2.662 | 829. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 13400. | 14804. | 15.6 | 16. |
| 06-30-83 | 19.041 | 2.928 | 887. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 12311. | 13598. | 17.1 | 16. |
| 06-30-84 | 20.945 | 3.221 | 949. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 11322. | 12509. | 15.9 | 16. |
| 06-30-85 | 23.040 | 3.543 | 1016. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 10403. | 11492. | 17.0 | 16. |
| 06-30-86 | 25.344 | 3.897 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 9571. | 10573. | 15.7 | 16. |
| 06-30-87 | 27.878 | 4.287 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 8799. | 9722. | 16.2 | 15. |
| 06-30-88 | 30.666 | 4.716 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 8092. | 8941. | 16.1 | 16. |
| 06-30-89 | 33.732 | 5.187 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 7450. | 8234. | 15.4 | 16. |
| 06-30-90 | 37.105 | 5.706 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6834. | 7549. | 18.2 | 16. |
| 06-30-91 | 40.816 | 6.000 | 1016. | 10.0 | 5.1 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6027. | 6664. | 16.7 | 16. |
| 06-30-92 | 44.898 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 5113. | 5666. | 13.3 | 16. |
| 06-30-93 | 49.387 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 4281. | 4744. | 23.1 | 16. |
| 06-30-94 | 50.000 | 6.000 | 1016. | 1.2 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 3606. | 4002. | 12.0 | 16. |
| THERE AFTER | 50.000 | 6.000 | 1016. | | | | 0.3851400 | 0.3255100 | 0. | 17542. | 19471. | | |

THE PETROLEUM CORP
3303 LEE PARKWAY
DALLAS, TEXAS 75219

ECONOMIC ANALYSIS OF PREDICTED FUTURE PERFORMANCE
AS OF JULY 1, 1979

LEASE : PARKWAY WEST NO. 9
FIELD : PARKWAY (MURROW)
STATE : NEW MEXICO
COUNTY : EDDY
OPERATOR: THE PETROLEUM CORP

| YEAR ENDING | GROSS OIL PRODUCTION | NET OIL PRODUCTION | GROSS GAS PRODUCTION | NET GAS PRODUCTION | REVENUE TO NET INTEREST | OPERATING COSTS PLUS AD VAL TAX | NET CAPITAL INVESTMENT | FUTURE NET INCOME AFTER INVESTMENT | CUMULATIVE FUTURE NET INCOME | CUMULATIVE PRES WORTH DISC 10.0% |
|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------------|---------------------------------------|------------------------------|--|------------------------------------|--|
| | ---BBL--- | ---BBL--- | ---MCF--- | ---MCF--- | --- | --- | --- | --- | --- | --- |
| CUMULATIVE 07-01-79 | 0. | | 0. | | | | | | | |
| 04-30-80 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 06-30-81 | 6600. | 2148. | 329600. | 107288. | 282819. | 15319. | 238787. | 28713. | 28713. | 24889. |
| 06-30-82 | 5500. | 1790. | 275500. | 89678. | 259946. | 14620. | 0. | 245326. | 274039. | 218203. |
| 06-30-83 | 4600. | 1497. | 230400. | 74998. | 239134. | 14025. | 0. | 225109. | 499148. | 379460. |
| 06-30-84 | 3900. | 1269. | 192600. | 62693. | 220253. | 13528. | 0. | 206725. | 705873. | 514083. |
| 06-30-85 | 3200. | 1042. | 161000. | 52407. | 202090. | 13081. | 0. | 189009. | 894882. | 625983. |
| 06-30-86 | 2700. | 879. | 134600. | 43014. | 186045. | 12415. | 0. | 173630. | 1068512. | 719432. |
| 06-30-87 | 2300. | 749. | 112500. | 36620. | 171429. | 11809. | 0. | 159620. | 1228132. | 797531. |
| 06-30-88 | 1900. | 618. | 94100. | 30630. | 157500. | 11231. | 0. | 146269. | 1374401. | 862591. |
| 06-30-89 | 1600. | 521. | 78600. | 25585. | 144850. | 10706. | 0. | 134144. | 1508545. | 916834. |
| 06-30-90 | 1300. | 423. | 65700. | 21386. | 132747. | 10203. | 0. | 122544. | 1631089. | 961861. |
| 06-30-91 | 1100. | 358. | 55000. | 17903. | 117618. | 9575. | 0. | 108043. | 1739132. | 997987. |
| 06-30-92 | 920. | 299. | 46000. | 14973. | 99556. | 8825. | 0. | 90731. | 1829863. | 1025551. |
| 06-30-93 | 770. | 251. | 38400. | 12500. | 84226. | 8189. | 0. | 76037. | 1905900. | 1046551. |
| 06-30-94 | 640. | 208. | 32100. | 10449. | 70474. | 7618. | 0. | 62856. | 1968756. | 1062333. |
| SUB TOTAL | 37030. | 12052. | 1846100. | 600924. | 2368687. | 161144. | 238787. | 1968756. | 1968756. | 1062333. |
| THEREAFTER | 3100. | 1009. | 153900. | 50096. | 338380. | 87748. | 0. | 250632. | 2219388. | 1092107. |
| TOTALS | 40130. | 13061. | 2000000. | 651020. | 2707067. | 248892. | 238787. | 2219388. | 2219388. | 1092107. |
| ULTIMATES | 40130. | | 2000000. | | | | | | | |

INCOME BEFORE AND AFTER CAPITAL COSTS
DISCOUNTED 12.0 PCT/YEAR - \$
DISCOUNTED 14.0 PCT/YEAR - \$
DISCOUNTED 16.0 PCT/YEAR - \$

BEFORE
1177400.
1074254.
985864.

AFTER
975943.
878075.
794737.

INPUT DATA

| | | 7 | 17 | 27 | 37 | 47 | 57 | 67 | | |
|--------------------------|------|--------------------|----|------------------|-------|--------------------|---------|----|--------------|---------|
| LEASE, FIELD, OTHER DATA | : 41 | PARKWAY WEST NO. 9 | | PARKWAY (MORROW) | | | | | LIFE (YRS) | : 30.70 |
| STATE, COUNTY, OPERATOR | : 46 | NEK MEXICO | | EDDY | | THE PETROLEUM CORP | | | PAYOUT (YRS) | : 0.00 |
| GAS WELL PROJECTION | : 62 | 0. | 0. | 700. | 13.64 | .385140 | .325510 | | | |

| | 7 | 17 | 27 | 37 | 47 | 57 | 67 |
|----------------------|----|---------|-------|----------|-----|-----|----|
| PRODUCTION DECLINE | 64 | 0. | 0. | 1.0 | | | |
| CAPITAL EXPENDITURES | 65 | 30000. | | 2000000. | 20. | 20. | |
| GAS PRICE ESCALATION | 76 | 620000. | 1.0 | | | | |
| TAXES AND PAYOUT | 86 | 2.20 | | 10. | | | |
| | 90 | .0309 | .0369 | .04 | | | |

CALCULATED AVERAGE ANNUAL DATA USED

| YEAR ENDING | OIL PRICE | GAS PRICE | O/S OPRNG EXPENSES | PERCENT ESCALATIONS | | | EXPENSE INTEREST | REVENUE INTEREST | O/S CAPITAL INVESTMENT | SEVERANCE TAX | AD VALOREM TAX | DECLINE RATES | |
|----------------|--------------|--------------|-----------------------|---------------------|--------------|----------------|---------------------|---------------------|---------------------------|------------------|-------------------|------------------|------|
| | | | | OIL PRICE | GAS PRICE | OPRTG EXPNS | | | | | | OIL | GAS |
| 06-30-80 | 0.000 | 0.000 | 0. | 0.0 | 0.0 | 0.0 | 0.0000000 | 0.0000000 | 0. | 0. | 0. | 0.0 | 0.0 |
| 06-30-81 | 15.736 | 2.420 | 775. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 620000. | 10625. | 11738. | 0.0 | 0.0 |
| 06-30-82 | 17.310 | 2.662 | 829. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 9766. | 10789. | 16.7 | 16.4 |
| 06-30-83 | 19.041 | 2.928 | 887. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 8983. | 9925. | 16.4 | 16.4 |
| 06-30-84 | 20.945 | 3.221 | 949. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 8272. | 9141. | 15.2 | 16.4 |
| 06-30-85 | 23.040 | 3.543 | 1016. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 7594. | 8387. | 17.9 | 16.4 |
| 06-30-86 | 25.344 | 3.897 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6989. | 7721. | 15.6 | 16.4 |
| 06-30-87 | 27.878 | 4.287 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6438. | 7115. | 14.8 | 16.4 |
| 06-30-88 | 30.666 | 4.716 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 5916. | 6537. | 17.4 | 16.4 |
| 06-30-89 | 33.732 | 5.187 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 5440. | 6012. | 15.8 | 16.5 |
| 06-30-90 | 37.105 | 5.706 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 4988. | 5509. | 18.8 | 16.4 |
| 06-30-91 | 40.816 | 6.000 | 1016. | 10.0 | 5.1 | 0.0 | 0.3851400 | 0.3255100 | 0. | 4416. | 4881. | 15.4 | 16.3 |
| 06-30-92 | 44.898 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 3730. | 4131. | 16.4 | 16.4 |
| 06-30-93 | 49.387 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 3151. | 3495. | 16.3 | 16.5 |
| 06-30-94 | 50.000 | 6.000 | 1016. | 1.2 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 2634. | 2924. | 16.9 | 16.4 |
| THERE AFTER | 50.000 | 6.000 | 1016. | | | | 0.3851400 | 0.3255100 | 0. | 12650. | 14041. | | |

THE PETROLEUM CORP
3303 LEE PARKWAY
DALLAS, TEXAS 75219

ECONOMIC ANALYSIS OF PREDICTED FUTURE PERFORMANCE
AS OF JULY 1, 1979

LEASE : PEICO STATE NO. 73
FIELD : PARKWAY
STATE : NEW MEXICO
COUNTY : EUDY
OPERATOR: THE PETROLEUM CORP

| YEAR ENDING | GROSS OIL PRODUCTION | NET OIL PRODUCTION | GROSS GAS PRODUCTION | NET GAS PRODUCTION | REVENUE TO NET INTEREST | OPERATING COSTS PLUS AD VAL TAX | NET CAPITAL INVESTMENT | FUTURE NET INCOME AFTER INVESTMENT | CUMULATIVE FUTURE NET INCOME | CUMULATIVE PRES WORTH DISC 10.0% |
|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------------|---------------------------------------|------------------------------|--|------------------------------------|--|
| ----- | ---BOL--- | ---BOL--- | ---MCF--- | ---MCF--- | ----- | ----- | ----- | ----- | ----- | ----- |
| CUMULATIVE 07-01-79 | 0. | | 0. | | | | | | | |
| 06-30-80 | 0. | 0. | 0. | 0. | 0. | 0. | 320001. | -320001. | -320001. | -320001. |
| 06-30-81 | 13500. | 5460. | 33800. | 13669. | 193480. | 13133. | 0. | 180347. | -139654. | -163679. |
| 06-30-82 | 17300. | 6996. | 43200. | 17471. | 270508. | 18508. | 0. | 252000. | 112346. | 34893. |
| 06-30-83 | 15000. | 6066. | 37600. | 15206. | 256177. | 18429. | 0. | 237748. | 350094. | 205204. |
| 06-30-84 | 13000. | 5257. | 32600. | 13184. | 242502. | 18413. | 0. | 224089. | 574183. | 351137. |
| 06-30-85 | 11300. | 4570. | 28200. | 11405. | 230217. | 18494. | 0. | 211723. | 785906. | 476483. |
| 06-30-86 | 9800. | 3963. | 24400. | 9868. | 210422. | 17676. | 0. | 192746. | 978652. | 580220. |
| 06-30-87 | 8400. | 3377. | 21100. | 8533. | 180063. | 16455. | 0. | 164408. | 1143060. | 660661. |
| 06-30-88 | 7300. | 2952. | 18300. | 7401. | 157464. | 15489. | 0. | 141975. | 1285035. | 723811. |
| 06-30-89 | 6300. | 2548. | 15800. | 6390. | 136170. | 14610. | 0. | 121560. | 1406595. | 772965. |
| 06-30-90 | 5500. | 2224. | 13700. | 5541. | 119038. | 13902. | 0. | 105136. | 1511731. | 811613. |
| 06-30-91 | 4700. | 1901. | 11900. | 4813. | 102086. | 13202. | 0. | 88884. | 1600615. | 841316. |
| 06-30-92 | 4100. | 1658. | 10300. | 4166. | 89162. | 12668. | 0. | 76494. | 1677109. | 864555. |
| 06-30-93 | 3600. | 1456. | 8900. | 3599. | 70318. | 12221. | 0. | 66097. | 1743206. | 882810. |
| 06-30-94 | 3100. | 1254. | 7700. | 3114. | 67604. | 11778. | 0. | 55826. | 1799032. | 896827. |
| SUB TOTAL | 122900. | 49702. | 307500. | 124360. | 2334011. | 214978. | 320001. | 1799032. | 1799032. | 896827. |
| THEREAFTER | 17100. | 6916. | 42700. | 17269. | 378499. | 138784. | 0. | 239715. | 2038747. | 928150. |
| TOTALS | 140000. | 56618. | 350200. | 141629. | 2712510. | 353762. | 320001. | 2038717. | 2038747. | 928150. |
| ULTIMATES | 140000. | | 350200. | | | | | | | |

INCOME BEFORE AND AFTER CAPITAL COSTS
DISCOUNTED 12.0 PCT/YEAR - \$
DISCOUNTED 14.0 PCT/YEAR - \$
DISCOUNTED 16.0 PCT/YEAR - \$

BEFORE
1129225.
1028094.
941211.

AFTER
809225.
708094.
621210.

INDUSTRY

| | 7- | 17- | 27- | 37- | 47- | 57- | 67- | |
|--------------------------|----|--------------------|---------|---------|---------------------|---------|-----|--------------|
| LEASE, FIELD, OTHER DATA | 41 | PETCO STATE NO. 13 | PARKWAY | | | | | LIFE (YRS) |
| STATE, COUNTY, OPERATOR | 46 | NEW MEXICO | EDDY | | THE PETROLEUM CORP. | | | 28.71 |
| OIL WELL PROJECTION | 60 | 0. | 1000. | 128.00 | .516130 | .404419 | 1. | PAYOUT (YRS) |
| | | | | | | | | 0.00 |
| <hr/> | | | | | | | | |
| | 7- | 17- | 27- | 37- | 47- | 57- | 67- | |
| PRODUCTION DECLINE | 64 | 0. | 0. | 1.25 | | 1.25 | | |
| | 65 | 1500. | 1500. | 2.25 | 2500. | 2500. | | |
| | 66 | 1500. | | 140000. | | | | |
| CAPITAL EXPENDITURES | 76 | 620000. | .01 | | | | | |
| GAS PRICE ESCALATION | 86 | 1.67 | .044 | 1.0 | | | | |
| TAXES AND PAYOUT | 90 | 1.0309 | .0369 | .04 | | | | |

CALCULATED AVERAGE ANNUAL DATA USED

| YEAR ENDING | OIL PRICE | GAS PRICE | O/B OPRNG EXPENSES | PERCENT ESCALATIONS | | | EXPENSE INTEREST | REVENUE INTEREST | O/B CAPITAL INVESTMENT | SEVERANCE TAX | AD VALOREN TAX | DECLINE RATES | |
|----------------|--------------|--------------|-----------------------|---------------------|--------------|----------------|---------------------|---------------------|---------------------------|------------------|-------------------|------------------|-------|
| | | | | OIL PRICE | GAS PRICE | OPRTG EXPNS | | | | | | OIL | GAS |
| 06-30-80 | 29.367 | 1.670 | 0. | 0.0 | 0.0 | 0.0 | 0.5161300 | 0.4044190 | 620000. | 0. | 0. | 0.0 | 0.0 |
| 06-30-81 | 32.303 | 1.714 | 830. | 10.0 | 2.6 | 0.0 | 0.5161300 | 0.4044190 | 0. | 6315. | 7992. | 0.0 | 0.0 |
| 06-30-82 | 35.534 | 1.758 | 1184. | 10.0 | 2.6 | 42.7 | 0.5161300 | 0.4044190 | 0. | 8815. | 11173. | -28.0 | -27.7 |
| 06-30-83 | 39.087 | 1.802 | 1267. | 10.0 | 2.5 | 7.0 | 0.5161300 | 0.4044190 | 0. | 8337. | 10581. | 13.3 | 13.0 |
| 06-30-84 | 42.996 | 1.846 | 1356. | 10.0 | 2.4 | 7.0 | 0.5161300 | 0.4044190 | 0. | 7882. | 10015. | 13.3 | 13.3 |
| 06-30-85 | 47.295 | 1.890 | 1451. | 10.0 | 2.4 | 7.0 | 0.5161300 | 0.4044190 | 0. | 7474. | 9508. | 13.1 | 13.5 |
| 06-30-86 | 50.000 | 1.934 | 1451. | 5.7 | 2.3 | 0.0 | 0.5161300 | 0.4044190 | 0. | 6827. | 8690. | 13.3 | 13.5 |
| 06-30-87 | 50.000 | 1.978 | 1451. | 0.0 | 2.3 | 0.0 | 0.5161300 | 0.4044190 | 0. | 5871. | 7469. | 14.3 | 13.5 |
| 06-30-88 | 50.000 | 2.022 | 1451. | 0.0 | 2.2 | 0.0 | 0.5161300 | 0.4044190 | 0. | 5113. | 6503. | 13.1 | 13.3 |
| 06-30-89 | 50.000 | 2.066 | 1451. | 0.0 | 2.2 | 0.0 | 0.5161300 | 0.4044190 | 0. | 4424. | 5624. | 13.7 | 13.7 |
| 06-30-90 | 50.000 | 2.110 | 1451. | 0.0 | 2.1 | 0.0 | 0.5161300 | 0.4044190 | 0. | 3867. | 4916. | 12.7 | 13.3 |
| 06-30-91 | 50.000 | 2.154 | 1451. | 0.0 | 2.1 | 0.0 | 0.5161300 | 0.4044190 | 0. | 3320. | 4216. | 14.5 | 13.1 |
| 06-30-92 | 50.000 | 2.198 | 1451. | 0.0 | 2.0 | 0.0 | 0.5161300 | 0.4044190 | 0. | 2900. | 3682. | 12.8 | 13.4 |
| 06-30-93 | 50.000 | 2.242 | 1451. | 0.0 | 2.0 | 0.0 | 0.5161300 | 0.4044190 | 0. | 2548. | 3235. | 12.2 | 13.6 |
| 06-30-94 | 50.000 | 2.286 | 1451. | 0.0 | 2.0 | 0.0 | 0.5161300 | 0.4044190 | 0. | 2200. | 2792. | 13.9 | 13.5 |
| THERE AFTER | 50.000 | 2.610 | 1451. | | | | 0.5161300 | 0.4044190 | 0. | 12348. | 15634. | | |

Dan Nutter

Petr. Corp of Delaware
Exhibits 1 thru 7
Complete

C# 6753

THE PETROLEUM CORP
3303 LEE PARKWAY
DALLAS, TEXAS 75219

ECONOMIC ANALYSIS OF PREDICTED FUTURE PERFORMANCE
AS OF JULY 1, 1979

LEASE : PARKWAY WEST NO. 6
FIELD : PARKWAY (MORROW)
STATE : NEW MEXICO
COUNTY : EDDY
OPERATOR: THE PETROLEUM CORP

Pet Corp

6753

| YEAR ENDING | GROSS OIL PRODUCTION | NET OIL PRODUCTION | GROSS GAS PRODUCTION | NET GAS PRODUCTION | REVENUE TO NET INTEREST | OPERATING COSTS PLUS AD VAL TAX | NET CAPITAL INVESTMENT | FUTURE NET INCOME AFTER INVESTMENT | CUMULATIVE FUTURE NET INCOME | CUMULATIVE PRES WORTH DISC 10.0% |
|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------------|---------------------------------------|------------------------------|--|------------------------------------|--|
| ----- | ---BBL--- | ---BBL--- | ---MCF--- | ---MCF--- | ----- | ----- | ----- | ----- | ----- | ----- |
| CUMULATIVE 07-01-79 | 0. | . | 0. | | | | | | | |
| 06-30-80 | 5200. | 1493. | 258200. | 84047. | 201546. | 10038. | 0. | 191508. | 191508. | 182596. |
| 06-30-81 | 9600. | 2930. | 451900. | 147098. | 387518. | 19664. | 0. | 367854. | 559362. | 501446. |
| 06-30-82 | 7600. | 2474. | 377700. | 122945. | 356703. | 18635. | 0. | 338068. | 897430. | 767838. |
| 06-30-83 | 6300. | 2051. | 315700. | 102764. | 327649. | 17698. | 0. | 309951. | 1207381. | 984872. |
| 06-30-84 | 5300. | 1725. | 263800. | 85670. | 301399. | 16896. | 0. | 284503. | 1491884. | 1175149. |
| 06-30-85 | 4400. | 1432. | 220500. | 71775. | 276902. | 16186. | 0. | 260716. | 1752600. | 1329500. |
| 06-30-86 | 3700. | 1204. | 184300. | 59991. | 254765. | 15267. | 0. | 239498. | 1992098. | 1458399. |
| 06-30-87 | 3100. | 1009. | 154000. | 50129. | 234242. | 14416. | 0. | 219826. | 2211924. | 1565955. |
| 06-30-88 | 2600. | 846. | 128700. | 41893. | 215425. | 13635. | 0. | 201790. | 2413714. | 1655711. |
| 06-30-89 | 2200. | 716. | 107600. | 35025. | 198397. | 12923. | 0. | 185469. | 2599183. | 1730707. |
| 06-30-90 | 1800. | 586. | 89900. | 29263. | 181891. | 12243. | 0. | 169648. | 2768931. | 1793070. |
| 06-30-91 | 1500. | 488. | 75100. | 24446. | 160576. | 11358. | 0. | 149218. | 2918049. | 1842936. |
| 06-30-92 | 1300. | 423. | 62800. | 20442. | 136538. | 10360. | 0. | 126178. | 3044227. | 1881269. |
| 06-30-93 | 1000. | 326. | 52500. | 17089. | 114331. | 9438. | 0. | 104893. | 3149120. | 1910239. |
| 06-30-94 | 880. | 286. | 43900. | 14290. | 96455. | 8696. | 0. | 87759. | 3236879. | 1932273. |
| SUB TOTAL | 55880. | 18189. | 2786600. | 907067. | 3444337. | 207458. | 0. | 3236879. | 3236879. | 1932273. |
| THEREAFTER | 4300. | 1400. | 213400. | 69464. | 469226. | 101211. | 0. | 368015. | 3604894. | 1972567. |
| TOTALS | 60180. | 19589. | 3000000. | 976531. | 3913563. | 308669. | 0. | 3604894. | 3604894. | 1972567. |
| ULTIMATES | 60180. | | 3000000. | | | | | | | |

INCOME BEFORE AND AFTER CAPITAL COSTS
DISCOUNTED 12.0 PCT/YEAR - \$
DISCOUNTED 14.0 PCT/YEAR - \$
DISCOUNTED 16.0 PCT/YEAR - \$

BEFORE
1802840.
1658949.
1535555.

AFTER
1802840.
1658949.
1535555.

INPUT DATA

| | | | | | | |
|--------------------------|----|--------------------|------------------|--------------------|--------------|-------------------|
| LEASE, FIELD, OTHER DATA | 41 | PARKWAY WEST NO. 6 | PARKWAY (MORROW) | THE PETROLEUM CORP | LIFE (YRS) | 32.4 |
| STATE, COUNTY, OPERATOR | 46 | NEW MEXICO | EDDY | | PAYOUT (YRS) | 0.0 |
| GAS WELL PROJECTION | 62 | 0. | 10. | 700. | 113.64 | 0.385140 0.325510 |

| | | | | | | |
|----------------------|----|--------|--------|----------|-----|-----|
| PRODUCTION DECLINE | 64 | 0. | 10. | 10.5 | 20. | 20. |
| GAS PRICE ESCALATION | 65 | 45000. | | 3000000. | | |
| TAXES AND PAYOUT | 86 | 2.20 | | 10. | | |
| | 90 | 0.0309 | 0.0369 | 0.04 | | |

Atcos share

CALCULATED AVERAGE ANNUAL DATA USED

| YEAR ENDING | OIL PRICE | GAS PRICE | 8/8 OPRNG EXPENSES | PERCENT ESCALATIONS | | | EXPENSE INTEREST | REVENUE INTEREST | 8/8 CAPITAL INVESTMENT | SEVERANCE TAX | AD VALOREM TAX | DECLIN RATES | |
|----------------|--------------|--------------|-----------------------|---------------------|--------------|----------------|---------------------|---------------------|---------------------------|------------------|-------------------|-----------------|-----|
| | | | | OIL PRICE | GAS PRICE | OPRTG EXPNS | | | | | | OIL | G |
| 06-30-80 | 14.306 | 2.200 | 362. | 0.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 7571. | 8365. | 0.0 | 0 |
| 06-30-81 | 15.736 | 2.420 | 775. | 10.0 | 10.0 | 114.0 | 0.3851400 | 0.3255100 | 0. | 14561. | 16083. | -73.0 | -74 |
| 06-30-82 | 17.310 | 2.662 | 829. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 13400. | 14804. | 15.6 | 16 |
| 06-30-83 | 19.041 | 2.928 | 887. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 12311. | 13598. | 17.1 | 16 |
| 06-30-84 | 20.945 | 3.221 | 949. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 11322. | 12509. | 15.9 | 16 |
| 06-30-85 | 23.040 | 3.543 | 1016. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 10403. | 11492. | 17.0 | 16 |
| 06-30-86 | 25.344 | 3.897 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 9571. | 10573. | 15.9 | 16 |
| 06-30-87 | 27.878 | 4.267 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 8799. | 9722. | 16.2 | 16 |
| 06-30-88 | 30.666 | 4.716 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 8072. | 8941. | 16.1 | 16 |
| 06-30-89 | 33.732 | 5.187 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 7450. | 8234. | 15.4 | 16 |
| 06-30-90 | 37.105 | 5.706 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6834. | 7549. | 18.2 | 16 |
| 06-30-91 | 40.816 | 6.000 | 1016. | 10.0 | 5.1 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6077. | 6664. | 16.7 | 16 |
| 06-30-92 | 44.898 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 5113. | 5666. | 13.3 | 16 |
| 06-30-93 | 49.307 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 4281. | 4744. | 23.1 | 16 |
| 06-30-94 | 50.000 | 6.000 | 1016. | 1.2 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 3606. | 4002. | 12.0 | 16 |
| THERE AFTER | 50.000 | 6.000 | 1016. | | | | 0.3851400 | 0.3255100 | 0. | 17542. | 19471. | | |

THE PETROLEUM CORP
3303 LEE PARKWAY
DALLAS, TEXAS 75219

ECONOMIC ANALYSIS OF PREDICTED FUTURE PERFORMANCE
AS OF JULY 1, 1979

LEASE : PARKWAY WEST NO. 9
FIELD : PARKWAY (MURROW)
STATE : NEW MEXICO
COUNTY : EDOY
OPERATOR: THE PETROLEUM CORP

| YEAR ENDING | GROSS OIL PRODUCTION | NET OIL PRODUCTION | GROSS GAS PRODUCTION | NET GAS PRODUCTION | REVENUE TO NET INTEREST | OPERATING COSTS PLUS AD VAL TAX | NET CAPITAL INVESTMENT | FUTURE NET INCOME AFTER INVESTMENT | CUMULATIVE FUTURE NET INCOME | CUMULATIVE PRES NORTH DISC 10.0% |
|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------------|---------------------------------------|------------------------------|--|------------------------------------|--|
| ----- | ---BBL--- | ---BBL--- | ---MCF--- | ---MCF--- | ----- | ----- | ----- | ----- | ----- | ----- |
| CUMULATIVE 07-01-79 | 0. | | 0. | | | | | | | |
| 06-30-80 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 06-30-81 | 6600. | 2148. | 329600. | 107288. | 262819. | 15319. | 238787. | 28713. | 28713. | 24889. |
| 06-30-82 | 5500. | 1790. | 275500. | 85478. | 259946. | 14620. | 0. | 245326. | 274039. | 218203. |
| 06-30-83 | 4600. | 1497. | 230400. | 74998. | 239134. | 14025. | 0. | 225109. | 499148. | 379460. |
| 06-30-84 | 3900. | 1269. | 192600. | 62693. | 220253. | 13528. | 0. | 206725. | 705873. | 514085. |
| 06-30-85 | 3200. | 1042. | 161000. | 52407. | 202090. | 13081. | 0. | 189009. | 894882. | 625983. |
| 06-30-86 | 2700. | 879. | 134600. | 43014. | 186045. | 12415. | 0. | 173630. | 1068512. | 719432. |
| 06-30-87 | 2300. | 749. | 112500. | 36620. | 171429. | 11809. | 0. | 159620. | 1228132. | 797531. |
| 06-30-88 | 1900. | 618. | 94100. | 30630. | 157500. | 11231. | 0. | 146269. | 1374401. | 682591. |
| 06-30-89 | 1600. | 521. | 78600. | 25585. | 144850. | 10706. | 0. | 134144. | 1508545. | 916834. |
| 06-30-90 | 1300. | 423. | 65700. | 21386. | 132747. | 10203. | 0. | 122544. | 1631089. | 961881. |
| 06-30-91 | 1100. | 358. | 55000. | 17903. | 117618. | 9575. | 0. | 108043. | 1739132. | 997987. |
| 06-30-92 | 920. | 299. | 46000. | 14973. | 99556. | 8825. | 0. | 90731. | 1829863. | 1025551. |
| 06-30-93 | 770. | 251. | 38400. | 12500. | 84226. | 8189. | 0. | 76037. | 1905900. | 1046551. |
| 06-30-94 | 640. | 208. | 32100. | 10449. | 79474. | 7618. | 0. | 62856. | 1968756. | 1062333. |
| SUB TOTAL | 37030. | 12052. | 1846100. | 600924. | 2368687. | 161144. | 238787. | 1968756. | 1968756. | 1062333. |
| THEREAFTER | 3100. | 1009. | 153900. | 50096. | 338380. | 87748. | 0. | 250632. | 2219388. | 1092107. |
| TOTALS | 40130. | 13061. | 2000000. | 651020. | 2707067. | 248892. | 238787. | 2219388. | 2219388. | 1092107. |
| ULTIMATES | 40130. | | 2000000. | | | | | | | |

INCOME BEFORE AND AFTER CAPITAL COSTS
DISCOUNTED 12.0 PCT/YEAR - \$
DISCOUNTED 14.0 PCT/YEAR - \$
DISCOUNTED 16.0 PCT/YEAR - \$

BEFORE AFTER
1177400. 975943.
1074254. 878075.
985864. 794737.

5,762,000
this is Patco's share only; Total is

INPUT DATA

Petro share of Parkway West Unit

| | | | | | | |
|--------------------------|----|--------------------|------------------|--------------------|--------------|-------|
| LEASE, FIELD, OTHER DATA | 41 | PARKWAY WEST NO. 9 | PARKWAY (MORROW) | THE PETROLEUM CORP | LIFE (YRS) | 30.70 |
| STATE, COUNTY, OPERATOR | 46 | NEW MEXICO | EDDY | | PAYOUT (YRS) | 0.00 |
| GAS WELL PROJECTION | 62 | 0. | 10. | 700. | 113.64 | |

| | | | | | | | | |
|----------------------|----|---------|--------|----------|-----|-----|--|--|
| PRODUCTION DECLINE | 64 | 0. | 0. | 1.0 | | | | |
| CAPITAL EXPENDITURES | 65 | 30000. | | 2000000. | 20. | 20. | | |
| GAS PRICE ESCALATION | 76 | 620000. | 1.0 | | | | | |
| TAXES AND PAYOUT | 86 | 2.20 | | 10. | | | | |
| | 90 | 1.0309 | 1.0369 | 1.04 | | | | |

CALCULATED AVERAGE ANNUAL DATA USED

| YEAR ENDING | OIL PRICE | GAS PRICE | 8/8 OPRTNG EXPENSES | PERCENT ESCALATIONS | | | EXPENSE INTEREST | REVENUE INTEREST | 8/8 CAPITAL INVESTMENT | SEVERANCE TAX | AD VALOREM TAX | DECLINE RATES | |
|----------------|--------------|--------------|------------------------|---------------------|--------------|----------------|---------------------|---------------------|---------------------------|------------------|-------------------|------------------|-----|
| | | | | OIL PRICE | GAS PRICE | OPRTG EXPNS | | | | | | OIL | GAS |
| 06-30-80 | 0.000 | 0.000 | 0. | 0.0 | 0.0 | 0.0 | 0.0000000 | 0.0000000 | 0. | 0. | 0. | 0.0 | 0. |
| 06-30-81 | 15.736 | 2.420 | 775. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 620000. | 10625. | 11728. | 0.0 | 0. |
| 06-30-82 | 17.310 | 2.662 | 829. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 9766. | 10789. | 16.7 | 16. |
| 06-30-83 | 19.041 | 2.928 | 387. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 8985. | 9925. | 16.4 | 16. |
| 06-30-84 | 20.945 | 3.221 | 949. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 8272. | 9141. | 15.2 | 16. |
| 06-30-85 | 23.040 | 3.543 | 1016. | 10.0 | 10.0 | 7.0 | 0.3851400 | 0.3255100 | 0. | 7594. | 8387. | 17.9 | 16. |
| 06-30-86 | 25.344 | 3.897 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6989. | 7721. | 15.6 | 16. |
| 06-30-87 | 27.878 | 4.287 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 6438. | 7115. | 14.8 | 16. |
| 06-30-88 | 30.666 | 4.716 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 5916. | 6537. | 17.4 | 16. |
| 06-30-89 | 33.732 | 5.187 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 5440. | 6012. | 15.8 | 16. |
| 06-30-90 | 37.105 | 5.706 | 1016. | 10.0 | 10.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 4988. | 5509. | 18.8 | 16. |
| 06-30-91 | 40.816 | 6.000 | 1016. | 10.0 | 5.1 | 0.0 | 0.3851400 | 0.3255100 | 0. | 4416. | 4881. | 15.4 | 16. |
| 06-30-92 | 44.898 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 3730. | 4131. | 16.4 | 16. |
| 06-30-93 | 49.387 | 6.000 | 1016. | 10.0 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 3151. | 3495. | 16.3 | 16. |
| 06-30-94 | 50.000 | 6.000 | 1016. | 1.2 | 0.0 | 0.0 | 0.3851400 | 0.3255100 | 0. | 2634. | 2924. | 16.9 | 16. |
| THERE AFTER | 50.000 | 6.000 | 1016. | | | | 0.3851400 | 0.3255100 | 0. | 12650. | 14041. | | |

THE PETROLEUM CORP
3303 LEE PARKWAY
DALLAS, TEXAS 75219

ECONOMIC ANALYSIS OF PREDICTED FUTURE PERFORMANCE
AS OF JULY 1, 1979

LEASE : PEICO STATE NO. 13
FIELD : PARKWAY
STATE : NEW MEXICO
COUNTY : EUDY
OPERATOR: THE PETROLEUM CORP

| YEAR ENDING | GROSS OIL PRODUCTION | NET OIL PRODUCTION | GROSS GAS PRODUCTION | NET GAS PRODUCTION | REVENUE TO NET INTEREST | OPERATING COSTS PLUS AD VAL TAX | NET CAPITAL INVESTMENT | FUTURE NET INCOME AFTER INVESTMENT | CUMULATIVE FUTURE NET INCOME | CUMULATIVE PRES WORTH DISC 10.0% |
|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------------|---------------------------------------|------------------------------|--|------------------------------------|--|
| ----- | ---BOL--- | ---BOL--- | ---MCF--- | ---MCF--- | ----- | ----- | ----- | ----- | ----- | ----- |
| CUMULATIVE 07-01-79 | 0. | | 0. | | | | | | | |
| 06-30-80 | 0. | 0. | 0. | 0. | 0. | 0. | 320001. | -320001. | -320001. | -320001. |
| 06-30-81 | 13500. | 5460. | 33800. | 13669. | 193480. | 13133. | 0. | 180347. | -139654. | -163679. |
| 06-30-82 | 17300. | 6996. | 43200. | 17471. | 270508. | 18508. | 0. | 252000. | 112346. | 34893. |
| 06-30-83 | 15000. | 6066. | 37600. | 15206. | 256177. | 18429. | 0. | 237748. | 350094. | 705204. |
| 06-30-84 | 13000. | 5257. | 32800. | 13184. | 242502. | 18413. | 0. | 224089. | 574183. | 351137. |
| 06-30-85 | 11300. | 4570. | 28200. | 11405. | 230217. | 18494. | 0. | 211723. | 785906. | 476483. |
| 06-30-86 | 9800. | 3963. | 24400. | 9868. | 210422. | 17676. | 0. | 192746. | 978652. | 580220. |
| 06-30-87 | 8400. | 3397. | 21100. | 8533. | 180063. | 16455. | 0. | 164408. | 1143060. | 660661. |
| 06-30-88 | 7300. | 2952. | 18300. | 7401. | 157464. | 15489. | 0. | 141975. | 1285035. | 723811. |
| 06-30-89 | 6300. | 2548. | 15800. | 6390. | 136170. | 14610. | 0. | 121560. | 1406595. | 772965. |
| 06-30-90 | 5500. | 2224. | 13700. | 5541. | 119038. | 13902. | 0. | 105136. | 1511731. | 811613. |
| 06-30-91 | 4700. | 1901. | 11900. | 4813. | 102086. | 13202. | 0. | 88884. | 1600615. | 841316. |
| 06-30-92 | 4100. | 1658. | 10300. | 4166. | 89162. | 12668. | 0. | 76494. | 1677109. | 864555. |
| 06-30-93 | 3600. | 1456. | 8900. | 3599. | 70318. | 12221. | 0. | 66097. | 1743206. | 882010. |
| 06-30-94 | 3100. | 1254. | 7700. | 3114. | 67604. | 11778. | 0. | 55826. | 1799032. | 896827. |
| SUB TOTAL | 122900. | 49702. | 307500. | 124360. | 2334011. | 214978. | 320001. | 1799032. | 1799032. | 896827. |
| THEREAFTER | 17100. | 6916. | 42700. | 17269. | 378499. | 138784. | 0. | 239715. | 2038747. | 928150. |
| TOTALS | 140000. | 56618. | 350200. | 141629. | 2712510. | 353762. | 320001. | 2038747. | 2038747. | 928150. |
| ULTIMATES | 140000. | | 350200. | | | | | | | |

INCOME BEFORE AND AFTER CAPITAL COSTS
DISCOUNTED 12.0 PCT/YEAR - \$
DISCOUNTED 14.0 PCT/YEAR - \$
DISCOUNTED 16.0 PCT/YEAR - \$

BEFORE
1129225.
1028074.
941211.

AFTER
809225.
708094.
621210.

INPUT DATA

LEASE, FIELD, OTHER DATA
STATE, COUNTY, OPERATOR
OIL WELL PROJECTION

| | | | | | | |
|----|--------------------|-----|---------|--------|--------------------|--------------|
| 41 | PETCO STATE NO. 73 | 27 | PARKWAY | 47 | 57 | 67 |
| 46 | NEW MEXICO | 27 | EDDY | 47 | 57 | 67 |
| 60 | 10. | 10. | 1000. | 128.00 | THE PETROLEUM CORP | |
| | | | | | .516130 | 1.404419 11. |

LIFE (YRS) 1 28.71
PAYOUT (YRS) 1 0.00

PRODUCTION DECLINE

CAPITAL EXPENDITURES
GAS PRICE ESCALATION
TAXES AND PAYOUT

| | | | | | | |
|----|---------|-------|---------|-------|-------|------|
| 64 | 0. | 0. | 1.25 | 47 | 57 | 67 |
| 65 | 1500. | 1500. | 2.25 | 47 | 57 | 67 |
| 66 | 1500. | | 140000. | 2500. | 2500. | 1.25 |
| 76 | 620000. | .01 | | | | |
| 86 | 1.67 | .044 | 1.0 | | | |
| 90 | .0309 | .0369 | .04 | | | |

*Pitco's share
in Sta zone in
See 26*

CALCULATED AVERAGE ANNUAL DATA USED

| YEAR ENDING | OIL PRICE | GAS PRICE | O/B OPRNG EXPENSES | PERCENT ESCALATIONS | | | EXPENSE INTEREST | REVENUE INTEREST | O/B CAPITAL INVESTMENT | SEVERANCE TAX | AD VALOREM TAX | DECLINE RATES | |
|----------------|--------------|--------------|-----------------------|---------------------|--------------|----------------|---------------------|---------------------|---------------------------|------------------|-------------------|------------------|-------|
| | | | | OIL PRICE | GAS PRICE | OPRTG EXPNS | | | | | | OIL | GAS |
| 06-30-80 | 29.367 | 1.670 | 0. | 0.0 | 0.0 | 0.0 | 0.5161300 | 0.4044190 | 620000. | 0. | 0. | 0.0 | 0.0 |
| 06-30-81 | 32.303 | 1.714 | 830. | 10.0 | 2.6 | 0.0 | 0.5161300 | 0.4044190 | 0. | 6315. | 7992. | 0.0 | 0.0 |
| 06-30-82 | 35.534 | 1.758 | 1184. | 10.0 | 2.6 | 42.7 | 0.5161300 | 0.4044190 | 0. | 9815. | 11173. | -28.0 | -27.7 |
| 06-30-83 | 39.087 | 1.802 | 1267. | 10.0 | 2.5 | 7.0 | 0.5161300 | 0.4044190 | 0. | 8337. | 10581. | 13.3 | 13.0 |
| 06-30-84 | 42.996 | 1.846 | 1356. | 10.0 | 2.4 | 7.0 | 0.5161300 | 0.4044190 | 0. | 7882. | 10015. | 13.3 | 13.3 |
| 06-30-85 | 47.295 | 1.890 | 1451. | 10.0 | 2.4 | 7.0 | 0.5161300 | 0.4044190 | 0. | 7474. | 9508. | 13.1 | 13.5 |
| 06-30-86 | 50.000 | 1.934 | 1451. | 5.7 | 2.3 | 0.0 | 0.5161300 | 0.4044190 | 0. | 6827. | 8690. | 13.3 | 13.5 |
| 06-30-87 | 50.000 | 1.978 | 1451. | 0.0 | 2.3 | 0.0 | 0.5161300 | 0.4044190 | 0. | 5871. | 7469. | 14.3 | 13.5 |
| 06-30-88 | 50.000 | 2.022 | 1451. | 0.0 | 2.2 | 0.0 | 0.5161300 | 0.4044190 | 0. | 5113. | 6503. | 13.1 | 13.3 |
| 06-30-89 | 50.000 | 2.066 | 1451. | 0.0 | 2.2 | 0.0 | 0.5161300 | 0.4044190 | 0. | 4424. | 5624. | 13.7 | 13.7 |
| 06-30-90 | 50.000 | 2.110 | 1451. | 0.0 | 2.1 | 0.0 | 0.5161300 | 0.4044190 | 0. | 3867. | 4916. | 12.7 | 13.3 |
| 06-30-91 | 50.000 | 2.154 | 1451. | 0.0 | 2.1 | 0.0 | 0.5161300 | 0.4044190 | 0. | 3320. | 4216. | 14.5 | 13.1 |
| 06-30-92 | 50.000 | 2.198 | 1451. | 0.0 | 2.0 | 0.0 | 0.5161300 | 0.4044190 | 0. | 2900. | 3682. | 12.8 | 13.4 |
| 06-30-93 | 50.000 | 2.242 | 1451. | 0.0 | 2.0 | 0.0 | 0.5161300 | 0.4044190 | 0. | 2548. | 3235. | 12.2 | 13.6 |
| 06-30-94 | 50.000 | 2.286 | 1451. | 0.0 | 2.0 | 0.0 | 0.5161300 | 0.4044190 | 0. | 2200. | 2792. | 13.9 | 13.5 |
| THERE AFTER | 50.000 | 2.310 | 1451. | | | | 0.5161300 | 0.4044190 | 0. | 12348. | 15634. | | |

JAMES L. DOW
CHARLES A. FEEZER

DOW & FEEZER, P. A.
ATTORNEYS AT LAW
DOW BUILDING
P.O. BOX 128
CARLSBAD, NEW MEXICO 88220

885-2185
AREA CODE 505

OIL CONSERVATION DIVISION
SANTA FE

November 26, 1979

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

Re: Amax Chemical Corporation
Extension of R-111A
Cause No. 6753.

Dear Mr. Nutter:

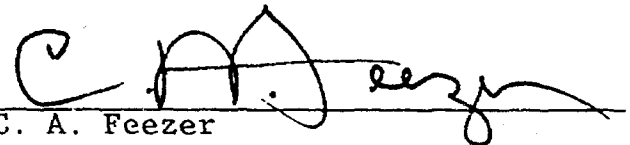
Following my conversation with you this date at approximately 11:15 a.m., I rechecked the lands in Section 27, Township 19 South, Range 29 East, Eddy County, New Mexico, which are covered in our Application for inclusion in R-111A case 6753 and find that these are State leases, not federal.

Our information is that the Petroleum Corporation of Delaware, who receives a copy of this letter, has filed an Application to drill 650 feet from the North line and 1980 feet from the East line of the above section. This would be within 600 feet of the test hole described in paragraph 3 of our Application now pending with you.

I would, therefore, request that their Application to drill on this State land be deferred until the Hearing Examiner can determine the facts as set forth in our pending Application No. 6753.

Respectfully submitted,

DOW & FEEZER, P. A.


C. A. Feezer

CAF:ah

cc: Mr. Bob Brown
cc: Mr. Bob Kirby
cc: Petroleum Corporation of Delaware

Dockets Nos. 1-80 and 2-80 are tentatively set for January 3 and 16, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 12, 1979

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

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

ALLOWABLE: (1) Consideration of the allowable production of gas for January, 1980, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for January, 1980, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 6752: Application of Bill Stapler for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Quark Unit Area, comprising 11,200 acres, more or less, of State and Federal lands in Township 22 South, Range 34 East.

CASE 6753: Application of Amax Chemical Corporation for the amendment of Order No. R-111-A, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-111-A to extend the boundaries of the Potash-Oil Area by the inclusion of certain lands in Sections 26 and 27, Township 19 South, Range 29 East.

CASE 6754: Application of Petroleum Development Corporation for a non-standard gas proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location for a well to be drilled 660 feet from the North and West lines of Section 15, Township 19 South, Range 32 East, Lusk-Morrow Gas Pool, the W/2 of said Section 15 to be dedicated to the well as a non-standard 320-acre proration unit.

CASE 6755: Application of Dome Petroleum Corporation for water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to extend the previously authorized water disposal interval in its Santa Fe 20 Well No. 2 located in Unit F of Section 20, Township 21 North, Range 8 West, Snake Eyes-Entrada Oil Pool, to include the perforated interval from 5756 feet to 5790 feet in the Entrada formation.

CASE 6756: Application of Amoco Production Company for pool contraction and creation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Air Strip-Bone Spring Pool to comprise the Middle Bone Spring formation only, from 9300 feet to 9460 feet, and the creation of the Air Strip-Upper Bone Spring Pool to comprise said formation from 9180 feet to 9260 feet and the Air Strip-Lower Bone Spring Pool to comprise said formation from 10,100 feet to 10,400 feet. All depths are from the log of the Amoco State FU Well No. 2 in Unit N of Section 25, Township 18 South, Range 34 East, for which well applicant also seeks 51,310 barrels of discovery allowable.

CASE 6757: Application of Amoco Production Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its State FU Well No. 1 located in Unit K of Section 25, Township 18 South, Range 34 East, to produce oil from the Air Strip Upper and Middle Bone Spring Pools thru parallel strings of tubing.

CASE 6758: Application of Amoco Production Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its State "C" Tract 11 Well No. 11 located in Unit X of Section 2, Township 21 South, Range 36 East, to produce oil from the Hardy-Blinbry Pool and an undesignated Drinkard pool through parallel strings of tubing.

CASE 6719: (Continued and Readvertised)

Application of Sam H. Snoddy for an amendment to Order No. R-5521, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5521, which authorizes the directional drilling of the Federal Well No. 2 in Section 25, Township 20 South, Range 32 East, to permit the well to be bottomed within 400 feet of a point 1320 feet from the South and West lines of Section 25.

CASE 6759: Application of Sun Oil Company for an unorthodox location, non-standard gas proration unit, infill findings, simultaneous dedication, and downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Reeves Well No. 6, 660 feet from the North line and 610 feet from the East line of Section 29, Township 20 South, Range 37 East, Eumont Gas Pool, to be simultaneously dedicated with its Reeves Well No. 2 in Unit D of Section 29 to a 160-acre non-standard gas proration unit comprising the N/2 N/2 of Section 29. Also sought are findings that the proposed well is necessary to effectively and efficiently drain that portion of the proration unit which cannot be so drained by the existing unit well, and authority to commingle Eumont and Monument production in the wellbore of the proposed well.

ROUGH

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6753

Order No. R-111-M

APPLICATION OF AMAX CHEMICAL
CORPORATION FOR THE AMEND-
MENT OF ORDER NO. R-111-A,
EDDY COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on December 12,
1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter

NOW, on this _____ day of December, 1979, the
Division Director, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That the applicant herein, Amay Chemical
Corporation, seeks the expansion of the Potash-
Oil Area as defined by Division Order No.
R-111-A, as amended by Orders Nos. R-111-B
through R-111-L, inclusive, by the inclusion therein
of the the following described lands in Eddy
County, New Mexico:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM

Section 26: N/2 NW/4

Section 27: N/2 NE/4 and NE/4 NW/4

(2) That the evidence in this case clearly shows that the above-described lands contain commercial deposits of potash.

(3) That Section 70-2-12 B(17) NMSA 1978 Comp. empowers the Division "...to regulate and where necessary prohibit drilling or producing operations for oil or gas within any area containing commercial deposits of potash where such operations would have the effect ~~to~~ unduly to reduce the total quantity of such commercial deposits of potash which may reasonably be recovered in commercial quantities or where such operations would interfere unduly with the orderly commercial development of such potash deposits;"

(4) That in order to carry out its statutory mandate to prevent the waste of potash and to regulate and where necessary prevent drilling operations within any area containing commercial deposits of potash, the Division by its Order No. R-111-A, as amended, has promulgated the "Potash-Oil Area" wherein it has found to exist such commercial deposits of potash and has prescribed special casing and cementing rules as well as certain procedures for issuance of drilling permits.

(5) That pursuant to Order No. R-111-A and the Rules and Regulations of the Division, Amay Chemical Corporation did on November 8, 1979, file ~~an~~^{its} application for hearing to consider the expansion of the Potash-Oil Area as described in Finding No. (2) above, alleging that the

Lands sought to be included in the Potash-Oil Area ".... are believed to contain commercially recoverable quantities of potash ore for the reason that applicant is doing exploratory drilling, all of which core tests show commercially recoverable quantities of potash are reaching from a low of 48 inches of 12.4 percent K_2O to a high of 48 inches of 20 percent K_2O ."

(6) That the ~~entire~~ ^{presently defined} Potash-Oil Area in the vicinity of the lands under consideration in this case includes the E/2 of Section 22 and all of Section 23, Township 19 South, Range 29 East, NM PM, Eddy County, New Mexico, and the proposed extension is contiguous thereto.

(7) That the applicant has drilled its Core Hole No. 146-A at a point approximately 1520 feet from the North line and 500 feet from the West line of Section 26, Township 19 South, Range 29 East, NM PM, and said core hole indicates a 3rd ore zone ~~potash~~ accumulation of 48 inches of 12.4 percent K_2O ore.

(8) That the applicant has drilled its Core Hole No. 156 approximately 700 feet from the North line and 2500 feet from the East line of Section 27, Township 19 South, Range 29 East, NM PM, and said core hole indicates a 3rd ore zone accumulation of 48 inches of 21.1 percent K_2O ore.

(9) That the grades of potash encountered in the above-described core holes constitute commercially recoverable potash reserves, particularly in view of Amey Chemical Corporation's method of blending the high-grade ^{one} and lower grade ores together for processing.

(10) That it is reasonable to extrapolate the commercial deposits of potash in the E/2 of Section 22 and in Section 23, Township 19 South, Range 29 East, NM PM, and which are already included in R-111-A, across the lands sought to be included in R-111-A to the core holes described in Findings Nos. (7) and (8) above, and to thereby determine that said lands sought to be included in the Potash-Oil Area do ~~not~~ contain commercial deposits of potash.

(11) That the N/2 NW/4 of Section 26 and the NE/4 NW/4 and N/2 NE/4 of Section 27, all in Township 19 South, Range 29 East, NM PM, contain commercial deposits of potash, and that said lands should be included in the Potash-Oil Area as defined by Order No. R-111-A, as amended.

(12) That ^{the} Petroleum Corporation of Delaware proposes to drill a narrow test well at a point 660 feet from the North line and 1980 feet from the East line of Section 27, Township 19 South, Range 29 East, NM PM, and

That said location is within the proposed extension to the Potash-Oil Area described in Finding No. (11) above.

(13) That the drilling of said well, if completed as a high-pressure natural gas well at the location proposed, would require applicant Amur Chemical Corporation to forego primary mining operations anywhere within a 200 foot radius of the well bore where it penetrates the potash beds, and to forego secondary mining operations anywhere within a 750 foot radius of the well bore where it penetrates the potash beds, in order to avoid the hazard of the shear forces ~~to be~~ exerted which would be exerted on the well during subsidence following secondary mining, and the possible entry of natural gas into the potash mine.

(14) That assuming an average K_2O content of 21.1 percent in the 200 foot radius of no mining and 15% ~~to~~ percent in the 750 ~~and~~ foot radius of no ~~mining~~, secondary mining, it is estimated that 34,844 tons of finished potash product would be lost if the well described in Finding No. (12) above were to be drilled at the proposed location.

(15) That at ^{the} current market price of \$60.00 per ton for the finished product, the lost potential described in Finding No. (14) above would have a value in excess of \$2 million.

(16) That the casing and cementing program for The Petroleum Corporation of Delaware well ~~proposed~~ described in Finding No. (12) above does not comply with the casing and cementing program for deep wells prescribed by Order No. R-111-A.

(17) That in the interest of mine safety and the protection of human life, and in the interest of ~~conservation~~ the protection of commercial deposits of peat and the prevention of waste thereof, the aforesaid well should not be drilled at the above-described location.

(18) That in order to ~~permit~~ ^{the} afford Petroleum Corporation of Delaware the opportunity to produce its just and equitable share of the gas underlying ~~the~~ in the reservoir underlying the subject lands, and to protect correlative rights, ~~the~~ ^{said} ~~company~~ ^{company} ~~Corporation~~ should be permitted to drill at a standard location in the N/2 of Section 27, ~~or at an unsuited location in the~~ ^{3/4} other than in the NE/4 NW/4 or the NW/4 NE/4, or ^{showed request} ~~at~~ an unsuited location in the 3/2 NE/4, ~~and to drill~~ of said Section 27.

IT IS THEREFORE ORDERED:

(1) That the application of Anax Chemical Corporation for the extension of the Patash-Oil Area, as defined by Division Order No. R-111-A, as amended, is hereby approved, and said Patash-Oil Area is extended to include therein the following described lands, all in Eddy County, New Mexico:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM

Section 26: N/2 NW/4

Section 27: NE/4 NW/4 and N/2 NE/4

(2) That no well not already drilled in the above-described lands shall be drilled unless a permit therefor has been obtained in accordance with the provisions of Order No. R-111-A ~~or~~ ^{and/or} unless the casing-cementing program for such well complies with the casing-cementing program ~~of~~ ^{as prescribed} by Order No. R-111-A.

~~(3) That the Division shall expeditiously process and approve any application for an unorthodox location for~~

(3) That the Drilling Permit for The Petroleum Corporation of Delaware Parkway West Unit Well No. 1, proposed to be drilled to the Morrow formation at a point 660 feet from the North line and 1980 feet from the East line of Section 27, Township 19 South, Range 29 East, NMPM, Eddy County, New Mexico, is hereby revoked.

(4) Jurisdiction

DONE at

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

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

CASE NO. 6753
Order No. R-111-M-1

MOTION OF AMAX CHEMICAL
CORPORATION TO DISMISS
WITH PREJUDICE.

ORDER OF THE COMMISSION

This matter having come on before the Commission for its consideration and there being no objection ~~and there being~~ by Petroleum Corporation of Delaware for dismissal of its Application for De Novo Hearing;

IT IS THEREFORE ORDERED, that Amax Chemical Corporation's Motion to Dismiss is granted and that the Application of Petroleum Corporation of Delaware for De Novo Hearing is dismissed with prejudice.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Secretary

S E A L

dr/