

CASE 5937: SUN OIL COMPANY FOR DOWNHOLE
COMMINGLING, LEA COUNTY, NEW MEXICO

Case Number

5937

Application

Transcripts.

Small Exhibits

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 25, 1977

EXAMINER HEARING

IN THE MATTER OF:)
)
Application of Sun Oil Company for) CASE
downhole commingling, Lea County,) 5937
New Mexico.)

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil	Lynn Teschendorf, Esq.
Conservation Commission:	Legal Counsel for the Commission
	State Land Office Building
	Santa Fe, New Mexico
For the Applicant:	W. Thomas Kellahin, Esq.
	KELLAHIN & FOX
	Attorneys at Law
	500 Don Gaspar
	Santa Fe, New Mexico

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General Court Reporting Service
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I N D E X

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KENNETH W. LARSON

Direct Examination by Mr. Kellahin

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THOMAS J. LARSON

Direct Examination by Mr. Kellahin

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Cross Examination by Mr. Stamets

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EXHIBIT INDEX

Offered Admitted

Applicant Exhibit One, Map

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Applicant Exhibit Three, Tabulation

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Applicant Exhibit Four, Sketch

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Applicant Exhibit Five, Sketch

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Applicant Exhibit Six, Production Curve

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Applicant Exhibit Seven, Production Curve

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Applicant Exhibit Eight, Production History

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Applicant Exhibit Nine, Tabulation

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1 MR. STAMETS: We will call next Case 5937.

2 MS. TESCHENDORF: Case 5937, application of Sun Oil
3 Company for downhole commingling, Lea County, New Mexico.

4 MR. KELLAHIN: Tom Kellahin, Kellahin and Fox,
5 Santa Fe, New Mexico appearing on behalf of the applicant and
6 I have two witnesses to be sworn.

7 (THEREUPON, the witnesses were duly sworn.)
8

9 KENNETH W. LARSON

10 called as a witness, having been first duly sworn, was examined
11 and testified as follows:

12
13 DIRECT EXAMINATION

14 BY MR. KELLAHIN:

15 Q Please state your name, by whom you are employed
16 and in what capacity?

17 A Kenneth W. Larson, Staff Professional Geologist,
18 Sun Production Company, Dallas Production Region, Dallas,
19 Texas.

20 Q Mr. Larson, have you previously testified before the
21 Commission and had your qualifications as an expert geologist
22 accepted and made a matter of record?

23 A Yes, I have and, yes, they were.

24 MR. KELLAHIN: If the Examiner please, are the
25 witness' qualifications acceptable?

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1 MR. STAMETS: Yes, they are.

2 Q (Mr. Kellahin continuing.) Mr. Larson, would you
3 identify what has been marked as Applicant Exhibit Number One
4 and explain what information it contains?

5 A Geological Exhibit Number One is a structure contour
6 map of the East Lusk Field area, Lea County, New Mexico. The
7 area lies within Township 19 South, Range 32 East. The mapping
8 datum is the top of the Second Bone Spring. The scale of the
9 map is one inch equals one thousand feet and the contour
10 interval is fifty feet.

11 For clarification purposes, the map is color coded.
12 The current field producers are identified by formation in the
13 legend on the lower left-hand portion of the map.

14 In the southwest quarter of Section 15, T 19 South,
15 Range 32 East a red arrow identifies the Sun Oil Company No. 1
16 Shearn Federal.

17 Q That is the subject well for this hearing, is that
18 right?

19 A This is the well for which Sun Oil Company is seeking
20 approval for downhole commingling of the Lusk-Morrow, East Lusk-
21 Wolfcamp and East Lusk-Bone Springs production. That portion
22 of the Shearn Federal borehole compensated sonic gamma ray log
23 embracing the above-described producing zones is shown on the
24 right-hand portion of the map. The tops of the Second Bone
25 Spring, the Wolfcamp and the Morrow, as well as the color-coded

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1 perforated intervals are posted on the map.

2 Q Do you have any history of this particular well,
3 Mr. Larson?

4 A Briefly. This well was originally completed in
5 the Morrow and plugged back to ten thousand eight hundred and
6 fifty feet and recompleted in the Wolfcamp and later in the
7 Bone Spring. Permission to commingle the Wolfcamp and the
8 Second Bone Spring was granted on August 2nd, 1976 by Administra-
9 tive Order Number EHC-199.

10 Q You simply did the geology for this particular
11 area, did you not, Mr. Larson?

12 A That is correct.

13 MR. KELLAHIN: Mr. Examiner we will have another
14 witness that did the engineering work who will talk about
15 the pressure information in the proposed commingling for this
16 particular well.

17 Q (Mr. Kellahin continuing.) Did you prepare Exhibit
18 Number One, Mr. Larson or was it prepared under your supervision
19 and direction?

20 A I prepared it.

21 MR. KELLAHIN: That's all the questions I have of
22 this witness.

23 MR. STAMETS: Any questions of this witness? He
24 may be excused.

25 (THEREUPON, the witness was excused.)

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1 MR. KELLAHIN: We will call next Mr. Golden.

2

3 THOMAS J. GOLDEN

4 called as a witness, having been first duly sworn, was examined
5 and testified as follows:

6

7 DIRECT EXAMINATION

8 BY MR. KELLAHIN:

9 Q Would you please state your name, by whom you are
10 employed and in what capacity?

11 A Thomas J. Golden, I'm a Senior Engineer in Midland,
12 Texas.

13 Q Mr. Golden, have you previously testified before
14 the Commission?

15 A No, I have not.

16 Q Would you give the Examiner brief information on
17 your educational background and your work experience?

18 A Yes, I graduated from the Colorado School of Mines
19 in 1968 with a degree in Petroleum Engineering. Since that
20 time I have been employed by Sun Oil Company, first as a
21 production engineer for approximately two years, five years as
22 a district reservoir engineer and a year and a half working in
23 reservoir simulations and since July of 1976 I have been the
24 District Operations Engineer in Midland.

25 Q Have you made a study of and are you familiar with

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1 the facts surrounding this particular application?

2 A. Yes, sir.

3 MR. KELLAHIN: If the Examiner please, are the
4 witness' qualifications acceptable?

5 MR. STAMETS: They are.

6 Q (Mr. Kellahin continuing.) Mr. Golden, would you
7 refer to what has been marked as Exhibit Number Two, identify
8 it and tell us what information it contains?

9 A. Yes, this exhibit is a tabulation of the cumulative
10 production and the February 1977 rates of the Sun operated
11 wells in the East Lusk Pool. As shown, we have two Bone Springs
12 wells, the James Federal No. 1 and the Thomas Federal No. 1. In
13 addition we have the subject well, the Shearn Federal No. 1,
14 which is commingled in the Bone Springs and the Wolfcamp.

15 The oil rates and gas on this exhibit were for
16 February and have declined somewhat in April. The present
17 rate for the Bone Springs is a barrel and a half with two MCF
18 and for the Wolfcamp is three and a half barrels and a hundred
19 and twenty MCF, down from the five barrels and a hundred and
20 forty-nine MCF shown.

21 Q The subject well was originally completed as a
22 Morrow well??

23 A. Yes, sir.

24 Q Do you recall when that was completed?

25 A. In 1972.

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1 Q All right, and when did it stop producing as a
2 Morrow completion?

3 A In November of 1973.

4 Q After that date what did you do with the well?

5 A The well was then completed in the Wolfcamp and
6 produced for approximately three years at which time the rates
7 became marginal and it was completed in the Bone Springs.

8 Q At this point you have an administrative order that
9 allows you to commingle the Wolfcamp and the Bone Springs?

10 A Yes, sir, we do.

11 Q And you are now seeking to add the Morrow production
12 to the other two zones?

13 A Yes, sir.

14 Q What is the allocation formula that you are using
15 for the Wolfcamp and the Bone Springs as approved by the
16 Commission?

17 A Presently it is seventy-one percent of the oil and
18 twenty-nine.

19 Q Say it again.

20 A Presently or what we are proposing?

21 Q Presently what is the allocation for the Wolfcamp
22 production?

23 A Seventy-nine percent of the oil.

24 Q Okay, how about the gas, is there any gas production?

25 A I'll have to find that.

1 Q Okay.

2 A I apologize, seventy-one percent of the oil and
3 ninety-one percent of the gas to the Wolfcamp.

4 Q And how about the Bone Springs?

5 A It's twenty-nine percent of the oil and the remaining
6 two percent of the gas.

7 Q If this downhole commingling is approved how would
8 you propose to allocate the oil and gas among the three zones,
9 first of all for the Morrow?

10 A Well, for the Morrow we are expecting approximately
11 ten barrels of oil and some two hundred MCF, using this and
12 the present allocations we would have sixty-seven percent of
13 the oil and sixty-two percent of the gas allocated to the
14 Morrow zone.

15 Q And then for the Wolfcamp what would you allocate?

16 A It would be reduced to twenty-three percent of
17 the oil and thirty-seven percent of the gas.

18 Q For the Wolfcamp?

19 A For the Wolfcamp.

20 Q Thirty-seven percent of the gas?

21 A Right.

22 Q How about the Bone Springs then?

23 A Ten percent of the oil and one percent of the gas
24 production.

25 MR. STAMETS: What was the gas value on the Morrow

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1 zone?

2 MR. KELLAHIN: Sixty-two percent.

3 Q (Mr. Kellahin continuing.) What pressure information
4 do you have, Mr. Golden, for the Morrow zone?

5 A The pressure as we would expect it would be some
6 fourteen hundred and fifty pounds for the Morrow zone. This
7 was arrived at using earlier pressures when it was completed
8 and the cumulative production to the date of abandonment.

9 Q How many Morrow pressure tests were taken on this
10 well?

11 A Three.

12 Q And when were they taken?

13 A They were taken in February of '72 and April of 1972
14 and May of '72.

15 Q Okay. Your calculated pressure then for the Morrow
16 formation is what?

17 A Fourteen hundred and fifty psi.

18 Q And what pressure information do you have for the
19 Wolfcamp?

20 A The last pressures on the Wolfcamp was a thousand
21 psi. This was at the time of commingling.

22 Q What pressure information do you have for the Bone
23 Springs?

24 A Its original pressure also at the time of commingling
25 was thirty-three hundred and ten pounds.

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1 Q Please refer to Exhibit Number Three and identify
2 it?

3 A This is a tabulation much like Exhibit Two showing
4 the present rates and the locations of the wells offsetting the
5 Shearn Federal operated by companies other than Sun Oil Company.

6 Q Exhibit Number Four, please identify it?

7 A This is a well sketch for the wells as presently
8 completed and kind of used in conjunction with the next
9 exhibit which is the well sketch for the way we are proposing
10 to complete the well for where the Morrow is.

11 Q Would you refer to Exhibits Four and Five then and
12 explain to the Examiner how you propose to alter the well
13 completion?

14 A At the present time we have the Bone Springs shown
15 at approximately ninety-eight hundred and thirty-two to sixty-
16 eight feet commingled with Wolfcamp perms from ten thousand,
17 six hundred and twenty-six to seven hundred and fifty-nine
18 feet. These were commingled and produced up the one tubing
19 string which was set at approximately ten thousand eight
20 hundred feet.

21 The Morrow is presently shut off below a retrievable
22 bridge plug set at twelve thousand one hundred and eighty feet.

23 Q Okay.

24 A The next exhibit is as we are proposing to commingle
25 the Wolfcamp, Bone Springs and Morrow would just require

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1 removal of the bridge plug and lowering the tubing to
2 approximately twelve thousand feet to insure that the well is
3 always pumped off.

4 Q Exhibit Number Six then, Mr. Golden?

5 A This production curve for the Morrow zone, from the
6 time the well was completed to abandonment in October of 1973
7 has shown that the oil declined rapidly from an initial rate
8 of approximately a hundred and twenty-seven barrels of oil and
9 three hundred and fifty MCF of gas to a rate just prior to
10 being shut in of five and a half barrels of oil and a hundred
11 and three MCF of gas. The GOR at abandonment, shown by the
12 dashed curve, was approximately twenty-three thousand to one.

13 Q Exhibit Number Seven?

14 A This is the production curve for the Wolfcamp zone
15 which was completed after the abandonment of the Morrow. The
16 solid line is the oil production, the gas-oil ratio is repre-
17 sented by the dashed line and Wolfcamp production by the dotted
18 line. From November of 1976 the well was commingled with the
19 Bone Springs and the production as shown here is what was
20 allocated back to the Wolfcamp.

21 Q Exhibit Number Eight?

22 A This is a relatively brief production history of
23 the Bone Springs formation, using the same as those on the
24 prior ones, the solid line being oil, the dashed the GOR and
25 the dotted the water production.

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1 Q Exhibit Number Nine?

2 A This is a tabulation of the available bottom-hole
3 pressures of the wells offsetting the Shearn Federal No. 1.
4 As shown, the Bone Springs pressures range from a maximum of
5 thirty-nine hundred and eight pounds in the Sun operated Thomas
6 Federal No. 1 to a minimum of six hundred and eighty pounds in
7 the James Federal A No. 1, which was a drill stem test.

8 The Morrow pressures range from thirty-four hundred
9 pounds in the McKay Shell Federal No. 1 to five hundred pounds
10 in the Les DP No. 12.

11 Q What's the current production from the commingled
12 Wolfcamp and Bone Springs?

13 A Five barrels of oil and a hundred and twenty-two
14 MCF of gas.

15 Q Has this well reached its economic limit for the
16 production from the Wolfcamp and the Bone Springs?

17 A It's very close and really doesn't justify the
18 amount of equipment that we have to operate the well.

19 Q Would you be able to economically dual this well
20 between the Morrow and then the commingled Wolf Camp and Bone
21 Springs?

22 A No, sir, the expected remaining reserves of the
23 Morrow is just twenty-six hundred barrels of oil and approxi-
24 mately fifty million cubic feet of gas which is just basically
25 a salvage reservoir.

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1 Q Okay. In your opinion is the manner in which you
2 propose to recompleat this well sound from an engineering
3 standpoint so that there will not be migration between the
4 zones of production?

5 A Yes, we will be pumping the well from total depth
6 so we should have no cross flow between the zones.

7 Q Is there any difference between the ownership between
8 any of the producing formations?

9 A No, there isn't.

10 Q It's all identical?

11 A Yes, sir.

12 Q In your opinion will approval of this application
13 be in the best interest of conservation, the prevention of
14 waste and the protection of correlative rights?

15 A Yes, the remaining reserves of the Wolfcamp and the
16 Bone Springs is approximately seventeen hundred barrels of oil
17 and forty million cubic feet of gas. If it is not commingled
18 we will not be able to recover it.

19 Q Were Exhibits Two through Nine either prepared by
20 you directly or under your direction and supervision?

21 A They were prepared under my supervision.

22 MR. KELLAHIN: If the Examiner please, we move the
23 introduction of Exhibits One through Nine.

24 MR. STAMETS: These exhibits will be admitted.
25

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1 (THEREUPON, Applicant Exhibits One

2 Through Nine were admitted into evidence.)

3 MR. KELLAHIN: That concludes our direct examination.

4
5 CROSS EXAMINATION

6 BY MR. STAMETS:

7 Q Mr. Golden, I believe you indicated that this well
8 would be on the pump, is that correct?

9 A Yes, sir, we are pumping it right now and I believe
10 at ten thousand feet we would have sufficient pumping equip-
11 ment to go ahead and pump it from twelve thousand feet.

12 Q I notice on Exhibit Numbers Seven and Eight --

13 A I think there was a mixup in the numbering.

14 Q Yes, Seven and Eight, that the Wolfcamp zone and
15 the Bone Springs zone both produced water up until January of
16 this year, February of this year, and then they ceased to
17 produce any water, that is an amazing feat, how did you
18 accomplish that?

19 A The Wolfcamp presently is producing two barrels of
20 water. That is down from the rates right after commingling
21 of seven to ten barrels. April isn't plotted on here and
22 we are producing two barrels of water in April. Both of
23 these are plotted as one barrel allocated to the Wolfcamp,
24 the bottom line being one barrel and not zero and one barrel
25 to the Bone Springs. This is an error. All of the water

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1 production is believed to be coming from the Wolfcamp but it
2 is minimal.

3 Q Okay. It does appear to be a significant decline
4 from the time previous to commingling to subsequent to
5 commingling. Was there any workover performed on this well
6 when they were commingled?

7 A The decline didn't really change, you have approxi-
8 mately two and a half months which would represent working on
9 the well with no rates and then low rates. The production from
10 the Bone Springs was minimal and possibly all of the production
11 we are presently getting from the well could be from the
12 Wolfcamp but the Bone Springs was plotted on the same curve. I
13 don't really believe you would see a change in the decline at
14 all.

15 Q Now, the Morrow formation is notorious for its
16 susceptibility to damage by waters in foreign floods, are you
17 going to take any precautions to see that fluids from these
18 upper zones don't get on the Morrow formation?

19 A Just by pumping the well is the only way that we
20 can prevent it. There will be some fluids dropping on the
21 Morrow but it will be very minimal since we will be pumping
22 the well from two hundred foot above the perforations.

23 Q Would it be possible to stab a one-way valve
24 in the packer above the Morrow so as to prohibit fluids from
25 moving down hole?

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1 A. If that was done we would not be able to pump the
2 well on such, moving the gas from the Morrow through the
3 tubing, it will have to be allowed to flow up the annulus.

4 Q. Well, what I was talking about, though, would be below
5 the tubing which you show there, the production tubing, but
6 in the packer. Perhaps I'm not clear.

7 A. The packer as shown in the bottom of the hole is really
8 unusable. It was a permanent packer which they couldn't
9 release the tubing out of, the tubing was backed off and
10 without extreme expense I don't believe we could use that
11 packer for anything lower. It is open presently through the
12 packer but the packer is such that it is unusable.

13 Q. What would the cost be to set another packer in
14 there with a one-way valve?

15 A. That would be minimal but there again we would not
16 be able to pump the Wolfcamp and Bone Springs by moving that
17 much gas through your tubing, you know, through your downhole
18 pump, would make it almost useless.

19 Q. What I'm talking about, though, is just a valve
20 which would operate between the Morrow zone and the Wolfcamp
21 and Bone Springs zones but would not be going directly into
22 the production tubing but still have some room above your
23 tubing or above the valve for the gas to go up and around your
24 production tubing.

25 A. The cost of that wouldn't be great. I have no

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1 experience with using one on a setup like that. You mean where
2 fluid will come up but won't fall back down through it?

3 Q Right.

4 A I can't answer that question other than to cost which
5 would not be significant.

6 MR. STAMETS: Any other questions of the witness?

7 MR. KELLAHIN: No, sir.

8 MR. STAMETS: He may be excused.

9 (THEREUPON, the witness was excused.)

10 MR. STAMETS: Anything further in this case?

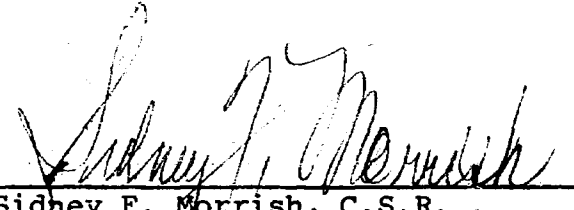
11 MR. KELLAHIN: No, sir.

12 MR. STAMETS: The case will be taken under advisement.
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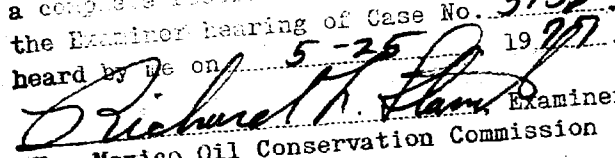
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REPORTER'S CERTIFICATE

1
2 I, SIDNEY F. MORRISH, a Certified Shorthand Reporter,
3 do hereby certify that the foregoing and attached Transcript
4 of Hearing before the New Mexico Oil Conservation Commission
5 was reported by me, and the same is a true and correct record
6 of the said proceedings to the best of my knowledge, skill and
7 ability.

8
9
10 
11 Sidney F. Morrish, C.S.R.

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12
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15 I do hereby certify that the foregoing
16 a complete record of the proceedings in
the Examiner hearing of Case No. 5939
heard by me on 5-25-77 1977
17 
18 Richard H. Lane, Examiner
New Mexico Oil Conservation Commission
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BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5937
Order No. R-5462

APPLICATION OF SUN OIL COMPANY
FOR DOWNHOLE COMMINGLING, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 25, 1977,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 14th day of June, 1977, the Commission, a
quorum being present, 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 Commission has jurisdiction of this cause and the
subject matter thereof.

(2) That the applicant, Sun Oil Company, is the owner and
operator of the Shearn Federal Well No. 1, located in Unit L
of Section 15, Township 19 South, Range 32 East, NMPM, Lea
County, New Mexico.

(3) That the applicant seeks authority to commingle Lusk-
Morrow, East Lusk-Wolfcamp and East Lusk-Bone Springs production
within the wellbore of the above-described well.

(4) That from each of said zones, the subject well is
capable of low rates of production only.

(5) That the proposed commingling may result in the recovery
of additional hydrocarbons from each of the subject pools,
thereby preventing waste, and will not violate correlative
rights.

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Case No. 5937
Order No. R-5462

(6) That the well should be equipped in such a manner as to prevent fluids from the upper zones from coming in contact with the Morrow zone.

(7) That to afford the Commission the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Hobbs district office of the Commission any time the subject well is shut-in for 7 consecutive days.

(8) That in order to allocate the commingled production to each of the commingled zones in the subject well, 67 percent and 62 percent of the commingled oil and gas production, respectively, should be allocated to the Lusk-Morrow zone, 23 percent and 37 percent of the commingled oil and gas production, respectively, to the East Lusk-Wolfcamp zone and ten percent and one percent of the commingled oil and gas production, respectively, should be allocated to the East Lusk-Bone Springs zone.

IT IS THEREFORE ORDERED:

(1) That the applicant, Sun Oil Company, is hereby authorized to commingle Lusk-Morrow, East Lusk-Wolfcamp and East Lusk-Bone Springs production within the wellbore of the Shearn Federal Well No. 1, located in Unit L of Section 15, Township 19 South, Range 32 East, NMPM, Lea County, New Mexico.

(2) That said Shearn Federal Well No. 1 shall be equipped with a standing valve above the Morrow zone or in some other manner so as to prevent fluids from the upper two zones from coming in contact with the Morrow zone.

(3) That 67 percent and 62 percent of the commingled oil and gas production, respectively, shall be allocated to the Lusk-Morrow zone, 23 percent and 37 percent of the commingled oil and gas production, respectively, shall be allocated to the East Lusk-Wolfcamp zone, and ten percent and one percent of the commingled oil and gas production, respectively, to the East Lusk-Bone Springs zone.

(4) That the operator of the subject well shall immediately notify the Commission's Hobbs district office any time the well has been shut-in for 7 consecutive days and shall concurrently present, to the Commission, a plan for remedial action.

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Case No. 5937
Order No. R-5462

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



Phil B. Lucero
PHIL B. LUCERO, Chairman

Emery C. Arnold
EMERY C. ARNOLD, Member

Joe D. Ramey
JOE D. RAMEY, Member & Secretary

S E A L

dr/

NEW MEXICO OIL CONSERVATION COMMISSION

LUSK POOL AREA

LEA COUNTY, NEW MEXICO

CASE NUMBER 5937

MAY 25, 1977

WELL COMPLETION SKETCHES

SUN-0641 A

SHEARN FEDERAL #1
WELLEAST LUSK
FIELD

DATE



PRESENT COMPLETION



SUGGESTED COMPLETION

PERMANENT WELL BORE DATA

- 16", 65#, H-40 set @ 330'

w/450 sx. cmt. circ.

- 13 3/8", 4B, 54.5 & 61#, H-40,

K-55 and J-55 set at

2683 w/1000 sx.

cmt. circ.

9 5/8", 40, 43.5#, N-80 &

Soo-95 set @ 7353

w/775 sx. TDC by

temp survey 4100'

7 7/8", 29 & 33#, Soo-95 liner

set at 13342 w/900

sx Cmt. circ., Liner

top 7040.

Baker TAC 9643

2 7/8" T.S. 10826, SN(MECH) 10790,

PN 10791, MA 10794



ORIGINAL COMP

WELL CLASS OIL

DATA ON THIS COMPLETION

Sun

5937

4

Entered by

Hearing Date

SUN OIL COMPANY

DALLAS REGION

LUSK POOL AREA

LEA COUNTY, NEW MEXICO

PRESENT COMPLETION

May 25, 1977

Case No. 5937

Ex. No. E-3

Bone Spring Perfs 9832, 34, 36, 38,
40, 42, 44, 46, 50, 60, 62, 64, 68 w/1500Wolfcamp Perfs 10626-637;
10685-698; 10732-759; (in. 18 holes)

Baker RBP 12108

2 7/8" tbg @ 12129 backed-off, could
not release from Bkr. 'D' @ 12160Morrow Perfs 12231, 32, 33,
34, 35, 36, 37, 38, 39 9 holesCmt plug 13400-13030
7 7/8" liner set at 13342Cmt. plug 14300-13846
TD 14330

DATE _____

PERMANENT WELL BORE DATA

WELL CLASS. 01

DATA ON THIS COMPLETION

~~SUBJECT EXAMINER STAMETS~~
~~ON CONSERVATION COMMISSION~~

SUN EXHIBIT 5

NO. 5937

Signed by:

Hearing Date:

SUN OIL COMPANY

DALLAS REGION

LUSK POOL AREA

LEA COUNTY, NEW MEXICO

PROPOSED COMPLETION

May 25, 1977

Case No. 5937

Ex. No. E-4

Use 3 1/2 O.D. mud anchor.

set tbg. as deep as practical.

Bone Springs Perfs 9832, 34, 36,
38, 40, 42, 44, 46, 50, 60, 62, 64, 68 1 JSB ea

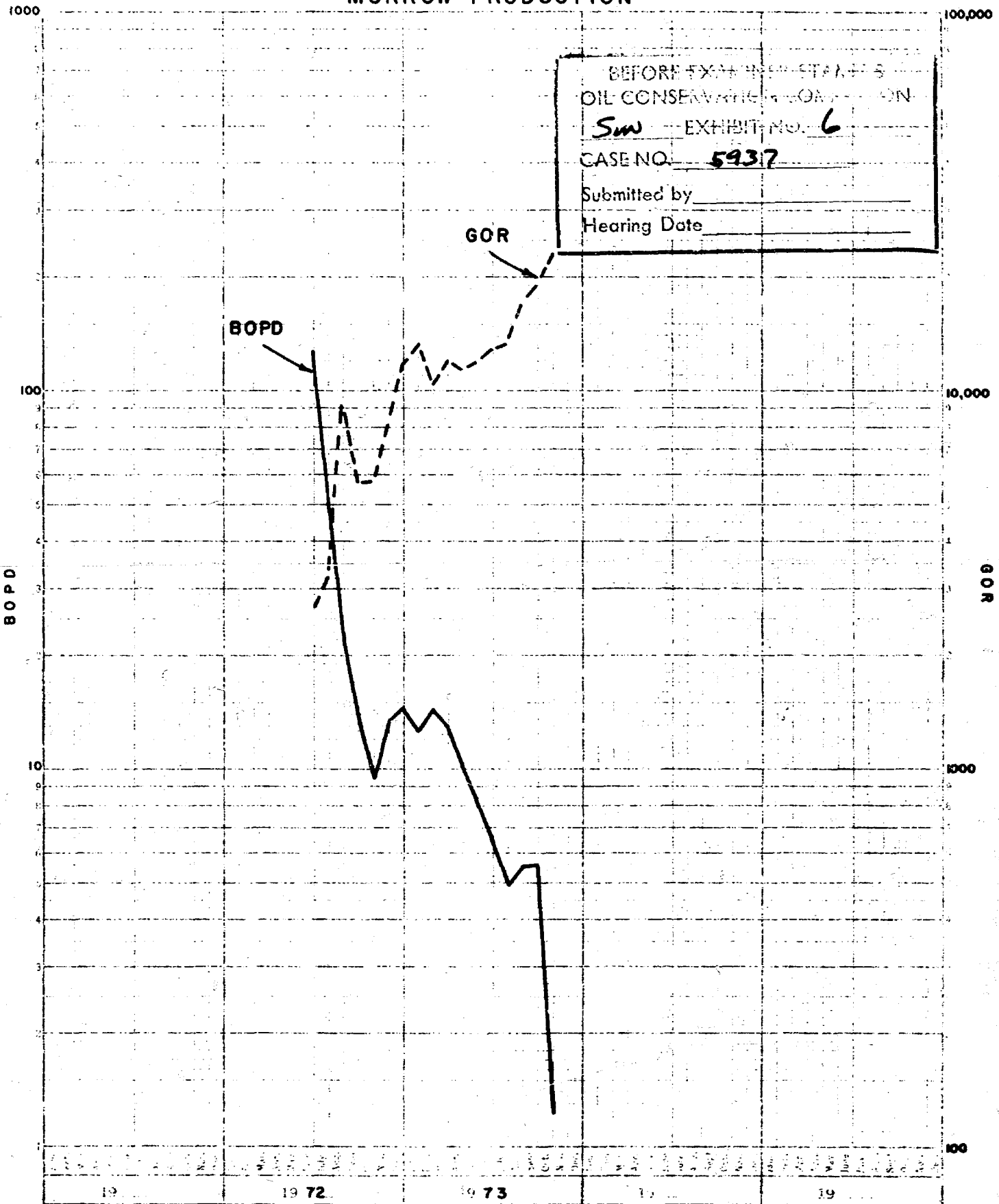
Wolfcamp Perfs 10626-637; _____
10685-698; 10732-759; (tot 18 holes)

Morrow Perfs 12231, 32, 33, 34,
35, 36, 37, 38, 39 9 holes

PBTD 13030

T.D. 14330

SHEARN FEDERAL NO. 1
MORROW PRODUCTION

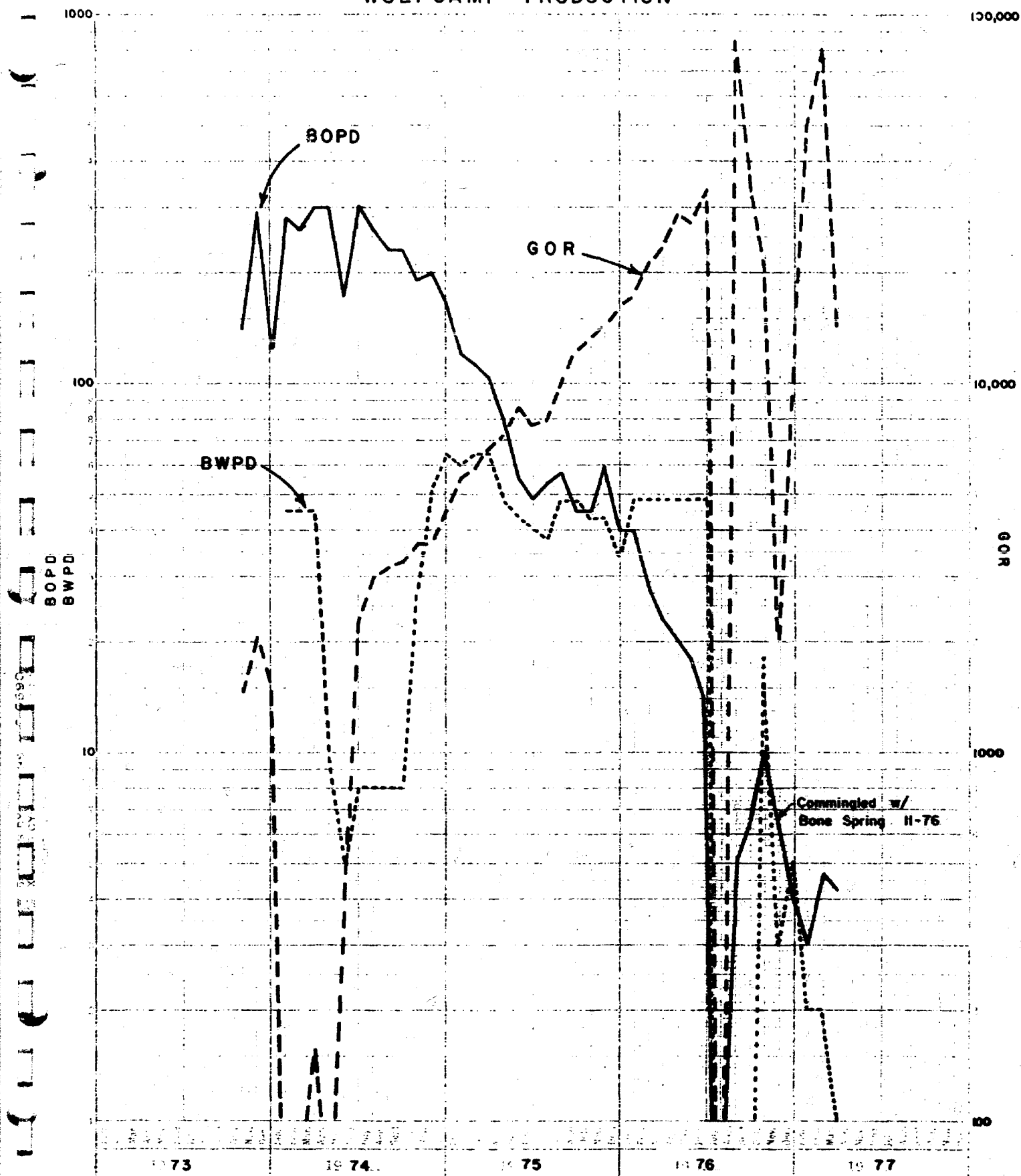


BEFORE EXAMINER STATES
OIL CONSERVATION COMMISSION
Sw EXHIBIT NO. 6
CASE NO. 5937
Submitted by _____
Hearing Date _____

SUN OIL COMPANY
PERFORMANCE HISTORY

Case No. 5937
May 25, 1977
Exhibit No. E-5

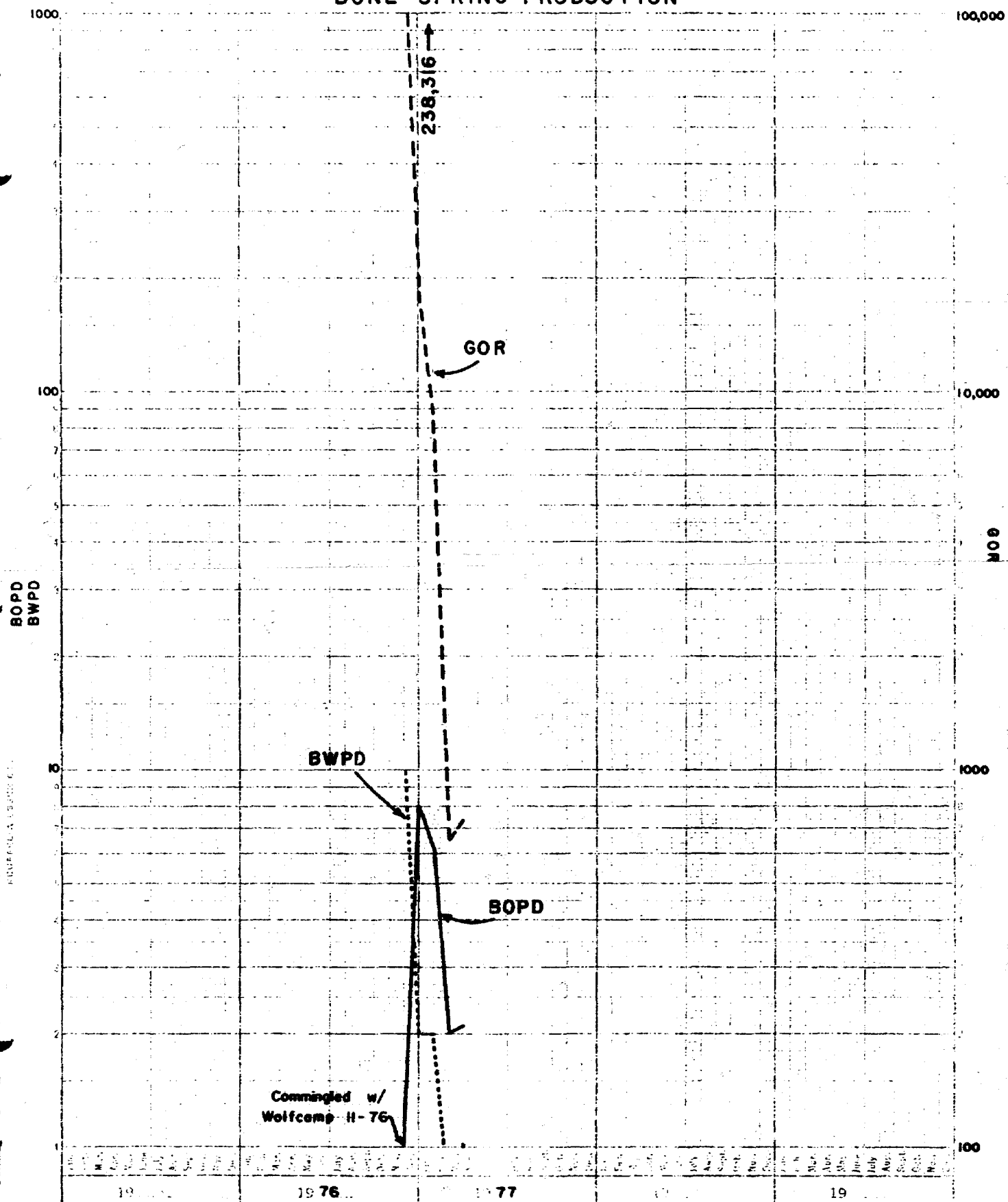
SHEARN FEDERAL NO.1 WOLFCAMP PRODUCTION



SUN OIL COMPANY
PERFORMANCE HISTORY

Case No. 5937
May 25, 1977
Exhibit No. E-6

SHEARN FEDERAL NO. 1 BONE SPRING PRODUCTION



SUN OIL COMPANY
PERFORMANCE HISTORY

Case No. 5937
May 25, 1977
Exhibit No. E-87

SUN OIL COMPANY
LUSK POOL
DAILY AND CUMULATIVE PRODUCTION DATA

<u>POOL AND WELL</u>	<u>BOPD</u>	<u>BWPD</u>	<u>MCFD</u>	<u>STATUS</u>	<u>CUMULATIVE TO 3-1-77</u>			<u>LOCATION</u>
					<u>OIL</u>	<u>WTR</u>	<u>GAS</u>	
<u>Bone Spring East</u>								
Jennings Fed. #1	373	0	591	P	194,194	150	163,069	Sec. 15, T19S, R32E
Shearn Fed. #1	2 ¹⁵	0	3	P	510	384	8,434	Sec. 15, T19S, R32E
Tonto Fed. #1	24	378	0	P	457	7,182	1	Sec. 27, T19S, R32E
<u>Wolfcamp, East</u>								
Shearn Fed. #1	5 ⁴	2	149	P	133,801	33,266	496,384	Sec. 15, T19S, R32E
<u>Morrow (Gas)</u>								
Shearn Fed. #1	Abandoned 10-73				17,701	0	90,548	Sec. 15, T19S, R32E

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION

SUN EXHIBIT NO. 2
CASE NO. 5937
Submitted by _____
Hearing Date _____

SUN OIL COMPANY

DALLAS REGION



LUSK POOL AREA

LEA COUNTY, NEW MEXICO

DAILY & CUM. PRODUCTION DATA

May 25, 1977

Case No. 5937

Ex. No. E-1

LUSK POOL
DAILY PRODUCTION DATA (OTHER OPERATORS)
(FEBRUARY, 1977)

POOL AND WELL	BOPD	MCFPD	STATUS	LOCATION
<u>Bone Spring East</u>				
<u>Petroleum Development Corp.</u>				
Cleverock Pedco St. #1	264	1405	F	Sec. 16, T-19-S, R-32-E
<u>Seven Rivers</u>				
<u>Terneco Oil Company</u>				
Lusk Seven Rivers Ut. #1	7	?	P	Sec. 3, T-19-S, R-32-E
Lusk Seven Rivers Ut. #5		Shut In		Sec. 3, T-19-S, R-32-E
<u>Strawn</u>				
<u>Llano, Inc.</u>				
Plains Unit Fed. #2	16	60	P	Sec. 28, T-19-S, R-32-E
Plains Unit Fed. #3	7	27	P	Sec. 28, T-19-S, R-32-E
Plains Unit Fed. #4	8	29	P	Sec. 21, T-19-S, R-32-E
Southern Calif. Fed. #1	12	30	F	Sec. 29, T-19-S, R-32-E
Southern Calif. Fed. #4	9	22	F	Sec. 29, T-19-S, R-32-E
<u>Morrow (Gas)</u>				
<u>Llano, Inc.</u>				
Southern Calif. Fed. #1	-	32	P	Sec. 29, T-19-S, R-32-E
<u>Petroleum Development Corp.</u>				
Dorothy McKay #1	11	440	F	Sec. 9, T-19-S, R-32-E
Superior "C" State #1	93	2110	F	Sec. 16, T-19-S, R-32-E
<u>Morrow, North (Gas)</u>				
<u>Petroleum Development Corp.</u>				
McKay-Shell Fed. #1	64	1392	F	Sec. 3, T-19-S, R-32-E

McKay-Shell Fed. #1 64

BEFORE EXAMINER STAMETS

OIL CONSERVATION COMMISSION

SUN EXHIBIT NO. 3

CASE NO. 5937

Sub. No. _____

Hearing Date _____

SUN OIL COMPANY

DALLAS REGION

LUSK POOL AREA

DELAWARE COUNTY, NEW MEXICO

PRODUCTION DATA

May 25, 1977

Case. No. 5937

Ex. No. E-2

CASE NO. 5937
EXHIBIT NO. E-8

SUN OIL COMPANY
BOTTOM HOLE PRESSURE DATA
LUSK FIELD
LEA COUNTY, NEW MEXICO

JENNINGS FEDERAL #1 15-19-32 (BONE SPRING)

2/7/75: 185 Hrs. SIBHP @ 9890'; 3885 psi Original Pressure
3/31/76: 68.5 Hrs. SIBHP @ 9890' 1957 psi (Extrapolated is 2014 psi)

TONTO FEDERAL #1 27-19-32 (BONE SPRING)

12/23/76: Drill stem test @ 10134' SIBHP 3908 psi Original Pressure

JENNINGS FEDERAL "A" #1 15-19-32 (BONE SPRING)

1/10/77: Drill stem test @ 9953' SIBHP 680 psi Original Pressure

SUPERIOR "C" ST. #1 16-19-32 (MORROW)

9/10/76: 24 Hrs. SIBHP 3109 psi Original Pressure

LUSK DEEP UNIT #1 19-19-32 (MORROW)

10/2/75: 72 Hrs. SIBHP 3107 psi Original Pressure
8/16/76: 72 Hrs. SIBHP 1850 psi

LUSK DEEP UNIT #5 19-19-32 (MORROW)

10/2/75: 72 Hrs. SIBHP 886 psi
8/15/76: 72 Hrs. SIBHP 850 psi

LUSK DEEP UNIT #12 20-19-32 (MORROW)

10/2/75: 72 Hrs. SIBHP 3603 psi Original Pressure
8/15/76: 3 Months SIBHP 500 psi

LUSK DEEP UNIT #13 18-19-32 (MORROW)

10/2/75: 72 Hrs. SIBHP 1749 psi Original Pressure
8/15/76: 1 Month SIBHP 1795 psi

MCKAY-SHELL FEDERAL #1 3-19-32 (MORROW, NORTH)

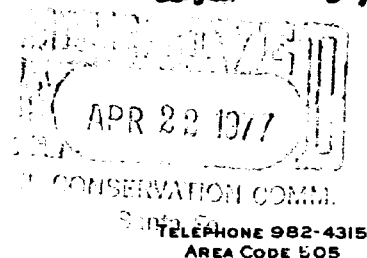
9/10/76: 24 Hrs. SIBHP 3402 psi Original Pressure

- CASE 5932: Application of Yates Petroleum Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the N/2 of Section 19, Township 20 South, Range 25 East, Eddy County, New Mexico, to be dedicated to it's Moore "FQ" Well No. 1 located in Unit F of said Section 19. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 5933: Application of Yates Petroleum Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the W/2 of Section 15, Township 17 South, Range 26 East, Eddy County, New Mexico, to be dedicated to it's Hunter "FL" Well No. 1 located in Unit F of said Section 15. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 5934: Application of HNG Oil Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its El Paso Federal 29 Well No. 1 to be located 2427 feet from the North line and 904 feet from the West line of Section 29, Township 24 South, Range 27 East, Eddy County, New Mexico, the W/2 of said Section 29 to be dedicated to the well.
- CASE 5935: Application of Union Texas Petroleum for a non-standard proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard gas proration unit comprising the E/2 W/2 and W/2 E/2 of Section 7, Township 20 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to applicant's Britt Well Nos. 3 and 12 located at unorthodox locations in Units G and C of said Section 7, respectively.
- CASE 5936: Application of El Paso Natural Gas Company for a dual completion and an unorthodox gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its San Juan 27-4 Unit Well No. 109 to be located at an unorthodox location 990 feet from the South line and 1840 feet from the East line of Section 23, Township 27 North, Range 4 West, Rio Arriba County, New Mexico, to produce gas from the Tapacito-Pictured Cliffs and Blanco-Mesaverde Pools.
- CASE 5937: Application of Sun Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Lusk-Morrow, East Lusk-Wolfcamp and East Lusk-Bone Springs production in the wellbore of its Shearn Federal Well No. 1, located in Unit L of Section 15, Township 19 South, Range 32 East, Lea County, New Mexico.
- CASE 5938: Application of V-F Petroleum, Inc., for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Landreth State Well No. 1 to be drilled 330 feet from the South line and 1100 feet from the West line of Section 15, Township 10 South, Range 36 East, South Crossroads-Devonian Pool, Lea County, New Mexico, the S/2 SW/4 of said Section 15 to be dedicated to the well.
- CASE 5939: Application of C&K Petroleum, Inc., for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the W/2 of Section 7, Township 22 South, Range 27 East, South Carlsbad Field, Eddy County, New Mexico, to be dedicated to it's Carlsbad Well No. 7 to be located at an unorthodox location 760 feet from the South line and 690 feet from the West line of said Section 7. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 5940: Application of C&K Petroleum, Inc., for compulsory pooling and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 6, Township 19 South, Range 32 East, Lea County, New Mexico, to be dedicated to it's Federal Well No. 6 to be located at an unorthodox location 600 feet from the South line and 2012 feet from the West line of said Section 6. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

JASON W. KELLAHIN
ROBERT E. FOX
W. THOMAS KELLAHIN

KELLAHIN AND FOX
ATTORNEYS AT LAW
500 DON GASPAR AVENUE
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

April 21, 1977



Mr. Joe D. Ramey, Director
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Enclosed is the application of Sun Oil Company for approval of commingling of production in its Shearn Federal No. 1 well, Lusk Field, Lea County, New Mexico.

It is requested that this application be set for hearing at the May 25 examiner hearing.

Sincerely,

Jason W. Kellahin
Jason W. Kellahin

CC: Mr. J. T. Powers

JWK:kfm

Enclosure

BEFORE THE
OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF SUN OIL COMPANY FOR APPROVAL
OF DOWN-HOLE COMMINGLING,
LEA COUNTY, NEW MEXICO

A P P L I C A T I O N

Comes now Sun Oil Company and applies to the Oil Conservation Commission of New Mexico for authority to commingle production in the well bore in its Shearn Federal No. 1 well, located in Unit L, Section 15, Township 19 South, Range 32 East, N.M.P.M., Lea County, New Mexico, and in support thereof would show the Commission:

1. Applicant proposes to commingle production from the Lusk Morrow Gas Pool, the East Lusk Wolfcamp pool, and the East Lusk Bone Springs Pool in the well bore.

2. The Shearn Federal No. 1 well is presently producing ~~as a dually completed well~~ from the Wolfcamp and Bone Springs formation. *said zones being commingled in the well bore* Current production from the Wolfcamp is 52 barrel of oil per month, and from the Bone Springs, 132 barrels per month.

3. The well formerly produced from the Morrow formation, producing with a gas-oil ratio of 5780 to 1. During the last full month of production it produced 3,097 mcf of gas and 167 barrels of condensate. And in October, 1973, after producing 877 mcf of gas and 38 barrels of condensate the Morrow production was shut in.

4. The well has reached marginal status and will soon be abandoned unless economic production can be achieved by com-

permitted to continue production by the Commission

mingling in the well bore. No damage will result to the formations involved, nor will the correlative rights of other operators be affected. Approval of this application will prolong the productive life of this well, resulting in the production of hydrocarbons that would not otherwise be recovered.

WHEREFORE applicant prays that this application be set for hearing before the Commission or the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission approve the commingling as applied for.

Respectfully submitted,

SUN OIL COMPANY

By Jason Kellahin
Kellahin & Fox
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

APR 22 1977

Case
5937

BEFORE THE
OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF SUN OIL COMPANY FOR APPROVAL
OF DOWN-HOLE COMMINGLING,
LEA COUNTY, NEW MEXICO

A P P L I C A T I O N

Comes now Sun Oil Company and applies to the Oil Conservation Commission of New Mexico for authority to commingle production in the well bore in its Shearn Federal No. 1 well, located in Unit L, Section 15, Township 19 South, Range 32 East, N.M.P.M., Lea County, New Mexico, and in support thereof would show the Commission:

1. Applicant proposes to commingle production from the Lusk Morrow Gas Pool, the East Lusk Wolfcamp pool, and the East Lusk Bone Springs Pool in the well bore.
2. The Shearn Federal No. 1 well is presently producing as a dually completed well from the Wolfcamp and Bone Springs formation. Current production from the Wolfcamp is 52 barrels of oil per month, and from the Bone Springs, 132 barrels per month.
3. The well formerly produced from the Morrow formation, producing with a gas-oil ratio of 5780 to 1. During the last full month of production it produced 3,097 mcf of gas and 167 barrels of condensate. And in October, 1973, after producing 877 mcf of gas and 38 barrels of condensate the Morrow production was shut in.
4. The well has reached marginal status and will soon be abandoned unless economic production can be achieved by com-

mingling in the well bore. No damage will result to the formations involved, nor will the correlative rights of other operators be affected. Approval of this application will prolong the productive life of this well, resulting in the production of hydrocarbons that would not otherwise be recovered.

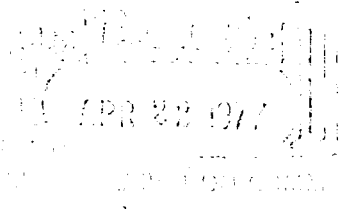
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Respectfully submitted,

SUN OIL COMPANY

By Jason Kellahin
Kellahin & Fox
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT



BEFORE THE
OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF SUN OIL COMPANY FOR APPROVAL
OF DOWN-HOLE COMMINGLING,
LEA COUNTY, NEW MEXICO

A P P L I C A T I O N

Comes now Sun Oil Company and applies to the Oil Conservation Commission of New Mexico for authority to commingle production in the well bore in its Shearn Federal No. 1 well, located in Unit L, Section 15, Township 19 South, Range 32 East, N.M.P.M., Lea County, New Mexico, and in support thereof would show the Commission:

1. Applicant proposes to commingle production from the Lusk Morrow Gas Pool, the East Lusk Wolfcamp pool, and the East Lusk Bone Springs Pool in the well bore.
2. The Shearn Federal No. 1 well is presently producing as a dually completed well from the Wolfcamp and Bone Springs formation. Current production from the Wolfcamp is 52 barrels of oil per month, and from the Bone Springs, 132 barrels per month.
3. The well formerly produced from the Morrow formation, producing with a gas-oil ratio of 5780 to 1. During the last full month of production it produced 3,097 mcf of gas and 167 barrels of condensate. And in October, 1973, after producing 877 mcf of gas and 38 barrels of condensate the Morrow production was shut in.
4. The well has reached marginal status and will soon be abandoned unless economic production can be achieved by com-

mingling in the well bore. No damage will result to the formations involved, nor will the correlative rights of other operators be affected. Approval of this application will prolong the productive life of this well, resulting in the production of hydrocarbons that would not otherwise be recovered.

WHEREFORE applicant prays that this application be set for hearing before the Commission or the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission approve the commingling as applied for.

Respectfully submitted,

SUN OIL COMPANY

By Jason Kellahin
Kellahin & Fox
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5937

Order No. R- 5462

APPLICATION OF SUN OIL COMPANY
FOR DOWNHOLE COMMINGLING, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 25,
19 77, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this day of , 19 77, the Commission,
a quorum being present, 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 Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That the applicant, Sun Oil Company, is the
owner and operator of the Shearn Federal Well No. 1, located
in Unit L of Section 15, Township 19 South, Range
32 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks authority to commingle Lusk-
Morrow, East Lusk-Wolfcamp and East Lusk-Bone Springs production
within the wellbore of the above-described well.

(4) That from ~~the~~ ^{each of said zones} ~~the~~ ^{res. of} ~~the~~ ^{zone}, the
subject well is capable of low ~~marginal~~ production only.

(5) ~~That from the East Lusk-Wolfcamp zone, the~~
~~subject well is capable of low marginal production only.~~

(5) That the proposed commingling may result in the recovery
of additional hydrocarbons from each of the subject pools, thereby
preventing waste, and will not violate correlative rights.

(6) ~~That from the East Lusk-Bone Springs zone, the subject~~
~~well is capable of low marginal production only.~~

(6) That the well should be equipped in such a manner as to prevent fluids from the upper zones from ~~coming~~ coming in contact with the Morrow zone.

(8) That to afford the Commission the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Hobbs district office of the Commission any time the subject well is shut-in for 7 consecutive days.

(9) That in order to allocate the commingled production to each of the commingled zones in the subject well, 67 percent and 62 percent of the commingled oil and gas production, ^{respectively,} should be allocated to the Lusk-Morrow zone, ~~and~~ 23 percent and 37 percent of the commingled oil and gas production, ^{respectively,} to the East Lusk-Wolfcamp zone and 10 percent and 10 percent of the commingled oil and gas production, ^{respectively,} should be allocated to the East Lusk-Bone Springs zone.

IT IS THEREFORE ORDERED:

(1) That the applicant, Sun Oil Company, is hereby authorized to commingle Lusk-Morrow, East Lusk-Wolfcamp and East Lusk-Bone Springs production within the wellbore of the Shearn Federal Well No. 1, located in Unit L of Section 15, Township 19 South, Range 32 East, NMPM, Lea County, New Mexico.

(2) That said Shearn Federal Well No. 1 shall be equipped with a standing valve ~~over~~ above the Morrow zone or in some other manner so as to prevent fluids from the upper two zones from coming in contact with the Morrow zone.

(3) That 67 percent and 62 percent of the commingled oil and gas production, ^{respectively,} shall be allocated to the ~~Lusk-Morrow~~ Lusk-Morrow zone, ~~and~~ 23 percent and 37 percent of the commingled oil and gas production, ^{respectively,} shall be allocated to the East Lusk-Wolfcamp zone and 10 percent and 10 percent of the commingled oil and gas production, ^{respectively,} shall be allocated to the East Lusk-Bone Springs zone.

(4) That the operator of the subject well shall immediately notify the Commission's Hobbs district office any time the well has been shut-in for 7 consecutive days and shall concurrently present, to the Commission, a plan for remedial action.

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

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