

CASE 6099: SHELL OIL COMPANY FOR
DOWNHOLE COMMINGLING, LEA COUNTY,
NEW MEXICO

Case Number

6099

Application

Transcripts.

Small Exhibits

FTR

Other _____

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 6099
Order No. R-5691

APPLICATION OF SHELL 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 November 30, 1977, at Santa Fe, New Mexico, before Examiner, Daniel S. Nutter.

NOW, on this 11th day of April, 1978, 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, Shell Oil Company, is the owner and operator of the Livingston Well No. 10, located in Unit P of Section 4, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks authority to commingle Blinebry, Drinkard, and Tubb production within the wellbore of the above-described well.

(4) That the Blinebry and Drinkard formations were commingled in the wellbore of said well in November or December of 1970 pursuant to authority granted by Commission Order No. DHC-68 dated September 29, 1970.

(5) That said Order No. DHC-68 allocated production to the Blinebry and Drinkard formation in the subject well on a 50-50 basis, which was a reasonable allocation based on performance of the two zones prior to commingling.

(6) That subsequent to commingling the aforesaid two zones, and after four years of production on a commingled basis, applicant worked the subject well over, and said workover resulted in a substantial increase in the flow of gas from the well but little or no increase in the flow of oil.

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Order No. R-5691

(7) That there is no way that the Commission can determine what the productivity of the Blinebry zone or the Drinkard zone is at this time, nor which zone was more responsive to the work-over.

(8) That to add the Tubb zone to the downhole commingling previously approved would not alleviate the present problem with the subject well, i.e., the inability to properly allocate production, but would aggravate the problem.

(9) That in order to prevent waste and protect correlative rights, it is imperative that a reasonable allocation of production between zones in a commingled well be made.

(10) That the bottom hole pressure for the presently commingled Blinebry-Drinkard zones in the subject well is 756 psig at a datum of 6,450 feet.

(11) That the bottom hole pressure for the Tubb zone in the subject well is 1814 psig at a datum of 6,000 feet.

(12) That the pressure differential between the commingled Blinebry-Drinkard zones and the Tubb zone is excessive, being more than 1,000 pounds, and could cause cross flow between the zones, resulting in waste.

(13) That to allow the commingling of the Blinebry, Drinkard and Tubb zones in the subject well would not afford adequate protection of correlative rights, might cause waste, and is otherwise not in the best interests of oil and gas conservation.

(14) That the application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of Shell Oil Company to commingle Blinebry, Drinkard, and Tubb production in the wellbore of its Livingston Well No. 10, located in Unit P of Section 4, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico, is hereby denied.

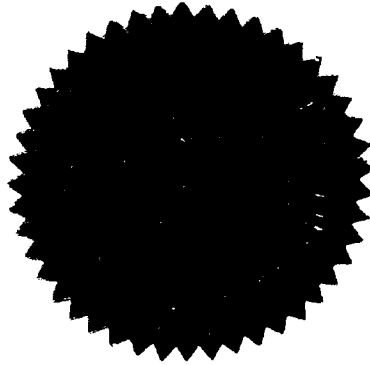
(2) That jurisdiction of this cause is retained for the entry of such further orders as the Oil Conservation Division of the New Mexico Energy and Minerals Department may deem necessary.

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Case No. 6099
Order No. R-5691

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



PHIL R. LUCERO, Chairman

Emery C. Arnold
EMERY C. ARNOLD, Member

Joe D. Ramey
JOE D. RAMEY, Member & Division Director

S E A L

jr/

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
November 30, 1977

EXAMINER HEARING

IN THE MATTER OF:

Application of Shell Oil Company for
downhole commingling, Lea County,
New Mexico.

CASE
6099

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil
Conservation Commission:

Lynn Teschendorf, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

For the Applicant:

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1 MR. NUTTER: Call the next Case Number 6099.

2 MS. TESCHENDORF: Case 6099, application of Shell
3 Oil Company for downhole commingling, Lea County, New Mexico.

4 MR. LOPEZ: If the Examiner please, my name is Owen
5 Lopez of the Montgomery law firm in Santa Fe appearing on
6 behalf of the applicant and I have one witness.

7 (THEREUPON, the witness was sworn.)

8

9 BILLY BEST

10 was called as a witness by the applicant, and having been
11 first duly sworn, testified upon his oath as follows, to-wit:

12

13 DIRECT EXAMINATION

14 BY MR. LOPEZ:

15 Q Would you please state your name, where you reside,
16 and your occupation?

17 A I am Billy Best and I work for Shell Oil Company,
18 Houston, Texas, and my home address is 8319 Edgemore.

19 Q What is your position with Shell Oil Company?

20 A I am a Senior Engineering Technician.

21 Q Are you familiar with the application of Shell Oil
22 Company in Case 6099?

23 A Yes, I am.

24 Q Have you previously testified before this Commission
25 and had your qualifications accepted as a matter of record?

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1 A Yes, I have.

2 MR. LOPEZ: Are the witness' qualifications
3 acceptable?

4 MR. NUTTER: Yes, they are.

5 Q (Mr. Lopez continuing.) What does Shell Oil Company
6 seek by the application in this case?

7 A Shell Oil Company requests approval for a triple
8 downhole commingling in the Blinebry, Drinkard and Tubb pools
9 in its Livingston Lease Well No. 10.

10 The well is located three thousand two hundred feet
11 from the south line and six hundred and sixty feet from the east
12 line of Unit P, Section 4, Township 21 South, Range 37 East,
13 Lea County, New Mexico.

14 Q Could you give us a little of the history of this
15 particular well?

16 A The Drinkard Pool is presently downhole commingled
17 with the Blinebry in Order No. DHC 68 and the Tubb is dual
18 with two downhole commingled zones by Order No. MC 2288.

19 The Livingston No. 10 was originally completed
20 in March of '53, as a Wantz Abo producer and in August of
21 '61, the well was recompleted in the Drinkard Pool.

22 In October of 1961, the well was dual completed as
23 a Blinebry-Drinkard by Order No. MC 1108.

24 The well was dual produced through two strings of
25 two and a sixteenth tubing until October of 1970, when

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1 permission was granted to downhole commingle the Blinebry
2 and the Drinkard Pools.

3 Additional pay and open in the Blinebry and Drinkard
4 in 1974, which resulted in an increase in the gas but very
5 little or negligible increase in the oil.

6 The well was attempted to be completed in January of
7 '77, as a Tubb dual with a Blinebry-Drinkard commingled. Due
8 to insignificant gas flow, or the well was not naturally
9 produced from the Tubb and the Drinkard Pools, and presently
10 only the Blinebry Pool we have been able to get to produce.
11 It's flowing approximately three barrels a day and approximately
12 one hundred and twenty-five M.C.F. a day.

13 Shell has spent approximately one hundred and forty-
14 thousand dollars this year in 1977, in an attempt to dual the
15 Tubb with the commingled Blinebry-Drinkard Pools as follows:

16 The Tubb was perforated, acid treated and frack
17 treated and was attempted to be dually completed with two
18 strings of two and a sixteenth with packers and so forth.

19 Then, it was swabbed for three weeks, both zones were
20 being swabbed, and we could not get them to produce.

21 We pooled the two strings of two and a sixteen and
22 run one string of two and three eighths and swabbed the well
23 and couldn't successfully kick it off to make it produce.

24 So, we run rods and pump and pumped the well until
25 a lode oil was recovered and at that time it was producing

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1 approximately thirty-five barrels of oil a day plus one
2 barrel of water and eight hundred and sixty-seven M.C.F. of
3 gas from the three zones.

4 Another attempt has been made to dual complete the
5 work by running two strings of two and a sixteenth but we
6 could only get the Tubb to flow approximately about two days
7 and then it would die.

8 At that time we managed to get it to produce about
9 three barrels of oil a day and seventy M.C.F. before it would
10 die and it is an unstable condition.

11 The Drinkard would not produce with the Blinebry.
12 So, we set the plugs over the Blinebry -- I mean over the
13 Drinkard -- so that we could get some gas and oil out of the
14 Blinebry.

15 Q Now, I ask you to refer to what has been marked as
16 Exhibit One A and ask you to identify it?

17 A Exhibit One A is an area plat of the offset
18 producers and lease owners showing the Shell lease as the
19 highest in the boundaries and showing the lease and the
20 subject well and the location of the producers.

21 Exhibit A One, all of the Blinebry producers are
22 marked in Black.

23 Q Now, referring to One B, would you identify it?

24 A Exhibit One B is the same map except that it is
25 showing the Drinkard producers in black.

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1 Q And Exhibit One C?

2 A Exhibit One C is the same as One A and One B except
3 it is showing the Tubb producers. And, again, they are marked
4 in black.

5 Q Now, I ask you to refer to what has been marked
6 as Exhibit Two and ask you to identify it?

7 A Exhibit Two is a present downhole commingling, a
8 drawing of the downhole commingling of the present condition.
9 It shows the casing details and the surface strings such as
10 the thirteen and three-eighths set at two hundred and eighty-
11 three feet and cemented with two hundred and fifty sacks to
12 the surface and it shows the eight and five-eighths, thirty-two
13 pound, and twenty-eight point five at thirty-one fifty and
14 cemented to the surface.

15 Also, it shows the five and a half inch, fifteen point
16 five pound set at seventy-four thirty-five and cemented with
17 five hundred and fifty sacks and the cement top at forty-two
18 fifty-five and this was detected by temperature survey.

19 The casing annulus between the five and a half and
20 the eight and five-eighths is monitored for casing leaks and
21 so forth.

22 The three zones are separated by packers. The Tubb
23 is being produced by a short string. The Blinbry-Drinkard
24 by a long string with the Blinbry being produced through a
25 Model L sleeve and the Drinkard was being produced from below

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1 open hole until we set the plug in the packer at sixty-five
2 hundred.

3 Q Very good. Now, referrring to Exhibit Three.
4 Would you please identify it?

5 A Exhibit Three shows the same casing detail. This is
6 the proposed downhole operation if this approval is made.
7 It indicates that they would be pumping the well from below
8 the Drinkard perms removing all of the fluid from the well
9 as it enters the well so that the cross flow will be eliminated.

10 Q You would, then, of course, remove the two strings
11 indicated in Exhibit Two and insert the strings shown on
12 Exhibit Three?

13 A Right.

14 Q All right. Now, I ask you to refer to Exhibits Four
15 A, B, and C and ask you to identify those?

16 A Exhibit Four A is a C-116 for the Blinebry-Drinkard
17 downhole commingled before the work commenced 12/19/76. It
18 shows that oil gravity was thirty-six point eight and was
19 producing six barrels of oil per day and five hundred and
20 eighty-nine M.C.F. of gas.

21 It also shows how the oil was being allocated
22 according to the downhole commingled permit.

23 Exhibit Four B, is a C-116 for the Tubb production
24 that we managed to obtain during the swab period of two days
25 at a time. It proved to be three barrels of oil per day and

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1 seventy M.C.F. gas with an oil gravity of thirty-eight.

2 Exhibit Four C is a Tubb-Blinebry-Drinkard and
3 where we were pumping all three zones together during this test
4 and at the end of the time which we recovered our lode oil.

5 It was pumping thirty-five barrels of oil with
6 eight hundred sixty-seven M.C.F. of gas at thirty-six point
7 eight of gravity.

8 At that time our test indicated that our production
9 of the oil and gas was tending to decline. So, we feel that it
10 won't produce this much oil and gas, actually.

11 Q Now, Exhibit Five A is a production curve for the
12 Blinebry showing a twenty percent decline per year.

13 MR. NUTTER: When was the Blinebry and the Drinkard
14 commingled?

15 A In 1970 -- October of 1970.

16 MR. NUTTER: So, this chart here is the Blinebry
17 decline curve based on the calculation of the percentage of
18 the total production that was attributed to the Blinebry?

19 A That's right.

20 MR. NUTTER: Not necessarily on the actual production
21 of the Blinebry?

22 A That's right.

23 MR. NUTTER: And this starts in 1970?

24 A It started in October of 1970, so, only ahead of that
25 is -- and that is the same way that Exhibit Five B is, they

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1 are allocations.

2 Q (Mr. Lopez continuing.) Exhibit Five B represents
3 the decline curve for the Drinkard zone, is that correct?

4 A That's right.

5 Q Based on allocations?

6 A Yes.

7 Q And Exhibit Five C how does this refer to the
8 previous exhibit?

9 A Five C is a tabulation of the production that has
10 been allocated to both zones and the gas production.

11 Q And it confirms these diagrams shown in Five A and
12 Five B, is that correct?

13 A That's right.

14 Q Okay. Now, referring to Exhibit Six A what does this
15 exhibit show?

16 A Exhibit Six A is a C-116 of the Livingston 11 well
17 which is an offset well to the subject well. It indicates
18 that we have a gravity of thirty-five point four and one hundred
19 thirty M.C.F. and making approximately three and three
20 quarters barrels of oil per day.

21 Q Now, this is a Tubb producer?

22 A This is a Tubb producer offset to the subject well.

23 Q Now, referring to Exhibit Six B?

24 A Exhibit Six B is a production curve for the Tubb
25 well, Livingston 11, indicating an approximate decline of

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1 twenty percent which is similar to the Blinebry-Drinkard.

2 Q And Exhibit C?

3 A Exhibit Six C is a tabulation showing the production
4 from the Livingston 11 from the Tubb zone.

5 Q Now, I would ask you to refer to Exhibits Seven A
6 and Seven B and identify those?

7 A Exhibit Seven A is a bottom hole pressure survey
8 taken from the Blinebry and Drinkard and they were taken at
9 the packer at sixty-five hundred feet -- it was taken at
10 sixty-four fifty which is just above the packer at sixty-five
11 hundred in the two and sixteenth inch tubing.

12 Q This is the Livingston Well No. 10 which you are
13 seeking to commingle, is that correct?

14 A That's right, the Livingston 10.

15 Q And this is the commingled zone of the Blinebry and
16 the Drinkard?

17 A That was the commingled zone of the Blinebry and
18 Drinkard.

19 Q Now, Exhibit Seven B, what does that refer to?

20 A Exhibit Seven B is the bottom hole pressure taken
21 in the Tubb zone at six thousand feet in the two and a sixteenth
22 inch tubing over the Tubb zone.

23 Q Now, I ask you to refer to Exhibit Eight and
24 identify it?

25 A Number Eight is a log of the well showing the top of

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1 the Blinebry and the top of the Tubb and the top of the
2 Drinkard and the depth track and an arrow is marked where there
3 is one shot per foot of completion. The solid black is
4 where there were gross intervals shot.

5 Q In the event your application is approved with respect
6 to this case do you have a recommendation as to how the oil
7 and gas production should be allocated to the three zones?

8 A We recommend that the Blinebry receive thirty-four
9 percent and the Drinkard thirty-four percent and the Tubb
10 thirty-two percent.

11 Q This is with respect to oil production?

12 A This is with respect to the oil production and that
13 the gas be allocated according to Rule 303(c) paragraph four.

14 Q What do you base this recommendation on?

15 A This recommendation is based on the well test that
16 indicated that the three pools flow approximately the same
17 volume of oil.

18 The commingled production from the Blinebry and the
19 Drinkard produce six barrels of oil and five hundred eighty
20 M.C.F. -- five hundred and eighty-six M.C.F. -- and a short
21 flow period from the Tubb produced three barrels of oil with
22 seventy M.C.F. of gas.

23 The Tubb does not have a production decline history --
24 is not established -- but from well to well, generally, the
25 decline from each well is similar so therefore we used -- we

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1 are presenting the Livingston 11 well and its decline -- and
2 its decline is similar to that of the Blinebry-Drinkard. So,
3 therefore, we assume that the cumulative production will be
4 similar and that this allocation would hold true through the
5 years.

6 The Blinebry and Drinkard was classified as an oil
7 well when downhole commingled by the Oil Conservation
8 Commission in Rule DHC 68 and the Tubb as an oil well by gravity
9 of thirty-eight degrees which is below the forty-five A.P.I.
10 which determines the well's classification.

11 The three well zones will be artificial lifted by
12 beam pumps according to the attached downhole drawings in
13 Exhibit Three.

14 The fluid from the pools are compatible and are
15 presently being commingled at the battery by Order Number
16 PC 47 which was amended in March of '68 to include the pools --
17 the Tubb Pool.

18 The value of crude oil will remain the same for their
19 commingling at the battery and the lease will remain as a
20 stripper classification. By ownership of the three pools to
21 be commingled is common throughout the interested parties.

22 The commingling will not jeopardize the future
23 secondary recovery operations in any of the zones to be
24 commingled.

25 Q Okay. Now, I ask you to refer to Exhibit Nine and

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1 identify it?

2 A Exhibit Nine is a list of the offset operators
3 with their addresses as shown in Exhibit One A, B, and C.

4 Q Okay. Were Exhibits One through Nine prepared by
5 you or under your supervision?

6 A Yes, they were.

7 MR. LOPEZ: I would like to offer Applicant's
8 Exhibits One through Nine.

9 MR. NUTTER: Applicant's Exhibits One through Nine
10 will be admitted in evidence.

11 Q (Mr. Lopez continuing.) Mr. Best, in your opinion
12 if the application of Shell Oil Company in this case is granted
13 will it be in the interests of the prevention of waste and
14 the protection of correlative rights?

15 A Yes, it will.

16 Q Do you have anything further you want to offer in
17 this case?

18 A Well, presently the Tubb and the Drinkard will not
19 produce, naturally, but they will produce downhole if
20 commingled and we have proven that.

21 We feel that by pumping these three zones together
22 an additional thirty-five thousand barrels of oil will be
23 recovered.

24 Q Does that conclude your testimony?

25 A It does.

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1 MR. LOPEZ: We have no further questions of this
2 witness, Mr. Examiner.
3

4 CROSS EXAMINATION

5 BY MR. NUTTER:

6 Q Mr. Best, it looks like by examination of Exhibit
7 Number Five C that the allocations since the month of December
8 1970, has been on a fifty-fifty basis between the Blinebry
9 and the Drinkard as far as the oil is concerned?

10 A That's right.

11 Q Now, apparently prior to that time when we had
12 individual production figures they varied before it was
13 commingled?

14 A That's right.

15 Q Has there been anything to indicate that the fifty-
16 fifty split that the Commission decreed by DHC 68 is in error?

17 A Not that we can tell. That seems to be a real
18 good allocation of the oil.

19 Q Has the G.O.R. of the well changed since it has been
20 commingled downhole?

21 A Yes, it has changed in 1974, in about October, and
22 it started increasing and in '75, it has increased -- that's
23 whenever we went in and opened additional pay in the Drinkard
24 and in the Blinebry.

25 Q Now, Exhibit Number Five B, has a G.O.R. here for

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1 the Drinkard zone?

2 A Yes.

3 Q Now, what has happened here, we had a G.O.R. some-
4 place -- I don't know where the G.O.R.'s are here, where is
5 the G.O.R. scale?

6 A The G.O.R. scale is the top.

7 Q Over on the left?

8 A Right, the G.O.R. is on the left and the inside.

9 Q Okay. So, along about late 1974, we had a G.O.R.
10 somewhere in the neighborhood of four thousand, is that
11 correct, on the Drinkard?

12 A We had a G.O.R. of approximately fifty thousand --
13 forty thousand.

14 Q Then, there is no G.O.R. shown for early 1975, but
15 when we pick up a G.O.R. in the middle of 1975, it is up around
16 eighty-five to ninety thousand?

17 A Yes, for some reason we didn't have any production
18 there at that time -- we worked the well over and so forth --
19 that is when we were working the well over.

20 Q So, oil production went to nothing and no G.O.R.
21 shown at all?

22 A Right.

23 Q And then, when you returned to production the G.O.R.
24 was way up there?

25 A Yes, sir.

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1 Q What happened to the G.O.R. on the Blinebry zone?

2 A Well, we felt like since we were producing this
3 three barrels of oil a day and one hundred and twenty-five
4 M.C.F. that to allocate the gas to the Blinebry fifty-fifty
5 as we had been in the past was not really an equitable
6 solution. So, we chose at that time to omit that and not
7 present that as evidence.

8 Q Do you think the Blinebry is producing any gas?

9 A We are just producing right now approximately three
10 barrels of oil and one hundred twenty-five M.C.F. of gas
11 which would be approximately forty thousand to one.

12 Q Now, I noticed on your other tests that you submitted
13 that the commingled Blinebry-Drinkard tests prior to working
14 the well in December of 1976, the commingled production had
15 a G.O.R. of ninety-eight thousand?

16 A Right.

17 Q Now, when you took your swab test on your Tubb you
18 had a G.O.R. of twenty-three thousand by Exhibit Number Four
19 B?

20 A Right, in the Tubb.

21 Q Then, when you produced the three of them together
22 I presume on the pump or swab?

23 A Right, on the pump -- all three of them were together
24 on the pump.

25 Q Then, you only had a G.O.R. of twenty-four thousand

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1 to seven hundred seventy-one. What has happened to all of
2 that gas that you were producing from the Blinebry-Drinkard?

3 A If you notice, the Blinebry-Drinkard, when they were
4 downhole commingled before which is Exhibit Four A, the gas
5 is five hundred eighty-seven M.C.F.

6 Q Five eighty-nine?

7 A Right.

8 Q And six barrels of oil?

9 A Six barrels of oil and that gives you a high G.O.R.
10 But if you take the eight sixty-seven M.C.F. when we were
11 pumping we actually increased the amount of gas by pumping
12 it. But the thirty-five barrels of oil a day drops the G.O.R.
13 considerably.

14 Q Now, you said that you didn't expect this oil flow
15 to last very long.

16 The Tubb by itself makes three barrels of oil and
17 the Blinebry-Drinkard by itself makes six barrels of oil
18 and when you combine them they make thirty-five barrels of
19 oil?

20 A This is because we dropped the bottom hole pressures
21 by pumping rather than by flowing.

22 Q So, these two individual tests were flowing tests?

23 A Right. The test, C-116, for the Blinebry-Drinkard
24 which is Exhibit Four A was a flowing test.

25 The C-116 for Exhibit Four B which is the Tubb was

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1 also a flowing test.

2 So, we feel like this is a true allocation since
3 they were flowing, since both zones were flowing.

4 Q Now, you don't have any individual pressures for
5 the Blinebry and the Drinkard do you?

6 A No, we don't.

7 Q You have a combined pressure here. Now, that pressure
8 is something like one half of what the pressure in the Tubb
9 is?

10 A That's right.

11 Q So, what is going to happen in the event you have to
12 shut this well down for any reason? If you would keep it
13 pumped off you probably wouldn't have any problem of cross
14 flow or anything?

15 A That's right. So, that is why we propose to run the
16 pump below the Drinkard perforations and keep it pumped.

17 If you assume that the well, after pressuring up, if
18 you had it shut in a certain amount of time it would produce
19 the three barrels of oil it does now. Then, there would not
20 be a whole lot of cross flow until we can get equipment out
21 there and get the well back into operation.

22 Q What kind of pumping equipment will you use on this
23 a beam pump or what?

24 A A beam pump. We are planning to use a 160 Lufkin
25 pumping unit with three quarter rods.

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1 Q What will be the power for that pump?

2 A Electricity.

3 Q Now, I didn't understand exactly what you meant on
4 the allocation of the gas according to 303(c) paragraph four?

5 A That's the way downhole commingling is done for two
6 zones which says that the gas will be -- you will have the
7 allocation or the allowable of the gas from the lower reservoir
8 which in this case would be the Drinkard which -- we will be
9 using six thousand G.O.R. which will be allocated to the
10 Drinkard and the maximum gas produced would be eight hundred
11 fifty-two M.C.F.

12 This eight hundred fifty-two M.C.F. is fifteen M.C.F.
13 less than the eight hundred sixty-seven that we are producing
14 on that test. But we feel like it will drop within a few
15 months after production starts.

16 Q I still don't see how you determined how much gas
17 comes out of there for each zone according to Rule 303 (c) 4.

18 A Really, it doesn't according to that rule.

19 Q It says that the allocation of commingled production
20 shall be in accordance with the allocation formula set out in
21 the order.

22 Now, you have given us some suggested percentages
23 for oil but I don't know how much gas will be coming from
24 each of these three zones?

25 A That's right.

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1 Q What am I going to put --

2 MR. LOPEZ: Do you want to make a recommendation --
3 or why were you hesitant in giving such a recommendation?

4 A Well, one of the reasons that we make -- are
5 hesitant to make this recommendation is that as the oil
6 produces we feel like it may be in five or six years from
7 now that it will continue to drop.

8 But we feel like that the gas probably will remain
9 the same which is mostly coming from the Drinkard. But if
10 you allocate them equally, then, you will be saying in all
11 cases that the Drinkard will be getting, say, three barrels
12 a day and the Blinebry three barrels a day, and we will be
13 getting about six or seven hundred M.C.F. of gas from maybe
14 the Drinkard and a little bit from the Tubb and a little bit
15 from the Blinebry.

16 Well, whenever you allocate this equally and you
17 divide three into whatever you are allocating, that amount of
18 gas, then you will come up with a high G.O.R. which will
19 classify the Blinebry as a gas well which will nullify the
20 possibility of downhole commingling.

21 MR. NUTTER: That's what I thought your problem was.

22 MR. LOPEZ: He just didn't want to talk about it.

23 MR. NUTTER: Are there any other questions of Mr.

24 Best?

25 He may be excused. Do you have anything further,

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1 Mr. Lopez?

2 MR. LOPEZ: No, Mr. Examiner.


3 MR. NUTTER: Does anyone have anything they wish to
4 offer in Case Number 6099? We will take the case under
5 advisement and the hearing is adjourned.

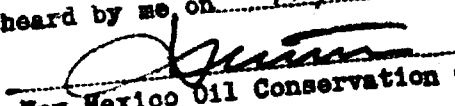
6 (THEREUPON, the witness was excused and
7 the case was concluded.)
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REPORTER'S CERTIFICATE

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


Sidney F. Morrish, C.S.R.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 6097...
heard by me on 11/30 1977.
 Examiner
New Mexico Oil Conservation Commission

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Shell
Livingston 10

BC Oil 10.1142/D
Gas: 428/D 12840/mo

Dr Oil 8.1142/D
Gas: 852/D 25,560/mo

		Oil	Gas	Oil	Gas	GOR
1969	J	207	3506	207	2134	10300
	F	172	3232	221	2399	10900
	M	178	3755	209	2322	11100
	A	218	4790	187	2801	15000
	M	204	4727	116	1083	9300
	J	210	897	90	1009	11200
	V	190	781	95	1181	12400
	A	209	791	179	1979	11000
	S	165	750	97	1106	11400
	O	276	941	153	1812	11800
	N	217	996	155	1781	11500
	D	216(2422)	1093(2626)	123(832)	143(21044)	11700(11500)
1970	J	282	1209	141	1364	9700
	F	186	949	106	882	8300
	M	226	997	182	1835	10100
	A	183	925	183	1621	8900
	M	150	814	180	5249	29100
	J	146	1173	174	3643	20900
	J	154	1378	154	3724	24200
	A	156	1609	125	4000	32000
	S	148	1443	118	3925	33600
	O	191	1702	164	5780	35200
	N	331	197	299	4356	14600
	D	336(2489)	225(12621)	336(2162)	2669(39048)	8900
1971	J	332	179	333	4503	
	F	235	149	235	2746	
	M	244	156	244	2979	
	A	197	139	197	2158	
	M	211	147	215	2379	
	J	200	1235	200	2239	
	J	214	1434	213	3078	
	A	221	1394	222	2223	
	S	176	1193	175	1983	
	O	181	1182	182	1218	
	N	189	2370	188	1717	
	D	251(2656)	2321(11899)	251(2658)	1447(28670)	

CASE 6095: Application of Harvey E. Yates 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 Travis Deep Unit Well No. 4 to be drilled 1980 feet from the South line and 1180 feet from the East line of Section 7, Township 18 South, Range 29 East, Eddy County, New Mexico, the S/2 of said Section 7 to be dedicated to the well.

CASE 6096: Application of Texas Oil & Gas Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the S/2 of Section 14, Township 21 South, Range 34 East, Lea County, New Mexico, to be dedicated to applicant's South Wilson State Well No. 1 to be drilled at a standard location thereon. 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 6097: Application of Texas Oil & Gas Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the N/2 of Section 29, Township 19 South, Range 28 East, Eddy County, New Mexico, to be dedicated to applicant's Exxon State Com B Well No. 1 to be drilled at a standard location thereon. 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 6098: Application of Robert K. Hillin for a unit agreement, Chaves and Otero Counties, New Mexico. Applicant, in the above-styled cause, seeks approval for its Burro Canyon Unit Area comprising 18,656 acres, more or less, of Federal, State, and fee lands in Townships 20, 20 1/2, and 21 South, Range 20 East, Chaves and Otero Counties, New Mexico.

CASE 6099: Application of Shell Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Blinebry, Drinkard, and Tubb production in the wellbore of its Livingston Well No. 10 located in Unit P of Section 4, Township 21 South, Range 37 East, Lea County, New Mexico.

CASE 6100: Application of D. B. Baxter for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox gas well location of his Lewis State Well No. 1 to be drilled 2180 feet from the North line and 460 feet from the West line of Section 31, Township 22 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, the NW/4 of said Section 31 to be dedicated to the well.

CASE 6076: (Continued from November 16, 1977, Examiner Hearing)

Application of E. L. Latham, Jr., Roy G. Barton, Jr., and R. L. Foree for a gas well curtailment and gas pool prorationing, Chaves County, New Mexico. Applicants, in the above-styled cause, seek an order temporarily shutting in, or limiting production from the La Rue and Muncy Nola Well No. 1, located in Unit O of Section 8, Township 14 South, Range 28 East, Sams Ranch Grayburg Gas Pool, Chaves County, New Mexico. Applicants further request that the Commission institute gas prorationing in said pool retroactively to date of first production and direct the gas purchaser(s) in said pool to take ratably from all wells in said pool.

OCT 31 1977

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe

IN THE MATTER OF THE APPLICATION OF)
SHELL OIL COMPANY FOR COMMINGLING OF)
THE BLINEBERRY-TUBB-DRINKARD POOLS)
LOCATED IN UNIT P, SECTION 4,)
TOWNSHIP 21 SOUTH, RANGE 37 EAST,)
LEA COUNTY, NEW MEXICO.)

No. 6099

A P P L I C A T I O N

Comes now the applicant, Shell Oil Company, through its attorneys, Montgomery, Andrews & Hannahs, and applies to the New Mexico Oil Conservation Commission for an Order as follows:

1. Applicant is the operator of the Shell Livingston No. 10 well located in Unit P, Section 4, Township 21 South, Range 37 East, Lea County, New Mexico.
2. The above well was originally completed in March, 1953 in the Abo zone as a Abo producer and was recompleted in August, 1961 in the Drinkard formation.
3. In October, 1970 the well was commingled by Order DHC 68 as a Blineberry-Drinkard producer. These commingled zones are only capable of low rates of production. Applicant requests that the Tubb zone be added to the commingling order to commingle production from the three zones, namely, the Blineberry, Drinkard and Tubb.
4. The granting of this application would prevent waste and protect correlative rights.

WHEREFORE, applicant asks that the Commission set this matter for a hearing before one of its examiners or the Commission as the Commission may desire.

Respectfully submitted,

MONTGOMERY, ANDREWS & HANNAHS

By C. W. McLaughlin
P.O. Box 2307
Santa Fe, New Mexico 87501
Attorneys for Applicant

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. 6099

Order No. R- 5691

APPLICATION OF SHELL 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 November 30,
19 77, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter

NOW, on this day of December, 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, Shell Oil Company, is the
owner and operator of the Livingston Well No. 10, located
in Unit P of Section 4, Township 21 South, Range
37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks authority to commingle Blinebry,
Drinkard, and Tubb production
within the wellbore of the above-described well.

(4) That the Blinebry and Drinkard formations were commingled in the wellbore of said well in November or December of 1970 pursuant to authority granted by Commission Order No. DHC-68 dated September 29, 1970.

(5) That said Order No. DHC-68 allocated production to the Blinebry and Drinkard formation in the subject well on a 50-50 basis, which was a reasonable allocation based on performance of the two zones prior to commingling.

(6) That subsequent to commingling the aforesaid two zones, and after four years of production on a commingled basis, applicant worked the subject well over, and said workover resulted in a substantial increase in the flow of gas from the well but little or no increase in the flow of oil.

(7) That there is no way that the Commission can determine what the productivity of the Blinebry zone or the Drinkard zone is at this time, nor which zone was more responsive to the workover.

(8) That to add the Tubb zone to the downhole commingling previously approved would not alleviate the present problem with the subject well, i.e., the inability to properly allocate production, but would aggravate the problem.

(9) That in order to prevent waste and protect correlative rights, it is imperative that a reasonable allocation of production between zones in a commingled well be made.

(10) That the bottom hole pressure for the presently commingled Blinebry-Drinkard zones in the subject well is 756 psig at a datum of 6,450 feet.

(11) That the bottom hole pressure for the Tubb zone in the subject well is 1814 psig at a datum of 6,000 feet.

(12) That the pressure differential between the commingled Blinebry-Drinkard zones and the Tubb zone is excessive, being more than 1,000 pounds, and could cause cross flow between the zones, resulting in waste.

(13) That to allowable the commingling of the Blinebry, Drinkard and Tubb zones in the subject well would not afford adequate protection of correlative rights, might cause waste, and is otherwise not in the best interests of oil and gas conservation.

(14) That the application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of Shell Oil Company to commingle Blinebry, Drinkard, and Tubb production in the wellbore of its Livingston Well No. 10, located in Unit P of Section 4, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico, is hereby denied.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the ^{Oil Conservation} Division ^{of the New Mexico Energy} may deem necessary.

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

State of New Mexico
Oil Conservation Commission
Lucero Chairman
Arnold Member
Raney Member and
Division