

CASE FILE

NO. 6164

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
22 February 1978

EXAMINER HEARING

IN THE MATTER OF:

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

CASE  
6164

IN THE MATTER OF:

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

CASE  
6165

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Commission: Lynn Teschendorf, Esq.  
Legal Counsel for the Commission  
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Santa Fe, New Mexico

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B. W. BEST

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MR. STAMETS: Call Case 6164.

MS. TESCHENDORF: Case 6164. Application of Shell Oil Company for downhole commingling, Lea County, New Mexico.

MR. LOPEZ: Mr. Examiner, my name is Owen Lopez of the Montgomery law firm in Santa Fe, appearing on behalf of the Applicant, Shell Oil Company, and I have one witness.

MR. STAMETS: Will you stand and be sworn, please?

(Witness sworn.)

MR. LOPEZ: If the Examiner please, the same witness will appear on behalf of both cases, and therefore, it's not necessary that we consolidate them, but we can probably not repeat some -- if we go ahead and consolidate them, maybe it would be easier.

MR. STAMETS: I think it would be a good idea. Let's call Case 6165.

MS. TESCHENDORF: Case 6165. Application of Shell Oil Company for downhole commingling, Lea County, New Mexico.

MR. LOPEZ: Again, Mr. Examiner, I've identified myself in the previous case, and I have the same witness.

MR. STAMETS: All right, these two cases will

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1 be consolidated for the purposes of testimony.

2  
3 B. W. BEST

4 being called as a witness on behalf of Shell Oil Company,  
5 and having been sworn upon his oath, testified as follows,  
6 to-wit:

7  
8 DIRECT EXAMINATION

9 BY MR. LOPEZ:

10 Q Would you state your name, please?

11 A B. W. Best.

12 Q And where are you employed and in what capa-  
13 city?

14 A I'm employed with Shell Oil Company as a  
15 Senior Engineering Technician, at Houston.

16 Q Have -- are you familiar with the application  
17 of Shell Oil Company in this case?

18 A Yes, I am.

19 Q And what is it that Shell seeks?

20 A Shell seeks application and approval of --  
21 application of downhole commingling of the Wantz-Abo-Tubb  
22 in the Brunson pool in the State-Section 2 Lease, Well No.  
23 15. The well is located 3546 feet from the north line and  
24 1650 feet from the west line of Unit K, Section 2, Town-  
25 ship 21 South, Range 37 East, Lea County, New Mexico.

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1 Q Okay. Have you previously testified before  
2 the Commission and had your qualifications accepted as a  
3 matter of record?

4 A Yes, I have.

5 MR. LOPEZ: Are the witness' qualifications  
6 acceptable?

7 MR. STAMETS: How was the witness qualified  
8 in the previous case, as an engineer or --

9 A As a Senior Engineering Technician.

10 MR. STAMETS: Okay. How does that differ from  
11 an engineer?

12 A Well, we -- actually, it's almost the same.

13 MR. STAMETS: Are you an engineer?

14 A Right, I work in the engineering capacity.  
15 I'm a graduate engineer -- petroleum engineer from Texas  
16 Tech.

17 MR. STAMETS: Very good, and the witness is  
18 considered qualified.

19 Q (Mr. Lopez continuing.) Could you give us  
20 some of the history of the production from this well?

21 A Well, the well was originally completed in  
22 1952 as a Brunson oil producer and it was acid treated  
23 three times and plugged back to 8090 and then the economic  
24 producing ceased in 1955 and the Brunson was abandoned and  
25 the well recompleted in the Wantz-Abo as an oil producer

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1 in 1956.

2 The Wantz-Abo was acid treated and frac treated  
3 upon completion and re-acid treated in 1958 and abandoned  
4 in 1960.

5 The well was then recompleted in August, 1960  
6 as a Tubb oil producer and abandoned -- and the Tubb was  
7 acid and frac treated upon completion and in 10-3-77 when  
8 the work commenced to test these two lower zones.

9 Q Okay. Now I direct your attention to Exhibit  
10 1-A and ask you to identify it.

11 A Exhibit 1-A and also Exhibit 1-B and 1-C are  
12 area plats of the lease and the surrounding offset operators  
13 and leaseholders and on these plats the hashed line around  
14 it shows the State Section 2 lease; shows the Shell State  
15 Section 2 lease. And the difference between these three  
16 plats is that the -- each plat shows the zone in which the  
17 wells in that area are producing from.

18 Exhibit 1-A shows the wells that are pro-  
19 ducing from the Tubb; Exhibit B shows the wells producing  
20 from the Wantz-Abo; and Exhibit C, the Brunson-Ellenberger.

21 Some of the wells marked -- have a black dot  
22 with a hash through them, and this indicates that these  
23 producing wells -- wells are abandoned or not producing  
24 at this time.

25 MR. STAMETS: That would be like Well No. 5

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1 on Exhibit 1-C, Well No. 5 being in -- oh, golly, --

2 A. Right.

3 MR. STAMETS: P, Q, R, S, T, Unit letter T in  
4 Section --

5 A. Right, Unit letter No. 5, right, uh-huh.

6 MR. STAMETS: Thank you.

7 Q (Mr. Lopez continuing.) Now I direct your  
8 attention to Exhibits 2-A and 2-B and I'll ask you to iden-  
9 tify those.

10 A. Exhibit 2-A is a current downhole drawing be-  
11 fore we started work on the well. It was a downhole  
12 drawing of the well as it was, showing the casing detail  
13 and a cast iron bridge plug and the perforations in the  
14 well, and it was open hole completed in the Brunson-Ellen-  
15 berger. The 3-5/8 inch string was cemented at 3148 with  
16 1600 sacks of cement circulated to the surface to protect  
17 all fresh water sands.

18 And Exhibit 2-B is proposed downhole drawing  
19 of how we plan to produce the well, if this application is  
20 approved.

21 On this drawing it shows the well to be pumped,  
22 the bottom of the tubing between the Tubb and the Abo perms,  
23 but this should be corrected because this well we would  
24 pump within a few feet of the plugged back TD.

25 MR. STAMETS: In other words, the tubing would

1 actually be set down near the Ellenberger zone.

2 A. Right, it will be set down in the Ellenberger  
3 zone.

4 And a standard wellhead will be installed and  
5 pressure gauges between casing annuluses will be installed  
6 for continuous measurement.

7 Q (Mr. Lopez continuing.) Now I turn your at-  
8 tention to Exhibits 3-A, 3-B, and 3-C and ask you to  
9 identify those.

10 A. Now, this work has been done on this well, and  
11 we obtained a testing permit and we went in and drilled  
12 out the cast iron bridge plug and set protrudable bridge  
13 plugs between the zones and tested the Tubb zone by itself,  
14 which is Exhibit 3-A, and this is -- shows the production  
15 from the Tubb, 5 barrels of oil and 34 MCF. The gravity  
16 of oil is 36.8, which is below the gravity of oil classified  
17 as a gas well, which is 45 for that pool, and this is well  
18 below top allowable for the Tubb pool.

19 And Exhibit 3-B is a C-116 showing where we  
20 pump tested the Tubb and the Wantz-Abo commingled, and it  
21 produced 8 barrels of oil, 45 MCF; gravity of oil 35.1 and  
22 if you take the C-116 for the Tubb from that, that gives  
23 it the Abo produced 3 barrels of oil and 9 MCF of gas,  
24 which is well below top allowable.

25 Exhibit 3-C is a C-116 indicating the production

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1 from commingling of the Tubb, Wantz-Abo, and Brunson. It  
2 indicates 17 barrels of oil per day, 50 MCF, and removing  
3 the production from the previous C-116s it shows that the  
4 Brunson would produce 9 barrels of oil, 5 MCF a day, which  
5 is also well below Ellenberger top allowable.

6 Q So if I understand your testimony clearly,  
7 these are clearly oil wells in accordance with each of the  
8 pool rules in effect, and the combined production would be  
9 well, considerably below the maximum allowable for any of  
10 the three pools, is that correct?

11 A That's correct.

12 Q Okay. Turning your attention to Exhibits 4-A,  
13 4-B, and 4-C, as well as 5-A, 5-B, and 5-C, I think it's  
14 best to read these in connection, 5-A with 4-A; 5-B with  
15 4-B, et cetera.

16 A Okay, well, 5 -- 4-A and 5-A is the production  
17 from the Tubb zone and 4-A is a curve and 5-A is a tabulated  
18 production.

19 And this indicates that we were having trouble  
20 keeping the well flowing at the latter part of its life.  
21 We swabbed it back to flow and now it's -- we're just barely  
22 getting about two barrels per day out of it before the work  
23 started.

24 Exhibit 4-B is a production curve from the  
25 Wantz-Abo when it was -- before it was TA'd or PA'd and

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1 shows it reaches the economic limit at that time, and 5-B  
2 is a tabulation of that production.

3 4-C is a production curve for the Brunson-  
4 Ellenberger pool which is the production that it produced  
5 in its life and this curve shows that it reached its econ-  
6 omic limit at that time when it was abandoned.

7 Q Approximately November, 1955?

8 A Approximately, yes, right.

9 Q All right. Now, Exhibit 6, please identify  
10 it.

11 A Exhibit 6 is a log. It's a gamma ray neutron  
12 log on the well. The completion intervals are marked. It  
13 starts with a plugged back TD at 8085. The casing shoed  
14 at -- 5-1/2 inch casing at 8010 with the top of the Ellen-  
15 berger marked in red, and then the Wantz-Abo marked -- the  
16 perforations and depth track are marked in green, indi-  
17 cating the perf intervals and how it was perforated. And  
18 then marked in red is the top of the Abo and the perfor-  
19 ation track -- and the perforation depth track is marked  
20 in green and showing the Tubb marker and at the top of  
21 the Tubb 100 feet above the marker.

22 Q Okay. Would you identify Exhibit Seven?

23 A Exhibit Seven is the bottom hole pressure on  
24 the Tubb and the estimated bottom hole pressure of the  
25 Wantz-Abo and the Brunson. There's a considerable amount

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1 of difference between the measured bottom hole pressure in  
2 the Tubb and that of the Wantz-Abo and the Brunson, and we  
3 feel like that we can while having the well being pumped  
4 from right off TD, we can keep the well pumped down and  
5 eliminate the cross flow because the Tubb indicates that  
6 it will not produce the marginal amount of oil.

7 Q And Exhibit 8, what is it?

8 A Exhibit 8 is a list of offset operators and  
9 their addresses.

10 Q Is the -- is the ownership common in all three  
11 zones?

12 A Yes, the ownership is common in all three  
13 zones.

14 Q Based on your recent work on the well are you  
15 prepared to make a recommendation as to the allocation of  
16 production to each zone?

17 A Yes, from production tests we recommend that  
18 the Tubb be allocated 29 percent of the oil and 68 percent  
19 of the gas. The Wantz-Abo 18 percent of the oil and 22 per-  
20 cent of the gas. The Brunson 53 percent of the oil and  
21 10 percent of the gas.

22 Q Okay. In your opinion, if your application is  
23 granted, would it be in the interest of the prevention of  
24 waste and the protection of correlative rights?

25 A Yes, it would.

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1 Q Were Exhibits One through Eight prepared by  
2 you or under your direction?

3 A They were.

4 MR. LOPEZ: At this time I'd like to offer  
5 those exhibits, 1 through 8, in Case 6164.

6 MR. STAMETS: These exhibits will be admitted.

7 Q Is there anything else I haven't covered?

8 A No. Well, there's something that I think I  
9 should put in here that these zones are being commingled  
10 at the surface by Order Number PC-544.

11 MR. LOPEZ: I have nothing further, Mr. Examiner

12  
13 CROSS EXAMINATION

14 BY MR. STAMETS:

15 Q Mr. Best, how do you account for the wild,  
16 relatively wild production variations on the Ellenberger  
17 zone, as depicted on Exhibits 4-C and 5-C?

18 A Well, to be honest with you, I couldn't find  
19 anything in our records that would show me why. And I've  
20 only been on this unit since 1970 so I can't really tell  
21 you why, but I -- but they did acid treat it in 1955 at-  
22 tempting to remedy part of the problem but they could not.  
23 We do know that a lot of the wells were abandoned in near  
24 this time, so I believe that probably the bottom hole pres-  
25 sure was depleting at that time. And why they had this

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1 drastic decrease in the latter part of 1953, I cannot tell  
2 you, unless they were having some type of well problem.

3 MR. STAMETS: Any other question of the wit-  
4 ness?

5 Okay, would you like to proceed on with the  
6 next well?

8 REDIRECT EXAMINATION

9 BY MR. LOPEZ:

10 Q Now, Mr. Best, since you've already identified  
11 yourself and your qualifications have been accepted, I  
12 would like to turn your attention to the application in  
13 Case Number 6165, and the Shell State Section 2 Well No. 3,  
14 and again I think we'll just go through the same procedure  
15 and ask you to identify Exhibit -- well, first of all,  
16 what is it that Shell seeks in the application in this  
17 case, 6165?

18 A Shell Oil Company requests approval of triple  
19 downhole commingling the Drinkard, the Hare McKee, and  
20 the Brunson-Ellenberger pools in its State Section 2 Lease,  
21 Well No. 3.

22 This well is located 660 feet from the south  
23 line and 660 feet from the west line of Unit U, Section 2,  
24 Township 21 South, Range 37 East, Lea County, New Mexico.

25 Q Could you give us a brief history of the pro-

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1 duction of this well?

2 A. Okay, the well is presently a shut-in Blinebry  
3 well at which we attempted a research project, and so right  
4 now it's not producing anything.

5 But originally it was completed in 1950 as a  
6 BROA, as a Brunson-Ellenberger producer. The well was  
7 abandoned in 1956 because of uneconomical production. The  
8 well was then recompleted in the Hare McKee in 1956. The  
9 Hare was acid treated upon completion; fracture treated in  
10 1957, and abandoned in December, 1973.

11 The well was recompleted in the Drinkard zone  
12 in 1974. It was acid treated, fracture treated upon com-  
13 pletion and produced until March, 1976, and the Drinkard  
14 was abandoned for a research problem, I was telling you,  
15 in the Blinebry zone.

16 Q Okay. Now, turning to Exhibits 1-A, B, and C,  
17 would you please identify?

18 A. Exhibits 1-A, B, and C, is an area plat  
19 showing the area. The hash line shows the Shell lease and  
20 indicating the subject well, and also shows area operators,  
21 the surrounding operators. The difference in the exhibits  
22 is showing the production from the different zones.

23 The first exhibit, Exhibit A, the Drinkard,  
24 is marked in black dots. The Drinkard abandoned wells  
25 are marked with a slash through them.

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1 And this is for the case of Exhibit -- Exhibit  
2 B is for the Hare McKee, and Exhibit C is for the Brunson.

3 Q Okay. Now would you please identify Exhibits  
4 2-A and 2-B?

5 A Exhibit 2-A is a current downhole equipment  
6 drawing, showing the casing, the cast iron bridge plugs,  
7 the 8-5/8 cemented with 2200 sacks. Cement was circulated  
8 to the surface to protect the fresh water zones. We are  
9 presently -- actually we are presently going in and the  
10 Blinbry perms are being squeezed at this time. The oper-  
11 ation has actually started, because this BROA job failed  
12 way back there, and also the Blinbry is being produced  
13 by State Section 22 Well, which is on this same 40 acres  
14 as this Number 3.

15 2-B is a proposed downhole drawing in which  
16 we plan to produce the well. It shows that the tubing will  
17 be run to TD in the open hole. It indicates the perforation  
18 intervals, and we will install a standard wellhead condition  
19 with a pumping unit and box with pressure gauges on the casing  
20 annulus to monitor pressure in the annulus.

21 Q Okay. Now referring to Exhibits 3-A, B, and C,  
22 again, these should be read in connection with Exhibits 4-A,  
23 B, and C. Would you please identify those?

24 A 3-A and 4-A is a production curve for the  
25 Drinkard zone. It was abandoned in the early part of 1976

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1 at approximately 10 barrels a day when we started this  
2 BROA job.

3 MR. STAMETS: What kind of a job did you say?

4 A. It was a Belair Research Center project in  
5 which they tried some special type acid to try to be able  
6 to -- or to get an in-depth penetration without coming up  
7 with wormholes (sic) and fractures in the formation.

8 MR. STAMETS: Did it work?

9 A. It failed. Yes, it failed. That's why we're  
10 proposing to put cement over it.

11 A. 3-B and 4-B is a production curve of the Hare  
12 McKee when it was in operation, indicating that it did  
13 reach approximate economic limit when they abandoned it  
14 and went to the -- to the Drinkard.

15 3-C and 4-C is a production curve of the  
16 Brunson-Ellenberger, which it was abandoned at, oh, appro-  
17 ximately four barrels a day, economic limit.

18 Q. Again these are clearly oil wells under the  
19 pool rules for each particular zone?

20 A. Yes, they are. They're the oil wells on each  
21 particular zone.

22 (Thereupon a short recess was  
23 taken.)

24 MR. STAMETS: Okay, we're back on the record.

25 Q. (Mr. Lopez continuing.) Okay. I think my

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1 last question was that these are clearly classified as oil  
2 wells under the current pool rules for each zone in question.

3 A. Yes, they're clearly oil wells underneath the --  
4 under the regulations of the pools and we propose to go in  
5 and test each one of these zones, test the Drinkard separ-  
6 ately and obtain a good stabilized production, and then  
7 remove the bridge plug and test the Drinkard and the McKee  
8 together and obtain a good stabilized production, and then  
9 test all three zones together and obtain a good stabilized  
10 production.

11 Then we're requesting that we be able to send  
12 this data to the New Mexico Oil Conservation Commission  
13 supervisor of District One, so that he can administratively  
14 authorize in setting the allowable and allocation of this  
15 production.

16 Q. Okay. Exhibit 5, would you please identify it?

17 A. Exhibit 5 is a log on the well. It's an  
18 electrical log. This is a radiation log, gamma ray radiation  
19 log, and on it we have the tops marked for the Ellenberger  
20 and the Brunson, showing the perforations and the depth  
21 track and also the Drinkard with the perforations and the  
22 depth track shown.

23 Q. Okay. Would you identify Exhibit 6?

24 A. Exhibit 6 is an estimated bottom hole pressure  
25 of the Drinkard and the Hare and the Brunson. These are

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1 actually just estimated from knowing what production is  
2 taking place around -- around the vicinity, and from exper-  
3 ience of what bottom hole pressures are in other parts of  
4 the field.

5 So these are really not good estimates and we  
6 will try to send some bottom hole pressures when we send  
7 in the C-116s on this well.

8 Q And would you identify Exhibit 7?

9 A Exhibit 7 is a list of offset operators and  
10 the addresses.

11 Q Again, the ownership in each zone is common,  
12 is that correct?

13 A That's correct.

14 Q Now if I understand you correctly, you're re-  
15 questing the Examiner to approve your application for triple  
16 downhole commingling but assign production allowable for  
17 oil and gas to each zone after you've had an opportunity  
18 to test the well and the District Supervisor has an oppor-  
19 tunity to review your test, is that correct?

20 A That's correct.

21 MR. LOPEZ: Now, Mr. Examiner, if that isn't  
22 an acceptable procedure are you in a position to make a  
23 recommendation based on other data that's available but in  
24 your opinion not -- would not be as accurate as going  
25 ahead and testing the well itself?

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A. Yes, I could make that.

MR. STAMETS: I don't think that would be necessary. What he's requested is a standard procedure.

Q Is it your opinion that the granting of the application will be in the interests of the prevention of waste and protection of correlative rights?

A. Yes.

Q Were Exhibits 1 through 7 prepared by you or under your supervision?

A. Yes.

MR. LOPEZ: I now offer Exhibits 1 through 7.

MR. STAMETS: These exhibits will be admitted. Any questions of the witness?

He may be excused. Anything further in this case? We'll take the case under advisement.

(Hearing concluded.)

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I, SALLY WALTON BOYD, 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 complete  
record of the said proceedings prepared by me to the best  
of my knowledge, skill, and ability.

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Sally Walton Boyd  
Sally Walton Boyd, C.S.R.

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examination of Case No. 6164-6165  
heard by me on 7/28, 1972  
Richard L. [Signature], Examiner  
New Mexico Oil Conservation Commission



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. 6164  
Order No. R-5659

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 February 22, 1978, at Santa Fe, New Mexico, before Examiner, Richard L. Stamets.

NOW, on this 8th day of March, 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 Shell State Section 2 Well No. 15 located in Unit K of Section 2, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks authority to commingle Tubb, Wantz-Abo and Brunson-Ellenburger production within the wellbore of the above-described well.

(4) That from each of said zones, 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 the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that the well is not shut-in for an extended period.

(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



-2-

Case No. 6164  
Order No. R-5659

office of the Commission any time the subject well is shut-in for 7 consecutive days.

(8) That the commingled production should be allocated to each of the commingled zones in accordance with a production-based formula.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to commingle Tubb, Wantz-Abo and Brunson-Ellenburger production within the wellbore of the Shell State Section 2 Well No. 15, located in Unit K of Section 2, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That 29 percent and 68 percent of the commingled oil and gas production, respectively, shall be allocated to the Tubb zone, 18 percent and 22 percent of the commingled oil and gas production, respectively, shall be allocated to the Wantz-Abo zone and 53 percent and 10 percent of the commingled oil and gas production, respectively, shall be allocated to the Brunson-Ellenburger zone.

(3) 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.

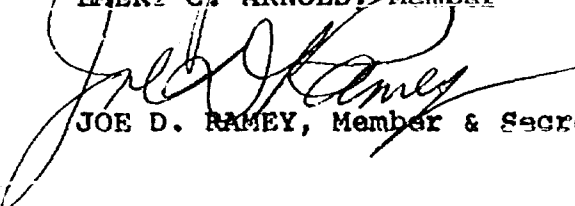
(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

PHIL R. LUCERO, Chairman

  
EMERY C. ARNOLD, Member

  
JOE D. RAMEY, Member & Secretary

S E A L

jr/

SHELL OIL COMPANY  
STATE SECTION LEASE WELL NO. 15  
BOTTOM HOLE PRESSURES

<u>ZONE</u>	<u>PRESSURE</u>	<u>METHOD OBTAINED</u>
Tubb	1068 psi	72 hr. buildup measured
Wantz-Abo	200 psi	estimated
Brunson	200 psi	estimated

BEFORE EXAMINER STAMETS  
OIL CONSERVATION COMMISSION  
Shell EXHIBIT NO. 7  
CASE NO. 10164  
Submitted by BW Best  
Hearing Date Feb 22, 1978

OFFSET OPERATORS

STATE SEC. 2 LEASE WELL NO. 15  
TUBB, WANTZ-ABO AND STUNSON OIL FIELDS  
LEA COUNTY, NEW MEXICO

AZTEC OIL AND GAS COMPANY  
P. O. Box 337  
HOBBS, NM 88240

CONTINENTAL OIL COMPANY  
P. O. BOX 460  
HOBBS, NM 88240

GULF OIL COMPANY  
P. O. Box 1150  
MIDLAND, TX 79701

BEFORE EXAMINER STAMETS	
OIL CONSERVATION COMMISSION	
Shell	EXHIBIT NO. 8
CASE NO.	61164
Submitted by	BW Best
Hearing Date	Feb 22, 1978

SHELL OIL COMPANY  
STATE SECTION LEASE WELL NO. 15  
BOTTOM HOLE PRESSURES

<u>ZONE</u>	<u>PRESSURE</u>	<u>METHOD OBTAINED</u>
Tubb	1068 psi	72 hr. buildup measured
Wantz-Abc	200 psi	estimated
Brunson	200 psi	estimated

ex. 1

OFFSET OPERATORS

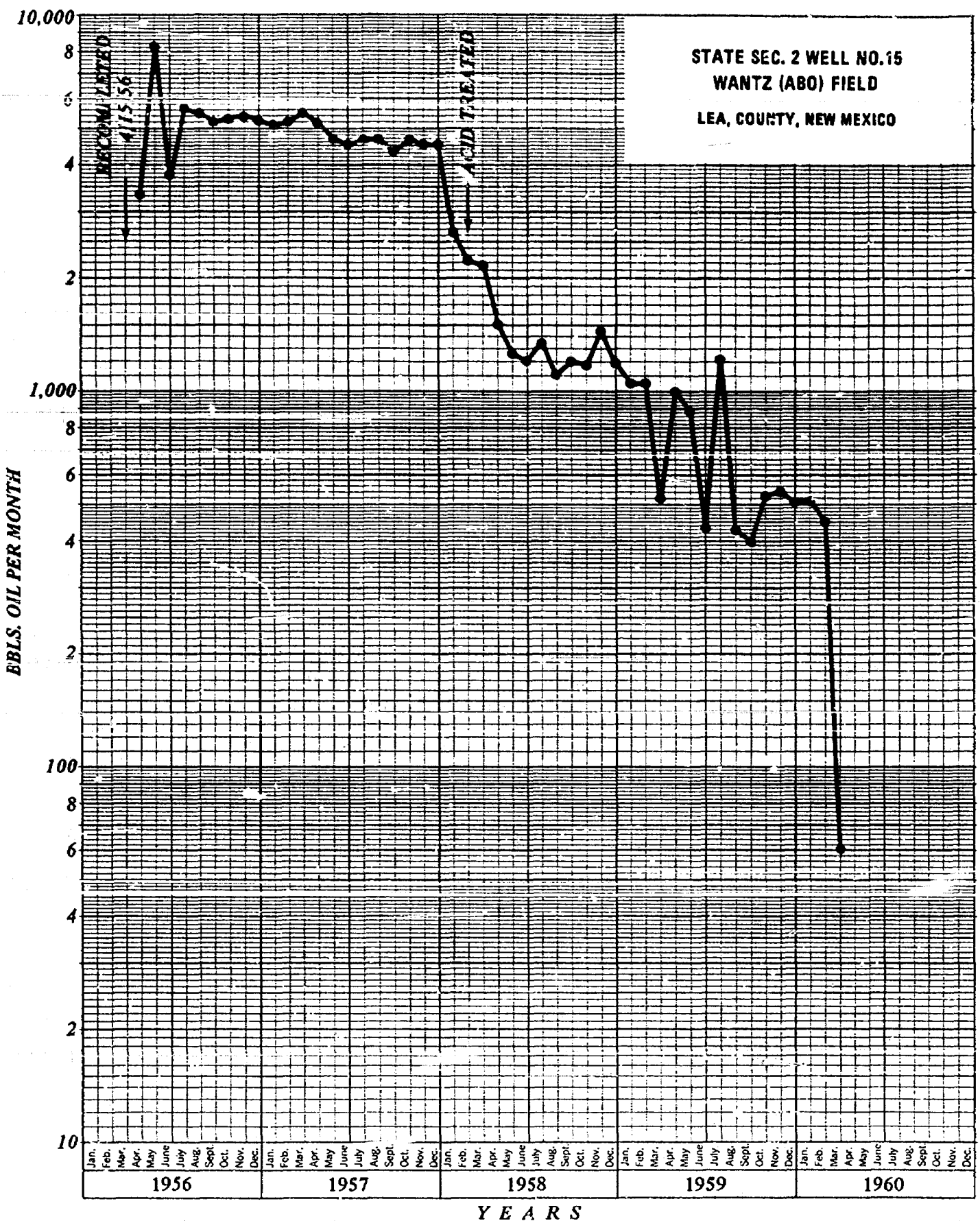
STATE SEC. 2 LEASE WELL NO. 15  
TUBB, WANTZ-ABO AND BRUNSON OIL FIELDS  
LEA COUNTY, NEW MEXICO

AZTEC OIL AND GAS COMPANY  
P. O. Box 337  
HOBBS, NM 88240

CONTINENTAL OIL COMPANY  
P. O. BOX 460  
HOBBS, NM 88240

GULF OIL COMPANY  
P. O. Box 1150  
MIDLAND, TX 79701

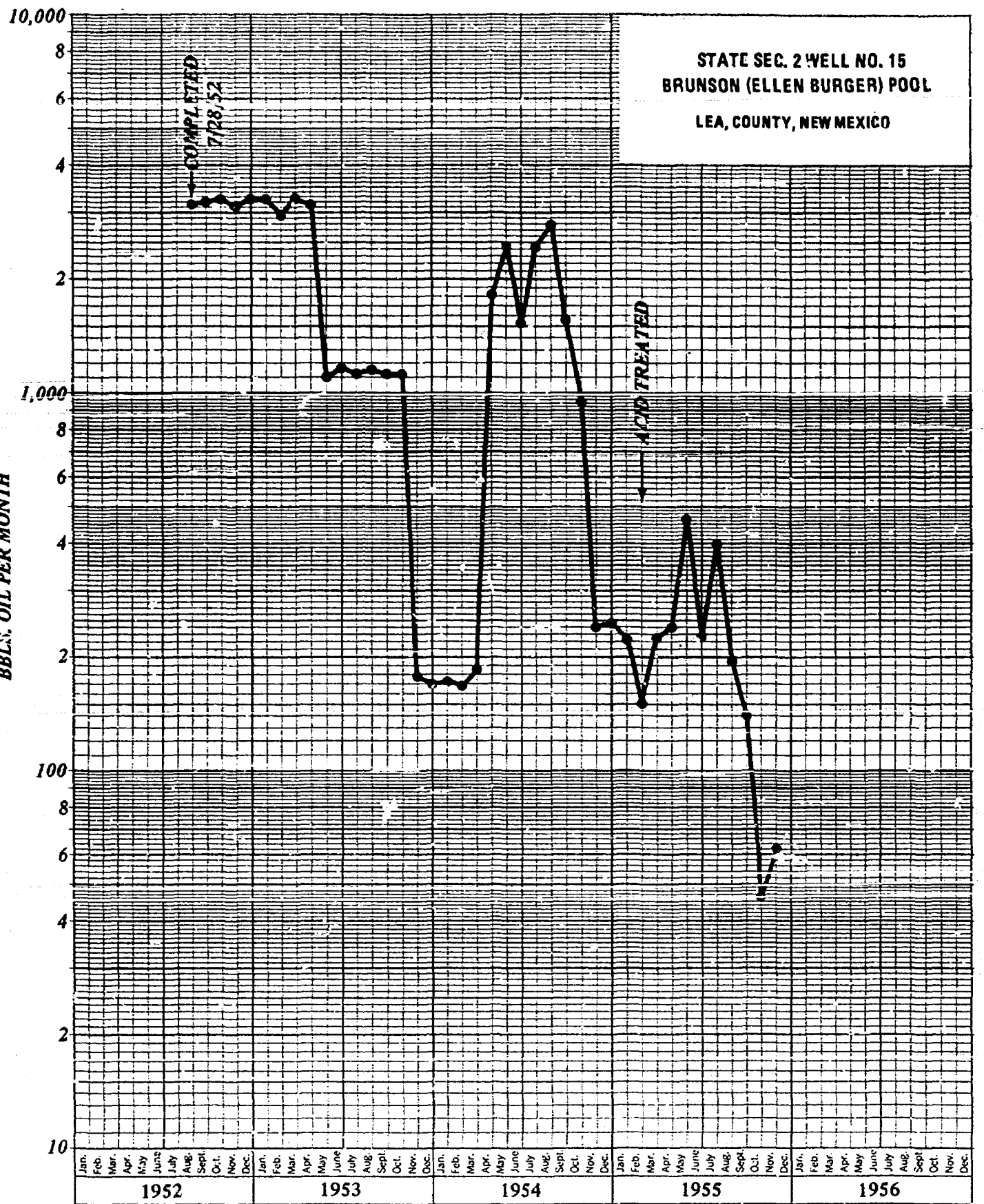
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46

STATE SEC. 2 WELL NO. 15  
 BRUNSON (ELLEN BURGER) POOL  
 LEA COUNTY, NEW MEXICO

BBL. OIL PER MONTH



YEARS

40

STATE SEC. 2 WELL NO. 15  
 PRODUCTION RATE AND CUMULATIVE  
 PROPOSED COMMINGLED POOLS

*San*  
TUBB (OIL) PRODUCTION

<u>YEAR</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEPT.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>	<u>YEAR TOTAL</u>	<u>CUM.</u>
1960								843	949	765	592	612	3,761	3,761
1961	546	477	562	366	336	319	305	287	253	289	270	221	4,231	7,992
1962	324	262	330	328	282	283	297	267	257	256	189	218	3,293	11,285
1963	196	196	217	211	215	180	190	191	147	187	178	186	2,326	13,611
1964	161	203	187	179	186	151	135	156	177	187	179	186	2,087	15,698
1965	141	168	187	150	125	89	93	155	180	186	171	185	1,830	17,528
1966	182	169	180	120	128	119	124	124	114	125	149	155	1,689	19,217
1967	125	111	124	167	127	91	89	91	127	114	145	95	1,406	20,623
1968	133	109	91	116	87	109	117	122	114	128	125	128	1,379	22,002
1969	115	82	126	94	128	127	137	102	121	86	119	102	1,339	23,341
1970	126	81	95	117	113	112	117	89	105	128	89	119	1,291	24,632
1971	107	90	120	122	125	125	129	95	93	96	149	161	1,412	26,044
1972	148	107	148	142	144	129	138	139	133	143	169	165	1,705	27,749
1973	138	157	166	151	159	114	148	97	127	98	98	101	1,554	29,303
1974	102	86	116	101	36	52	50	66	65	57	62	55	848	30,151
1975	65	54	56	48	55	50	61	49	46	32	42	53	611	30,762
1976	52	48	43	43	54	49	65	60	58	34	83	74	663	31,425
1977	164	133	85	75	82	105	100	2						



STATE SEC. 2 WELL NO. 15  
PRODUCTION RATE AND CUMULATIVE  
PROPOSED COMMINGLED POOLS

WANTZ ABO PRODUCTION

<u>YEAR</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEPT.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>	<u>YEAR TOTAL</u>	<u>CUM.</u>
1956				335	824	372	574	556	521	527	530	524	4,763	4,763
1957	513	520	549	515	465	451	465	465	429	464	455	453	5,744	10,507
1958	261	222	216	149	125	120	134	110	120	118	146	119	1,840	12,347
1959	104	104	52	99	88	43	123	43	40	53	54	51	854	13,201
1960	51	45	6										102	13,303

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STATE SEC. 2 WELL NO. 15  
PRODUCTION RATE AND CUMULATIVE  
PROPOSED COMMINGLED POOLS

BRUNSON ELLENBURGER PRODUCTION

<u>YEAR</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEPT.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>	<u>YEAR TOTAL</u>	<u>CUM.</u>
1952								3147	3190	3259	3100	3251	15,947	15,947
1953	3232	2947	3274	3193	1101	1188	1118	1147	1110	1116	179	169	19,774	35,721
1954	173	168	186	1840	2480	1520	2445	2817	1569	946	240	248	14,632	50,353
1955	223	149	224	240	465	224	399	196	139	46	62		2,367	52,720

5c

GAS-OIL RATIO TESTS

C-116  
Revised 1-1-63

Operator SHELL OIL COMPANY		Pool TUBB				County LEA										
Address P. O. BOX 1509, MIDLAND, TEXAS 79702						TYPE OF TEST - (X)	Scheduled <input type="checkbox"/>	Completion <input type="checkbox"/>	Special <input checked="" type="checkbox"/>							
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	STATUS	CHOKE SIZE	TUBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU. FT./BBL
		U	S	T	R							WATER BBL.	GRAV. OIL	OIL BBL.	GAS M.C.F.	
State Sec. 2	15	K	2	21	37	11-1-77	P	-	-	7	24	Trace	36.8	5	34	6,800

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

Ex. 300

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

R. J. Coenen R. J. Coenen  
(Signature)  
Division Production Superintendent  
(Title)

Operator SHELL OIL COMPANY		Pool TUBB AND WANTZ-ABO				County LEA										
Address P. O. BOX 1509 MIDLAND, TEXAS 79702					TYPE OF TEST - (X)	Scheduled <input type="checkbox"/>	Conventional <input type="checkbox"/>	Special <input checked="" type="checkbox"/>								
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	CHOKE SIZE	TUBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT/BBL	
		U	S	T	R						WATER BBL.	GRAV. OIL	OIL BBL.	GAS M.C.F.		
State Sec. 2	15	K	2	21	37	11-16-77	P	-	-	Test	24	1	35.1	8	45	5,625

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

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R. J. Coenen R. J. Coenen  
(Signature)  
Division Production Superintendent  
(Title)

3b

NEW MEXICO OIL CONSERVATION COMMISSION  
GAS--OIL RATIO TESTS

C-116  
Revised 1-1-65

Operator SHELL OIL COMPANY		Pool TUBB, WANTZ-ABO AND BRUNSON					County LEA									
Address P. O. BOX 1509 MIDLAND, TEXAS 79702						TYPE OF TEST -- (X)		Scheduled <input type="checkbox"/>		Completion <input type="checkbox"/>		Special <input checked="" type="checkbox"/>				
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	STATUS	CHOKE SIZE	TUBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT/BBL
		U	S	T	R							WATER BBL.S.	GRAV. OIL	OIL BBL.S.	GAS M.C.F.	
State Sec. 2	15-	K	2	21	37	12-7-77	P	-	-	Test	24	22	36.8	17	50	2,941

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

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

*R. J. Coenen* R. J. Coenen  
(Signature)

Division Production Superintendent

(Title)

(Date)

30

PROPOSED DOWNHOLE EQUIPMENT  
SHELL-STATE SEC. 2, WELL NO. 15  
3546' FNL & 1854' FWL SEC. 2, T-21-S, R-37-E  
LEA COUNTY, NEW MEXICO  
DOWNHOLE SCHEMATIC

ELEV. : 3602' D.F.  
ZERO : 8 5/8" C.F. + 11.7'  
T.D. : 8147'  
POTD : 8090'

13 3/8", 32.4 # @ 223'  
CMT'D. TO SURFACE W/260 SX.

TOP LINER @ 3006'

8 5/8", 32 # @ 3148'  
CMT'D. TO SURFACE W/1600 SX.

2 3/8" 8 RD. E.U.E. TBG.

ROD PUMP

BPMA

TUBB PERFORATIONS 6381'-6500'

ABO PERFORATIONS 7048'-7255'

5 1/2", 15.5 # @ 8010'  
CMT'D. W/800 SX.

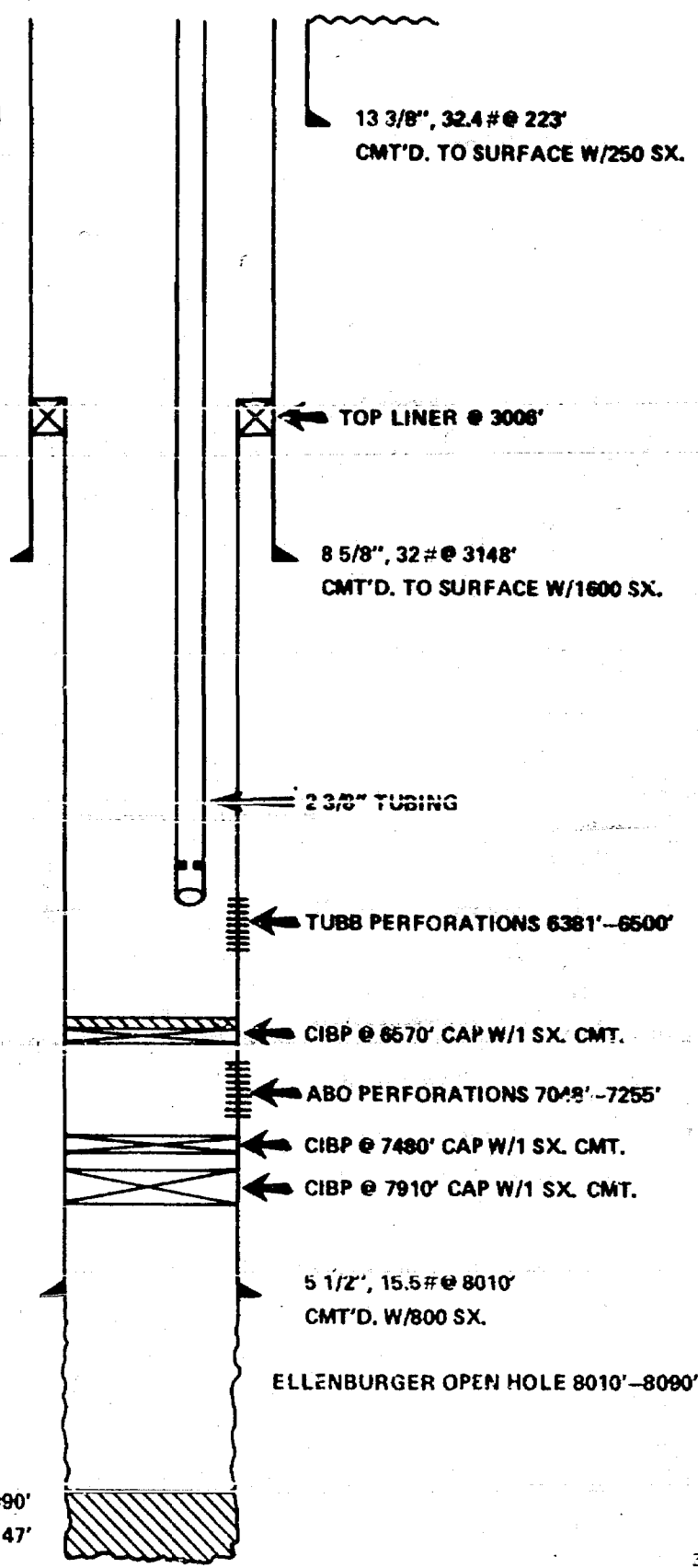
ELLENBURGER OPEN HOLE 8010'-8090'

PBTD 8090'  
T.D. 8147'

2b

**CURRENT DOWNHOLE EQUIPMENT**  
**SHELL-STATE SEC. 2, WELL NO. 15**  
**3540' FNL & 1850' FWL SEC. 2, T-21-S, R-37-E**  
**LEA COUNTY, NEW MEXICO**  
**DOWNHOLE SCHEMATIC**

ELEV. : 3602' D.F.  
 ZERO : 8 5/8" CHF + 11.7'  
 T.D. : 8147'  
 PBTD : 8670'



*2a*

PBTD 8090'  
 T.D. 8147'

- CASE 6158: Application of C. H. Berry for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the NE $\frac{1}{4}$  of Section 15, Township 24 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to a well 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 6159: Application of Texaco Inc., for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Drinkard and Wantz-Granite Wash production in the wellbore of its A. H. Blinbry Federal Well No. 38 located in Unit J of Section 19, Township 22 South, Range 38 East, Lea County, New Mexico.
- CASE 6160: Application of Bass Enterprises Production Co., for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation through the perforated interval from 3310 feet to 3375 feet in its Big Eddy Unit Well No. 56, located in Unit G of Section 35, Township 21 South, Range 28 East, Indian Flats-Delaware Pool, Eddy County, New Mexico.
- CASE 6161: Application of Tenneco Oil Company for two waterflood projects, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its Leonard Federal Lease by the injection of water into the Queen formation through one well in Unit O of Section 11, and on its Leonard Brothers Lease through two wells, in Units I and M, respectively, of Section 14, all in Township 26 South, Range 37 East, Leonard Queen Pool, Lea County, New Mexico. Applicant further seeks the establishment of an administrative procedure for the addition of injection wells and the conversion of existing wells to injection at both orthodox and unorthodox locations without further notice and hearing.
- CASE 6162: Application of Continental Oil Company for an unorthodox location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Jack B-30 Well No. 2 to be located 330 feet from the North line and 1725 feet from the East line of Section 30, Township 24 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, the NE $\frac{1}{4}$  of said Section 30 to be simultaneously dedicated to the aforesaid well and to Well No. 5 in Unit H.
- CASE 6163: Application of Continental Oil Company for amendment of Commission Order No. R-3863, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to substitute its Anderson Ranch Unit Wells No. 6 located in Unit X of Section 2 and Nos. 3 and 10, located in Units A and H, respectively, of Section 11, all in Township 16 South, Range 32 East, for the initial injection wells authorized by said order in its Anderson Ranch-Wolfcamp Waterflood Project, Anderson Ranch-Wolfcamp Pool, Lea County, New Mexico.
- CASE 6164: 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 Tubb, Wantz-Abo, and Brunson-Ellenburger production in the wellbore of its Shell State Section 2 Well No. 15 located in Unit K of Section 2, Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 6165: 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 Drinkard, Hare-McKee, and Brunson-Ellenburger production in the wellbore of its Shell State Section 2 Well No. 3 located in Unit U of Section 2, Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 6166: Application of Odessa Natural Corporation for rescission of Order No. R-5601, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks a hearing at which any interested party could appear and show cause why Order No. R-5601, which granted a special well classification to applicant's ARCO-Little Fed. Well No. 1, located in Unit D of Section 32, Township 24 North, Range 3 West, Rio Arriba County, New Mexico, should not be rescinded.
- CASE 6141: Application of Paul Slayton for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Seven Rivers formation thru the open-hole interval from 528 feet to 547 feet in his Hastie Well No. 7 located in Unit L of Section 18, Township 17 South, Range 28 East, Empire Field, Eddy County, New Mexico.



BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

IN THE MATTER OF THE APPLICATION OF )  
SHELL OIL COMPANY FOR COMMINGLING OF )  
THE TUBB - WANTZ-ABO - BRUNSON ZONES )  
LOCATED IN UNIT K, SECTION 2, )  
TOWNSHIP 21 SOUTH, RANGE 37 EAST, )  
LEA COUNTY, NEW MEXICO. )

No. 6164

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 State Section 2 No. 15 well located in Unit K, Section 2, Township 21 South, Range 37 East, Lea County, New Mexico.
2. The above well was originally completed as a Brunson producer and produced from that zone for the years 1953 through 1955.
3. The above well was thereafter completed as a Wantz-Abo producer and produced from that zone from 1956 through 1960.
4. The above well thereafter was completed as a Tubb producer and produced from that zone for the years 1961 through 1977.
5. The above described zones have not been commingled, but these zones are only capable of low rates of production. Applicant requests that all three zones be commingled.
6. 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. Lopez  
P.O. Box 2307  
Santa Fe, New Mexico 87501  
Attorneys for Applicant

51  
-1 1978

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

IN THE MATTER OF THE APPLICATION OF  
SHELL OIL COMPANY FOR COMMINGLING OF  
THE TUBB - WANTZ-ABO - BRUNSON ZONES  
LOCATED IN UNIT K, SECTION 2,  
TOWNSHIP 21 SOUTH, RANGE 37 EAST,  
LEA COUNTY, NEW MEXICO.

) Ellenburger

No. 6164

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 State Section 2 No. 15 well located in Unit K, Section 2, Township 21 South, Range 37 East, Lea County, New Mexico.

Ellenburger

2. The above well was originally completed as a Brunson<sup>A</sup> producer and produced from that zone for the years 1953 through 1955.

3. The above well was thereafter completed as a Wantz-Abo producer and produced from that zone from 1956 through 1960.

4. The above well thereafter was completed as a Tubb producer and produced from that zone for the years 1961 through 1977.

5. The above described zones have not been commingled, but these zones are only capable of low rates of production. Applicant requests that all three zones be commingled.

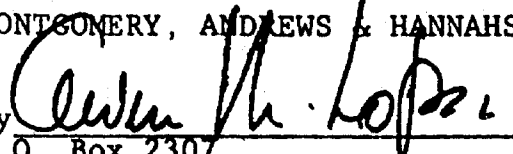
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WHEREFORE, applicant asks that the Commission set this matter for a hearing before one of its examiners or the Commission as the Commission may desire.

Respectfully submitted,

MONTGOMERY, ANDREWS & HANNAHS

By

  
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:

*Dee* CASE NO. 6164

Order No. R-5659

APPLICATION OF SHELL OIL COMPANY  
FOR DOWNHOLE COMMINGLING, LEA  
COUNTY, NEW MEXICO. *JAR*

ORDER OF THE COMMISSION

BY THE COMMISSION:

*BJH*  
This cause came on for hearing at 9 a.m. on February 22,  
19 78, at Santa Fe, New Mexico, before Examiner Richard L. Stamets

NOW, on this \_\_\_\_\_ day of \_\_\_\_\_, 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 Shell State Section 2 Well No. 15, located  
in Unit K of Section 2, Township 21 South, Range  
37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks authority to commingle Tubb,  
Wantz-Abu, and Brunson-Ellenburger production  
within the wellbore of the above-described well.

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

~~(5) That from the Wantz-Abu 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 Brunson-Ellenburger zone, the subject~~  
~~well is capable of low rates of production only.~~

Case No. \_\_\_\_\_  
Order No. R \_\_\_\_\_

(6) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that the well is not shut-in for an extended period.

(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 <sup>should</sup> be allocated to each of the commingled zones <sup>in accordance with a</sup> ~~in the subject well,~~ production-based formula. ~~percent of the commingled~~ production should be allocated to the Tubb zone, and \_\_\_\_\_ percent of the commingled production to the Wantz-Abo zone, and \_\_\_\_\_ percent of the commingled production should be allocated to the Brunson-Ellenburger zone.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to commingle Tubb, Wantz-Abo, and Brunson-Ellenburger production within the wellbore of the Shell State Section 2 Well No. 15, located in Unit K of Section 2, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That <sup>29 percent and 68</sup> percent of the commingled oil and gas production, <sup>respectively,</sup> shall be allocated to the Tubb zone, and <sup>18 percent and 22</sup> percent of the commingled oil and gas production, <sup>respectively,</sup> shall be allocated to the Wantz-Abo zone and <sup>and 53 percent and 10 percent</sup> ~~percent~~ of the commingled oil and gas production, <sup>respectively,</sup> shall be allocated to the Brunson-Ellenburger zone.

(3) 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.

(4) 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.