

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

19 November 1986

EXAMINER HEARING

IN THE MATTER OF:

Case 8696 being reopened pursuant to the provisions of Order No. R-8062. CASE 8696
Lea County, New Mexico.
and
Case 8790 being reopened pursuant to the provisions of Order No. R-8062-A, CASE 8790
Lea County, New Mexico.

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

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1 MR. CATANACH: We'll call next
2 Case 8696.

3 MR. TAYLOR: In the matter of
4 Case 8696 being reopened pursuant to the provisions of Order
5 No. R-8062, which promulgated temporary special rules and
6 regulations for the Shipp-Strawn Pool in Lea County, includ-
7 ing a provision for 80-acre spacing units.

8 Operators in said pool may ap-
9 pear and show cause why said pool should not be developed on
10 40-acre spacing units.

11 MR. CATANACH: Are there ap-
12 pearances in this case?

13 MR. KELLAHIN: Yes, Mr. Exam-
14 iner. I'm Tom Kellahin of Santa Fe, New Mexico. I'm ap-
15 pearing on behalf of Pennzoil.

16 We are prepared to present evi-
17 dence in support of the continuation of the special pool
18 rules, including the provision for 80-acre spacing.

19 MR. BRUCE: Mr. Examiner, my
20 name is Jim Bruce from the Hinkle Law Firm in Santa Fe, rep-
21 resenting Exxon Corporation.

22 And I just will have a short
23 statement to make.

24 MR. IVES: Mr. Examiner, my
25 name is Peter Ives with the firm of Campbell & Black, enter-

1 ing an appearance on behalf of Phillips Petroleum Company,
2 and I will not have any witnesses.

3 MR. CATANACH: Okay, Case 8696
4 and Case 8790 will be consolidated for the purpose of the
5 testimony.

6 Please call Case 8790.

7 MR. TAYLOR: In the matter of
8 Case 8790 being reopened pursuant to the provisions of Order
9 No. R-8062-A, which in part amended the temporary special
10 rules and regulations for the Shipp-Strawn Pool in Lea Coun-
11 ty, including a provision for 80-acre spacing units.

12 Operators in said pool may ap-
13 pear and show cause why said pool should not be developed on
14 40-acre spacing units.

15 MR. CATANACH: I assume we have
16 the same appearances in both cases?

17 MR. KELLAHIN: Yes.

18 MR. BRUCE: Yes, Mr. Examiner.

19 MR. IVES: Yes.

20 MR. CATANACH: You may proceed,
21 Mr. Kellahin.

22 MR. KELLAHIN: Thank you, Mr.
23 Examiner.

24 Back in the summer of last year
25 Mr. Quintana heard the Case 8696 based upon the application

1 of Pennzoil to establish a new pool and to designate 80-acre
2 spacing for what was declared to be the Shipp-Strawn Pool.

3 Pennzoil, as the applicant, re-
4 quested in addition the flexibility of well locations so
5 that within the 80-acre tract so long as the well was lo-
6 cated no closer than 330 feet to the outer boundary of that
7 tract, then they were standard well locations.

8 Subsequent to the entry of that
9 order, which was R-8062, the Division staff decided they
10 wanted this pool, as well as other pools, to remain upon a
11 spacing formula that required standard locations to be with-
12 in 150 feet of the center of a quarter quarter section, and
13 therefore Case 8790 was called, resulting in Order R-8062-A,
14 changing the well location rule of the special rules, put-
15 ting those locations, then, on 150 feet of the center of a
16 quarter quarter section.

17 We have an engineering witness
18 today to present evidence to support our original opinions
19 in the earlier hearing and to reconfirm for you the justifi-
20 cation for the 80-acre spacing rule.

21 MR. CATANACH: Sorry, will the
22 witness please stand and be sworn in?

23 Are there any other witnesses
24 in this case?

25

(Witness sworn.)

1 considered qualified.

2 Q Let me direct you, first of all, to Exhi-
3 bit Number One, and have you identify for us that plat,
4 starting with the location of the Shipp-Strawn Pool, as de-
5 picted on that exhibit.

6 A Exhibit One shows all the Strawn pools in
7 the Shipp Field area, the Shipp Field being shown in red.

8 Q Are there any exceptions to special pool
9 rules in this area whereby there are pools spaced upon other
10 than 80 acres?

11 A Yes.

12 Q And which pools are spaced upon other
13 than 80 acres?

14 A The Lovington East, which is two wells,
15 Section 32 and Section 5.

16 Q They're indicated in the yellow?

17 A Indicated in the yellow.

18 Q Are there any producing wells left in
19 that pool?

20 A No.

21 Q Apart from -- that's the Lovington East?

22 A Yes.

23 Q All right, apart from the Lovington East
24 Pool, are there any other pools that have other than 80-acre
25 spacing?

1 A No.

2 Q All right. Identify for us how you have
3 depicted the Shipp-Strawn Pool on the exhibits.

4 A The Shipp-Strawn Pool is the area that's
5 described in our temporary field rules, field outline.

6 Q All right, and it's shown on the exhibit
7 in red?

8 A Yes.

9 Q And it's being portions of Sections 4 and
10 9.

11 A That's correct.

12 Q All right. What is the name of the pool
13 to the southwest, located in Section 8? What is that pool?

14 A That's the Midway Pool.

15 Q And it's also on 80-acre spacing?

16 A Yes.

17 Q Why are you appearing on behalf of
18 Pennzoil this morning, Mr. Hodgins?

19 A To show evidence that the temporary field
20 rules should be adopted as the permanent field rules.

21 Q All right. Let's turn to Exhibit Number
22 Two, then, and have you identify for us the spacing and pro-
23 ration units that are assigned to the existing wells in the
24 Shipp-Strawn Pool.

25 A Exhibit Two shows the proration units to

1 the best of our knowledge. There in Section 9, the north-
2 east -- northwest quarter of Section 9, we're not sure about
3 that proration unit, but that's our best -- best estimate.

4 Q Can you identify for the examiner what
5 the discovery well is for this pool?

6 A Yes.

7 Q And which one is that?

8 A The discovery well was the Vierson No. 1,
9 which is the -- the proration unit is the east half of the
10 southeast quarter of Section 4.

11 Q Okay, that's the Vierson No. 1.

12 A Yes.

13 Q Test your memory, Mr. Hodgins, what do
14 you recall to be the order of drilling for subsequent wells,
15 do you remember?

16 A The Vierson 1 was followed by the Vierson
17 2, which is in the west half of the southeast quarter.

18 The third well in the field was the Tip-
19 perary State 4 No. 1, which is the north half of the north-
20 west quarter.

21 Followed by our Shipp No. 1 which is the
22 west half of the northeast quarter.

23 Followed by the Tipperary State 4 No. 2,
24 which is the south half of the northwest quarter.

25 That was followed by the Exxon "EX" State

1 No. 2, which is the west half of the northeast quarter of
2 Section 9.

3 And the most recent discovery in the
4 field was the -- or addition to the field, was the Faskin's
5 Consolidated State No. 3, which is the east half of the
6 northwest quarter of Section 9.

7 Q As we look in Section 9, in the east half
8 of the northeast quarter, the spacing unit just to the east
9 of the Exxon well, what is the status of that well? What is
10 that? Is that a location or is that a well?

11 A That's a producing well.

12 Q And is that in the Shipp-Strawn Pool?

13 A Yes.

14 MR. KELLAHIN: No?

15 A I'm sorry, I thought you was referring ot
16 the Faskin Well?

17 Q No, sir, I'm going the other direction.
18 I am looking in the east half of the northeast quarter of --

19 A Okay.

20 Q -- Section 9.

21 A That is not a part of the pool.

22 Q All right.

23 A That's a Wolfcamp well.

24 Q So you have indicated the spacing and
25 proration units in the dashed line around each of the pools

1 that are currently dedicated to the Shipp-Strawn Pool.

2 A Yes.

3 Q All right. let's turn now, sir, to Exhi-
4 bit Number Three and have you identify that for us.

5 A Exhibit Number Three is a lease ownershp
6 plat in the Shipp Field area.

7 Q Let me take you back, Mr. Hodgins, and
8 have you review with us the state of information that Penn-
9 zoil had before Examiner Quintana back last year when we
10 made the application for the temporary rules, and then after
11 we do that, we'll go into the current information about the
12 reservoir.

13 To do that, Mr. Hodgins, I have removed
14 from the original case file 8696, 8697, Exhibits Seven,
15 Eight, and Nine from that case file for reference, and I
16 have given you a copy of those.

17 Let's go through those exhibits, Mr. Hod-
18 gins, and show Mr. Catanach what we knew about the reservoir
19 at that time, starting with Exhibit Number Seven, if you
20 please.

21 All right, sir, can you identify for us
22 Exhibit Number Seven from the prior hearing?

23 A Exhibit Seven is a Horner, is a pressure
24 build-up shown as a Horner plot.

25 Q And what's the purpose of this exhibit?

1 A It's just to illustrate the permeability
2 of the reservoir.

3 Q Okay, and what is the illustration of the
4 permeability of the reservoir as depicted by the Vierson No.
5 1 Well?

6 A It shows that they have a permeability of
7 43 millidarcies.

8 Q What significance do you attach as a res-
9 ervoir engineer to the fact that this particular well in
10 this pool has a permeability of 43 millidarcies?

11 A That 43 millidarcies will more than sig-
12 nificantly drain 80 acres.

13 Q By comparison, to set us some general
14 guidelines, Mr. Hodgins, if these wells were only capable of
15 producing, say, 40 acre tracts, what kind of permeability
16 range, then, would you see demonstrated by these wells?

17 A To drain 40 acres it would have to be
18 less than 3 to 5 millidarcies.

19 Q So the fact that you have 43 millidarcies
20 in the Vierson No. 1 Well to you is a significant fact in
21 determining drainage?

22 A Yes, sir.

23 Q All right, let's go to Exhibit Number
24 Eight from -- also from the prior hearing record and have
25 you identify that exhibit for us.

1 A Exhibit Eight is a core analysis report
2 from the Vierson l.

3 Q To what purpose do you put this type of
4 information?

5 A It further documents our permeability
6 data and log data.

7 Q And does this core information confirm
8 the information indicated on the permeability data?

9 A Yes.

10 Q In what way?

11 A It's in agreement with our build-up data
12 and also subsequent coring is in good agreement with this
13 report.

14 Q All right. Let's go to Exhibit Number
15 Nine and have you identify that exhibit from the prior
16 hearing.

17 A Exhibit Nine is -- shows the reservoir
18 parameters, or some parameters which illustrate the quality
19 of the reservoir rock.

20 Q Okay, and what was the conclusion at that
21 time based upon the analysis of this information?

22 A That 80-acre spacing would -- the quality
23 of the reservoir would be to drain 80 acres.

24 Q All right. That exhibit also shows a
25 drainage calculation?

1 A Yes.

2 Q And is that a drainage radius that is
3 adequate for purposes of draining 80-acre spaced tracts?

4 A Yes, it is.

5 Q Having reviewed the past history and the
6 information in the prior case, Mr. Hodgins, are you now of
7 the same opinion that Pennzoil was at that prior hearing,
8 that 80-acre spacing is still justified?

9 A Yes.

10 Q All right. Let's talk about the reasons
11 that you've come to that conclusion and have you look now,
12 sir, at Exhibit Number Four for today's hearing.

13 Would you identify that exhibit for us?

14 A Exhibit Number Four is another table
15 showing reservoir parameters and quality of reservoir rock
16 in the Shipp Field, which -- which is really in close agree-
17 ment with our original exhibits.

18 It shows a permeability of 45 millidar-
19 cies, formation volume factor of 1.5, porosities of -- I've
20 shown as 8 percent. They would range more than 13 percent.
21 Water saturation I've shown as 15 percent. Again that would
22 be a range of 12 to 25 percent would be acceptable. Recov-
23 ery factors of 25 percent. Reservoir temperature, 160 de-
24 grees. Oil viscosity of 28 centipoise and oil gravity of 45
25 degrees.

1 Q So in terms of analyzing the reservoir
2 parameters based upon the additional wells that have been
3 drilled, you find that there is close agreement to the ori-
4 ginal parameters established.

5 A Yes.

6 Q And utilizing those parameters, they sup-
7 port your conclusion that 80-acre spacing is still justi-
8 fied?

9 A Yes.

10 Q All right, sir, let's go to Exhibit Num-
11 ber Five for today's hearing and have you identify that ex-
12 hibit for us.

13 A Exhibit Five is another -- it's another
14 pressure build-up plotted as a Horner plot, which shows the
15 calculation of the permeability, 43 milidarcies.

16 Q All right, let's talk, sir, about what
17 available pressure information that you have to show
18 communication or interference between wells that are spaced
19 80 acres apart.

20 Can you give us an example of any
21 instance in the reservoir where you have confirmation of
22 interference between wells?

23 A Yes.

24 Q All right, let's use one of the plats.
25 Perhaps Exhibit Number Two is the easiest one, because we've

1 used that to identify the wells.

2 Let's go back to Exhibit Number Two and
3 have you tell us what information you have that has caused
4 you to believe that you have confirmation of interference
5 between wells on 80-acre spacing.

6 A Okay, the best example would be an
7 interference test which we ran between our "BE" Shipp No. 1,
8 which is the west half of the northeast quarter and Tipper-
9 ary's State 4 No. 1, which is the north half of the north-
10 west quarter. Those wells are approximately 1650 feet
11 apart.

12 Tipperary at the time was producing their
13 well. We had just completed our Shipp, "BE" Shipp No. 1.
14 Prior to any production we -- we kept the well shut-in, used
15 it as an observance well to observe the pressure transients
16 created by Tipperary's State 4 No. 1, and we modeled those.
17 Prior to actually going out and measuring the transients, we
18 modeled it, come up with a number that we were looking for
19 as far as what transients we should be seeing created by
20 their well, and upon measuring those transients it was con-
21 clusive that those two wells were definitely in communica-
22 tion.

23 Q Do you recall what the pressure numbers
24 were in terms of the modeling and what the measured perfor-
25 mance was between the wells? Can you give us an example of

1 the ranges of pressure you were talking about?

2 A I can't recall the exact number but the
3 range was approximately .1-.2 psi drop per day. That's what
4 the model showed it should be and that's what the actual
5 measurement showed.

6 Q All right, sir, let's turn to Exhibit
7 Number Six, now, and have you identify and describe the in-
8 formation on Exhibit Number Six.

9 A Exhibit Number Six is further documenta-
10 tion of reservoir parameters. It's a core analysis report
11 from the Vierson No. 2.

12 Q All right, just a minute before you
13 describe it.

14 We had a prior Exhibit Number Eight that
15 had core information on the Vierson No. 1 and now the Exhi-
16 bit Number Six you have is for the Vierson No. 2?

17 A That's correct.

18 Q All right, these are wells that are lo-
19 cated in the southeast quarter of Section 4.

20 A Yes.

21 Q All right, compare for us the log infor-
22 mation between the two wells.

23 A Log information?

24 Q Yes, sir.

25 A The core? Core information?

1 Q I'm sorry, the core information.

2 A Although we only recovered 3 feet from
3 the Vierson 1, I think you could say that it was in agree-
4 ment with the Vierson No. 2, although in the Vierson No. 2
5 we -- we had a full 30-foot core.

6 Q Let's look at Exhibit Number Six and tell
7 us what you conclude as an engineer from analyzing that in-
8 formation.

9 A Well, in the porosity column you can see
10 that the porosities range from 4 to 13 percent, which is
11 what I've used as an acceptable range on our parameter
12 table.

13 One thing that may look -- may look to be
14 not in agreement is the water saturation from the core re-
15 port, but you have to keep in mind that this core has been
16 flushed by drilling fluids.

17 So the core analysis is in good agreement
18 with our electric logs and it's all summarized on our reser-
19 voir parameter exhibit.

20 Q The core analysis reconfirms, then, the
21 permeability range that you have used on the parameter exhi-
22 bit.

23 A Yes.

24 Q All right, sir. Having satisfied your-
25 self, Mr. Hodgins, that the wells in the pool are capable of

1 draining and producing on 80-acre spacing, did you further
2 make an examination of what the economic consequences or im-
3 pact would be on drilling wells on 80-acres versus 40 acres?

4 A Yes, I did.

5 Q All right, sir, and have you prepared an
6 exhibit to demonstrate that study?

7 A Yes, that is Exhibit Number Seven.

8 Q All right, sir. Turn your attention to
9 Exhibit Number Seven and identify and describe what you've
10 done in making the comparison.

11 A Exhibit Seven shows a comparison of the
12 40 versus 80-acre spacing. It shows that the number of
13 wells would double; that for 80-acre spacing we'd only need
14 one well and for 40 you would need two. Subsequently the
15 capital investment would double. Your -- your oil and gas
16 reserves, however, would stay the same. Producing life
17 would decrease five years in the 40-acre spacing, which
18 really, the only thing 40-acre spacing would do for you
19 would be just accelerate the life of your wells.

20 The capital investment per equivalent
21 barrel of recovery would double with 40-acre spacing, shown
22 as \$2.93 per barrel for 40 acres as opposed to \$1.47 per
23 barrels on 80-acre spacing.

24 So 40-acre spacing would be an economic
25 loss.

1 Q In establishing the fact that 40-acre
2 wells will not recover any more oil than an 80-acre well,
3 and using the same well costs per well, the advantage of 40-
4 acre spacing, then, in your opinion is simply -- reduces the
5 time it takes you to extract the oil, and accelerates your
6 rate of production.

7 A Yes.

8 Q The converse is that it also doubles the
9 cost of the investment per barrel of oil that you would have
10 to spend in order to get that oil out quicker.

11 A That's correct.

12 Q But you do not see, and based upon all
13 your studies, that the second well is going to produce any
14 more reserves than one single well alone on 80 acres.

15 A No, based on the excellent quality of the
16 reservoir rock, 80 acres will recover the same amount of
17 reserves that two 40-acre spacing wells will.

18 Q In your opinion will the drilling of two
19 wells per 80 acres constitute the drilling of at least one
20 unnecessary well?

21 A Yes.

22 Q In your opinion should the Commission
23 make permanent the existing special pool rules for the
24 Shipp-Strawn Pool?

25 A Yes.

1 MR. KELLAHIN: That concludes
2 our examination of this witness, Mr. Catanach.

3 We move the introduction of Ex-
4 hibits One through Seven.

5 MR. CATANACH: Exhibits One
6 through Seven will be admitted into evidence.

7 MR. BRUCE: We have no
8 questions.

9 MR. MARK MARTIN: Sir, my name
10 is Mark Martin. I'm with Tipperary Oil and Gas and we have
11 two of the wells in there and I just want to make a state-
12 ment that we want to support making permanent the 80-acre
13 spacing, and I have a letter to you to that effect that I'd
14 like to give at this time.

15 MR. CATANACH: Okay.

16

17 CROSS EXAMINATION

18 BY MR. CATANACH:

19 Q Mr. Hodgins, you didn't submit any actual
20 interference data. Is that -- is that available?

21 A It's available but I don't have it.

22 MR. KELLAHIN: Mr. Catanach,
23 that is to have been Federal Expressed to my office this
24 morning. It has not yet shown up. We'll be happy to pro-
25 vide that information to you to reconfirm Mr. Hodgins' tes-

1 timony about the interference information. If I'm allowed
2 that opportunity, I'd be happy to bring it over to you.

3 MR. CATANACH: Okay, thank you
4 very much.

5 Okay, I have nothing further of
6 the witness. He may be excused.

7 MR. KELLAHIN: I have nothing
8 else to present.

9 MR. BRUCE: Mr. Examiner, I
10 just merely want to state on behalf of Exxon that they
11 support Pennzoil's presentation in this matter.

12 MR. KELLAHIN: Mr. Examiner,
13 your file should also indicate a letter dated November 12th
14 from Amerind Oil Company, also in support of 80-acre
15 spacing.

16 MR. CATANACH: Thank you, Mr.
17 Kellahin.

18 Is there anything further in
19 Case 8696 or Case 8790?

20 If not, they will be taken
21 under advisement.

22

23 (Hearing concluded.)

24

25

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8790 heard by me on Nov 18, 1986.

David R. Catanach, Examiner
Oil Conservation Division