BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
October 17, 1973

EXAMINER HEARING

IN THE MATTER OF:

Application of Mesa Petroleum Company for a dual completion, creation of a new oil pool, assignment of a discovery allowable, and special pool rules, Lea County, New Mexico

Case No. 5082

BEFORE: DANIEL S. NUTTER,
Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Call Case Number 5082.

MR. CARR: Case 5082, Application of Mesa Petroleum Company for a dual completion, creation of a new oil pool, assignment of a discovery allowable, and special pool rules, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle of Hinkle, Bondurant, Cox and Eaton, Roswell, appearing on behalf of Mesa Petroleum Company.

I'd like to state that for the reasons which will appear in the testimony which we'll present, Mesa would like to amend the application in Case 5082 to delete that portion which relates to dual completion.

MR. NUTTER: That portion of Case 5082 relating to the dual completion will be dismissed. Proceed with the rest of the case.

MR. HINKLE: We have two witnesses which have been previously sworn before.

MR. KELLAHIN: Same appearance as in the previous case, Tom Kellahin on behalf of R. L. Burns Corporation.

MR. HINKLE: Do you want to re-swear them?

MR. CARR: No, the record will show they are still under oath.

DENNIS CROWLEY,

was called as a witness and being previously sworn, testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, residence and by whom you're employed?

A Dennis Crowley, Midland, Texas, employed by Mesa Petroleum Company as an exploration geologist.

Q And you have just recently given your qualifications in Case Number 5081?

A Yes, sir.

Q Have you made a study of the matters which are involved in this application, in Case Number 5082?

A Yes, sir, I have.

MR. HINKLE: Are his qualifications acceptable?

MR. NUTTER: Yes, sir.

Q Are you familiar with the application of Mesa in this case?

A Yes, sir.

Q What is Mesa seeking to accomplish?

A Mesa Petroleum asks the creation of the North Shoebar Strawn Pool for Hilburn Number 1 well located in Unit E of Section 13, Township 16 South, Range 35 east and the assignment of approximately 56,440 barrels of oil discovery allowable to the said well and further, asks for the issuance of temporary special rules for said pool, including a provision of 160 acre drilling and proration units.

Q Have you prepared or has there been prepared under your direction Exhibits for introduction in this case?

A Yes, sir.

Q And they are Exhibits 1, 2 and 3 on the board?

A They are, sir.

Q Refer to Exhibit 1 and explain what this shows.

A Exhibit 1 is a map of the Southwest Lovington Prospect Area in Lea County, New Mexico, showing Township 16 South, Ranges 35 and 36 east on the scale of one inch to 2,000 feet.

The production is shown on the map as Wolfcamp in the yellow, the Strawn B Prime Bank is in green, the Morrow is in red, Devonian in blue and so forth, as shown on our scale here.

The Southwest Lovington Unit of which Mesa is the operator is outlined in red and takes in Sections 13, 14 the northeast quarter of Section 23 and the north half of Section 24 of Township 16 South, Range 35 east.

Mesa Petroleum Company has a working interest of 70.3977 percent, Monsanto has a working interest of 25.0568 percent and Skelly Oil has a working interest of 4.5455 percent.

The black contours on an interval, contouring structural interval of 50 feet are contours on top of the Pennsylvanian Strawn formation and they show a high

located at near the Southwest Lovington Unit, Strawn High here in this North Shoebar, Strawn high in the Shoebar Field and another Strawn high here.

The Strawn B Bank trend which is a carbonate build-up within the Strawn formation is noted and shown by the green contours on a 25 foot interval.

These contours are not showing either gross or net porosity, but rather are showing the phases of the Strawn B Bank trend.

Our geological studies in this area indicate that the Mesa Petroleum Number 1 Hilburn has been completed from a strati-structural trap where this porous bank or carbonated build-up in association with or crosses over this Strawn high here.

I'd like to refer next to --

Q Does this Exhibit Number 1 also -- is it an index to your cross section, next Exhibit?

A Yes, sir, it is. The second Exhibit, the Stratigraphic Cross Section A- A Prime is shown on the map here, Exhibit 1, as starting up to the north and coming down to the Mesa Hilburn Number 1 and coming down to the south here.

Q Now, refer to Exhibit Number 2 and explain that.

A Exhibit Number 2 is a northwest, southeast stratigraphic cross section, A-A Prime on a vertical scale of one inch

to 40 feet, and a horizontal scale of one inch to 600 feet.

The well or the cross section is hung on the top of the datum or top of Atoka for datum. The structural mapping horizon which we showed in Exhibit Number 1 is the black line here and is the top of the Pennsylvanian Strawn formation.

The green intrical in here shows the B Prime Bank, Strawn Bank as it was encountered in the R. L. Burns Lusk Number 1, Section 11, Township 16 South, Range 35 east.

This well, according to log analysis, had about 28 feet of porosity, greater than five percent, had a showing sample, I understand, but did not drill stem test the bank.

This well, the middle well in the cross section is a Mesa Petroleum Company C. E. Hilburn Number 1, Section 13 of Township 16 South, Range 35 east and has just recently been completed in the B Prime Bank of the Strawn and we have a total of 48 feet of porosity with the weighted average of 9.6 percent. The red here is indicating the perforated intervals in the pay zone.

The southern most well in the cross section is the Union Oil Company George Spires Number 1-30 in Section 30 of Township 16 South, Range 35 east and shows a

position of the B Prime Bank as it was encountered. This Bank in the porosity tested and it had gas to the surface in 45 minutes at an estimated 226,000 cubic feet. It recovered 100 foot of drilling mud, 810 feet of oil and gas cut mud, 1,020 feet of oil and 1150 feet of salt water.

Q Now, refer to Exhibit Number 3 and explain what it is and what it shows.

A Exhibit Number 3 is a portion of the Sidewall Neutron Porosity Log of the Mesa Petroleum C. E. Hillburn Number 1 on a vertical scale, one inch to 100 feet.

It shows the top of the Wolfcamp formation of 9566 feet, the Wolfcamp Three Brothers marker at 10,287 feet, the Strawn formation encountered at 11,275 feet; it shows the productive interval in the perf zone. It shows the top of the Atoka-Morrow and in addition, shows where the Morrow, two separate sands in the Morrow were production tested and were not economic and were plugged back and the well was completed.

Q And that's the reason why you're not asking for a dual completion because it's not economic Morrow?

A Yes, sir.

Q Do you have any further comments?

A In summary, I would like to state that the trapping mechanism in the Hilburn well, our studies indicated

is a strati-structural trap with porosities associated with the Strawn high. I don't believe that drilling, developing this area on 160 acre spacing would necessarily cause unnecessary dry holes to be drilled and cuttings from the well,examination of cuttings from the well, the drill stem test information, the production test information all seem to indicate that one well would adequately drain 160 acres, sir.

Q Refer to Exhibit 1 in Section 13, does that indicate that the well is drilling at the present time?

A Yes, this is the Mesa Petroleum Number 1 Lister, which is currently drilling and is a projected Morrow test.

Q What is the depth of that at the present time?

A I assume about 10,000 feet today, sir.

Q And it will go through all of these zones?

A Yes, sir, it will penetrate the Strawn and go down and see all of the Morrow zone.

Q Do you have anything further you would like to present?

A No, sir.

MR. HINKLE: We offer Exhibits 1, 2 and 3.

MR. NUTTER: Applicant's Exhibits 1, 2 and 3 will be admitted.

MR. HINKLE: That's all the direct.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Crowley, before you sit down, would you indicate your -- depict the top of the Pennsylvanian on Exhibit Number 3, please?
A The Penn, itself, that's a tough one in this particular --
Q That's why I wanted to see where you put it.
A And I have some logs in the office where I put the marks and the double x marker in purple Penn is -- it's up in this zone right in here someplace, but I can't tell exactly.
Q But, in here as in so many other places, the transition from the Wolfcamp into the --
A Is very difficult, yes, sir.
Q To detect?
A Right.
Q Where was the porosity that was indicated in the previous case in this well in the Wolfcamp?
A This little zone right here and that one right there.
Q Would you make a little mark on there?
A Yes. I have a red pencil, here and right there.
Q And it was proposed to dual complete the well in the Wolfcamp there but that's been abandoned?
A Right.

MR. NUTTER: Are there any further questions?

MR. HINKLE: I have one other question. In your opinion, is the C. E. Hilburn Number 1 a new discovery

in the Strawn?

WITNESS: Yes, sir, it is.

MR. HINKLE: Not connected with any other pool that you know of?

WITNESS: No, sir.

MR. HINKLE: That's all.

MR. NUTTER: Are there any other questions of the witness?

(No Response)

MR. NUTTER: He may be excused.

(Witness Excused)

MR. HINKLE: I'd like to call Mr. Williamson.

ROY C. WILLIAMSON, JR.,

was called as a witness and being previously sworn, testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, your residence and your profession.

A I'm Roy C. Williamson, Jr. I live in Midland, Texas and I'm partner and President of the consulting firm of Sipes, Williamson & Aycock, Inc.

Q You have previously qualified before the Commission as Petroleum Engineer?

A Yes, I have.

Q Have you made a study of the area which is under consideration here?

A Yes, I have.

Q And you're employed by Mesa for that purpose?

A That's correct.

MR. HINKLE: Are his qualifications sufficient?

MR. NUTTER: Yes, sir, they are.

Q Have you prepared or has there been prepared under your direction Exhibits for introduction in this case?

A Yes.

Q They are the ones that have been marked Exhibits 4 and 5?

A That's correct.

Q Refer to Exhibit 4 and explain what this shows.

A Exhibit 4 is a downhole hook-up schematic for the Mesa Hilburn Well Number 1 and on this schematic are shown the various casing settings and the cement utilized to to fix this casing in the hole.

The most important things shown are the Strawn perforations from 11,289 to 11,356, which will be produced through tubing set on a Packer at 11,233. Also shown on the schematic are the Morrow perfs. from 11,700 to 11,870 feet. As has been previously testified to, the Morrow was production tested with no production. A cast iron bridge plug has been set at 11,650 feet and 30 feet of cement has been dumped on top making a plug back

total depth of the well of 11,620 feet.

This well be completed as a single completion from the Strawn perforations.

Q Now, refer to Exhibit Number 5 and explain what this is and what it shows.

A Exhibit Number 5 shows the production pressure and reserve calculations for the Hilburn Number 1 in the Strawn interval.

The well was potentialed on October 5, 1973 for 872 barrels of oil, zero barrels of water, 1619 MCF of gas, for a gas oil ratio of 1857 cubic feet per barrel of oil.

The well was produced for ten days during which it produced 3,718 barrels, at which time, it was shut in. The shut in date being October 7, 1973 for a 72 hour pressure build-up and the well remained shut in.

A drill stem test was taken in the Strawn interval on September 7th and the extrapolated pressure from the drill stem test from the Strawn formation was 4,274 PSIG.

After production of 3,718 barrels of oil, the well was shut in for 72 hours and a build-up test was taken. The pressure extrapolated from this build-up test is 4,248 pounds, which shows essentially no depletion over the initial drill stem test pressure.

Now, the pressure build-up curve at the 72 hour

period was still increasing and still curving, so the exact extrapolation is not available, but it's certainly within the range of the initial pressure, which shows it does have good communication, at least, after this production of 3700 barrels.

The next item are the volumetric calculations of reserves. Net pay determined from the log, 48 feet; the average porosity 9.6 percent; water saturation calculated from the logs, 20 percent; the oil formation volume factor was estimated at 1.6 and the recovery factor was estimated at 20 percent.

These data result in a calculation of 74 barrels of oil per acre foot that should be recoverable from this resevoir.

If we assume that the well would drain 40 acres, we have a recovery of 142,080 barrels of oil. If the well will drain 160 acres, we have a recovery of four times that, or 568,320 barrels of oil.

On Page 2 of Exhibit 5, we have the economics for the Hilburn Number 1. The cost to drill to the Morrow and make a single completion in the Strawn is estimated at $271,000.00, an oil price of $5.36 per barrel was utilized. The casinghead gas price, although not contracted for at this time is estimated to be $250.00 per MMCF. The average gas oil ratio over the life of the well,

.006 MM cubic feet per barrel. Severance and ad valorem taxes of 5.6 percent, a net lease interest of 80 percent, operating cost of $400.00 per month, and estimated life of production of 20 years.

We can then calculate the value of the oil and gas that would be recovered on 40 acre drainage, which going through the calculations, we have $575,122.00 from oil on 40 acres; 160,948 from gas, less operating cost of 96,000 yield undiscounted net cash flow of $640,070.00.

It can be seen that this, in itself, would be an economic venture minus the cost of $271,000.00, we have a profit of $368,500.00.

If we could drain 160 acres, we'd have undiscounted net cash flow of $2,848,280.00 less the cost to drill of 271,570, for a profit of approximately 2.5 million dollars.

So, the data to date show that we have a thick resevoir, 48 feet, which is quite economic on 40 acres. Our pressure data indicates that we do have good communication in the reservoir, as opposed to other zones which would show depletion after some production, and it's my opinion that this well should drain a considerable area and additional drilling should be done on 160 acres to determine the quality of this reservoir, because if the entire reservoir is of the indicated quality here, I feel like that one well wouldddefinitely drain 160 acres.

Q What would you recommend to the Commission in the way of special pool rules to be adopted on a temporary basis?

A I would recommend that the spacing be on 160 acres with the well to be located within 150 feet of the center of a governmental quarter quarter section.

Q Any quarter quarter?

A Any quarter quarter section.

Q If the Commission sees fit to approve this application, in your opinion, will it be in the interest of conservation, prevention of waste and protect correlative rights?

A Yes, it would.

MR. HINKLE: We'd like to offer Exhibits 4 and 5.

MR. NUTTER: Applicant's Exhibits 4 and 5 will be admitted.

MR. HINKLE: That's all the direct.

MR. NUTTER: Any questions?

MR. KELLAHIN: Yes, Mr. Nutter.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Williamson, you mentioned a drill stem test conducted in September 7th, I guess it was this year, was it?

A Yes.

Q That's '73?

A Right, September 7th of '73.

Q Is that the same drill stem test as conducted by Halliburton that's on file with the Oil Commission?
A Yes.
Q Doesn't that drill stem test indicate a draw down during the test?
A During the test itself?
Q Yes, sir. If my memory serves me correct, during an interval of an hour and a half, there was initial pressure of 4280 and that after an hour and a half, the pressure was 4255.
A Let me refer to that. I have that data here. Pressure as recorded in this is on --
Q This is the test of the Strawn.
A Strawn test and after the initial flow period, the bottom pressure gauge, which was set at 11,346 feet, the data from that gauge was extrapolated to 4,280 pounds. The well was then produced for a second flow period for 90 minutes and the well was then again shut in and the static pressure was extrapolated at 42 hundred 55 pounds, which shows a decrease there of some 25 pounds.
Q Wouldn't that indicate a draw down during the test, wouldn't that indicate a limited reservoir?
A Oh, no, not that small of amount, because you have not allowed the well to be shut in. It's not stabilized and you just don't have enough data. The accuracy of the

gauge could be off that much and I think it's more indicative that after we have produced over 3,000 barrels of oil from the well, we again shut in and were able to extrapolate that pressure back to the vicinity of the original pressure.

Q So a pressure draw down during the test is insignificant?

A Yes, plus the fact that the well is indicated to be very productive is evidenced by its ability to produce on the IP of over 800 barrels.

MR. NUTTER: What did it produce on the drill stem test?

A Okay, first closing period it was 21 barrels of oil and 37 barrels of oil during the second flow period, recovered 40 barrels of oil during its second closed in period and then reversed out 18 barrels, so it recovered oil at all parts of the test.

Q (By Mr. Kellahin) On your Exhibit 5, Mr. Williamson, in the middle of the first page it says there's a build-up test, says 4248. Doesn't that confirm the draw down during the drill stem test to indicate that we may have a limited reservoir?

A No. Again, we're looking at a difference here of some 28 pounds and I think, as I previously testified, the pressure was still building at the end of 72 hours, so therefore, the extrapolation of the data is somewhat indefinitive

at that time because the points are still curving upward and you eventually reach a straight line portion of the curve and you have a question of which of the last points do you take, so we could easily extrapolate the data above the original DST pressure.

In other words, the well was not shut in for a sufficient length of time to give us an exact extrapolation.

MR. NUTTER: In other words, this is not an extrapolated pressure at all. This is a red pressure?

A No, this is an extrapolated pressure, but using the last of the data which are still curving up, so you could easily see that it could be essentially no depletion for this amount of production.

Q (By Mr. Kellahin) Couldn't you go ahead and drill these wells, you know, one to the section, or however you wanted to space them without a spacing rule of 160 acres? There's no reason for that rule, is there?

A I'm sure this is possible, but with a smaller spacing, you could have a difference of ownership that would allow people to drill wells on a smaller spacing that would not be economic.

In other words, if you can drain the section over a larger spacing, you may as well do it, because this conserves money and probably allows for more drilling.

Q Conversely, would it inhibit those operators that did want

to develop on a smaller spacing of 160 acres?

A Right.

MR. KELLAHIN: Nothing further, Mr. Nutter.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Williamson, I noticed in your mathematics here or your economics on this case, as well as the other, you used a price of $5.36 a barrel for crude. Is that the actual going price down here?

A That's what I've been advised by the Mesa personnel.

Q This is what's authorized under Phase 4 price counsel?

A Yes, sir. How long that will remain in effect, no one knows, but yes, that is the current price.

MR. HINKLE: I have one other question here.

REDIRECT EXAMINATION

BY MR. HINKLE:

Q I believe the testimony shows this well when tested in the Morrow was not economic?

A Right.

Q Are there any other zones that might be produced in this well in the future?

A Yes, the Wolfcamp zone from the interval shown here on Exhibit Number 3 shown in red here at about a depth of

10,400 feet -- 10,500 feet, originally this was contemplated this would be a dual completion, but the Wolfcamp does indicate to be productive, although limited, admittedly, but this will very likely be a salvage operation after the lower zone is completed, this would be then recompleted and obtain what reserves can be gotten there.

Q Do you anticipate by the well which is now drilling and by other development which is contemplated within the next year that you will have a lot more information with respect to this area?

A Yes, very definitely. We'll have more production history and pressure data from the currently developed wells, as well as the --

Q And that's the reason for asking for temporary rules on your basis?

A Right.

MR. HINKLE: That's all.

MR. NUTTER: Are there any other questions of Mr. Williamson?

(No Response)

MR. NUTTER: You may be excused.

(Witness Excused)

MR. NUTTER: Anything further, Mr. Hinkle?

MR. HINKLE: No, sir. That's all.

MR. NUTTER: Does anyone have anything they wish to offer in Case 5082?

MR. KELLAHIN: Mr. Nutter, I have one witness and it won't take more than two or three minutes for him to say what he has to say.

CONRAD APPLEDORN,

was called as a witness, and after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you please state your name, by whom you're employed and in what capacity?

A I'm Conrad Appledorn. I'm self-employed as a consultant in petroleum engineering. I'm from Santa Fe.

Q Mr. Appledorn, have you been retained by R. L. Burns Corporation to make a study of the matters raised in application 5082, Mesa Petroleum Company?

A Yes, I have.

Q Have you previously testified before this Commission or one of its hearing examiners?

A Yes, I have.

MR. KELLAHIN: Mr. Examiner, are the witness's qualifications accepted?

MR. NUTTER: Yes, they are.

Q Mr. Appledorn, have you studied Applicant's Exhibit Number 5 in Case 5082?

A Yes, I have.

Q Will you please refer to the pressure information contained on the first page of that exhibit?

A Yes.

Q And based on your experience,will you interpret for me what that pressure indicates to you?

A I think this pressure indicates a very good possibility of a limited reservoir, the reason being we have the initial drill stem test which showed a draw down with an extremely high calculated potential of 1575 barrels of oil per day.

The last build-up test also at a rather high production rate and also at a high initial potential of 872 barrels of oil, still shows a draw down and it's quite difficult, I hate to pass judgment on this -- on Mr. Williamson's expertise. He's calculated a lot of these tests also, but I hesitate to accept the test at these rates and at these pressures. It still hasn't reached a straight line,extrapolatable line, in 72 hours after closing at these, particularly these high rates.

It's not unusual in southeastern New Mexico for Strawn wells to have these high potentials and still be limited reservoirs. In my opinion, we're dealing with

essentially reservoirs that could be uneconomic.

They would require dual completion, they would require completion from more than one zone consecutively, as a great many wells in this area have been, in order to be economic.

We are then faced with a question of density of drilling and in the opinion of R. L. Burns Corporation, establishing 160 acre spacing at this time would inhibit exploration in this area. It would inhibit, therefore, the possibility of developing additional reserves, which can be developed on closer spacing than 160 acres.

Q Mr. Appledorn, based on your examination and your hearing the testimony presented by the Application, do you have any recommendation as to the spacing for this area?

A I'm going also on experience in other areas in the Strawn in southeastern New Mexico, but I do believe an 80 acre spacing would meet the requirements of my client and would also meet the requirements for drilling density to discover this oil, prevent waste. We have Strawn wells to the east of Lovington in the Lovington East Field, which are developed on 80 acre spacing. They are actually drilled as close as 40 acres on 1320 feet apart with widely varying total recoveries, widely varying IP's and by being drilled on such rather close density, they have discovered considerable additional oil.

Q Are you familiar with the Shoebar Pennsylvanian Pool on the south end of that first Exhibit in this case?

A I've gone through the records on the production that has been made from that pool and down there, we have wells that are drilled, in essence, on 40 acre spacing and again, we find this typical, extremely variable production, varying from quite low, uneconomic production on the flanks and yet, just a relatively short distance away, a very high production.

MR. KELLAHIN: That concludes our direct examination.

MR. HINKLE: Mr. Examiner, I'd like to put Mr. Williamson on.

MR. NUTTER: Did you have any questions of Mr. Appledorn?

MR. HINKLE: No questions.

MR. NUTTER: Mr. Appledorn may be excused.

(Witness Excused)

ROY C. WILLIAMSON, JR.,

being recalled as a witness and being previously sworn, testified as follows:

REDIRECT EXAMINATION

BY MR. HINKLE:

Q Mr. Williamson, you've heard the testimony of Mr. Appledorn. Would you like to comment on it?

A Yes, I would like to comment, particularly on the pressure build-up test that was taken on the Hilburn Well, which was shut in for a 72 hour period.

I think it would be well to look at the data, the last six hours of the test. In other words, from the 66th through the 72nd hour, the well pressure had increased some 7 pounds, so it's still increasing at a fairly significant rate and the actual measured pressure was 3833 pounds, so we can see we do have increasing pressure. It still is very debateable as to how this curve can be extrapolated.

I have a rough copy of the curve here.

MR. NUTTER: Would you object to making it an exhibit?

A No, that would be fine. I've got two different curves on here. The colored one is the Hilburn Strawn --

MR. NUTTER: Then we'll have something to judge the pressure data on.

Q (By Mr. Hinkle) Refer to the Exhibit that has been marked as Exhibit Number 6 and explain it.

MR. NUTTER: This will be 7 and 8.

A Okay, Exhibit Number 7 is the data obtained from the pressure -- in other words, it shows the time, shut in versus the measured pressure at two depths, one at 11,122 and one at 11,322.

Now, Exhibit Number 8 is a calculation that I have made from that data presented by the build-up pressure test and it's called a Horner Plot, which is a dimensionless time plot, which is a standard engineering approach to analyzing build-up data so that it can be extrapolated to the expected reservoir pressure.

As you know, it's usually impossible to leave a well shut in for a sufficient period of time to get the absolute maximum pressure, so this allows us to extrapolate available data to the estimated ultimate reservoir pressure.

Then Exhibit Number 6 shows a plot of the data on Exhibit 7, which plots on the apsisa, the value T plus delta T over delta T where T is the total amount of producing time in hours prior to shut in. Delta T is the amount of time shut in. The vertical scale is the pressure measurement in PSIG. Shows a faint curve there.

MR. KELLAHIN: Almost non-existent.

A You're talking about the completion is non-existent, but in my opinion, the data that we have to date does not show any, I would say no depletion at all, because we can extrapolate this curve to quite a varying range of pressures and the data we have to date does not indicate any depletion. If we do have a few pounds of depletion

with bomb error, I would say it's very minimal.

We don't have enough data to really pin down how many actual pounds of pressure we have lost by the production of 3700 barrels of oil.

Q All the information you have testified to indicates a rather large reservoir, does it not, rather than a small reservoir?

A Right. The data we have to date from the pressure and producing ability of the well, although admittedly very limited, in producing time, indicates this is a permeable reservoir and should drain considerable areas, but we just won't know until we get additional development.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q That's very qualified, isn't it, Mr. Williamson. You say "should."

A If I had the data, I would tell you exactly, but I don't think we have the data.

Q In this curve then, I'm not sure, perhaps you said so. Does this curve in any way indicate you have taken into account the permeability or the capacity of the well to produce, that sort of thing? Tell me again what the curve is.

A All this is is just a measurement -- well, the theory is

quite complicated, but you're trying to eliminate the time factor from the amountof time the well has been shut in. You're trying to get the factor T plus Delta T over Delta T to a small enough value that T becomes insignificant.

In other words, you would like to have producing time insignificant as opposed to shut in time, which means we could leave the well shut in for several months or years or whatever it takes, we could then get to an extrapolateable maximum reservoir pressure.

Q Were you able to calculate capacity for this curve, or did you?

A I could, I did not.

Q You mentioned awhile ago after a certain period of time there was a pressure increase of 7 pounds; is that what you said?

A I stated that during the last 6 hours of the 72 hour build-up period that the pressure increased 6 pounds.

Q Could that be accounted for by other zones of porosity leaking into the tested zone?

A Well, I have no way to know. We've got 48 feet of pay we think are contribuing to production, so we would assume --

Q You would assume it was coming from the pay area as opposed to the porosities outside the area tested?

A Right.

MR. KELLAHIN: Nothing further.

RECROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Williamson, the application here also is for 56,000 barrels of oil discovery allowable.

Now, I realize the well had an initial potential of 872 barrels of oil for the 10 day testing period. It was produced at the rate of approximately 372 barrels of oil per day, which is in accordance with the existing 40 acre allowable of the well at this depth of 365.

Now, assuming that the Commission should approve the 160 acre spacing, the allowable on the well would be 605 barrels a day, then discovery allowable would be on top of that.

Is there a limit at which you think this Strawn reservoir should be produced as a great sensitive? Would a discovery allowable on top of a 605 barrel allowable be getting into an excessive rate?

A At this time, we have no data to show that it could be harmed. I think the potential test was on a choke of twenty sixty-fourths, which is a fairly restrictive choke.

Q That was that 872 barrels?

A Yes, sir.

Q Twenty sixty-fourths?

A Yes, sir. Let me check that to be sure. Yes, sir, that was on twenty sixty-fourths.

Q And I don't suppose any fluid analysis has been made to determine the bubble point on this reservoir?

A No, sir. I understand Mesa is preparing to take this data, which will be further helpful.

The well did make no water on potential tests, so we would not have to worry about coming in water, at least from current indications.

Q But, you think that the well would be capable of making a top allowable plus a discovery allowable?

A Yes, sir. The data we have to date would indicate that it would be.

MR. NUTTER: Are there any other questions of Mr. Williamson?

(No Response)

MR. NUTTER: You may be excused.

(Witness Excused)

MR. NUTTER: Do you have anything further, Mr. Hinkle?

MR. HINKLE: That's all.

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: Just note, Mr. Examiner, our objection to the spacing. I believe that's quite apparent, if we rely on Mr. Williamson's testimony to the fact that he's agreed that this is a rather limited capacity reservoir and it's my client's opinion it should not be developed on 160 acre spacing.

MR. NUTTER: Your recommendation is for 80?

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Anything further, Mr. Hinkle?

MR. HINKLE: I'd just like to say it's been pointed out here that we're asking for temporary rules for one year. There's one well drilling, others are contemplated during the year and by the end of the year, I'm sure that Mesa will be better able to determine the type of reservoir that exists in all of these formations that are material and at that time, it can certainly be determined whether we ought to go back and develop it on 80 or 40 or whatever the situation might be, but I think it would be a mistake, now, to have it developed on anything less than 160, as far as oil is concerned.

MR. NUTTER: Thank you. Mr. Carr?

MR. CARR: Mr. Examiner, the Commission has received two wires, one from Monsanto Company and the other from Skelly Oil Company, both in support of the application of Mesa Petroleum Company in this case.

MR. NUTTER: And they are on record already as being part interest owners. Thank you, Mr. Carr.

Does anyone have anything further to offer in Case 5082?

(No Response)

MR. NUTTER: We'll take the case under advisement and the hearing is recessed.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, Donna Keith, a Certified Shorthand Reporter in and for the County of Bernalillo, State of New Mexico do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Donna Keith
CERTIFIED SHORTHAND REPORTER

I hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5082 heard by me on 10/17 73.

New Mexico Oil Conservation Commission

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EXHIBITS

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