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

21 November 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Penroc Oil Corporation for hardship gas well classification, Lea County, New Mexico.	CASE 8759

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
Energy and Minerals Dept.
Santa Fe, New Mexico 87501

For the Applicant:

MR. STOGNER: Call next Case Number 8759.

MR. TAYLOR: The application of Penroc Oil Corporation for a hardship gas well classification, Lea County, New Mexico.

MR. STOGNER: It's just come to my attention that Case 8759 will be continued to the Examiner's Hearing scheduled for December 18th, 1985.

(Hearing concluded.)

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. 8759, heard by me on 21 November 1985.

Michael E. Stogner, Examiner
Oil Conservation Division

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

18 December 1985

DIVISION HEARING

IN THE MATTER OF:

The disposition of cases called and without testimony being presented.

CASE 8782, 8746, 8784, 8785, 8759, 8753, 8788, 8789, 8689, 8773, 8736, 8735, 8737, 8775

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

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

9 January 1986

EXAMINER HEARING

IN THE MATTER OF:

Application of Penroc Oil Corporation for hardship gas well classification, Lea County, New Mexico. CASE 8759

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Jeff Taylor
Legal Counsel to the Division
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MR. CATANACH: Let's call next Case 8759.

MR. TAYLOR: The application of Penroc Oil Corporation for hardship gas well classification, Lea County, New Mexico.

MR. CATANACH: Are there appearances in this case?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Penroc Oil Corporation.

I have one witness, Mr. Sterling J. Talley, who is a professional petroleum engineer.

MR. CATANACH: Are there other appearances in this case?

MR. KENDRICK: H. L. Kendrick with El Paso Natural Gas Company.

(Witness sworn.)

STERLING J. TALLEY,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Talley, for the record would you please state your name and occupation?

A Sterling Talley, and I'm President of Penroc Oil Corporation; graduate of University of Oklahoma and degree in petroleum geology.

Q Mr. Talley, would you identify for the examiner what it is that you seek to accomplish on behalf of your company with this application?

A Do they accept me?

Q I haven't qualified you yet.

A Oh, oh.

Q What are you seeking on behalf of Penroc?

A We're seeking a hardship well classification for the Madera Com No. 1 Well, which is located in Unit C of Section 11, Township 24 South, Range 34 East, in Lea County, in the Antelope Ridge Morrow Gas Field.

Q On behalf of your company, Mr. Talley, have you made a study of the geologic and engineering facts surrounding this application?

A Yes, I have.

Q And have you previously testified before the Division as an expert petroleum geologist?

A Yes, I have.

MR. KELLAHIN: We tender Mr. Talley as an expert geologist.

MR. CATANACH: He is considered qualified.

Q Mr. Talley, let me direct your attention to the package of exhibits that we have marked for the examiner.

The first exhibit I have marked is simply the application form itself.

On that form, sir, would you indicate to the examiner what is the minimum sustained producing rate that you're requesting for the subject well in terms of its hardship gas classification?

A We're requesting a minimum rate of 200 MCF per day.

Q Let's turn to Exhibit Number Two and have you identify for the examiner the location of the well and the proration unit assigned to the well.

A Okay. The plat you have before you there is a combination land plat of Township 24 South, Range 34 East, which indicates the Penroc Madera Well located in the north half of Section 11, and the proration unit is outlined in orange, being the north half of Section 11.

I might say that this well is located 1980 feet from the west and 660 feet from the north lines of

Section 11, 24 South, 34 East, in Lea County. I named the pool. The completion date was March 15th, 1974, in the Morrow sand section through a series of perforations 13,524 feet to 13,744 feet. Total depth of the well is 14,100 feet. Plugged back total depth is 14,060 feet.

The initial potential was calculated absolute open flow of 1440 MCF gas per day plus 51.77 barrels of condensate per day. The shut-in tubing pressure prior to going on the sales line was 4259 pounds. Gas connection to El Paso sales line was June 14th, 1974.

I want to make a note at this time that this well is a deviated hole because of a lost fish in the hole. TD at that time was 13,580 feet. Cement was then set and brought up to 13,132 feet; drilled the cement to solid cement at 13,168. Set the Dynadrill at 13,168 feet on 12-8-73 and then drilled to 14,100 feet, the total depth, which was reached on January the 10th, 1974.

Q Let's take a moment, Mr. Talley, and direct the examiner's attention not only to Exhibit Number Three, which is the written narrative of your history on the well the difficulties you have with the fluid problems, if you'll turn also to Exhibit Number Four and identify that exhibit for us.

A Okay. Number Four is a decline curve that has been prepared commencing with first production of

the well in 1974, being June, and terminates through November, 1985.

The curve simply shows the amount of gas made on a monthly basis versus the -- yeah, the amount of gas made on a monthly basis, and then at the top I have shown the total amount of gas production for each year. We do have an exhibit later on which will show the cumulative amount of gas that has been produced.

Also along the top part of the curve over on the righthand side I have shown some notes there which will be correlated back to the narrative that we have in Exhibit Three.

Q All right, let's, using Exhibit Four as a guide for the producing history of the wells, would you commence with your narrative on Exhibit Number Three and lead us through the important factors that you have used to reach a conclusion determining whether or not in your opinion this well justifies hardship gas well classification.

A Yes. What I have written here and what I will say is that the Madera Comm. No. 1 Well has always been a high pressure, low volume well. It is evidenced that production has slowly decreased from an average of 8000 MCF of gas per month production in 1975 to an average of approximately 5250 MCF per month during 1980.

Now this is a period of almost six and a

half years.

Then in late 1980 the well would not produce into the sales line; in other words, pressure had decreased to the point it would not flow of its own accord. A compressor was installed and the well produced without incident until those periods of low gas market demand and the well commenced to be shut-in.

Now you'll see there quite clearly on the decline curve, and see that from June, 1974 through 1980, almost, it had a very classic, slow decline curve, and then we put the compressor on it and then you'll see it built up to where up until the period of the middle of 1982 it was making almost as much gas as it was initially back in 1974, '75, '76.

A compressor was installed and the well produced -- I said that.

During the months of June, July, August, and September, in 1982 the well was shut-in 8, 23, 26, and 13 days, respectively, and I have denoted that above the curve on Exhibit Four.

Now, in this case production was resumed each time simply by opening the well after the well had been shut-in; however, the real problem began to develop in 1983. The well was shut-in 10 days in May but had to be swabbed to return to the sales line.

On June the 4th, 1983, found fluid at 3000 feet. We made seven runs with swab, and kicked the well off.

Then in September, 1983 the well went down because of mechanical malfunction of the choke valve. After repair the well would not flow at this time.

We swabbed over a period of three days before we could get the well to flow.

The year 1984 was a bad one. The well died. Swabbed and determined had communication in casing annulus. What I mean was that we had pressure on the casing which we had not had before. We pulled the tubing, found that we had a hole in the tubing at 10,574 feet. We also found that we had scale build-up in the lower tubing. We treated the well while we had the tubing job going with 1000 gallons of Gypsol and acidized the perforations with 1000 gallons of 15 percent NE acid; this during the month of May. The well still would not flow.

We alternately shut the well in for pressure build-up and opened the flow over a period of time; had no success.

So then in June we swabbed the well two days. It would not retain a sustained flow.

We swabbed again on June the 25th for one day. The well would make only 30 to 50 MCF of gas per day

throughout most of July. Eventually we unloaded enough water to slowly increase production to an average of 216 MCF of gas per day in December of 1984.

For the first time, the well suffered a loss in income for the year 1984.

It could be noted that well performance has not been good in '85 because or due to a variety of factors.

In January we evidenced only 14 producing days because of sales line freeze-ups attributable to extremely cold temperatures. Average daily production was 106 MCF gas per day.

The Madera produced an average of 205 MCF gas per day during February but was shut in by purchaser for four days during the 15th through the 18th. Production was recorded for the first 25 days of March, being an average of 265 MCF of gas per day.

The well was shut in by purchaser on the 25th -- hm, that's not the right date -- through the 25th of April -- yes, it is.

We were allowed to open the well one day on the 26th but told to shut it in again. We shut in then until May the 17th. We were allowed to produce through the 24th and shut in again. We only averaged 135 MCF gas per day.

We opened on the 26th, produced through the 21st of June; averaged 164 MCF of gas per day.

Then El Paso shut the well in for its annual shut-in tubing pressure test; could not get well to flow after this shut-in period. We alternately shut it in for pressure build-up and open but with negative results.

We swabbed the well three days on the 5th, 6th, 7th of July. Again went through alternate, the well would not flow after this.

We went through another period of alternate shut-ins and open procedures with no sustained flow.

We swabbed the well again two days on August 21st and 22nd. We determined now that we had a leaking seal assembly, and we'll cover that when we look at the schematic of the wellbore.

We pulled the tubing, repaired the seal assembly and go back in the hole. We swabbed the 28th and 29th. After shut-in could not get well to flow. We periodically shut-in and open to attempt production; was not successful.

Have pressure build up to 2800 pounds. We move in a unit for one last attempt to get the well to produce and swabbed on the 25th and 26th of September. We closed the well again for two days for pressure build-up and this time after we open, we have a small flow of gas. We

keep the well producing through October, increasing to 110 MCF of gas a day but averaged only 91 MCF for the month.

During November we averaged 122 MCF of gas per day but actually had increased in the latter part of the month to approximately 160 MCF per day. During this period of time we're producing an average of 4.64 barrels of

The well also experienced a loss of revenue in 1985.

Now the reason we were able to produce the well through, or beginning on September the 29th through October, November, and December, is because we had an emergency hardship grant from the Hobbs Office.

Q Let me direct your attention, Mr. Talley, to the schematic. It's marked Exhibit Number Five, and let's look at the way the well is completed for production.

Using the schematic as a guide, Mr. Talley, is there anything you can do as the operator of the well that would economically minimize the water problems or the fluid problems you're having in the production of the well?

A Well, the wellbore sketch shows the complete mechanical condition of the Madera Comm. No. 1. You'll see that it's a typical deep well completion. It has surface casing 10-3/4 to 5199; 7-5/8ths at 12099 feet, with

a liner from 11666 to total depth of 14,100 feet, that being the 5-inch liner.

It has an Otis WB packer set at 13,405 feet and, as I say, it does have a seal assembly, and I had earlier mentioned that this was a side-tracked hole.

Now this seal assembly is a 15' one and is to allow free travel to compensate for expansion and contraction of the tubing. Now this is not only through temperature changes but pressure changes, as well.

Now, no other mechanical means have been considered for the reason that the cost of 13,400+ feet of smaller diameter tubing is prohibitive considerign the limited volume of gas produced from a well that has not paid out in 11-1/2 years of production, and that amount of small diameter tubing is risky ot run in a deviated hole, and from what can be observed now, there is no assurance that the well can be revived once it goes down again.

Q The well currently is utilizing a compressor.

A A compressor has been on the well since December, 1980.

Q Let's turn to Exhibit Number Six, now, Mr. Talley, and have you identify the production history. It's the same history that was indicated in the margin of Exhibit Number Four?

A Yes, it is. The only addition being that as each year the annual MCF of gas is recorded, then we indicate the cumulative production by each succeeding year, and it goes through November of 1985 and shows that the well made 855,244 MCF of gas through that date.

Q Let me direct your attention now, Mr. Talley, to whether or not you have an opinion about the operator being able to economically continue the practice of swabbing the well to restore it to production, and I direct your attention now to Exhibit Number Seven.

A Exhibit Number Seven is an expense column page that has been prepared that shows the monthly expenses through 1983 and 1984 and 1985.

1983 was, as I pointed out earlier, was a relatively trouble-free year and is representative of what one year would look like expensewise if you don't have to go out there and do an awful lot of swabbing and do any other type of mechanical work.

But you'll notice, then, in 1984, we spent over $82,000 on this well versus a $39,000+ in 1983, and in 1985 we spent a little over $51,000+ trying to keep the well going.

Q In your opinion is it economic for the operator to continue the practice of having to swab the well after it's shut-in in order to restore production?

A No, it is not, because as I mentioned a moment ago, this well has lost over $25,000 revenue during 18 -- 1984 and 1985.

Q Let's turn your attention now to Exhibit Number Eight and talk about the reserves that are at risk in this well.

A Okay, on the Exhibit Number Eight I used this particular method to come up with reserve calculations.

As I mentioned earlier, the initial shut-in tubing pressure in March of 1974 was recorded as 4259 pounds. The shut-in tubing pressure in September of 1985 was 2800 pounds, so you can see we had a pressure depletion over that period of time of 1459 pounds, psi.

As I showed on a previous exhibit, the cumulative production through 11-30-85 was 855,244 MCF of gas. That's less than a billion cubic feet.

I took the cumulative production divided by the pressure depletion and came up with 586.19 MCF per pound of pressure depletion.

On a low pressure or on a high pressure/low volume well, I certainly don't know what the abandonment pressure would be, particularly in this case.

We selected a rather high 1000 pounds psi abandonment pressure. Subtracting that from the last pressure recorded, we come up with 1800 pounds psi remaining us-

able pressure.

We multiply that pressure times the pressure depletion of 586.19 that we have seen, and we come out with slightly over 1-billion cubic feet of remaining recoverable reserves.

At 200 MCF of gas production per day, assuming you could maintain that, we're looking at 14.5 years yet to go to depletion.

Q Have you applied a value to the remaining recoverable reserves?

A Yes, we -- we applied the average price paid times the reserves, and find that there's over -- almost $2-1/4-million gross value of remaining reserves.

Q You've indicated to the examiner a minimum sustained producing rate for the well of 200 MCF a day.

Would you describe for the examiner the reasons why you believe that to be a fair and reasonable minimal rate to be granted for this well?

A Well, several considerations have been taken into account there, and that is that we don't honestly know that the well will ever get back there, but we do know that it has been capable of producing that amount of gas, but we've seen what it's done the last three months, plus the amount of money that the well cost to -- to keep on the line, or to keep going when we were allowed to produce it,

and the fact that once we keep the water moving, what actually comes out of the formation, and not have to contend with any other water that was lost like during the period of when the seal assembly leaked on us, but to keep that water moving, keep that gas moving, that is a figure we feel would be fair and equitable, and we're not talking about very much gas, when you get right down to it, you know.

Q Turn your attention now, Mr. Talley, to Exhibits Nine, Ten, Eleven, and Twelve, and ask you, sir, have you provided notification ot the other offset operators in the area, as well as the transporter of gas?

A Yes, we did apply -- we did supply a copy of the application to the offset operators. Not only that, we provided them with a plat showing the location of the well and also provided that to the Hobbs District Office and also provided it to the purchaser of gas.

Q Exhibit Number Thirteen, Mr. Talley, is your affidavit as required by the form indicating that you've certified that all the information in the application is true and correct to the best of your knowledge?

A Yes, it is.

Q I want to show you now what I've marked as Exhibit Number Fourteen, which is a copy of the perforated interval on the log of the subject well, and have you identify for the examiner where your perforations are on the

log.

A Yes. That's a radioactive log of the perforated interval in the Morrow section, and you'll see that it's not a solid section, that the top perforation at 13,524 to 13,533, and then 13,540 to 552; 13,554 to 561; and then we drop down to 13,652 to 13,660; and then 13,723 to 13,744.

Q Mr. Talley, do you have an opinion as to whether it would be reasonable to attempt to squeeze off any of these perforations in an effort to isolate or minimize the flow of water into the wellbore?

A No, I do not. I do not think that trying to isolate these different perforations simply because when you look at the log you'll see that these are rather thin lenticular sands and that it took all of these sections to even make the well that we did, which was rather poor to begin with, and some of the sands, like at the bottom, are rather dirty, and that we feel that access to the wellbore from these sands are necessary to be able to have the gas that we have at the moment.

Q In the absence of a hardship gas well classification for this well, Mr. Talley, what will you as the operator be required to do with the well?

A We'll be required to plug and abandon the well, because, as I pointed out, we've lost money the last

two years and we cannot sustain the economics any further, and if the well is not granted a hardship classification and allowed to produce to the amount we have requested, then we have no other alternative but to poll our other partners and recommend that the well be plugged and abandoned, and this would be a shame, in view of the fact that over a billion cubic feet estimated gas reserve is still present there and would be, certainly, an underground waste.

MR. KELLAHIN: Mr. Examiner, that concludes my examination of Mr. Talley.

In addition to moving the introduction of Exhibits One through Fourteen, I also have a letter from Mr. Jerry Sexton addressed to Mr. Talley, in which Mr. Sexton, as Supervisor of the Division's District Office in Hobbs, had indicated he concurs that this well qualifies for the hardship gas well classification.

A I might amplify on that letter to the point that I went over to the Hobbs District Office a week ago Monday and showed this Mr. Sexton this whole layout as we've shown here today.

MR. CATANACH: Mr. Kellahin, your exhibits numbers are One through --

MR. KELLAHIN: Fourteen, I believe, sir.

MR. CATANACH: The Exhibits One

through Fourteen will be admitted as evidence.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Talley, you stated that the smaller diameter tubing would probably not be feasible due to economics?

A Well, that would be part of it. The other part is the fact that we do have a crooked hole there and we have had problems gettng this tubing that we have in and out of the hole, packer drag, not packer, but the seal assembly and everything dragging, and the pipe itself dragging against the crookedness of the hole, and we don't think that that small diameter tubing -- that the smaller diameter tubing would handle it as well as the strength of the 2-3/8ths that's in there now.

Q You say that you have to plug the well if you don't obtain this hardship gas well classification?

A That's my opinion, yes, sir. That's my recommendation as operator.

MR. CATANACH: I have no further questions of this witness.

Are there any other questions of the witness?

Is there anything further in

Case 8759?

MR. KENDRICK: I have a statement I'd like to make.

MR. CATANACH: Mr. Kendrick.

MR. KENDRICK: El Paso Natural Gas neither concurs with this application nor does it object to this application.

El Paso's position is that the Commission should be notified that any additional gas that we should take from this well above its normal delivery would be gas that would be taken from other wells in the area in allowing this well to produce.

That's all I have.

MR. CATANACH: Thank you, Mr. Kendrick.

Is there anything further in Case 8759?

If not, the case will be taken under advisement.

MR. TALLEY: I would like to point out one thing, if I may. If you'll go back to your land plat there, talking about other wells in the area, there are only two other wells in this area. One is a half a mile to the north, which hasn't produced any gas in measureable quantities in a couple of years, and the other

one is over a mile to the northwest, which is on the Shell Antelope Ridge Unit. There are no other Morrow wells around these wells.

MR CATANACH: Thank you, Mr. Talley.

Case 8759 will be taken under advisement.

(Hearing concluded.)

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. 8759, heard by me on Jan 9 1986.

David R. Catanach, Examiner
Oil Conservation Division