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

24 April 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Caulkins Oil Company for downhole commingling, Rio Arriba Coounty, New Mexico.

CASE 8573 8574 8575

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

CHARLES E. VERQUER

Direct Examination by Ms. Aubrey 4

Cross Examination by Mr. Stogner 12

E X H I B I T S

CASE 8573

Caulkins Exhibit One, Information

Caulkins Exhibit Two, List

Caulkins Exhibit Three, Plat

Caulkins Exhibit Four, Schematic, etc

Caulkins Exhibit Five, Tabulation 4

Caulkins Exhibit Six, Sundry Notices 4

CASE 8574

Caulkins Exhibit One, Information

Caulkins Exhibit Two, List 7

Caulkins Exhibit Three, Plat 7

Caulkins Exhibit Four, Schematic, etc 7

E X H I B I T S CONT'D

Caulkins Exhibit Five, Tabulation 8
Caulkins Exhibit Six, Sundry Notices 8

CASE 8575

Caulkins Exhibit One, Information
Caulkins Exhibit Two, List 10
Caulkins Exhibit Three, Plat 10
Caulkins Exhibit Four, Schematic, etc 10
Caulkins Exhibit Five, Tabulation 11
Caulkins Exhibit Six, Sundry Notices 11

REPORTER'S NOTE: Due to mechanical problems in recording this proceeding the reporter is unable to transcribe the first portion of this transcript. Missing is the opening statement by Ms. Aubrey and questions and answers concerning the first four exhibits regarding Case 8573. This portion will be provided later if the problems can be corrected to preserve the text.

CHARLES VERQUER,

being called as a witness and being duly sworn and qualified, testified as follows, to-wit:

CONTINUED DIRECT EXAMINATION

BY MS. AUBREY:

Q So Exhibit Number Five shows your allocation formula between the two zones which you propose to the Examiner.

A That is correct.

Q And that would be true for each of the eight wells involved in Case 8573.

A That is correct.

Q Finally, Mr. Verquer, Exhibit Number Six are copies of the sundry notices on the Federal leases involved in Case 85 -- I'm sorry, Case 8573.

A That is correct.

Q Have those been filed with the BLM?

A They have been filed and accepted for record there and this is a copy thereof.

Q All right, Mr. Verquer, let's move now to the cases involved in Case 85 -- or the wells involved in Case 8574.

There are seven wells for which Caulkins is seeking approval for downhole commingling of three zones, the Chacra, the Mesaverde, and the Basin Dakota.

A That's correct.

Q Are these exhibits in substantially the same form as the exhibits which you prepared for Case 8573?

A They are.

Q In connection with the wells in Case 8574, once again do you have the situation where the Chacra and Mesaverde zones log off due to variations in line pressure?

A They do. We might add that on that production tabulation as shown on all the wells, it shows where wells had no production or hardly with on 31 days and that's a period of when they were logged off.

Q Do you intend to install the same equipment, the Baker equipment which you described in Case 8573 in the wells involved in Case 8574?

A Yes, with the only exception is that it will take one extra packer and check valve because I'm separating three zones.

Q What zones are these wells, the wells in Case 8574, presently completed in?

A They are completed in the Chacra, Mesaverde, and Dakota. The Chacra and Mesaverde zones are commingled and -- at present and have been approved for commingling, and dual completed then in the Dakota.

Q Is the last well different from that, the Sanchez No. 4 Well?

A Yes. The exception to that is Sanchez No. 4 in Section 25.

Q And what wells -- I'm sorry, in what formations is the Sanchez Well completed in?

A The Sanchez Well is now completed in the Chacra and Dakota zones and we are proposing to recomplete the well in the Mesaverde zone and then commingle the three zones.

Q With regard to all of these wells the ownership is common through all the zones, is that correct?

A That is correct.

Q And the fluids in connection with the wells involved in Case 8574, are the fluids compatible for each zone?

A They are.

Q And do you receive the same sales price from the purchaser?

A We do.

Q With regard to these seven wells in 8574,

do you know what the bottom hole pressure in each of the zones are?

A We do not.

Q With the installation of the Baker equipment that you propose to install will you be able to prevent any cross flow from -- between the three zones in these wellbores?

A We will prevent cross flow.

Q Exhibit Number Two then shows the well locations?

A That does.

Q And Exhibit Number Three is a plat for each of the proposed wells, is that correct?

A That is correct.

Q And Exhibit Four once again shows the location of the perforations in the wellbore and the proposed location for the installation of the Baker equipment.

A That is correct.

Q I believe you testified that in connection with these seven wells you will be installing an additional check flow valve because of the addition of the third zone.

A That's correct.

Q With regard to Exhibit Number Five, does that show your proposed allocation formula for the production from the three zones?

A That is correct.

Q How have you arrived at that, Mr. Verquer?

A By taking a 14-month production history from January 1, '84, through February, 1985, showing the gas production, oil production, the gas production from both zones in the commingled and the oil production from the commingled zone, the days on, and also the same information for the Dakota zone through the same period and arrived at it by figuring a daily average from -- by the amount of days that the well was on.

Q Let me refer you to the last page of Exhibit Number Five, which is the production tabulation for the Sanchez No. 4 Well.

I believe that you do not have a production split recommended yet for that well, is that correct?

A That is correct. We propose to test the Mesaverde zone extensively, clean it up and test it before commingling with the other zones and then have a -- possibly meet with the Aztec Office and come up with an allocation for each zone.

Q The Sanchez 4 is the only one of these seven wells which will be recompleted, is that correct?

A That is correct.

Q Let me refer you now to Exhibit Number Six, which consists of sundry notices on the Federal leases, or the Federal wells involved in this case.

A That's correct.

Q And look once again at the last page of Exhibit Number Six. Does that sundry notice set out your proposed recompletion in the Mesaverde for the Sanchez No. 4 Well?

A That is correct. It has not been filed at this time and it will be filed prior to commencing any of recompletion with the BLM, but this is -- is the proposed plan.

Q Let me refer you now to your exhibits for Case 8575, with which Caulkins seeks to downhole comingle four zones.

Can you tell the Examiner what formations these wells involved in Case 8575 are presently completed in?

A Both of these wells are completed in the Pictured Cliff and Dakota zones and have been dual completed since they were turned on. I have the history here somewhere but they've been on for twenty years or more.

The area does not economically look like we could drill a Chacra-Mesaverde well and we would propose to recomplete the well in those two zones and then commingle all zones.

Q Do you propose to install the same type of equipment that we discussed in the other two cases in order to prevent cross flow between the four zones?

A We do.

Q Do you know whether or not the zones -- the fluids from these four zones are compatible with each other?

A With the history of the offsetting wells, we believe they should be compatible, yes.

Q And is the ownership common in the four zones in each of these two wells?

A They are.

Q Do you know what the bottom hole pressure in each of the four zones involved in Case 8575 is?

A No.

Q Is it your opinion, Mr. Verquer, that the installation of the equipment that you've described will prevent any cross flow between the zones and should entitle Caulkins to a waiver of the 50 percent requirement in Rule 302?

A I -- it is.

Q Let me refer you to Exhibit Number Two in Case 8475. Does that show the location of the wells involved in this case?

A That is correct.

Q And attached to -- I'm sorry, and Exhibit Number Three is a plat for each of the wells?

A Showing the dedicated acreage of each one, yes.

Q And Exhibit Number Four once again contains the technical data on the equipment you intend to in-

stall and shows the perforations in the four zones?

A That's correct.

Q Exhibit Number Five, on that exhibit have you calculated the -- the proposed allocation formula for the zones?

A I have not. This is the -- is the production tabulation for the two zones now producing and in our exhibit we propose to test both zones extensively to come up with a production split that would be allocated the proper amounts to each zone.

Q And you'll work with the Aztec District in connection to calculating those allocations, will you not?

A We will be glad to.

Q Exhibit Number Six are the sundry notices on the wells involved?

A Yes.

Q And do they contain the proposed recompletion work for the two zones that you intend to --

A They do. They also show the present condition and then what we propose to do.

Q Mr. Verquer, in each of the three cases did you prepare Exhibits One through Six?

A I did.

MS. AUBREY: Mr. Examiner, I offer Exhibits One through Six in each of the three cases at this time.

MR. STOGNER: Exhibits One through Six in each of the cases will be admitted into evidence at this time.

Q Mr. Verquer, in your opinion will the granting of Caulkins applications in Cases 8573, 74, and 75 protect correlative rights, prevent waste, and promote conservation?

A It will.

MS. AUBREY: Mr. Examiner, I tender the witness for cross examination.

MR. STOGNER: Thank you, Ms. Aubrey.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Verquer, let's go to Case 8575 on Exhibit Three, which is the acreage dedication.

A Yes, sir.

Q Let's take the State "B" Well No. 233. That shows to be a nonstandard proration unit consisting of the northwest quarter and the north half of the northeast quarter and the north half of the southwest quarter, that was a nonstandard proration unit, I assume, for these wells producing in the -- presently producing in the Blanco Mesaverde, is that correct?

A In the Mesaverde and Dakota zones.

Q And the Dakota zone, also?

A Yes.

Q In your Exhibit One you show that both wells will be recompleted to produce gas from the Chacra and Mesaverde zones that wouldn't otherwise produce. So these two wells are producing -- okay, let me back up.

Exhibit Number Two you show wells both produce now from Pictured Cliffs and Basin Dakota zones, is that correct?

A That is correct.

Q Okay. So this 320-acre nonstandard proration unit would be for the Dakota only, right?

A 233-E had been drilled and completed in the, I'm sorry, my -- I covered the -- covered it up down there in the corner in that nonstandard unit, the Chacra-Mesaverde and the Dakota well, which is in the southwest quarter of that section.

And Order No. R-7006 approved that 320-acre nonstandard unit for the Mesaverde zone.

Q So that nonstandard proration unit with this new order would allow the proration unit for the Blanco Mesaverde. Basin Dakota was approved years ago, right?

A Years ago, yes, sir.

Q And the Pictured Cliffs and Chacra, they're on 160 acres. That would be standard.

A That would be standard at 160 acres.

Q And all the interests are common in 160 as well as the 320.

A They are.

Q With each other.

A With each other, yes.

Q Okay. In Exhibit Four, which is your schematic, you're going to have a check valve, three check valves, four check valves.

A Yes.

Q And this would prevent cross flow from the upper zones. Say the Pictured Cliffs had a higher pressure, it would keep it from going down and commingling with the lower zones.

A Yes. I anticipate to start with that the Mesaverde pressure would be higher than the Dakota pressure when we open that Mesaverde pressure.

Q How much higher pressure is it going to have?

A They probably will be very close. The Dokata bottom hole pressure, just estimated, should be around 11-1200 pounds at this time and that is awful close, say, 1200-1500 pounds is the normal bottom hole pressure for the new Mesaverde.

So it -- when the well is new, the possibiity of getting flow, cross flow from the Mesaverde down would be possible, so that is the reason for the check valve there.

There's another reason, also. The Mesaverde and, say, the Dakota were at an equal pressure, if

there was seepage at the well from the formation into the wellbore, that could migrate to the Dakota without a check valve in that, and therefore soak it up there, which is not a good situation.

So we propose to put the check valve in there to keep any cross flow from going into the Dakota.

Q Okay. How about -- what kind of pressures are you anticipating in the Pictured Cliffs and the Chacra in relationship to the Mesaverde and Basin Dakota?

A This -- this Pictured Cliff has been on the line since 1952. I would anticipate that the bottom hole pressure in the Pictured Cliff today is 320 pounds, and against that -- that is -- that is the reason for the cross flow equipment to keep -- keep any cross flow -- run equipment to prevent cross flow between zones.

Q But that wouldn't prevent the lower zones, if they were quite a bit more, from cross flowing to your upper zones, would it?

A Those check valves, they call them a reverse flow check valve, they can only flow one way.

Q I see.

A And the way they flow is from the formation into the tubing. They don't flow from the -- so the Dakota pressure can only get into the -- will only be on the inside of that tubing and it can't get out into the formation.

Q Are there any actual pressure data for

any of these formations in this area?

A I have some on other wells, yes. I have some wells that -- I don't have any that I've commingled in the Pictured Cliffs-Dakota where -- where it verified that we have less than 50 percent difference, but I don't anticipate that the pressure on that Pictured Cliff would be any higher than that 320 to 350 pounds at an absolute maximum, and the Mesaverde pressure will certainly be 1200.

Q Is there a similar commingling profile on any well within the vicinity where you've got these four zones commingling downhole?

A No, sir.

Q How about any three combination?

A Yes. I've got the Pictured Cliff, Chacra, and Mesaverde commingled in a well in Section 3. Let's see, one of these things -- that's not that close to it but it's in the general -- general area.

I have another one that is commingled in those three zones that is in Section 17. This is all in 26, 6.

Also I have one -- one well commingled four zones, Pictured Cliff, Chacra, Mesaverde, and Greenhorn, and it's in Section 13, 26 North, 7 West.

Q And what was the section, sir, I'm sorry?

A Section 13.

Q Same township and range?

A Now, that wellis just commingled. All

zones are open to the others in the wellbore.

Q What kind of work would have to be done to get downhole pressure data on each one of these four zones, Mr. Verquer?

A It can be done, you know, have a rig on it and set a packer and isolate each zone and then it, of course, needs to be shut in long enough to get ample pressure build-up on a zone.

Q What do you think would be an ample time to --

A No less than 24 hours and at a rig cost of $2000 a day, you'd have four days, and you're not going to stretch it that quick. You'd have five at least.

Q These particular two wells that we're discussing in 8575 --

A Yes.

Q -- now are they presently dual completed?

A They are now, yes, sir. They could be.

Q Two strings of tubing?

A Yes, sir.

Q Would it be possible to downhole commingle the Pictured Cliffs and the Chacra and pull that in one tubing and then downhole the Blanco Mesaverde-Basin Dakota and commingle that production? Would that be possible?

A Yes, that could be -- you mean to produce the well that way?

Q Yes, have two zones commingled, dually

completed, with two more commingled zones?

A Yes, they're commingled now. I mean they're dual completed now; they could be done that way.

Probably have to change the size of the tubing. We have 2-3/8ths to TD on the lower zone.

Now pressure information could be taken another way.

Before this was ever commenced we could take a bottom hole pressure of both zones, which wouldn't require a rig to be on it, and when the wells are completed and tested in each zone, I could take a pressure test then and have bottom hole pressure for each zone, but that's after the fact.

Q What is your approximation, what is the pressure in the Basin Dakota at this present time? Is that 1200?

A Approximately 1200 pounds, yes, sir, the wells that are this old.

Q And how long have those been downhole commingled, these two zones?

A This Pictured Cliff-Chacra has not been downhole commingled. Which -- I'm sorry, maybe I missed it.

Q Well, I'm getting ahead of myself, I think.

I'm referring to the wells that we talked about in 8574, the Chacra and Mesaverde is commingled presently, right?

A Yes. 5647, Order No. 5647, authorized three of those wells to be commingled in the Chacra and Mesaverde.

6266 got two more of them.

I don't have the dates when that was -- when they were commingled, but it's been aprpoximately five years.

Q Okay. Did you -- was Caulkins the applicant in those two orders that you just previously mentioned, 5647 and 6266?

A We were.

Q Do you remember what the bottom hole pressures in the Chacra and the Mesaverde zones were then?

A At the time we didn't take them.

MR. STOGNER: Okay. I have o further questions of this witness.

Is there anything further of Mr. Verquer?

Is there anything further in any of these cases?

There being none, Cases Numbers 8573, 8574, and 8575 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 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 or 8573, 8574, 8575 heard by me on 24 April 1985.

Examiner
Oil Conservation Division