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

15 July 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Phillips Petroleum Company for a special (oil) allowable and downhole commingling, Lea County, New Mexico.	CASE 9177

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:

For the Applicant: W. Thomas Kellahin
Attorney at Law
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I N D E X

E X H I B I T S

MR. STOGNER: This hearing will come to order.

We'll call next Case Number 9177, which is the application of Phillips Petroleum Company for special (oil) allowable and downhole commingling, Lea County, New Mexico.

Call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant and I have one witness to be sworn.

MR. STOGNER: Are there any other appearances?

Will the witness please stand and be sworn?

(Witness sworn.)

MR. STOGNER: Mr. Kellahin.

MR. KELLAHIN: Thank you, sir.

RICHARD JO,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Jo, for the record would you please state your name?

A My name is Richard Jo.

Q And your last name is spelled J-O?

A J-O.

Q Have you previously testified before the Division?

A No, sir.

Q Would you describe for the Examiner what, if any, professional degrees you hold?

A Okay, I've got Bachelor of Science in petroleum from University of Missouri, Rolla, in December of 1984.

Q Subsequent to graduation, Mr. Jo, have you worked in the field of petroleu engineering?

A I'm currently working for Phillips Petroleum Company as a reservoir engineer.

Q As a reservoir engineer, Mr. Jo, have you made a study of Phillips' wells that are the subject of Phillips' application for a special (oil) allowable and downhole commingling in the Eunice-Monument-Grayburg-San Andres Pool?

A Yes, sir, I have.

MR. KELLAHIN: We tender Mr. Jo as an expert reservoir engineer.

MR. STOGNER: Mr. Jo is so qualified.

Q Mr. Jo, let me direct your attention to Exhibit Number One. First of all, sir, would you identify for us what we are looking at?

A Exhibit Number One is lease plat.

Q Within the lease plat could you identify for us how you have located the Phillips acreage and the Phillips wells that are the subject of this application?

A Okay. Our Phillips New No. 1 and No. 2 are located in Section 26, Township 20 South, Range 36 East. It's 80-acre spacing and it's located in Unit A and Unit H, respectively.

Q And it's that area outlined in blue?

A Yes, sir.

Q When we look to the east of that, there is an area outlined in yellow. What is that?

A It's a Eunice-Monument South Unit, a waterflood project operated by Chevron.

Q When we talk about the two Phillips wells, the No. 1 Well and the No. 2 Well, what formations are we discussing?

A We're discussing Eumont and Eunice-Monu-

ment-Grayburg.

Q Okay. Within this area we have the Eumont Gas Pool, do we not?

A Yes, sir.

Q And immediately below the Eumont Gas Pool we have the Eunice-Monument Oil Pool.

A Yes, sir.

Q Excluding Chevron's Eunice-Monument South Unit, when we look at the Phillips acreage what is the formation that designates a separation between the gas pool and the oil pool?

A The Grayburg.

Q The top of the Grayburg, then, separates the two.

A Yes, sir.

Q Is there a different definition applied to the Chevron operated unit to the east when we talk about whether or not a well is within a particular pool or not?

A Would you mind repeating the question?

Q Yes, sir. When we look at the Chevron acreage, they have different nomenclature or different description of how they handle the vertical limits for the disposal wells.

A Okay.

Q Is that not true?

A Yes, sir.

Q Has Chevron commenced the waterflood of the Grayburg and San Andres intervals in their waterflood project?

A To the best of my knowledge, yes, sir, they have.

Q What are you seeking to accomplish on behalf of your company for the two wells located on the exhibit?

A First, we'd like to produce our New No. 2 with perforations in Eumont-Queen dry gas zone from 3540 to 3670 in conjunction with the open hole interval from 3701 feet to 3880 feet, which encompasses Lower Queen and possibly Upper Grayburg.

Q Okay. Let's look at the New No. 2 again. There is an open hole interval in the Eumont Gas Zone and approximately what is that distance, 3540 to what?

A No. 1 or --

Q I thought you said it was the No. 2. Yes, sir, we were looking at the No. 2 Well.

A Oh, I'm sorry. Yes, sir, it's No. 2. It's from 3540 to 3670.

Q All right, and when we get into the oil zone what are we talking about? What are the distances?

A The top of Grayburg, when Chevron uni-

tized their --

Q No, sir, you -- I didn't make myself clear.

A Okay.

Q In the No. 2 Well we have talked about the perforated interval in that wellbore.

A Yes, sir.

Q You've identified for us the Eumont Gas Zone.

A Uh-huh.

Q You've given me a distance, vertical feet.

A Uh-huh.

Q What -- in that wellbore what is the lower vertical distance for the oil zone? You just read it. What was the first --

A 3701 to 3880.

Q All right, 3880, all right.

First thing you're seeking to do is to commingle those two zones.

A Yes, sir.

Q What is the situation with the Eumont Gas Zone, is that productive?

A No, sir. It's been depleted and --

Q All right, what about the oil zone? Does it --

A We --

Q -- produce?

A Yes, it does. We deepen it back in May of 1987. It's currently making 49 barrel of oil and 124 MCF per day.

Q Okay. When we look at the New No. 1 Well, the well in Unit letter A, --

A Uh-huh.

Q -- what is the situation on that well in terms of its perforated interval?

A This was completed back in 1938 and at that time it was completed in the Eunice-Penrose Pool, and back in 1955 Commission ordered and they contracted a Eunice -- they divided Eunice Queen from the -- from the Grayburg. They put everything above Queen, they call it Eumont and then below, including Grayburg, they call it Eunice-Grayburg.

Q In the New No. 1 Well are we dealing then with any of the gas zone?

A Yes, sir.

Q All right. We have a portion in that wellbore that's also open in what the Commission defines as the Eumont Gas Zone.

A That's correct.

Q Or the gas pool, as well as the lower

portion of it which is in the Eunice-Monument Oil Pool.

A Yes, sir, about 20 feet of it.

Q You want approval to downhole commingle those?

A Yes sir.

Q All right, in addition what else do you want, Mr. Jo?

A We'd like to ask for capacity allowable for New No. 2 and New No. 1 should either well respond to the Chevron's water project currently being initiated.

Q Do you have an opinion as to whether or not either one of those wells is beginning to experience a response from the waterflood?

A Yes, sir.

Q Under the downhole commingling rules, is your production from each well limited to 20 barrels a day?

A That's correct.

Q Currently your No. 2 Well has the capacity to produce in excess of that allowable?

A Correct.

Q And it produces about 49 barrels a day?

A Yes, sir.

Q Let's begin to examine now, Mr. Jo, some of the data that you have compiled that supports your opinion with regards to the application.

Let me direct you now to Exhibit Number Two. Would you identify that for us, please?

A Yes, sir. This is the current monthly production as of March, 1987.

Q When we look at the Phillips wells outlined in blue, there are some zeros on the No. 2 Well. Would you give us the information to replace the zeros with?

A Yes, sir, it's 49 barrels of oil and 4 that is water and 124 MCF per day.

Q And that will be as of what month?

A As of June, 1987.

Q Okay. All the rest of the information is taken from records and represents the March '87 monthly production?

A Yes, sir.

Q The first number is the oil production?

A Yes, sir.

Q The second number is what?

A Water.

Q Water, and then the last is the gas.

Having tabulated this information now, Mr. Jo, what use have you made of this exhibit in analyzing whether or not your No. 2 Well is receiving any flood response?

A To the best of my knowledge, we are

seeing a waterflood response --

Q All right.

A -- at this time.

Q What -- what information on this exhibit supports that opinion?

A If you go down to Section 36, that's Unit G, which is Well No. 144, that is producing the largest oil and water at this time.

Q All right, sir, and what does that tell you?

A It tells -- it tells me that they are getting some kind of water response from the injection.

Q How does that production level on the 144 Well compare to the production levels you are seeing on your No. 2 Well?

A Would you mind repeat that question?

Q Yes, sir. You've drawn us a comparison between --

A Yes, sir.

Q -- the No. 2 Well and the 144 Well.

A Yes, sir.

Q You have said the 144 Well is showing a flood response within the unit.

A Yes, sir.

Q How does the volume of that response in

144 compare to what you're seeing in your No. 2 Well?

A I would say it's real compatible as far as the response that we're getting. I guess I'm not quite understanding.

Q All right. The volume of response between the No. 2 Well and the 144 Well, is that a direct comparison or are they dissimilar?

A It's a direct comparison.

Q What is the closest injection well in the Chevron Waterflood to your wells?

A Right east of us there's 106 is an injector that's the closest to our New No. 2.

Q All right. All right, Mr. Jo, let's turn to Exhibit Number Three, which is the cross section.

Was this exhibit prepared by you or under your direction and supervision?

A Yes, sir.

Q What is the purpose of the exhibit?

A We're just trying to show our Phillips No. 1 and No. 2, comparing this to the unit, the unitized by Chevron.

Q Let's talk again now, using this as an illustration, Mr. Jo, of some of the definitions that we've been using and will continue to use.

Let's take the second wellbore from the

left, which is the Phillips No. 2 New Well.

A Yes, sir.

Q At the bottom there's a dashed line that's labeled in green. It says "Grayburg".

A Yes, sir.

Q All right. Is this the formation top for the Grayburg?

A Yes, sir, according to the logs.

Q And does this separate, then, the Eumont gas pool from the Eunice-Monument Oil Pool?

A Yes, sir.

Q When we ~~got~~ set to the unit, the Chevron Unit, you have on the various logs shaded a -100 foot subsea interval in yellow. What is the purpose of doing that?

A That yellow highlighted -100 subsea is the unit they propose under Eunice-Monument South Unit, either -100 subsea or the Grayburg formation, whichever is higher. In this case it comes out to be -100 feet subsea was the higher.

Q When we move outside of the unit and look at the two logs for the Phillips wells we see a crossover between the two pools, do we not?

A Yes, sir.

Q Is this an unusual occurrence in these two pools?

A No, sir. According to their -- their testimony, I was able to gather there were about 150 -- between 150 to 170 wells that overlap between Queen and Grayburg in that unit.

Q Rather than shift the pool vertical limits Chevron selected the utilization of a different definition.

A Yes, sir.

Q So that they get all their flooded interval within one definition.

A That's true.

Q So they've crossed over in the pool, have they not?

A Yes, sir.

Q All right. How do you propose to solve the problem, that similar problem for the two Phillips wells in terms of this crossing over in the two pools?

A We'd like to ask for a -- as I mentioned before, we'd like to ask for a downhole commingling in No. 2 and let us produce at our capacity.

Q Okay. Let's talk about whether or not there is any risk attributable to the downhole commingling. All right, looking at the No. 2 Well --

A Yes, sir.

Q -- do you see any reason to isolate or squeeze off the gas interval in the Eumont Gas Zone?

A No, sir. I don't see any -- any risk of not squeezing off this. This zone was depleted and the structure dips as you go to the west, west field, and why squeeze it off when later on you might be able to seeing some kind of waterflood response from offset projects, and the Eumont on the west side is known to have including oil rather than Eumont gas.

Q Do you propose to allocate any of the production to the Eumont Gas Zone?

A No, sir.

Q So it would be 100 percent allocation, then, to the oil zone?

A That is correct.

Q Do you see any risk to adversely affect any of the correlative rights of anyone by doing that?

A No, sir.

Q Let's talk about the Exhibit Number Four simply so we can keep the Examiner straight on the type log used on Exhibit Three.

If you'll still keep Exhibit Three out and then refer to Exhibit Four.

A Okay.

Q What's the purpose of Exhibit Four?

A Exhibit Four was what they used to create their pool, which was -100 subsea for the top of Grayburg. This case it was -- the unitized interval was 3666 feet to the bottom of San Andres, which is 5283 feet, and Exhibit Number Three is just a type log they prepared for their technical report.

Q All right, if the Examiner wants to use the Continental Oil Well log on 4, he may simply substitute that as a type log.

A That's correct, sir.

Q All right. Let's go to Exhibit Number Five now, Mr. Jo.

Would you summarize for us the information on Exhibit Number Five?

A Okay. This Exhibit Five is just a well history on our New No. 1 and New No. 2. As I mentioned before, New No. 1 was completed in Eunice-Penrose-Grayburg back in 1938 and with the Commission's order they placed our New No. 1 into the Eumont Pool simply because majority of our perforations was open in Eumont, the Queen Zone.

Q Have you changed those perforations in the No. 1 Well?

A No, sir.

Q Okay. Let's' look at the No. 2 Well and have you discuss for us the history of that well.

A Okay. No. 2 was completed in 1938 in Eunice-Penrose and then we plugged it back 1946 to Eumont Queen dry gas zone. At that time before -- the production before was 4 barrels oil per day, in 1987, May of '87 we deepened it to 3880.

We may or may not be in Grayburg but we IP'ed at 51 barrels of oil per day.

Q Let's see if I understand how this was done.

On the No. 2 Well it was produced out of the Eunice-Monument Oil Pool.

A Yes, sir.

Q It was abandoned when the oil got down to about 4 barrels a day.

A Correct.

Q And then went back up into the Queen Gas Zone and produced that?

A Yes, sir.

Q You now have come back in in 1987, deepened the well back into the Eunice-Monument Oil Pool.

A Yes, sir.

Q And instead of getting 4 barrels a day you now get how much, 49?

A 49, sir.

Q 49 barrels a day. What conclusion do you

reach as an engineer from doing that?

A The only conclusion that I can derive to would be some kind of pressure support or waterflood response.

Q When we look at Exhibit Number Three and in fact Exhibit Number Two, are there any other waterfloods in the area or salt water disposal wells in this formation to which you could attribute the waterflood other than the Chevron waterflood?

A No, sir.

Q We don't have any offsetting salt water disposal wells in this formation?

A Not that I know of.

Q Okay, and there are no other floods in the area?

A No, sir.

Q Let's turn now, sir, to Exhibit Number Six and have you identify that exhibit.

A Okay. This is just a history of our production plot for New No. 1.

Q All right, sir, and if we look at Exhibit Number Seven, would you identify that for us.

A Okay, it's a history of our New No. 2. As you note, this Queen was depleted down to less than 2 MCF a day.

Q Do you have a recommendation to the Examiner as to what levels of production you might anticipate you would have if the Commission gives you a special capacity allowable for the wells?

A At this time the offset waterflood project, they expect their peak production to be about 100 barrels per day per well and I think we will be able to produce that.

Q Currently you're seeking an allowable at capacity?

A Yes, sir.

Q And do you need that allowable because of the limitations on the existing allowables that would be assigned?

A Yes, sir, existing allowable only lets us produce at 20 barrels per day and we're producing 48 at this time.

Q Were Exhibits One through Seven prepared by you or compiled under your direction and supervision, Mr. Jo?

A Yes, sir.

Q Do you have an opinion, sir, as to whether or not the approval of this application will prevent waste?

A Would you mind repeating the question?

Q Yes, sir. Do you have an opinion as to whether or not the approval of this application will prevent waste of hydrocarbons?

A Yes.

Q All right. Do you have an opinion as to whether or not approval of this application will protect correlative rights?

A Yes.

Q Okay. With regards to the correlative rights, Mr. Jo, if Phillips' request for a capacity allowable and downhole commingling is not approved, what will happen to your share of the oil?

A It will be swept away and would never be recovered. As you note at Exhibit Two, our offset wells are P&A'd and the oil that's going to be swept will probably will never be recovered and would be a waste.

MR. KELLAHIN: I have no further questions of Mr. Jo, Mr. Stogner.

We would move the introduction of Phillips' Exhibits One through Seven.

MR. STOGNER: Exhibits One through Seven will be admitted into evidence at this time. Thank you, Mr. Kellahin.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Jo.

A Yes, sir.

Q Do some housekeeping here a little bit, now, you show an 80-acre proration unit, do you not?

A Yes, sir.

Q That's for the Eumont, I would assume. Do you know when that nonstandard 80-acre proration unit was given and to what well was it given to and was there ever simultaneous dedication or was there ever a moment when both wells produced from the Eumont?

A I can't recall the information at this time, sir.

MR. KELLAHIN: Let me take a moment to see if I can figure that out.

We'll get that information for you, Mr. Stogner. I think we have it in the hearing room.

MR. STOGNER: Okay.

MR. KELLAHIN: If you'll permit Mr. Mueller to respond, Mr. Stogner, I think he can tell you the sequence or the historical spacing for the -- for the unit. He perhaps remembers better than anyone here.

MR. STOGNER: Okay.

MR. MUELLER: I'm the oldest.

MR. KELLAHIN: He's the oldest.

MR. STOGNER: Why don't you state your name and since this will just be on the record, I won't consider it as testimony but will you state your name and who you work for?

MR. MUELLER: Yeah, my name is William J. Mueller, M-U-E-L-L-E-R, I pronounce it Miller. I'm the Reservoir Engineering Supervisor for Phillips Petroleum Company over southeast New Mexico.

And I would like, in reference to your question here as to the nonstandard unit for the New No. 2, that I believe had to be obtained at the time we recompleted it into the dry gas zone in 1947 -- 46, and as to your point was there ever simultaneous dedication, I'd have to say yes because I think in 1955, when the Commission went through here and took all the Queen out of the Eunice Pool and put it up into the Eumont Pool, they had to go to wells like our New No. 1 that had Queen open and Grayburg and call it something and they elected to call it Eumont-Queen because that's what most of the interval was even if there was some Grayburg there.

So there was simultaneous dedication.

MR. STOGNER: I'll also take

note of Order R-520 and the well files that we have here in our office to get that straightened out.

I believe 520, I know, grandfathered in a whole bunch of 160 acres but I can't recall whether it grandfathered in a whole bunch of some of the smaller ones.

But I'm sure we'll get that straightened out. At this time, however, subsequent to today, is it your contention that the Eumont in both wells be simultaneously dedicated to an 80-acre proration unit?

MR. MUELLER: Yes.

MR. STOGNER: Okay. And of course the Eunice-Monument is 40 acres so we'll have simultaneous dedication of the Eumont and each of the Eunice-Monument wells will be dedicated to 40.

Okay, you want downhole commingling on both wells for both zones and the special allowable for the Eunice-Monument in both wells.

Now the special allowable, is it like your previous case where you want an unlimited top allowable?

MR. KELLAHIN: Yes, sir, we'd like to request that.

A Yes, sir.

Q All right, let's talk about allocations

for each well for both zones.

Do you have a proposal for production allocation at this time?

A I would like to ask for at its capacity, whatever it can produce.

Q Okay, I'm talking about the allowable, so much percentage of oil coming from the Eumont and so much percentage from the --

A Oh, we'd like to allocate zero percent to the Queen and 100 percent to the Eunice-Monument-Grayburg.

Q That's oil.

A Oil, yes, sir.

Q Okay, how about gas?

A Yes, sir, all 100 percent gas goes to -- also goes to the Eunice-Monument.

Q You mean the Eumont.

MR. KELLAHIN: No, sir, it would have to be the Eunice-Monument. The Eumont won't produce.

A It's depleted, sir.

Q Oh, well, why are we downhole commingling, then?

MR. KELLAHIN: Because we couldn't figure out any other administrative or procedural way to get us out of the bind over these two pools other

than changing the vertical limits. I guess it was suggested by the District that commingling was a way to get us out of the problem, so it's not a typical commingling case.

MR. STOGNER: This goes back -- okay.

MR. KELLAHIN: This is one of those strange wells.

MR. STOGNER: Okay, things are becoming clear now.

MR. KELLAHIN: Well, it's difficult to make it clear.

Chevron fixed this problem by simply having the vertical limits changed so that they got either the higher of two factors. One, a subsea interval of 100 feet, or the top of the Grayburg, whichever is shallower. They fixed 100 wells that way.

We unfortunately are right next to it and can't utilize that unitization for the fix, and so to get us out of the predicament of being in two pools only one of which is productive in the wellbore, we're saying, well, maybe downhole commingling procedure is the way to solve the problem.

At this point, though, the District won't give us an allowable on a permanent basis until we figure out something to call it.

MR. STOGNER: Oh, I understand now. Believe it or not, I understand that.

Okay, in that case I have no further questions.

Are there any other questions?

If not, he may be excused.

Mr. Kellahin, do you have anything further?

MR. KELLAHIN: No, sir.

MR. STOGNER: All right. Case Number 9177 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 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. 9177, heard by me on 15 July 1987.

, Examiner
Oil Conservation Division