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

11 May 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Union Texas Petroleum Corporation for downhole commingling, Rio Arriba County, New Mexico.	CASE 9370

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

PAUL MICHAEL PIPPIN

E X H I B I T S

MR. CATANACH: Call next Case 9370.

MR. ROYBAL: Case 9370. Application of Union Texas Petroleum Corporation for downhole commingling, Rio Arriba County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr with the law firm Campbell & Black, P.A.. We represent Union Texas Petroleum Corporation and I have one witness.

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

Will the witness please stand to be sworn in?

(Witness sworn.)

PAUL MICHAEL PIPPIN,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A Paul Michael Pippin, spelled P-I-P-P-I-N. I live in Farmington, New Mexico.

Q Mr. Pippin, by whom are you employed and in what capacity?

A I'm employed by Union Texas Petroleum as a petroleum engineer.

Q Have you previously testified before this Division or one of its examiners and had your credentials accepted and made a matter of record?

A Yes, I have.

Q And at that time were you qualified as a petroleum engineer?

A Yes.

Q Are you familiar with the application of Union Texas Petroleum Corporation in this case and the subject well?

A Yes, it was an administrative application which was set for hearing by the Oil Conservation Division.

MR. CARR: Are the witness' qualifications acceptable?

MR. CATANACH: They are.

Q Mr. Pippin, will you briefly state what Union Texas seeks in this case?

A By this application Union Texas Petroleum

Corporation is requesting an order from the New Mexico Oil Conservation Division to grant us approval to commingle the Blanco Mesaverde and Basin Dakota Production in our Jicarilla G No. 8, which is presently a dual gas well located in Unit Letter G of Section 2, Township 26 North, Range 5 West in Rio Arriba County, New Mexico.

Q Mr. Pippin, would you refer to what has been marked Union Texas Exhibits One and Two, identify each of these exhibits and then review the information contained thereon for Mr. Catanach?

A These two exhibits depict the Mesaverde wells in Exhibit One and the Dakota wells in Exhibit Two near the subject well, which is Jicarilla G No. 8.

It shows the sections surrounding the section in which our Jicarilla G No. 8 Well is located.

The subject well is located in the middle, designated by a large dot.

The map also indicates the well names of all the Mesaverde and Dakota wells respectively and their ownership.

The surface land here, as is the royalty, belongs to the Jicarilla Apache Tribe.

There is one well on these exhibits that has already been approved for downhole Mesaverde/Dakota commingling. It is the Jicarilla G No. 9 and it's indicated on

the exhibits by the large arrow. It was approved by the Commission through Order R-7538 on May 21st, 1984.

Q And this is commingled in Mesaverde and Dakota?

A Yes.

Q Are there other wells in the area downhole commingled in these zones?

A Also approved in the vicinity for Mesaverde/Dakota commingling is the Jicarilla 119 No. 4, located in Unit Letter H of Section 6, Township 26 North, Range 4 West. This is not on the exhibits but it's two miles east of the subject well.

In addition to that, Union Texas operates our Jicarilla H lease which is located directly off of these maps to the southeast. It's comprised of four sections, Section 17, 18, 19 and 20, Township 26 North, Range 4 West.

We have approved administrative procedures for the downhole commingling of the Mesaverde and Dakota in all four of these sections.

Q And so what you do in those sections is simply file for administrative approval?

A That is correct.

The acreage dedication to the subject well is the east stand-up 320 acres in Section 2 in both the Mesaverde and Dakota. The ownership in both the Mesaverde

and Dakota is the same.

Q The only offsetting operators to the proposed well are either Union Texas itself or Meridian, is that correct?

A That is correct.

Q And under the east half of Section 2, the subject acreage, the ownership is common both as to working interest and royalty interest.

A That is correct.

Q Would you now refer to Exhibit Number Three, identify this and review it, please?

A Exhibit Three is a wellbore diagram indicating what is in the well right now, that is before commingling.

This well was completed in 1970 as a dual Mesaverde/Dakota well. It was equipped with 7-5/8ths intermediate casing at 3600 feet. It has a 5-1/2 inch liner from 3469 feet through 7869 feet.

The Mesaverde is perforated from 5042 to 5166 and it was fraced with 80,000 pounds of sand.

The Dakota was perforated from 7596 through 7784 and it was fraced with 101,000 pounds of sand.

These zones are currently segregated through the use of a packer at 7490. I'd like to note that this packer is only 109 feet above the top Dakota perf.

This is a situation that mechanically restricts the Dakota's ability to unload liquids by limiting the annular volume in which the Dakota stores gas.

Q Mr. Pippin, why are you seeking authority to downhole commingle these zones at this time?

A We have -- the basic reason we are seeking to downhole commingle is that we have lost production currently in the Mesaverde and the Dakota is exhibiting some poor producing characteristics similar to that.

We have actually lost production and we believe we will ultimately lose reserves if we don't commingle.

Q Are you having mechanical problems with the well?

A Yes. The Dakota currently, here in Exhibit Three, is being produced up inch and a half tubing and the Mesaverde is produced up a separate string of inch and a half tubing.

Currently there is communication between the two intervals. I suspect a hole is in the Dakota string of pipe.

Q And when was that discovered?

A I learned of the communication between the Mesaverde and Dakota when we received a letter from the District Oil Conservation Division in December of '87. This

letter stated that a packer leakage test taken in September of '87 indicated the communication between the Mesaverde and Dakota and that we should repair this communication.

Q And what actions did you take in response to this letter?

A We started the necessary paper work and during discussions with our 50 percent working interest partner in the well, who is Meridian Oil, we concluded that due to the well's age and the current rather poor producing characteristics, we should apply for downhole Mesaverde/Dakota commingling now.

Q And is that what resulted in the filing of an application for administrative approval?

A Yes, we subsequently filed for the administrative approval of downhole commingling.

Q Are you ready to go to Exhibit Number Four?

A Yes.

Q Would you refer to that now and simply review the information contained on this exhibit for the examiner?

A This again is a -- what we hope to be a future wellbore diagram of the subject well, Jicarilla G No. 8. It shows the Mesaverde and Dakota zones downhole commingled. This producing arrangement has two big producing

advantages.

First, greater wellbore storage in the annular space will help enable the well to better remove small amounts of (unclear).

And second, with only one string of tubing we may apply artificial lift at some point in the future to further enhance and sustain the gas production.

Q Would you now refer to Union Texas Exhibit Number Five, identify that, and review the information contained on this exhibit?

A Exhibit Five is the Dakota side production curve for the Jicarilla G No. 8. It exhibits a normal, what I would consider a normal, Dakota exponential decline; however, for the last year we have had to blow this Dakota side once or twice a week in order to sustain this production. The well's production or capacity now is -- is 134 MCF per day.

Although the blowing of the well to atmosphere allow us to sustain the production and continue producing, it is very wasteful of natural gas, of the natural resource. Commingling of this well would eliminate this wasteful practice.

Q Do you believe this problem could be corrected simply by repairing the tubing in the well?

A No, I don't believe merely repairing the

tubing leak could -- could alleviate this problem. This is one of the first indications of a well getting on in its age and I would anticipate it to only get worse.

This Dakota, by the way, has a cumulative of 1392-million cubic feet.

Q And if you repaired the tubing you still would have the problem that results from the proximity between the location of the packer and the actual producing interval.

A That is correct.

Q Would you go now to Exhibit Number Six and review that, please?

A Exhibit Six is the Mesaverde side production curve for the Jicarilla G No. 8.

While the Dakota side of the this dual well is showing production problems due to its lower gas volume's inability to lift small amounts of liquid, the Mesaverde has gotten to the point that it will not lift liquid even when we blow it to atmosphere.

This condition started in late 1985. The well is presently in a perpetual logged off condition capable of only about 9 MCF per day, which experience indicates this is the amount of gas that will bubble through a column of liquid.

The only economical way to return this

well to production is to commingle the well which in effect will allow the Dakota gas to help lift this small amount of liquid.

Both sides of this well log off due to small amount of oil and/or water, which is difficult for the small gas volumes to lift. Current operations have had to rely on blowing the well to atmosphere, which again is very wasteful of natural gas.

We believe that the removal of the packer and commingling will increase the life of this well by increasing the annular volume along with the total producing gas volumes which are both necessary to lift liquids.

The Mesaverde has very serious problems unlaoding and currently the Dakota now also is exhibiting these same problems. Commingling would pave the way not just for more efficient removal of liquids from the wellbore through the direct gas production but would allow us in the future to install an artificial lift mechanism, if needed, which in this case would be a plunger lift.

Q Again let me ask you, would repairing the leak in the tubing correct this problem without downhole commingling authority?

A No, it would not.

Q Would you now go to Exhibit Number Seven and explain what those calculations, or what that informa-

tion shows?

A This is a follow-up of what I just said. It's the calculated reserves for both in Dakota and then I've calculated the Mesaverde reserves in two different ways.

I indicate 712-million cubic feet remaining in the Dakota and this is the artificial lift mechanism that will help enable us to produce the Mesaverde reserves.

We will use the Dakota reserves to lift the liquids from both the Dakota and the Mesaverde, enabling both of them to produce.

With commingling we won't have to blow the well so we will be able to produce closer to this 712 from the Dakota than we would otherwise.

In the Mesaverde, using the historical Mesaverde decline from 1975 through about 1985, I came up with approximately 7 percent exponential decline, giving Mesaverde reserves at about 211-million cubic feet remaining; however, the well is currently perpetually logged off with liquid. If we don't commingle this well we are going to lose this 211-million cubic feet.

Q All right, let me ask you, are you talking about ultimately actually losing this 211-million cubic feet or are you talking about simply deferring the time at which it could be produced?

A I don't believe these reserves would be deferred. I believe they'll be lost, because if we wait to commingle, or if we wait for any reason, we will continue producing the Dakota reserves and we will continue wasting some of the Dakota gas by blowing, but the more Dakota reserves we produce now, the less Dakota reserves we will have left to help lift the Mesaverde liquids, allowing the Mesaverde reserves to be produced also.

Q And these -- and this Dakota production is in fact what you're hoping will enable to -- to lift the reserves from the Mesaverde?

A That is correct.

Q Would you now -- well, let me, before we get to that, are you prepared to make a recommendation to the Examiner as to how production should be allocated between the Mesaverde and the Dakota formations?

A We would recommend that the District Supervisor be consulted and an allocation for the subject well be initially agreed on after we commingle the well.

Q All right, would you now go to Exhibit Number Nine? There is no Exhibit Number Eight. I just misnumbered these, and would you go to Exhibit Number Nine and review that for the Examiner, please?

A Exhibit Nine is my calculations of the anticipated bottom hole pressures.

Q And what does it show?

A It shows that Mesaverde bottom hole pressure will be 656 psia and the Dakota bottom hole pressure will be 1106 psia. I used the shut-in casing pressure and the latest deliverability test applied to the reservoir equations to obtain these numbers. We anticipate no problems due to this difference in bottom hole pressures since the anticipated producing bottom hole pressure will be far below either of the individual reservoir pressures.

Q So you don't anticipate migration between zones?

A No, in a producing situation we would not.

Q Are these zones capable of only marginal production?

A Since the Mesaverde cannot be unloaded any more by blowing to atmosphere and it remains in a logged off condition most of the time, I would consider it very marginal.

The Dakota also is now exhibiting these same tendencies.

Q And both zones are, though, at this time currently flowing.

A Both zones are open flowing production as of now.

Q Okay. Would you identify Exhibits Ten and Eleven and review these for Mr. Catanach?

A Ten and Eleven are gas analyses from both the Mesaverde and Dakota gas strings. They're both sweet gas, similar in specific gravity and BTU. They have a few impurities but they're similar impurities.

Q Do you anticipate any compatibility problems as a result of downhole commingling?

A No, we don't. We have not seen compatibility problems in the Jicarilla G No. 9, which I talked about in Exhibits One and Two, located only a mile to the east, and we have not seen compatibility problems in our Jicarilla H lease, the four sections directly to the southeast of here.

Q And you're commingling the same zones in those wells?

A These are the same zones, correct.

Q In your opinion, are the reservoir characteristics of the two subject pools such that underground waste will not be caused by the proposed downhole commingling?

A There will be no waste. We will stop a waste situation which is now occurring.

Q So will granting this application result in the increased recovery of hydrocarbons?

A Very definitely. I hope to recover the 211--million cubic feet from the Mesaverde, which we will lose if we don't commingle.

Q Will the value of the commingled production exceed the sum of the values of the production from each of the individual zones?

A Very definitely.

Q And in your opinion will economic savings result from at this time going forward with the downhole commingling of these zones?

A Yes, it will.

Q Mr. Pippin, in your opinion will granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes.

Q Would you now identify what has been marked Union Texas Exhibits Twelve and Thirteen?

A These are waiver letters from both the BLM and the offset operator, who in this case is Meridian Oil.

Q And would you now refer to and identify what has been marked Exhibit Fourteen and Exhibit Fifteen?

A These are letters, copies of letters, from Campbell & Black giving notice to the BLM and the one

offset operator, Meridian Oil, of this hearing.

Q How soon does Union Texas plan to go forward with its work on this well?

A We would like to commence work on this just as soon as possible, this summer, basically.

Q Mr. Pippin were Exhibits One through Seven and Nine through Fifteen prepared by you or compiled under your direction and supervision?

A Yes.

MR. CARR: At this time, Mr. Catanach, we would move the admission of Union Texas Petroleum Company's Exhibits One through Seven and Nine through Fifteen.

MR. CATANACH: Exhibits One through Seven and Exhibits Nine through Fifteen will be admitted into evidence at this time.

MR. CARR: And that concludes my direct examination of Mr. Pippin.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Pippin, you said there was an administrative procedure for obtaining downhole commingling approval on the Jicarilla H lease?

A Yes. I don't have the order number but I

can sure get it for you.

MR. CARR: We'll provide you with that, if that's all right, following the hearing.

Q Okay, this is in the same general area, is that correct?

A Yes, it's directly to the southeast of the G lease. I have a map here I could -- I could show you its proximity, if you'd like.

Q Okay. You said both zones were currently flowing?

A Yes, sir. Yes, sir, they're both flowing.

Q But the Mesaverde, you say, has been loading up and you have to blow that down?

A It's gotten so the Mesaverde will not unload even when we blow it now, so we've just stopped blowing it. It's a waste of gas.

Q But it's currently flowing.

A It's open to production, producing an average of 9 MCF per day.

Q Okay. How much liquids do these zones produce?

A The Dakota hasn't recorded any oil production in awhile to my memory. Water production is around a barrel a day, I'd say.

The Mesaverde will not lift any liquid; therefor no liquid production.

Q How much was the Mesaverde producing before it started logging off, do you recall?

S Yes. Mesaverde, I would say is capable of between 70 and 80 MCF per day with negligible oil, very little oil.

Q How about water?

A Around half a barrel a day. Neither side makes very much liquid but unless this liquid is removed, a quart a day will log a well off in a matter of weeks.

Q You say there's -- you figure there's probably a hole in the tubing for the Dakota formation, is that correct?

A Yes. When we determine that there is communication between zones in a dual well, it's been my experience that it's always a tubing leak rather than a packer leak or casing problem.

Q Have you experienced any decline in Dakota production?

A Not really, no, sir. We see a decline in Dakota production when we do not blow the Dakota. We have to keep the Dakota unloaded.

Q You blow that zone, would you say, twice a week?

A Between once and twice a week on the average, yes.

Q Mr. Pippin, what's the status of this well as far as the prorated gas pools? I mean they're not -- they're not overproduced in either zone or anything like that, are they?

A According to the May proration schedule, the Dakota, of course we're not just talking about this well now, we're talking about this well and its infill well in the Dakota.

Q Which is where?

A That's called a proration unit.

MR. CARR: That's the Jicarilla G-8-A on the first plat down in the southeast of the southeast.

A The Dakota side is currently underproduced and the Mesaverde side, ironically, on the proration schedule is overproduced by almost a factor of 2; however, obviously, this proration unit is not overproduced due to the subject well, which is only currently making 9 MCF a day. We have drilled an infill well to this and within the last year, first delivered the infill well, and I believe it's the infill well's production that has caused this drilling unit to be overproduced.

But again we're -- we're just looking at

the subject well here and trying to save the reserves that I believe are remaining in the ground from the subject well.

Q Should the proration unit become overproduced, you'd have to shut both wells in, however. How would that affect -- would you experience any loss of reserves or anything from shutting the well in or would you have problems doing it?

A We would definitely follow the rules as -- as you tell us what the rules are. I don't believe we would lose reserves in that respect. They might be deferred a few days.

Q What if you had to shut it in for a extended period of time, would you -- might you have have some loss of reserves?

A I don't see how we would lose reserves in that scenario because right now my worry is that we are continuing to produce the Dakota reserves even though we're wasting some to atmosphere through blowing, and the more Dakota reserves we produce now in the subject well, the less there will be to lift the small amount of Mesaverde liquids in the future.

If the entire well were shut in it would be a deference rather than a loss.

Q Mr. Pippin, is the value of the gas the same or will you be losing any revenue off the combined mix-

ture?

A Nope, the value of the gas is the same.

Q And you requested that allocation be determined by consulting with the District Supervisor. How do you plan to determine the allocation, based on what?

A What I would like to do is look at the production historically percentagewise and use this historical percentage from the past on future production.

Q You say historical production. I'm not sure I follow you on that.

A Okay. Referring to Exhibits Five and Six, Exhibit Five again is the Dakota production decline curve and I would use production from a time when the production was level, say in the years '84, '85, compared with when it was relatively level in the Mesaverde side on Exhibit Six, '83, '84, '85; not the production itself but the relative production, I come up with percentages of the gas stream, and I would relate these percentages to future production coming up with an allocation.

Q Okay, and the reason you'd do that is to ignore some of the difficulties you had in late -- in the latest production, is that right?

A That is correct. The Mesaverde, as I've stated, has started this tremendously rapid decline in late '85, and we, of course, wouldn't want to use that. This

rapid decline is due to liquid logging. It doesn't accurately depict what the Mesaverde is capable of producing.

MR. CATANACH: I think that's all the questions I have at this time.

Are there any other questions?

MR. LYON: I have some questions.

MR. CATANACH: Mr. Lyon.

QUESTIONS BY MR. LYON:

Q I'm Vic Lyon, Chief Engineer for the Division.

Mr. Pippin, do you intend to conduct deliverability tests in this well?

A Yes, I believe we have to conduct a deliverability test every two years. I'm not certain on that.

Q Okay, and how do you -- how do you propose to -- to assign deliverabilities to the two formations, two pools?

A I'm not real certain on this. I believe when a deliverablity test is given to a commingled well there is one deliverability assigned to the well. Then we allocate the production from that deliverability to the separate zones using the allocation formula which I hope to work out with the District Office.

Q And which pool does that deliverability go to?

A Which pool.

Q Since you say it's assigned one deliverability.

A The individual well would be assigned a deliverablity.

Q To which pool?

A I'm not sure that it would go to either pool.

Q Well, would you have --

A Only -- only the allocation would go to the individual pool. I'm -- I'm not sure of your -- of the state rules on that.

Q Well, do you realize that the -- that the pools have separate allowables?

A Yes, I'm aware the pools have separate allowables and we would follow whatever rules apply to commingled wells.

What I'm trying to do here real basically is save the Mesaverde reserves which I believe are there and if we don't commingle this well, we are going to lose the Mesaverde reserves. They'll remain in the ground.

Q Would you be satisfied with having just an acreage allowable for the well and no deliverability?

A This would be an acreage allowable for the individual well rather than the pools?

Q Well, your acreage and deliverability is assigned to your proration unit but the deliverability is based on the deliverability of each of the two wells in multiple well units such as you have here.

A I think this well should be treated like other commingled wells in the area. I'm not sure how they're treated but I think this well should be treated the same as, say, our Jicarilla G-9 Well is treated, or anyone else's commingled well in the area.

Q I'm not sure how they're treated, either, but I think it is of some concern in gas prorationing.

A I would not want to start anything new here or deter from what's normally done when a well gets in its later life and needs to be commingled.

Q But would you -- would you please send us information as to how that is being done in your currently commingled wells?

MR. CARR: On how what is being done, the deliverabilities being allocated between the two pools?

MR. LYON: Yes.

MR. CARR: Okay.

MR. LYON: How the allowables or

how the deliverabilities are determined and how the allowables are handled.

MR. CARR: And may we confer with the Commission if we get in trouble?

MR. LYON: Sure.

MR. CARR: All right.

MR. LYON: That's all I have.

MR. CATANACH: Are there any further questions of this witness?

If not, he may be excused.

Is there anything further in Case 9370?

MR. CARR: Nothing further.

MR. CATANACH: If not, it 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 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. 9370, heard by me on May 11 1988.

David R. Catanach, Examiner
Oil Conservation Division