STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:) CASE NO. 11181

APPLICATION OF ENRON OIL & GAS COMPANY

TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

ORIGINAL

BEFORE: David Catanach, Hearing Examiner

January 5, 1995

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on January 5, 1995, at 2040 South Pacheco, Santa Fe, New Mexico, before Diana S. Abeyta, RPR, Certified Court Reporter No. 168, for the State of New Mexico.

I N D E X

January 5, 1995
Examiner Hearing
CASE NO. 11181

E X H I B I T S

A P P E A R A N C E S

FOR THE DIVISION:	RAND CARROLL, ESQ. Legal Counsel Oil Conservation Division 2040 S. Pacheco Santa Fe, New Mexico 87505
FOR THE APPLICANT:	CAMPBELL, CARR, BERGE & SHERIDAN, P.A. Post Office Box 2208 Santa Fe, New Mexico 87504-2208 BY: WILLIAM F. CARR, ESQ.

EXAMINER CATANACH: At this time, we'll call Case 11181. Application of Enron Oil & Gas Company for pool creation and downhole commingling, Eddy County, New Mexico. Are there appearances in this case?

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm of Campbell, Carr, Berge & Sheridan. We represent Enron Oil & Gas Company in this case. I have two witnesses, Patrick J. Tower, landman, and Randy Cate, reservoir engineer. Both have previously testified today. They are under oath. Their qualifications have been accepted, and I would request that the record in this case so reflect.

EXAMINER CATANACH: The records shall so reflect, Mr. Carr.

PATRICK J. TOWER

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Mr. Tower, are you familiar with the application filed in this case on behalf of Enron Oil & Gas Company?

A. Yes, I am.

Q. Are you familiar with the status of the lands in the subject area?

A. Yes, I am.

Q. Could you briefly state what Enron seeks with this application?

A. Enron is seeking the creation of a new pool for the production of oil from the Wolfcamp formation, comprising the NE 1/4 of the NE 1/4 of Section 36, Township 22 South, Range 30 East. We further seek authority to downhole commingle the Wolfcamp and Bone Spring production within Enron's existing James Ranch Unit Well No. 71, which is located 330 feet from the North line and 660 feet from the East line of Section 36 of that same township and range and within the same quarter-quarter section of the request for the new oil pool in the Wolfcamp.

Q. Would you refer to what has been marked for identification as Enron Exhibit No. 1, the acreage plat --

A. Yes.

Q. -- and review the information on this?

A. Okay. Exhibit No. 1, again, is a land plat. The arrow depicts the location of the James Ranch Unit No. 71 Well. And the red outline depicts the proration units and the application for the pool surrounding the well. This acreage lies within the Federal James Ranch Unit boundary. These are state lands upon which this particular well is located. Surrounding this also, and circled on the map, it shows the offset operator to the north is Mitchell Energy. Directly east, all of those lands lie within the WIPP site,

controlled by the DOE. However, in the N 1/2 of Section 31, Conoco is the record lessee as to depths that have not been condemned which are below 6,000 feet.

In Section 36, Enron is the operator there for the drilling of wells. However, at the establishment of a participating area within the Federal Unit, at such time then Bass Enterprises Production Co., who is our partner, takes over as the unit operator of the wells.

Q. Let's move to Enron Exhibit No. 2. Would you identify and review that.

A. Exhibit No. 2 is the ownership breakdown within the tract in question, being the NE NE of this Section 36. As you can see, there are no overrides. The royalty is one-eighth to the State of New Mexico. The remainder is owned two-thirds by Enron and the balance by -- collectively, as I've depicted here -- the Bass group, which is represented by their operator, which is Bass Enterprises Production Company.

Q. And so the ownership is identical in both the Wolfcamp and Bone Springs formations under the subject tract?

A. Yes, it is uniform throughout all depths in this tract.

Q. Now, Mr. Tower, if in fact one or either of these zones is included in a participating area in the James Ranch

Unit, that could actually affect the ownership and the production from the well?

A. Yes, it could; however, at this point, we have had discussion both with the BLM and the state land office geologist. More than likely the recommended P.A. will be this 40-acre tract. If, in fact, there are P.A.'s later that change the ownership, which would have to extend outside the N 1/2 of this section for that to occur, there will be proper allocation methods for the production so that if there were differing ownerships, the correlative rights would not be impaired, and both the BLM and the state have indicated to us that that would be feasible. And Mr. Cate will allude to some of the methods of production testing to handle that.

Q. Is Exhibit No. 3, a copy of an affidavit confirming that notice of this application hearing date has been provided to all the affected offsetting owners?

A. Yes.

Q. Including the Department of Energy?

A. This is correct.

Q. And the copies of letters are attached, as well as the copies of the return receipts?

A. Yes.

Q. Were Exhibits 1 through 3 prepared by you or compiled at your direction?

A. Yes, they were.

MR. CARR: At this time, Mr. Catanach, we move the admission of Enron Exhibits 1 through 3.

EXAMINER CATANACH: Exhibits 1 through 3 will be admitted as evidence.

MR. CARR: That concludes my direct examination of Mr. Tower.

EXAMINATION

BY MR. CATANACH:

Q. Mr. Tower, as I understand it, there's not a current P.A. currently in effect for the Wolfcamp?

A. Nor the Bone Spring.

Q. Nor the Bone Spring?

A. That is correct.

Q. And you've indicated BLM has said that that is likely to be the only tract included within the P.A.?

A. They have stated to us that they want to see the production for a period of time to establish that it's commercial. However, their preference is to -- with especially the initial well in this area and initial P.A., to start with as small a participating area as possible to avoid in-field wells that may not be commercial at a later date and cause some complexity. So they are saying that their preference will likely be to allocate this 40 acres. However, that will not be established until some production

history is garnered from the well, and all that's to be established at a later date.

Q. Do you have any idea when that might occur?

A. Generally, we've got a number of other wells we've drilled in this unit with Bass; a lot of them we operate initially. Some -- they generally like to run it out approximately six months to establish production history if it's relatively -- the first Bone Spring and that immediate area before they decide.

Q. Is there going to be additional Wolfcamp or Bone Spring drilling in this unit?

A. There likely will be. However, to the east there will not be because of the WIPP. To the north there is a -- we'll point out and Mr. Cate will talk about further -- the north offset shows in the S 1/2 of Section 25 is a well that Mitchell drilled, I believe within the last six months or year, to the Morrow. And they have recompleted that as a Wolfcamp gas well. With the S 1/2 of Section 25 allocated to it.

Further plans by Enron and Bass would entail possibly drilling some additional wells that would be to the south, in Section 36, depending on how the well holds up here that we're talking about. So there could be some, however, for the most part, Bass and Enron are the majority owners in those cases. And all of Section 36 is one state

lease, as far as the royalty.

So in the event there was additional drilling of P.A.'s, generally, I don't see that many complexities with the diversity of ownership, if that's what you are getting at.

Q. Mr. Tower, have you communicated at all with the Commissioner of Public Lands, as per your downhole commingling application?

A. We have sent notice -- Mr. Cate -- I may defer this to Mr. Cate. On a previous trip, he has visited with the state land office and their personnel directly, and I defer that to his conversations.

EXAMINER CATANACH: Okay. I have nothing further.

THE WITNESS: Okay.

MR. CARR: All right. At this time we call Randy Cate.

RANDY CATE,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Mr. Cate, are you familiar with the application filed in this case on behalf Enron Oil & Gas Company?

A. Yes, I am.

Q. Have you made a technical study of the area and prepared exhibits to support this application?

A. Yes, I have.

Q. Initially, have you visited with representatives of the Commissioner of Public Lands concerning Enron's proposals for downhole commingling of the Bone Springs and the Wolfcamp in the subject well?

A. Yes, I have.

Q. When did that occur approximately?

A. It occurred approximately October 27th or 28th, when we were up here for other hearings.

Q. And you personally met with the representatives of the state land office?

A. Yes.

Q. And you advised them of your intention to downhole commingle in this particular wellbore?

A. Yes, we did.

Q. Let's go to Exhibit No. 4. Could you identify that, please.

A. Yes. Exhibit No. 4 is a cross-section with two wells. At the bottom of the cross-section there is a locator map, but it shows two wells. We had some --

Q. Are these the only two Wolfcamp producers in the area?

A. Yes, in the immediate area that I know of, that's

correct.

Q. One of the wells is the Mitchell Apache No. 25 Federal Com. No. 2 Well; is that right?

A. Yes, it is.

Q. Where is that well located?

A. It is located approximately a quarter mile north of our James Ranch 71. It's located in the SE of the SE of Section 25.

Q. And is that well the one well completed in the recently created Los Medanos Wolfcamp pool?

A. Yes.

Q. What are the boundaries of that pool?

A. J. They are the S 1/2 of Section 25.

Q. Is this producing as a gas well or an oil well?

A. It is producing as a gas well and the pool is so designated.

Q. Generally, what are the characteristics of the formation from which this gas is being produced?

A. If you look at the cross-section, at the very bottom it's -- where we've got called "Lower Wolfcamp Carbonate Pay," you have a sequence of shale and carbonates over this perforated interval from approximately 11,800 feet to 12,160 feet. And it's the carbonates within the sequence that are producing the gas and some associated condensate.

Q. Now, Mr. Cate, if a new pool is not created for

the James Ranch Unit 71 Well, in fact, it would be governed by the gas rules that have been adopted for the Los Medanos Wolfcamp pool; is that right?

A. Yes.

Q. And that is the reason we're here today seeking the creation of a separate pool within the Wolfcamp for the James Ranch Unit 71 Well?

A. That's correct.

Q. Would you review the other factors that can be testified to from Exhibit No. 4.

A. We believe that the data here shows that we are asking for a separate pool in the Wolfcamp based on vertical relief and also the production from our well, which is to the right, the No. 71 in the Wolfcamp set of perforations, is from what we call "Upper Wolfcamp Sand." And so it is a sand, and then there is approximately 700 feet of vertical separation between the sands down to the Lower Wolfcamp carbonate pay that is in the designated Wolfcamp 320 gas pool.

You know, we can refer to this as we go on with some of the other exhibits, but primarily, we will be asking that we designate this Wolfcamp oil pool for the 40-acre oil pool rules, and then downhole commingle it with the third Bone Spring sand pay, which is approximately 100 feet above it.

Q. Basically, your conclusion is that you have a separate pool in the Wolfcamp because this well produces oil and the offset produces gas?

A. Yes, that's one of the reasons.

Q. There is 700 feet of vertical separation between the producing intervals within the Wolfcamp?

A. Right.

Q. And one is producing from a carbonate string and the other is producing from sand?

A. From sands, yes.

Q. Let's go to Exhibit No. 5, and I will ask you to identify that for Mr. Catanach.

A. Exhibit No. 5 I prepared, and it follows an outline as set in the commission's Rule 303-C, part 2. And so what I've done here is summarize the data and the answers to the Rule 303 -- as they are set out in Rule 303-C.

Q. All right. From what depth does the Wolfcamp actually produce in this well?

A. We've got the Wolfcamp perforations at 11,091 feet to 11,124 feet.

Q. And at what rate, approximately, is it now producing?

A. The current production is approximately 85 barrels per day, and this is the commingled rate.

Q. And so this figure still exceeds the limit set in

Rule 303 for administrative approval for downhole commingling?

A. Yes, it does. We'll show an exhibit here that shows the well is still in fairly rapid decline, and I would imagine that within one to two months that it would have fallen below the 80 barrel a day for administrative approval.

Q. In Exhibit No. 5, have you set forth a resume of this particular well's history?

A. Yes, I have.

Q. Would you review the pertinent parts of that history for the Examiner.

A. Okay. This is on the first page. We spud the well on September 14th, '94, and TD'd it at 11,250 feet on October 6th. We first perforated the Wolfcamp sand at 11,091 feet to 11,124. Acidized with 2,000 gallons of acid and swabbed back 88 barrels of load water and 5 barrels of oil with a good show of gas. We then set a retrievable bridge plug at 11,006 feet. Perforated the Bone Spring sands from 10,880 feet to 10,938. Ascidized it with 2,000 gallons. We swabbed 145 barrels of load back, and 26 barrels of new oil. It was then shut in for a pressure build up, then the retrievable plug pulled. And both sands fracture stimulated together with 125,000 gallons of Medallion fluid and 325,000 pounds of 20/40 sand.

On November 5th, 1994, we potentialled the well for 169 barrels of oil, 295 mcf, and 45 barrels of water per day flowing up the casing at 640 pounds on an 18/64 choke.

Q. Mr. Cate, would you refer to Enron Exhibit No. 6 and review for Mr. Catanach the current producing capabilities of this well.

A. No. 6 is the C-116, as required by the Rule 303 -- or requested. And it shows a test within the last 30 days on 12-7-94, of flowing pressure of 100 pounds, 24-hour test, and the recovered production during that time of 85 barrels of oil, 218 mcf of gas and 45 barrels of water on a 24-hour basis.

Q. Would you now go to Exhibit No. 7 and identify that and review the information on this exhibit for the Examiner.

A. No. 7 is what I referred to earlier. This is a 31-day gauge report that we generate. And at the very bottom you can see some of the tests are in the 85, still about an 85- to 90-barrel-per-day rate, but earlier in the month, up midway in the page, we had several days over 100 barrels per day. So this is mainly to show that we're still above the limits set for administrative approval. But I would anticipate, and we'll show a decline rate here in a minute, that we'll be under the 80-barrel-a-day rate very shortly.

Q. Does Exhibit No. 5 contain a forecast of the well's producing capability?

A. Yes, it does. On page 2, I have forecast that we should expect a hyperbolic decline, and I'd expect, based on offset production out of the Bone Spring, that we would stabilize in the 40- to 60-barrel-per-day range and then begin more of a terminal decline, say in the 15 to 20 percent per year.

Q. Would you refer to Enron Exhibit No. 8 and simply review for Mr. Catanach how you went about determining that production forecast.

A. Exhibit No. 8 is an offset well, it's the James Ranch Unit No. 7 that Bass operates, and it's Bone Spring production. It's down in Section 7 to the southeast, one mile southeast of this well. And it's the only Bone Spring well in the area with any appreciable history. The well began producing on a continuous basis back in the early '80s and has produced for approximately 15 years or so. And so it shows the initial rapid decline and then stabilizing out, and that's what I based this previous forecast on.

Q. Are both zones in the well flowing, or are they being artifically lifted?

A. They are both flowing.

Q. Does Exhibit No. 5 contain bottomhole pressure data on each of these zones?

A. Yes. Page 2, in the middle of the page, we actually had a measured bottomhole pressure that I referred to earlier in reading the resume of the testing, and it gave an original pressure for the Bone Springs sand of 7,588 psi absolute, and that's from a build-up analysis. Now, the Wolfcamp sands, we have a flowing bottom-up pressure, plus some data from acid jobs, shut-in pressures after acid jobs. I don't have an actual measure, but I have inferred from a gradient that it will be approximately 7,727 pounds. Around 150 pounds difference in the bottomhole pressure between the two.

And then we do have a measured flowing bottomhole pressure at the time we ran a production survey for allocation purposes, and it showed only 100 pounds difference between the two zones in the flowing bottomhole pressures. That both the shut-ins and the flowing pressures indicate there should be no cross-flow between zones, either wind shut in or wind flowing.

Q. Mr. Cate, do you anticipate any problems with the compatibilities of the fluids in the wellbore?

A. No. Martin Water Labs, which is Exhibit No. 9, they analyzed the water from the combined stream and find no evidence of any incompatibilities. Also, both oils are sweet and almost identical gravities. The combined stream gravity is 43.1 API, and in comparing with our James Ranch

No. 17, which is Bone Spring only, it's gravity is 44.0, so very similar.

Q. Mr. Cate, would you refer to what has been marked as Enron Exhibit Number 10. Identify this, review it, and in so doing, explain to the Examiner how you would recommend that the production be allocated between the Wolfcamp and the Bone Spring in the subject well.

A. Okay, Exhibit Number 10 is the production log. We had Halliburton run this for us. It was run on 12/7/94, December 7th. And at the time, both zones were flowing together. We ran a suite of logs. What they do is they run spinner surveys and then gradiometers and tools that will measure the changes in density of fluids, and we can arrive, through a software program, arrive at the volumes of oil, water and gas from each of the zones.

And what is depicted here is a visual representation of that. As can be seen, the green, dark green, and then light green in the middle columns here are showing that the Wolfcamp perforations at the bottom were contributing approximately anywhere around 60 barrels per day average at the time, up to possibly 80.

And then the upper set of perfs was contributing another 10 to 20 barrels of the oil. Most of the water coming from the bottom set of perfs. And the gas, most of the gas coming from the upper set of perfs, but on the gas,

I believe what we are seeing there is some of the solution gas coming out of the solution. The bubble point should be in the 3,000-pound range. The flowing bottomhole at that point recorded was 2,700 pounds. These oils should have all its gas in solution. There should not be a gas cap.

And at the very top of the page on the production log heading, under "Remarks," they broke out the percentages of each of the fluids between the top zone and the bottom zone, and give a range, and, again, they showed that the gas, 95 to 100 percent coming from the top zone. But, again, I think that is strictly gas coming out of solution. And so the oil, 10 to 20 percent, and the water, 10 to 20 percent out of the top zone. The oil from the bottom zone is 80 to 90 percent. And the water 80 to 90 percent.

I took that data, and on page 3 of the outline, according to Rule 303, I give the formula for allocation of production between the zones. And I felt that the Bone Spring oil, based on this log and knowing the offset production characteristics, the Bone Spring should have 20 percent of the oil, 20 percent of the gas, and 20 percent of the water allocated to it, and the Wolfcamp should have 80 percent of the oil, 80 percent of the gas, and 80 percent of water allocated to it initially.

Q. You said "initially," is it possible that as the well produces, these percentages could change?

A. It's possible. If we see a sudden change in production characteristics, we would run another production survey and --

Q. Could you recommend that the actual allocation between these two zones be worked out with the Oil Conservation's district office, and that if there are changes, you be permitted to adjust those, thereby having flexibility necessary to accurately allocate between the two zones?

A. Yes, I would.

Q. In your opinion, would approval of the application result in the increased recovery of oil?

A. Yes, it will.

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

A. It does on a present value basis, and the fact that the oil gravities are almost identical, there is not any quality subtraction on our oil price due to the combination.

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

A. Yes.

Q. Were Exhibits 4 through 10 either prepared by you or compiled under your direction and supervision?

A. Yes, they all were.

MR. CARR: At this time, Mr. Catanach, we move the admission of Enron Exhibits 4 through 10.

EXAMINER CATANACH: Exhibits 4 through 10 will be admitted as evidence.

MR. CARR: That completes my direct examination of Mr. Cate.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Cate, the 71 well did not penetrate that lower Wolfcamp gas?

A. That's correct. It TD'd at 11,250 feet, some 500 feet above Wolfcamp gas zones.

Q. Does Enron have any plans to deepen that well?

A. No. From what we understand, the offset well is somewhere in the 100-mcf-a-day range, and we would not find that economical to pursue.

Q. You mentioned that you had talked to the Commissioner of Public Lands. Have you submitted an application to them?

A. We submitted a letter that I think you received a a copy, and we also copied them on a letter that explained and requested this downhole commingling testing and

explained that we would be going to hearing to get approval, and they had no problem with that.

EXAMINER CATANACH: I have nothing further, Mr. Carr.

MR. CARR: We have nothing further in this case, Mr. Catanach.

EXAMINER CATANACH: There being nothing further in this case, Case 11181 will be taken under advisement.

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Diana S. Abeyta, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that I caused my notes to be transcribed under my personal supervision, and that the foregoing transcript is a true and accurate record of the proceedings of said hearing.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL, January 24th, 1995.

Diana S. Abeyta

DIANA S. ABEYTA
CCR No. 168

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11181, heard by me on January 5 1995.

David R. Catanach, Examiner
Oil Conservation Division

BASS ENTERPRISES PRODUCTION CO.
201 MAIN ST.
FORT WORTH, TEXAS 76102-3131
817/390-8400

January 3, 1995

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87504

Attention: Mr. David R. Catanach

Re: Application for Downhole Commingling
Wolfcamp and Bone Spring Formations
James Ranch Unit No. 71 Well
Section 36, T22S-30E
James Ranch Unit
Eddy County, New Mexico

Dear Mr. Catanach:

Please reference Enron's application for the creation of a new oil pool designation for the Wolfcamp Formation and downhole commingling of production from the Wolfcamp and the Bone Spring Formations in the above wellbore, said case having been set for the examiner's hearing on January 5, 1995. Please be advised that Bass Enterprises Production Co. hereby supports said application by Enron. According to Bass' review, the commingling of the above zones in the James Ranch No. 71 Well will not cause damage to the reservoir or loss of correlative rights by any interested parties. Please add this letter to the official record for the subject application. Thank you very much and in the event you have any questions or comments in the above regard, please advise.

Very truly yours,

L. Wayne Bailey
Division Landman

JWB:ca

cc: William F. Carr
P.O. Box 2208
Santa Fe, New Mexico 87504-2208

Enron Oil and Gas Company
4000 N. Big Spring, Suite 500
Midland, Texas 79702
Attention: Patrick J. Tower