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. 12,520
APPLICATION OF BP AMOCO FOR ESTABLISHMENT OF A DOWNHOLE COMMINGLING REFERENCE CASE AND PREAPPROVAL OF DOWNHOLE COMMINGLING FOR FORMATIONS AND POOLS IN THE GALLEGOS CANYON UNIT PURSUANT TO DIVISION RULE 303.C (4) AND THE ADOPTION OF SPECIAL ADMINISTRATIVE RULES THEREFOR, SAN JUAN COUNTY, NEW MEXICO	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

October 19th, 2000

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner on Thursday, October 19th, 2000, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

October 19th, 2000
Examiner Hearing
CASE NO. 12,520

* * *

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A P P E A R A N C E S

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE and SHERIDAN, P.A.
Suite 1 - 110 N. Guadalupe
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 3:40 p.m.:

EXAMINER STOGNER: Hearing will come to order. At this time I'll call Case Number 12,520, which is the Application of BP Amoco for the establishment of a downhole commingling reference case and preapproval of downhole commingling for formations and pools in the Gallegos Canyon Unit pursuant to Division Rule 303.C (4) and the adoption of special administrative rules therefor, San Juan County, New Mexico.

At this time I'll call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan.

We represent BP Amoco in this matter, and I have three witnesses.

EXAMINER STOGNER: Any other appearances? Will the witnesses please stand to be sworn?

(Thereupon, the witnesses were sworn.)

MR. CARR: Mr. Examiner, initially I would request that the portion of the case which relates to the adoption of special pool administrative rules be dismissed. Those provisions are now included within what is Division General Rule 303.C (4) (b) (iii). It simply provides that

if the Application is approved, that subsequent downhole commingling approval is obtained by filing a Sundry Notice Form C-103 with the District Office. And since that is covered now in the General Rules, that portion of this case is unnecessary.

EXAMINER STOGNER: Mr. Carr, Rule 303, if I remember right, has been changed or amended recently?

MR. CARR: Fairly recently, yes, sir.

EXAMINER STOGNER: Do you know when?

MR. CARR: I don't know the exact date.

EXAMINER STOGNER: Was this Application made prior to that or --

MR. CARR: No, it was made after that, and it was actually modeled after a similar application that had been filed by Phillips, and when I was preparing the Application I lifted that language.

And then when we were looking at it, we discovered exactly what we would be asking for, as the Special Administrative Rules are now included within General Rule 303.C (4) (b) (iii).

EXAMINER STOGNER: Okay. Thank you, Mr. Carr.

MR. CARR: Yes, sir.

EXAMINER STOGNER: You may proceed then.

MR. CARR: At this time, Mr. Stogner, we would call Steve Reinert, and that's R-e-i-n-e-r-t.

STEVE REINERT,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your full name for the record, please?

A. Steve Reinert.

Q. Where do you reside?

A. Houston, Texas.

Q. By whom are you employed?

A. BP Amoco.

Q. And what is your position with BP Amoco?

A. Land negotiator.

Q. Have you previously testified before this Division?

A. No.

Q. Could you summarize your educational background for Mr. Stogner?

A. I have a bachelor of business degree in petroleum land management and one in finance from the University of Texas.

Q. And when did you receive your degrees?

A. December, 1976.

Q. And since graduation, for whom have you worked?

A. Amoco and then BP Amoco.

Q. And what has been the nature of your work for Amoco and BP Amoco?

A. About 15 years of that in the land department, the other eight in natural gas gathering and acquisitions and divestments.

Q. Are you familiar with the Application as filed in this case on behalf of BP Amoco?

A. Yes.

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

A. Yes.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER STOGNER: They are.

Q. (By Mr. Carr) Mr. Reinert, could you briefly summarize for the Examiner what it is that Amoco seeks with this Application?

A. We seek preapproval of downhole commingling for all formations and pools in the Gallegos Canyon Unit, and we also seek a downhole reference case for the Division's notice requirements for downhole commingling.

Q. Could you refer to Exhibit Number 1, which is the first exhibit in the exhibit packet, and identify this and review it for the Examiner?

A. The Exhibit 1 is designed to show the location of the Gallegos Canyon Unit. The unit is shown outlined in green on the left side of the Exhibit 1, just southeast of Farmington, New Mexico.

Q. And the --

A. And BP Amoco is the unit operator of the unit.

Q. And Farmington is indicated in dark blue on this exhibit?

A. Yes, it is.

Q. What formations are currently producing from the Gallegos Canyon Unit?

A. There are six producing formations at this time, the Farmington, the Fruitland Sand, the Fruitland Coal, the Pictured Cliffs, the Gallup formation and the Dakota.

Q. Let's go to what has been marked as Exhibit 2, and would you just identify that?

A. Exhibit 2, the light area on Exhibit 2 is the outline of the -- is the exterior boundaries of the Gallegos Canyon Unit, and the yellow-shaded area is the Farmington Participating Area.

Q. So we have a federal unit, this is the Farmington PA?

A. Yes.

Q. And if we look at Exhibits 2 through 7, are these similar maps that simply show the current boundaries of the

participating areas for each of the formations which are now producing from this unit?

A. Yes.

Q. Do they show anything else?

A. No, they don't.

Q. Okay. Let's go to Exhibit Number 8, and I'd ask you to review that.

A. Okay. Exhibit 8 is a summary, what we call a property summary, of the Gallegos Canyon Unit. It's a divided-type federal exploratory unit which was formed in 1950. It was originally 39,324 acres, more or less. Resurveys have resulted in the unit now being 43,146 acres, more or less.

The exhibit also shows that the acreage types within the federal are state, federal, Navajo Indian-allotted lands, and patented lands.

The participating areas are also individually shown. There are 12 participating areas within the unit, and BP Amoco's working interest is shown by each of the 12 participating areas.

Q. Now, this reference case is directed at the notice requirements for downhole commingling. In the absence of a downhole commingling reference case which covers this notification criteria in the Division's commingling rules, to whom must notice of downhole

commingling be provided on a well-by-well basis?

A. A copy of the application, which is Division Form C-107, must be provided to each interest owner in the subject spacing unit by certified mail.

Q. Is it BP Amoco's intention that approval of a reference case would satisfy that requirement for future applications for downhole commingling so that all the operators in these units do not have to be notified?

A. That's correct.

Q. In this particular case, how many individual property owners were notified of this Application?

A. 751.

Q. Did the mailing to each of these 751 owners contain a copy of the Application that was filed in this case?

A. Yes, it did.

Q. And it was provided by certified mail?

A. Yes.

Q. Were all owners notified, working, royalty and overriding royalty interest owners?

A. Yes.

Q. Did the notice advise each of these interest owners of today's hearing?

A. Yes.

Q. And did it advise these owners that if they did

not appear, they would not be able to challenge the matter at a later date?

A. Yes.

Q. Is BP Amoco Exhibit Number 19, the large exhibit with the clip on it, an affidavit confirming that notice of this Application has been provided in accordance with OCD Rules?

A. Yes.

MR. CARR: Mr. Examiner, what we have included in the packet is my notice affidavit, a copy of the notice letter, and then the rest of the exhibit is just a list of the names of the parties who were notified, and copies of the return receipts that have been received by my office in response to that mailing.

I also have here in three volumes the original affidavit and copies of all the green cards and the envelopes that were returned. I will be happy to make that part of the record, or I can tender the copy of Exhibit 19, which you have before you. It's simply whichever you would prefer to have in the official record of the case.

EXAMINER STOGNER: Well, have the Exhibit Number 19.

MR. CARR: The abbreviated form --

EXAMINER STOGNER: Yes.

MR. CARR: -- not all the letters?

EXAMINER STOGNER: Yes, sir.

Q. (By Mr. Carr) Mr. Reinert, could you identify and review BP Exhibit Number 20?

A. Yes, these are the two responses we received, and one was from a gentleman by the name of Myron Crawford who rather pointedly stated he didn't care to receive any further certified mailings.

The second letter was a letter from Dugan Production Corp., who has requested a copy of our exhibits, which we have submitted to the hearing.

Q. Are these the only responses received by BP Amoco to this mail-out?

A. Yes.

Q. Will BP Amoco also call geological and engineering witnesses to review the technical portions of this Application?

A. Yes.

Q. Your part of the presentation covers BP Exhibits 1 through 8 and 19 through 20, correct?

A. Yes.

Q. Can you testify as to the accuracy of these exhibits?

A. Yes, I can.

MR. CARR: Mr. Stogner, at this time we would move the admission into evidence of BP Exhibits 1 through

8, 19 and 20.

EXAMINER STOGNER: Exhibits 1 through 8, 19 and 20 --

MR. CARR: Yes, sir.

EXAMINER STOGNER: -- will be admitted into evidence at this time.

MR. CARR: And that concludes my direct examination of this witness.

EXAMINATION

BY EXAMINER STOGNER:

Q. Okay, again, the Exhibits 2 through 7, these plats, does this show the participating areas?

A. Yes, they do. Each exhibit shows the exterior boundary of the unit, and we've gone from shallowest formation to deepest in showing the participating areas, 2 being the shallowest, 7 being the deepest formation, with the participating area by formation.

Q. Okay, now let's -- Explain to me on the record here --

A. Okay.

Q. -- let's take for example Exhibit Number 2.

A. Yes, sir.

Q. If inside this participating area you get an authorization to downhole commingle, how does that differ, then, outside this area, as far as ownership goes and the

payments?

A. The ownership inside this participating area is, in all probability, different than the ownership in the other participating areas for -- in the areas inside the unit but not in a participating area. There's only one well in this participating area.

Q. Okay, let me ask this question again. If I move up to Section 13, in the far northwest quarter, and get authorization to downhole commingle Farmington production with whatever production is out there, then who benefits from that Farmington production in Section 13? The unit or the proration unit? Would that automatically go into the participating area?

A. No, it would not automatically go in the participating area.

Q. All right.

A. If we drilled a Farmington well there, we would probably have to form a communitization, or it would be drilled on a leasehold basis, depending on the exact location and the lease situation in that section.

Q. And in all probability, you're not going to be drilling a Farmington well --

A. No.

Q. -- you will be recompleting an existing well, would you not?

A. Correct.

Q. But no matter with what scenario, all the parties that you notified should be aware of this, or at least were notified --

A. Yes.

Q. -- and whether they know about it or not, you can't answer that question?

A. Yes, sir, that's correct.

Q. Referring to Exhibit Number 4 you have the participating area for the Fruitland Coal. This is one pool up there. Is there currently some Fruitland Coal production in that white area that's not participating, or not in the participating area for the Fruitland Coal of this Gallegos Unit?

A. I think there is, but I cannot swear to that.

Q. Okay. How does production in the Fruitland Coal, how would that go from white to purple? How would that be determined?

A. You would have to drill a Fruitland Coal well --

Q. Or recomplete?

A. -- or recomplete, with the completion in the Fruitland Coal under federal regulations, comply with those and prove that it's commercial and that the participating area should be expanded to include that Fruitland Coal completion.

Q. And what is commercial production?

A. Typically, production which will pay the operating costs, plus a profit.

Q. And that would be determined from a volume; is that correct?

A. And price.

Q. And price. Now, Amoco is designated the operator of this Gallegos Unit; is that correct?

A. Yes, sir.

Q. So when I look at Exhibit Number 7, the Dakota, which is the deepest formation that you have in here, is participating; is that correct?

A. Yes, sir.

Q. From a land point of view, what is the criteria for one of these Dakota wells for Amoco to go in and pull the tubing and perforate everything? What is the land criteria, then, that you're looking at? Would there have to be Amoco ownership or working interest in each one of those zones in that particular wellbore?

A. No, since we're unit operator.

Q. Okay, then how would Amoco --

A. However, we do have a working interest in each of the participating area zones.

Q. In the participating areas?

A. Yes.

Q. Okay. I'm looking at outside of the participating area.

A. In a zone or --

Q. Yeah, in a zone. Now you've essentially yanked the tubing out, and now you run a perforating gun all the way from the surface down to the base. That's what you're asking for. So we take that scenario -- I'm trying to figure out, in the land point of view, what would benefit Amoco for doing that if they did not have a working interest and it was outside the participating area.

A. In all probability, we will have a working interest in any zone inside this unit. However, being the unit operator, we would operate the wells inside the unit if another party proposed a well.

Q. Okay. So in the Gallegos area, for this reference case, they would apply to all operators, or just Amoco?

A. We're asking for this for the Gallegos Canyon Unit.

Q. Uh-huh.

A. I suppose that there's always a possibility that at some point in time Amoco will not be the operator, if that's what you're asking. I'm not sure -- I'm not positive of the Division's rulings, but I would think that if we ever divested our interest, that the order would

still be applicable to the next operator.

Q. I'm trying to determine that if Amoco was in a participating area and it was next to a proration unit, say, in one of these Pictured Cliffs or Gallup that didn't have -- was not in the participating area --

A. Uh-huh.

Q. -- how that would benefit, or how those people would be harmed, the mineral interests outside the participating area.

A. If we were to drill a well outside the participating area?

Q. You keep talking about drilling wells. You're not going to drill a well, you're not going to drill a well. You're going to yank tubing, is what you're going to do. That's what you're asking for this. You've got a lot of Dakota wells out there.

A. Yes.

Q. You keep talking about drilling wells. You're not going to do that. Are you asking for the Mesaverde to be involved?

A. We don't have --

Q. That's the only one that has infill infill at this point.

A. We don't have that zone specified in here.

Q. No, you don't, so I'm assuming that you're not

going to do that.

MR. CARR: That's correct.

EXAMINER STOGNER: Of course, that brings up a lot of other questions, to which I will expect an answer.

I'm very gun-shy on these things when an operator with a huge unit comes in and asks for an exception for every rule, because I've been burned before on that and I'm real leery on it, so I'm just trying to understand how this is going to benefit everybody out there. Because that's what I was told before. And guess what? It doesn't.

Q. (By Examiner Stogner) Okay, on Exhibit Number 8, you've shown some -- on these participating areas, the working interest and percentages. Could you explain what that means? Is this the area covered within the Gallegos Unit?

A. Yes, I'll be happy to go through those. On the Gallegos Canyon -- We'll start at the top.

Q. Okay.

A. Gallegos Canyon Unit Dakota participating area, which is shown on Exhibit 7, BP Amoco's working interest in that participating area is slightly over 52 percent.

Q. Okay. Now, is that by volume or by area?

A. That's in the entire Dakota participating area, shown in purple on the exhibit.

Q. Okay. So even though it's 100 percent of the

area, Amoco's working interest is just .52?

A. Yes, sir. And if we were to propose an operation, the other parties have the ability to join or go nonconsent. And that's true in each zone, in each participating area. So would you like to go through each one?

Q. Sure.

A. Okay.

Q. Let's do.

A. Okay. In the Gallup formation shown on Exhibit Number 6, there are four different participating areas within the Gallup. So in the red we have the Gallup "A" participating area, in the green we have the Gallup "B" participating area, in the blue we have the Gallup "C" participating area, and then in the yellow we have the Gallup "D" participating area. So the BP Amoco working interest is different in those four participating areas, ranging from slightly over 5-percent working interest to 87.5-percent working interest.

Okay, on Exhibit 5 we show the Pictured Cliffs participating area, and the BP Amoco working interest is slightly over 51 percent in that participating area, shown on Exhibit 5.

And if we go to Exhibit 4 we have the Fruitland Coal participating area, and the Fruitland Coal

participating area, BP Amoco's working interest is slightly over 53 percent.

If we go to Exhibit 3, it shows the Fruitland Sand participating areas. There are four participating areas there. And Exhibit 8 shows the four different working interests in the Fruitland Sand, ranging from about 46 percent to about 56 percent in those four participating areas.

And then if we go to Exhibit 2 we have the Farmington participating area, and BP Amoco's working interest in that participating area is slightly over 46 percent.

So there are other working interest owners in each participating area who have the ability to join or not in any proposed operation.

EXAMINER STOGNER: I have no other questions of this witness. I might later on.

MR. CARR: Mr. Stogner, at this time we call Dave Jeffrey.

DAVID L. JEFFREY,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your full name for the record,

please?

A. David L. Jeffrey.

Q. Mr. Jeffrey, where do you reside?

A. Houston, Texas.

Q. By whom are you employed?

A. BP Amoco.

Q. And what is your position with Amoco?

A. I'm a petroleum geologist.

Q. Have you previously testified before this Division?

A. No, sir.

Q. Could you review your educational background for Mr. Stogner?

A. I received a PhD in geology from Texas A&M University in 1996 and a master's of science in geology in 1991 from Bowling Green State University in Ohio, a bachelor's of science in geology in 1998 from Marietta College in Ohio.

Q. Could you review your job experience?

A. Since graduating from Texas A&M, I've worked for BP Amoco and Vastar Resources.

Q. While with Vastar, did your geographic area of responsibility include the San Juan Basin?

A. Yes, I've been working there for about two years.

Q. Are you familiar with the Application filed in

this case on behalf of BP Amoco?

A. Yes, sir.

Q. Have you made a geological study of the area which is involved in this case?

A. Yes, sir.

Q. And are you prepared to share the results of that study with the Examiner?

A. Yes, I am.

MR. CARR: Are Mr. Jeffrey's qualifications acceptable?

EXAMINER STOGNER: They are.

Q. (By Mr. Carr) Mr. Jeffrey, the purpose of your presentation is to simply set the geological background for the engineering presentation; is that correct?

A. Yes, sir.

Q. Let's go to what has been marked in the exhibit packet as Exhibit Number 9. Would you identify and review that, please?

A. Yeah, I'll be discussing Exhibits 9 and 10.

Q. All right.

A. Exhibit Number 9 is a regional stratigraphic cross-section going across the Gallegos Canyon Unit, and the main thing I want to discuss is that the stratigraphy and the structure are not very complex within the area.

This is a dip section that's hung on a Lewis

shale marker, and the cross-section is going from the southwest towards the northeast.

On the next exhibit, Exhibit 10, this is the green line that's going from the southwest towards the northeast. This map is a structure map on the Pictured Cliffs sandstone. The depths are in feet relative to sea level. Contour interval is 20 feet. And as you can see, the cross-section is a dip section going from southwest, which would be more Basin-marginward, towards the northeast, which is more Basinward.

On the cross-section itself, the scale in the scale column, each tick is 100 feet, and so the entire cross-section covers a little over 6000 feet.

Just going over the important formations that we've produced from in the Gallegos Canyon Unit, from the lowest to the highest, the Dakota group at the very bottom consists mainly of marginal marine sandstones and deltaic sandstones and produces across the Gallegos Canyon Unit. Above that we have a sand stringer within the Gallup formation that production from that unit corresponds fairly -- corresponds to the PAs that were illustrated earlier.

Going way up, up to the Pictured Cliffs sandstone, it is a marginal marine sandstone widespread throughout the units. And directly above the Pictured Cliffs sandstone is the basal Fruitland Coal. And about

200 feet above the Fruitland Coal there's also a channel sandstone that occurs within the Gallegos Canyon Unit, that produces, and that corresponds to the PA for that Fruitland sand. And there's also one well, as was mentioned before, producing from the Farmington Sandstone member of the Kirtland Shale.

Thus, it's a pretty simple and straightforward layer-cake stratigraphy, with some lateral variability to the distribution and quality of the sands, resulting from normal depositional processes.

Looking back at Figure 10, forward to Figure 10, again, it's a structural map on the Pictured Cliffs sandstone showing all the wells -- showing the wells in and around Gallegos Canyon Unit. Again, 20-foot contour interval. And as you can see, there's no major fault or fold within the unit, showing just the normal -- About a half a degree going towards the Basin center.

In summary, the stratigraphy and the structure of the Gallegos Canyon Unit are not complex, and there aren't any geological factors that would complicate commingling issues.

Q. Are the Chacra and Mesaverde productive in the unit area?

A. No, the main areas, the fairways for the Mesaverde and the Chacra are to the north, mainly to the

north and east, and the water saturation increases, and they're wet in this area.

Q. Why did you present a structure map on the Pictured Cliffs formation? Why did you select the Pictured Cliffs?

A. Because we've recently done a detailed study on the Pictured Cliffs to evaluate drilling further wells or further development in the Pictured Cliffs.

Q. The general nature of the formations in the area, would that suggest to you that the other formations have a similar structural position as that shown for the PC?

A. Sure, especially if you'll look at the cross-section that was hung on that lower Lewis Shale marker. All of the formations are fairly parallel on that cross-section.

Q. And BP will call an engineering witness to review the engineering portions of the Application?

A. Yes, sir.

Q. Were Exhibits 9 and 10 prepared by you?

A. Yes, they were.

MR. CARR: Mr. Stogner, at this time we move the admission into evidence of BP Amoco Exhibits 9 and 10.

EXAMINER STOGNER: Exhibits 9 and 10 will be admitted into evidence.

MR. CARR: And that concludes my examination of

Mr. Jeffrey.

EXAMINER STOGNER: No questions, Mr. Jeffrey.

MR. CARR: At this time, then, Mr. Stogner, we would call Mr. Hawkins.

JAMES W. HAWKINS,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. James William Hawkins.

Q. And where do you reside?

A. Denver, Colorado.

Q. By whom are you employed?

A. BP Amoco.

Q. And what is your position with BP Amoco?

A. I'm a petroleum engineer.

Q. Mr. Hawkins, have you previously testified before this Division and had your credentials as an expert in petroleum engineering accepted and made a matter of record?

A. Yes, I have.

Q. Are you familiar with the Application filed in this case on behalf of BP Amoco?

A. Yes, I am.

Q. Have you made an engineering study of the

producing reservoirs in the Gallegos Canyon Unit area?

A. Yes.

Q. Are you prepared to share the results of that work with the Examiner?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER STOGNER: They are.

Q. (By Mr. Carr) Mr. Hawkins, let's go to what has been marked for identification as BP Amoco Exhibit Number 11, and I would ask you to identify that and review it for the Examiner.

A. Yes, I have Exhibits 11 through 15, which are all very similar, to provide some background on the productive characteristics of each of these formations.

We do have one other formation that I don't have any other information on. It's that Farmington Sand, it's the single well. I didn't prepare a historical production curve for that, but I do know that it's producing less than 20 MCFD; it's a fairly marginal well.

This Exhibit 11 covers the Fruitland Sand. We've produced about 11.5 BCF, currently have 21 wells producing in this formation. As you can see, the average rate is about 35 MCFD, so fairly low rate production from this Fruitland Sand.

If we can move on to the next two exhibits --

Q. Go to Exhibit 12 on the Fruitland Coal.

A. -- we'll just -- I'd like to kind of run through each of these production plots with you.

The Fruitland Coal is a more significant production in the unit. Cumulative production is about 34.5 BCF of gas. We have 65 wells producing from the Fruitland Coal, and you can see these wells average about 125 MCFD. They're certainly better than the Fruitland Sand wells.

Q. Mr. Hawkins, it's from the Fruitland Sand. There was no water or condensate production, correct?

A. That's a good point to make. I think we need to look at the water and condensate production from each of these, and you'll see that most of this is fairly dry gas, very little water production and very little condensate production in the entire unit.

Q. And as we go to Exhibit 12 when we look at the Fruitland Coal, water and condensate productions are at what levels?

A. Well, we have no condensate production, and we have a very low water rate, about two barrels a day.

Q. All right, let's go to the Pictured Cliffs formation, Exhibit 13. Will you review that?

A. The Pictured Cliffs is the second largest

producing formation in GCU. We have a cumulative production of 161 BCF, roughly, 121 wells producing from the Pictured Cliffs, and the average gas rate is about 150 MCFD.

Again, we have a little bit of water production associated with this gas -- some of that's probably just condensed water coming with it -- and no condensate production.

Q. And the Gallup formation, Exhibit 14?

A. The Gallup formation is relatively minor. We've produced 8.5 BCF. We currently only have five wells producing. We've begun to take a look at the Gallup as a potential for adding a zone to the Dakota, you know, trying to pick up some additional production in some of the other Dakota wells that we'll talk about in a minute.

You can see that the gas rate here is about 55 MCFD, so fairly low. Almost no water production again. Average 2.5 barrels of condensate.

Q. And the Dakota formation, Exhibit Number 15?

A. Okay, and the Dakota is the most prolific formation in our unit. It's produced almost 400 BCF of gas. We have 195 wells producing in the Dakota, and the average gas rate is fairly low, at about 51 MCFD, because we've produced much of the gas resource within the unit.

Q. Let's go now to Exhibit Number 16. Would you

first identify what this exhibit shows and then review the information on it for Mr. Stogner?

A. Okay, Exhibit Number 16 contains information regarding the reservoir pressures, the fracture pressures for those formations, and the fracture gradient. And this information is primarily provided in order to meet the downhole commingling requirements that none of the zones that would be opened up in a commingled well would -- the reservoir pressure would not exceed the fracture pressure in any of the zones that are open. And this is basically a safety and a waste kind of an issue that we're trying to prevent in those rules.

You can see we've got four columns of information for the Fruitland Sand, the Coal, the Pictured Cliffs, Gallup and Dakota. The first is the depth of the sand or to the formation.

The second is the current reservoir pressure. And I want to draw your attention that we've used the average of the 2000 data, the data collected this year, for the Fruitland Coal, Pictured Cliffs, Dakota. The Fruitland Sand and the Gallup, we've estimated that based on their producing characteristics. There aren't very many wells producing from those, and we haven't taken any tests in those zones this year.

We've also taken a look at, in the next column

over, the fracture pressure, again, average from the most recent fracture stimulations that we've done in the field, and we've shown the fracture pressure there. And I just want to point out that the current reservoir pressures in each of these formations are all less than the average fracture pressure that we see for any of the wells. So we would not expect there to be any uncontrolled fracturing or anything of that nature occurring if we were to downhole commingle any of these zones.

Q. This exhibit shows that commingling will not result in either shut-in or flowing wellbore pressures in excess of the fracture parting pressure of any commingled pool; is that correct?

A. That's correct.

Q. In your opinion, will commingling result in a permanent loss of reserves due to the crossflow between any of the wellbores in the Gallegos Canyon Unit area?

A. No, it would not.

Q. The wells in the area produce small volumes of fluid?

A. Very small volumes of fluid.

Q. Are any of the fluids going to be commingled in a way that would result in compatibility problems?

A. No, they would not. In fact, we've done some commingling, our compatibility tests of the fluids have

shown no problems, and the fluids are in such small amounts that we wouldn't expect to be any significant impact at all.

Q. No wellbore damage?

A. No wellbore damage.

Q. Are any of the pools that are involved in this case prorated?

A. The Basin-Dakota Pool is prorated.

Q. Would the commingling and the allocated Dakota production in the commingled wellbores exceed the top Dakota allowable?

A. No, as I said, these wells are making an average of about 50 MCFD in the Dakota, and they're all very low, nonmarginal -- or I should say marginal wells, so they should have no impact on the allowable.

Q. And we're not talking about commingling of oil in this case, other than we have some condensate, but that's it?

A. That's it.

Q. Would commingling, if approved, reduce the value of the total remaining production from this unit area?

A. No, it will not.

Q. Let's go to Exhibit Number 17. Would you identify that and explain what this shows?

A. Exhibit 17 is just a discussion of the allocation

methods that would be employed in downhole commingling. Basically, there are two methods that we want to use.

The first is the subtraction method. This is the method that we would use primarily when we have a new zone added to flow from an existing well that's producing from, say, the Dakota. The existing zone would be forecast using the established decline rate for the well, and then that production would be subtracted from the total production to determine how much gas is coming out of the added commingled zone.

And the reason for this is that when we bring a new zone in, sometimes it takes a period of time before that new zone will actually stabilize. It can come in with kind of a little flush production and then drop off over the period of six months to, say, a year. And once it's become stable, then we can generally go to the fixed-percentage method.

The fixed percentage method is, as I pointed out, where all the zones have established stable producing rates. Say if you had a dual production and you wanted to commingle those two zones, or you had a zone that you've added and you've allowed it time to stabilize, then you would be able to take the production from each zone and just calculate a fixed percentage and apply that for the rest of the remainder of the well's life.

And these are fairly common allocation methods that are used in all the downhole commingling activities that we and other operators employ in the Basin.

Q. Mr. Hawkins, what is Exhibit Number 18?

A. Exhibit Number 18 is a list of the pools that are already approved for commingling in the Gallegos Canyon Unit.

In the recent order that's been issued -- that's Order 12,346 -- there were a number of pools that were preapproved for commingling throughout New Mexico, and the Northwest pools in particular. The Basin-Dakota and the West Kutz-Pictured Cliffs Pool are already preapproved for our unit, and the Basin-Fruitland Coal and the West Kutz-Pictured Cliff Pool are preapproved.

What hasn't been approved is, say, a commingling of the Dakota with the Fruitland Coal or the Fruitland Sand. However, if we look at a few of the wells that have already received an individual well approval, we do have two Fruitland Sand wells approved for commingling with the Pictured Cliffs, and we do have one well where the Fruitland Coal and the Basin-Dakota has been approved for commingling. And I've shown the downhole commingling orders associated with those three wells.

One point I would like to make is, there hasn't been a lot of downhole commingling done in the Gallegos

Canyon Unit, and there are several reasons for that.

The first reason is that there are so many owners that require notification for a single well that it is a big burden to mail out and determine all the ownership and get that out there so that, you know, we can notify them of how we're going to allocate production. We've done it a few times.

The other is that if we looked at the reservoir pressures, some of the reservoir pressures, in the Dakota for instance, did not fit the old Division commingling rules, and so we were prevented from trying to commingle Dakota with Fruitland Coal, for instance. There used to be some pressure limitations that we could not meet. With the new commingling order that's in effect, we have been able to meet all of the pressure limitations that have been established by the new commingling order.

Q. Mr. Hawkins, in your opinion would approval of downhole commingling for all formations in the Gallegos Canyon Unit and approval of a downhole commingling reference case for the Division's notice requirements be in the best interest of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, it will.

Q. Were Exhibits 11 through 18 prepared by you?

A. Yes, they were.

MR. CARR: At this time, Mr. Stogner, we move the admission into evidence of BP Amoco Exhibits 11 through 18.

EXAMINER STOGNER: 11 through 18 will be admitted into evidence.

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

EXAMINATION

BY EXAMINER STOGNER:

Q. You answered his question about correlative rights. Could you go into a little more detail about how correlative rights will be protected?

A. Well, the allocation of production is going to do the best job that we can to protect each of the owners' rights and make sure they get their fair share of production. If we're not allowed to do a reference case and a preapproved commingling here, it is so onerous to go through and try to do each individual well with 715 notices to go out, there may be many cases that we will not get around to downhole commingling those. We've decided that -- You know, this is a very significant administrative burden, just to mail the notices out on each individual well.

So I think giving us a reference case and preapproving this is going to open up the opportunity for more downhole commingling to occur in this field. It's

going to give us the opportunity to increase production from a number of the wells and a number of the formations here that will benefit all of the owners. By increasing the production --

Q. And I'm going to ask my question, how is correlative rights protected?

A. Correlative rights are protected through allowing us to open up production in more of the wellbores, get more production for each of the owners. In some cases, as you could see in the PAs, there are certain areas where there is no production from the Pictured Cliffs or the Fruitland Coal or the Fruitland Sand or the Gallup. Those owners are not getting any value or any production from the formations that they have ownership in. Downhole commingling will allow us to recover reserves and recover a value for those owners.

And the methods of allocating production are reasonable, they've been established in our Basin and are employed in, you know, almost all of the commingling that occurs in the northwest pools, and so we believe those will protect the correlative rights of each of those owners.

Q. Now, how will it be determined from one well to the next which method will be utilized?

A. Well, we're going to try to use the subtraction method as much as possible for all the wells that have an

existing zone, and we add a new zone to that. If we were to add -- For instance, take a Dakota well and add the Pictured Cliffs and the Fruitland Sand to that well, we would have to do an individual test on one of those new zones first, and then add the second zone so that we could get a split between the two new zones that are added. The Dakota would be handled as a forecast of the decline that it's already established.

So that, I guess, if we had three zones, we would be doing a combination of fixed percentage for the two new ones and the subtraction based on the forecast of the existing Dakota production.

Q. Have you gone through and done some sort of feasibility study of just how many wells can be downhole commingled in this area?

A. I know our operations engineer has taken a look at that. We have about a dozen wells that we would like to try to get started on as soon as we can with an order. I'm certain that we will be identifying additional candidates as we continue to operate the field and look at the results of these first ones. We have not filed those individually, simply because of the notice. We thought we could do this a little easier with a reference case.

Q. So you're just looking at a dozen wells?

A. A dozen at this point, that we've identified to

date. We have some 450 wells -- wellbores, in the Gallegos Canyon Unit area. And we are going to be drilling some new wells to the Fruitland Coal, probably not to the Dakota, but to the shallow formations, and we may want to commingle a Fruitland Coal with a Fruitland Sand or some of those shallow formations that we penetrate in the wellbore.

Q. With a Fruitland Coal well?

A. Yes.

Q. Do you have an idea how many you're looking at when drilling in the Fruitland Coal, and how many of those new Fruitland Coal wells could realistically be downhole commingled in the Fruitland sand? Or vice-versa?

A. Okay, I know we've got eight new wells that we've filed APDs on, and I was mistaken, two of them are Fruitland Coal and six of them are Pictured Cliffs, but we will be looking at potentially any formation we penetrate if it makes sense to downhole commingle it.

Q. What other criteria would you be looking at?

A. Criteria -- ?

Q. When you say "makes sense", what do you mean by that?

A. Well, I guess what I'm looking at is, if we identified that that well appears to be productive, that zone, what zones appear to be productive in this well. Not all zones, I guess, would appear to be prospective in every

wellbore.

For instance, the Gallup may be not developed, you know, in a Dakota well, and we would say, Well, it's too thin, it's probably not worth trying to add that. But if we have some that are ten feet thick, then, you know, we probably want to try to open that Gallup zone up.

And I think the same thing would be with the Fruitland Sand. If we penetrate the Fruitland Sand and it looks to be prospective, it's thick enough, it looks like it's got some potential productivity, we may want to add that to a Pictured Cliff or Fruitland Coal well.

But many times we drill a well, or have existing wells, and some of those Gallup or Fruitland Sand intervals aren't really prospective. They're either too thin or too tight or something of that nature. And you can tell from the PAs that that's kind of what's happened in the Fruitland Sand and the Gallup, is there's just little pockets of production where the sand is developed enough to produce from it.

Q. How about the age of a wellbore? Would that have any determination?

A. Well, I think we'd certainly want to make sure that the wellbore is mechanically sound. I mean, we wouldn't want to be doing something that's going to create some kind of potential safety problem or waste problem. We

haven't had any significant problems with our wellbores in the Gallegos Canyon Unit. I know we've taken a lot of the deeper Dakota wells and, you know, looking trying to add some of these shallow zones. So that would probably be part of the work plan, is to in some fashion make sure that we've got, you know, a mechanically sound wellbore to work in.

Q. Do you have a plan?

A. Well, I have a list of opportunities that our operations engineers are looking at, so I do know that they are developing plans for downhole commingling within this unit that -- prior to the latest order and, you know, we haven't fit the criteria that the OCD has established for commingling prior to this new order.

Q. How about well pattern and well spacing and location? Will that be -- Is that included in the plan?

A. Well, the patterns -- I think we're going to be looking at what are the most prospective opportunities first, where do we see, you know, some behind-pipe reserves that can be opened up, that looks to be attractive, thick enough and, you know, has the right kind of reservoir characteristics, porosity, et cetera.

We're going to be staying on the designated spacing patterns, we're not asking for any location exceptions. I mean, I guess we could come up with a

candidate where we may need to ask for a location exception, but that would be something totally outside of this downhole commingling case.

Q. Okay, I heard you say that no location exceptions would be --

A. We're not planning any location exceptions. If we were to, in the case of looking at a Fruitland Coal well, for instance, come up with a geologic reason that we felt that a well needed to be drilled in a location that wasn't currently an approved location, we would have to file for a location exception for that. But -- Or there could be some surface problem that could prevent us from drilling a new PC or Fruitland well.

But we're not trying to increase the number of wells per spacing unit or do anything outside of the norm in terms of well locations or numbers of wells per spacing unit with this Application. We're simply trying to get an approval to go into the wells and look at the formations that are prospective and file under a simple filing procedure with the District to downhole commingle those well.s

Q. Okay. So you're not increasing the density, and as far as the location exceptions, it would have to be after -- with -- This is what I'm understanding you telling me at this point: It would have to be a great need for the

location exception to be sought?

A. Right, it would have to be an appropriate reason, either some kind of surface -- something on the surface that would prevent you putting a well in a certain area, such as archeological concerns or maybe highways or something that would, you know, make sense. Or it could be some geologic reason that we would have to apply to the Division. And I don't off the top of my head have any expectation that that will occur; I'm just not ruling it out that it would never occur.

Q. How about the age of the wellbore? If you had an infill well over an initial well in the Dakota that you wanted to open up?

A. I think we're --

Q. You don't see that to be a problem?

A. Yeah, I think what we're going to be more interested in is looking at where are the prospective sands or product- -- formations behind pipe in an undeveloped spacing unit that we could open up to an existing well. That's going to be our primary focus. And there are some areas in the Fruitland Coal where we may want -- or Pictured Cliffs, where we may want to drill some new shallow wells. But we're not planning on drilling any deep Dakota or Gallup wells.

Q. In your preapproved pools, why isn't the Dakota

in the Fruitland Coal? How come that has not been approved? Was it because of the notification requirements, or did it have something to do with the pressures or anything? What extenuating circumstances have prevented you from --

A. I don't think there has been a lot of Fruitland and Dakota downhole commingling in the northwest pools. I'm sure there have been some. We have an approval right here in our unit. But there hasn't been a lot of it done throughout the Basin. And so there were no --

Q. Then why now? Why are you asking for it now?

A. Because we have a lot of Dakota wells that are low-rate producers, and we're looking for potential zones behind pipe that we can add to those Dakota wells to make them more economically attractive. And I'm, you know, simply saying that I don't know how many Dakota/Fruitland wells we may ultimately want to downhole commingle, but I'm sure we will find some more than the one we've identified to date.

Q. As far as the pressures go, your current reservoir pressure --

A. Yes.

Q. -- now, you show in the Dakota as 816 and the Fruitland Coal at 92?

A. Correct.

Q. Isn't that going to result, if the well is shut in and has that commingling, in a crossflow?

A. It could, although what I think would most likely happen is, there would be some small amount of water from the Fruitland Coal and the Dakota that would build up in the wellbore, and so you wouldn't see that kind of differential at the Fruitland Coal perforations. Most likely, the Dakota well would log off with water production when it's shut in, and have to have a producing unit put on to get it pumping, pump the water off and get the well back on production.

Q. And this would be okay?

A. Well, it's not something that we prefer, but I'm just saying that I don't think there would be much crossflow occurring between the Fruitland Coal and the Dakota in our area, because the Dakota tends to log off when the well is shut in, and we have to put a producing unit on it, a pumping unit on it, to lift the water off and get the well flowing again.

Q. Would each individual -- On this reference case that you're talking about, would that be looked at on an individual basis? What is the mechanics of what you're proposing?

A. The way this would work, the reference case is primarily for the notice issue, so that we don't have to

notify 700 owners for each well that we want to downhole commingle.

We're notifying them now that we want to have the ability to downhole commingle wells in the future, we're going to use these allocation methods, which is an accepted practice in the Basin, and we're asking for preapproval of our pools, and we'd meet all of the preapproval conditions that are set out in the commingling order, so that we can get the simplified filing approach of a sundry notice to the District Office.

The requirements for preapproval are:

That we don't have any loss of reserves due to crossflow that would not be recovered when we return the well back to production;

There would not be any pressure in the wellbore that would exceed the frac pressures of any other zone that's open to production. And we've provided that information for you.

That there would be no incompatibility of fluids. And we've run some compatibility testing, and there's very little fluid production to begin with out here, and we don't see that as any kind of problem.

And lastly, I think it's something about secondary recovery. And we don't have any secondary-recovery opportunities in the Gallegos Canyon Unit.

So we believe we meet all of the criteria for a preapproval case.

Q. Has there been a previous order of this magnitude, covered a whole unit with a whole vertical extension?

A. I know there have been a number of reference cases for the notice issue. I don't know that they've covered -- I'm not sure how many formations they've been covered. I would assume it would cover the Pictured Cliffs and the Mesaverde and the Dakota. Those are pretty typical.

We're the first, I believe, the first case to come in for preapproval outside of what the Committee approved under the -- I can't find my order number here, but the last commingling order, 12,346. And we believe we've met all the criteria to establish preapproval of commingling in the Gallegos Canyon Unit.

EXAMINER STOGNER: Mr. Carr, I'm not so sure about that. But at the same time, I don't see the Districts being represented here today. I'll tell you what I'm going to propose.

MR. CARR: Yes, sir.

EXAMINER STOGNER: Why don't we continue this matter for four to six weeks. In the meantime, I'd like for you to provide me a rough draft order. And also I'd

like that rough draft to be sent to the District Office for input.

MR. CARR: Okay.

EXAMINER STOGNER: And that way, if there's any problems -- And perhaps we might need to reconvene the Committee, I don't know. I'll leave that up to Mr. Catanach or the Engineering Bureau downstairs, rather than -- But this will give us a window of opportunity to take a look at it.

There's many issues here, and I don't it's something we ought to just jump into. But this might be a good one to kind of wade in. And since you were on that committee, I think you see that there's a value in having these meetings over and over, and over and over again, like was done, to hash out any of these issues, if there is any. That way it will give the Engineering Bureau and the Districts an opportunity to see how it's going to work.

And who knows? We might see a need to -- or they may see a need to squelch it a little bit, or at least tweak it to some degree or put some modifications on it.

So Mr. Carr, when do you think you might have a rough draft for me?

MR. CARR: Mr. Stogner, I'd request that the case be continued and reopened on November the 16th. It can be continued to another date if issues develop that require

that.

I will attempt to have a proposal to you and to -- Do you want it to go to all District Offices or to just --

EXAMINER STOGNER: No, no.

MR. CARR: -- just Mr. Chavez?

EXAMINER STOGNER: Yeah.

MR. CARR: All right. I will have it to you and to Mr. Chavez within two weeks from today, and that would be two additional weeks prior to the reopened hearing, and we can determine as we get closer about whether or not -- We can determine what we need to do at that hearing on the 16th. And if it needs to be continued further, then we can make that decision.

EXAMINER STOGNER: Okay, so you're going to have a rough-draft order for me in two weeks --

MR. CARR: Or less.

EXAMINER STOGNER: -- which will be what? Two -- No later than November -- What is that?

MR. CARR: The 2nd, November 2nd.

EXAMINER STOGNER: November 2nd. And then we will continue this case to November 16th for any additional considerations. And prior to that time, I think if we need some additional testimony, either from land issues or from issues concerning technical --

MR. CARR: Yes, sir.

EXAMINER STOGNER: -- then we'll know at that point.

Okay, so is there anything further at this time?

MR. CARR: Nothing further at this time.

EXAMINER STOGNER: Okay, then this matter will be continued to the November 16th hearing. In the meantime, you will provide between now and November the 2nd --

MR. CARR: Yes.

EXAMINER STOGNER: -- a draft order?

MR. CARR: Yes, sir.

EXAMINER STOGNER: And that will be distributed to myself and to Mr. --

MR. CARR: Mr. Chavez.

EXAMINER STOGNER: -- Mr. Chavez.

Let's put another criteria in there, that we meet with you between the 16th and the 2nd --

MR. CARR: -- and decide what course of action --

EXAMINER STOGNER: -- what course of action --

MR. CARR: -- needs to be taken.

EXAMINER STOGNER: So what date would that be? That would be the next Thursday.

MR. CARR: We could do it on -- If you want to meet Thursday the 9th.

EXAMINER STOGNER: The 9th.

MR. CARR: That puts it in the middle, and if that needs to be adjusted we can do that.

EXAMINER STOGNER: Okay, if there's nothing further in this matter, then we'll adjourn this case.

MR. CARR: Thank you, Mr. Stogner.

(Thereupon, these proceedings were concluded at 4:56 p.m.)

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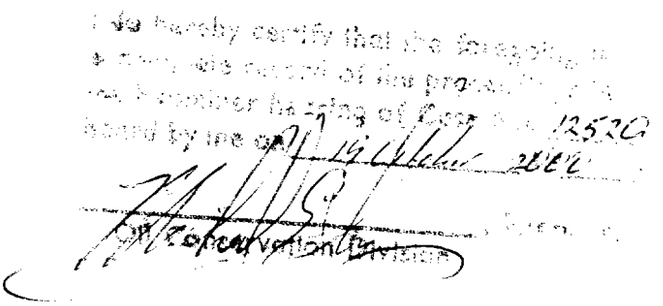


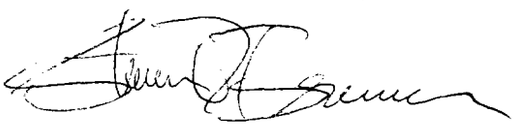
CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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 October 28th, 2000.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002