NEW MEXICO OIL CONSERVATION DIVISION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date FEBRUARY 4, 1999 Time 8:15 A.M.

NAME	REPRESENTING	LOCATION
Steve George	CONOCO	Midland
		Santa Fe
	Devon	
William F. Carr	Campbell, Carr, Berge & Sheridan	Santa Fe

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. 12,121
APPLICATION OF DEVON ENERGY CORPORATION (NEVADA) FOR POOL ABOLISHMENT AND POOL EXPANSION, EDDY COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

February 4th, 1999

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, February 4th, 1999, 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

February 4th, 1999
Examiner Hearing
CASE NO. 12,121

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E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	6	11
Exhibit 2	8	11
Exhibit 3	9	11
Exhibit 4	10	11

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A P P E A R A N C E S

FOR THE DIVISION:

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FOR THE APPLICANT:

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WHEREUPON, the following proceedings were had at 8:20 a.m.:

EXAMINER CATANACH: At this time we'll call first case, 12,121.

MR. CARROLL: Application of Devon Energy Corporation (Nevada) for pool abolishment and pool expansion, Eddy County, New Mexico.

EXAMINER CATANACH: Call for appearances in this case.

MR. BRUCE: Mr. Examiner, Jim Bruce representing the Applicant. I have two witnesses to be sworn.

EXAMINER CATANACH: Call for additional appearances.

Will the two witnesses please stand and be sworn in?

(Thereupon, the witnesses were sworn.)

JASON HAMILTON,

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

DIRECT EXAMINATION

BY MR. BRUCE:

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

A. Jason Hamilton.

Q. Where do you reside?

A. Oklahoma City, Oklahoma.

Q. Who do you work for and in what capacity?

A. Devon Energy Corporation. I'm a district geologist.

Q. Have you previously testified before the Division as a geologist?

A. No.

Q. Could you please state for the Examiner your educational and employment history?

A. I have a bachelor's of science degree from Oklahoma State University in geology, I have a master's of science degree in geology also from Oklahoma State University.

I've worked for 14 years in the oil and gas industry as an independent, and also for several major oil companies, including Conoco, Exxon, Union Texas and several large independents. I've worked for Devon Energy since 1995 in the Delaware Basin.

Q. Okay. And your area of responsibility includes Eddy County?

A. Yes.

Q. Mr. Examiner -- And, excuse me, Mr. Hamilton, are you familiar with the geologic matters involved in this Application?

A. Yes.

MR. BRUCE: Mr. Examiner, I tender Mr. Hamilton

as an expert petroleum geologist.

EXAMINER CATANACH: Mr. Hamilton is so qualified.

Q. (By Mr. Bruce) Mr. Hamilton, briefly, what does Devon seek in this case?

A. We seek to abolish the Sand Dunes-Cherry Canyon Pool and then also to expand the Ingle Wells-Delaware Pool to include that zone in that area.

Q. Okay. What is the reason for this request?

A. The Cherry Canyon does extend across -- outside of the Cherry Canyon Pool area, into the Ingle Wells-Delaware Pool, so it's continuous across both pools.

There are also extra operational costs that result from having two separate pools.

And then also, inasmuch as a large part of this area is in the potash-restricted area, it's very difficult to get locations, and so it would help us to be able to drill just one well, get one location rather than two for these zones.

Q. Okay. Let's move on to your exhibits. Could you identify Exhibit 1 for the Examiner and fill him in on the color coding and the wells, et cetera?

A. Exhibit 1 there is a Sand Dunes Cherry Canyon isopach. It's an isopach of the producing interval. The pink dots there are the wells that produce from that zone.

You can see the pink outline in the middle, and

it's noted there on the map as the outline of the Sand Dunes-Cherry Canyon Pool.

And then the green rectangular outline is the outline of the Ingle Wells-Delaware Pool.

The yellow and blue lines was my attempt to kind of draw -- The yellow are kind of the thick axes of the channels, and then the blues are kind of the thins in between, and it just kind of helps you follow the flow of the map.

Then you can see right in the middle of the map, there's a little red line that denotes the line of cross-section that I'm going to show you.

Q. The red-shaded acreage, is that Devon-operated acreage?

A. Yes.

Q. There's also a couple other thin red dotted lines on this map, if you look at, say, the northwest corner of this map. What do those, the straight line and the wavy line, indicate?

A. The curved line is the area designated as the potash reserves area --

Q. The measured potash?

A. Yeah, measured potash. And then the straight line around it, I guess, is the enclave that kind of rims the measured area.

Q. Okay.

A. So all that area there in 14, 15 and 22 where there are no wells is within the potash restricted area.

Q. Okay. Before we leave this map, most of the Cherry Canyon wells you have on here are in the Sand Dunes-Cherry Canyon Pool; is that correct?

A. Yes.

Q. But there are a couple that extend out to the north?

A. Yeah, you can see there's that one there in Section 13 and another up in Section 12 that produce from that same zone. One is in the Ingle Wells-Delaware field, and one is beyond that.

Q. Would you move on to your next exhibit, the cross-section --

A. Okay.

Q. -- and tell the Examiner what that shows?

A. Okay, it has three wells. The one in the middle there with the pink dot at the top is in the Cherry Canyon Pool, and then wells on either side that are outside the outline of the Cherry Canyon Pool and within the Ingle Wells-Delaware Pool.

And you can see in the middle well the perforations were -- it shows, you know, what actually produces in the Cherry Canyon interval. And then that same

zone extend into the Ingle Wells-Delaware Pool area.

Q. Okay. So the same -- In many instances, the same Cherry Canyon zones are productive, not only in the Sand Dunes-Cherry Canyon Pool but also in the Ingle Wells-Delaware Pool?

A. Yes.

Q. Geologically, do you see a need for these pools to be separate and distinct?

A. No.

I might also mention that there's -- You'll notice at the top of your cross-section there at about 5850 feet or so, there's -- that first sand there, there's a little line drawn on each log. That sand also produces, which, you know, is above the Sand Dunes-Cherry Canyon interval. That also produces in the Ingle Wells-Delaware field, I can show you on the next map.

Q. Okay. Why don't you move on to your Exhibit 3 and identify that for the Examiner?

A. This is an Ingle Wells-Delaware isopach, and the green dots are wells that produce from the Ingle Wells-Delaware. There are four dots, you'll notice, up in the -- like in the southeast of Section 12, there's one green dot that has a little blue dot in the center with a blue ring. Then also in the southwest quarter of Section 25 there's another one.

And then down in Sections 1 and 2 of 24 South you'll see there's two more, and those produce from a sand that's actually shallower than the Sand Dunes-Cherry Canyon interval, that produce within the Ingle Wells-Delaware field.

But as you can see, the Delaware production extends, you know, in and across both pools.

Q. Okay. The -- Looking at this map, there are virtually no wells on the west and north side of this map. What is the reason for that?

A. That's because they're in the potash.

Q. And the operators are having a difficult time getting well locations approved?

A. Yes, very difficult.

Q. Okay. Besides Devon, who is the other operator in the Sand Dunes-Cherry Canyon Pool?

A. Pogo.

Q. Pogo Producing Company?

And they were notified of this hearing?

A. Yes.

MR. BRUCE: Mr. Examiner, Exhibit 4 is my affidavit of notice to Pogo. They are the only other operator, and I have spoken with Pogo myself, and they have no objection to the abolishing the Sand Dunes-Cherry Canyon Pool.

Q. (By Mr. Bruce) Mr. Hamilton, in your opinion is the granting of this Application in the interests of conservation and the prevention of waste?

A. Yes.

Q. And were Exhibits 1 through 3 prepared by you or under your direction?

A. Yes.

MR. BRUCE: Mr. Examiner, I tender Exhibits 1 through 4 into the record.

EXAMINER CATANACH: Exhibits 1 through 4 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Hamilton, in the Ingle Wells-Delaware Pool, is that predominantly the Brushy Canyon that's being produced in that pool?

A. Yes, but it produces all the way up, you know, through that sand above the Cherry Canyon, and there is other Cherry Canyon production below the Ingle Wells -- or the Cherry -- the Sand Dunes/Cherry Canyon, that's also productive.

Q. So within the Ingle Wells-Delaware there is Cherry Canyon that's being --

A. Yes.

Q. -- produced in those wellbores?

The wells in the Sand Dunes-Cherry Canyon, are some of those wells dually completed or otherwise -- are some of those wells completed in the Brush Canyon?

A. Well, the pink dots, you'll notice, are all twins to Brushy Canyon wells.

Q. Sorry, the pink dots?

MR. BRUCE: On Exhibit 1.

THE WITNESS: Yeah, if you look at Exhibit 1.

Q. (By Examiner Catanach) Exhibit 1, okay.

A. You'll notice, if you look at the total depths posted next to them, all the pink dots are shallow wells, and then right next to them there's a deeper Brushy Canyon well, and if you look at Exhibit 3 you'll see that the green dot's on the deep wells, the pink dot's on the shallow wells. So because of the way the pools are now, you actually have to drill two wells, a shallow well to the Cherry Canyon and a deep well to the Brushy Canyon.

Q. Has Devon done most of that drilling?

A. In -- Of course, 24 was operated by Pogo, but yes, in 23, 26 -- 23 and 26 we did, and 13.

Some of it was actually done by Texas American, who we acquired. So we own those -- we operate those wells. They were actually -- some were drilled earlier by the previous owner.

Q. Well, is the Brushy Canyon considerably deeper

than the Cherry Canyon?

A. Well, you know, the bottom of the Brushy Canyon is at about 8100 feet, but then the production extends all the way up to within just a couple hundred feet below the Sand Dunes-Cherry Canyon, starting just the next few sands down -- On this cross-section, if you just went another hundred or so feet down, you would have wells in the lower Cherry Canyon all the way down to the bottom of the Brushy Canyon that produce.

Really, the uppermost productive sand is that 5900-foot sand. The next one is the Sand Dunes-Cherry Canyon. Then you skip down a couple sands and then you start what we call the lower Cherry Canyon, and pretty much every sand from there down produces somewhere in the field, all the way to the base of the Brushy Canyon.

Q. Are those wells that were drilled to the Brushy Canyon -- they're drilled down to 8000 feet; is that what you're saying?

A. We drill to about 8500 or 8600 to go through the Bone Spring lime and sometimes into the Avalon sand. But the base of the production is about 8100, 8200 feet.

Q. Do you have any idea why the Delaware was developed like this in this area?

A. The Delaware?

Q. I mean, do you know why there was two pools?

A. I suspect what happened was, the Cherry Canyon pool was discovered way back in the late Sixties, early Seventies. And you know, you there's three old wells there in 24, and then also in 23, and then the Ingle Wells -- the Brushy Canyon discovery was made years later by Devon, and that Cherry Canyon Pool had already been established, and probably what happened was, we made a discovery outside the field, and because it was Brushy Canyon, they gave it a different pool name, and then it just extended across the area.

So it's just that for a long time there were no deep wells out there, there was no deep Brushy Canyon production; it was all from that Cherry Canyon.

Q. Who else operates in the Ingle Wells Pool? Do you know?

A. Pogo. Down there in Section 2, we don't operate that section; that's operated by Sonat. We have an interest in that.

Q. I'm sorry, Sonat?

A. Yes.

Q. Is that the only other operator, Sonat and Pogo?

A. I think so. I'm not certain, but I'm pretty sure it's just us, Pogo and Sonat.

I don't really know who operates in 35, in the sections where we don't have acreage.

Q. Is there any potential for secondary recovery in either of these zones, Mr. Hamilton?

A. Yes.

Q. In both zones?

A. Most likely in the Sand Dunes-Cherry Canyon.

Q. And what effect is that going to have, if any, on the pool consolidation?

A. I mean, operationally, apparently none. I'm not an operations engineer, and I've been told statutorily, that we could still waterflood the Sand Dunes-Cherry Canyon, even if it were, you know, part of the Ingle Wells-Delaware field. I mean, geologically, there's not a reason that it would affect secondary-recovery efforts.

Q. There's not really much potential in the Brushy Canyon?

A. Those rocks are tighter and somewhat more laminated, and not as massive as these, so it would be substantially less, or potential -- of anything out there, this would be the most likely candidate for that.

Q. These are both 40-acre spacing; is that right?

A. Yes.

Q. And it is your opinion that there is Cherry Canyon potential outside the current boundary of that Cherry Canyon Pool?

A. Yes. Yeah, I think the cross-section shows that

pretty well with, you know, the sands on either side of it there are just as well developed and structurally in a good position and -- you know, certainly you have potential production.

Q. Is that pretty much throughout the entire Ingle Wells Pool?

A. Yeah. I mean, you can see the -- you know, on the Sand Dunes isopach that you have -- you know, you have a thin on part of it, but then the channel extends, certainly, beyond the Cherry Canyon Pool area, into parts of the Ingle Wells-Delaware area.

Q. Did you testify that a lot of the wells in the Ingle Wells Pool are currently producing from the Cherry Canyon?

A. Well, not from this zone. But from -- You know, this is what we call the Sand Dunes-Cherry Canyon, which is a couple of zones within the Cherry Canyon, you know, formation.

Q. Uh-huh.

A. There are probably 20 sands in what we call the Cherry Canyon, and there are other Cherry Canyon sands that produce, other than these two, elsewhere in the field.

Q. Well, are those two sands potentially productive outside the boundary of the pool?

A. Yes.

Q. They're just not -- They haven't been produced?

A. No, I think probably because of the difference in the pools, I would have assumed we would have had to drill another well or commingle it or something like that, and we have not been able to get permission to do that.

EXAMINER CATANACH: I have no further questions of this witness.

Mr. Bruce?

MR. BRUCE: Call Mr. Frank to the stand.

WALTER FRANK,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. Walter Frank. Norman, Oklahoma.

Q. And who do you work for?

A. I work for Devon Energy Corporation as a district engineer.

Q. Are you in operations?

A. Yes, sir.

Q. Have you previously testified before the Division?

A. Yes, sir.

Q. And at that time were your credentials as an engineer accepted as a matter of record?

A. Yes, they were.

Q. And are you familiar with the operations involved in this area of Eddy County?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Frank as an expert engineer.

EXAMINER CATANACH: Mr. Frank is so qualified.

Q. (By Mr. Bruce) Mr. Frank, let's get to a question that the Examiner asked Mr. Hamilton on these -- Within the Sand Dunes-Cherry Canyon Pool, are any of these Cherry Canyon wells downhole commingled?

A. No, sir.

Q. They're all just second wells drilled on a proration unit?

A. That's correct.

Q. Okay. What are the costs of the wells, the Cherry Canyon and a typical Brushy Canyon well?

A. A typical Cherry Canyon well today would cost approximately $580,000 to drill and complete. A typical Brushy Canyon well would cost approximately $740,000 to drill and complete.

Q. Okay. You know, as an alternative, if it's feasible under the Rules, there's dual completion. What

would that cost, if Cherry Canyon and Brushy Canyon wells, or zones, were dually completed?

A. Well, initially the drill-and-complete costs, I believe, would be $120,000 more than just drilling a single Brushy Canyon ell.

Q. Okay, or just a single Delaware well?

A. Single Delaware well.

Q. So obviously if you can just drill that one well, there are substantial cost savings?

A. Yes, not only in the drilling and completion, but operationally it would be much more difficult, with the amount of fluid that these wells produce, to produce dual wells via rod pump.

Q. And currently, because of the amount of fluids, you would be limited as to downhole commingling, certainly?

A. That's correct, we've already applied for that and been turned down.

Q. Okay. What are typical reserves for these zones?

A. Cherry Canyon EURs are approximately 85,000 to 90,000 BOE. Brushy Canyon EURs, approximately 100,000 to 120,000 BOE.

Q. So looked at -- I mean, these are pretty good wells?

A. Yeah. Of course, they've been taxed at the current oil price, but yes.

Q. Yeah, so the current oil prices make the wells less economic to drill?

A. That's -- Yeah, we probably wouldn't want to drill too many of these today.

Q. Okay. Now, Mr. Hamilton mentioned problems getting well locations because of the potash. You're aware of that, aren't you?

A. Yes, sir.

Q. As a result, from an operational standpoint, or just from getting wells drilled and recovering the reserves, is it better to have fewer well locations?

A. Yes, sir.

Q. They're tough enough to get from the BLM already, are they not?

A. That's correct, not only in the potash enclave itself, but also you have to stay a minimum -- the buffer zone around it, you have to stay out of it also.

Q. Okay, then one final thing. The Examiner asked Mr. Hamilton about waterflooding. There is that potential out here, isn't there?

A. Yes, there is.

Q. Once again, the price of oil has an effect on that?

A. Yes, sir.

Q. And do you agree with Mr. Hamilton that the

Cherry Canyon would probably be more floodable than the Brushy Canyon?

A. Yes, sir, it would be more contiguous zones, so therefore it would be much easier and much more successful to waterflood.

Q. Okay. Based on your testimony, is it your opinion that the granting of this Application is in the interests of conservation and the prevention of waste?

A. Yes, absolutely.

MR. BRUCE: That's all the questioning I have, Mr. Examiner.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Frank, if you were to drill a well and complete in the Cherry and the Brushy Canyon, do you see any problems operationally with that? Are the pressures significantly different or --

A. No, sir, I don't see any operational problems at all. The pressures are very similar, especially when you get out away from the developed areas. I don't believe there would be any problems at all with doing that.

Q. You said you were turned down for downhole commingling?

A. Yes, sir.

Q. And that was for a well that you were going to

commingle in the Cherry and the Brushy Canyon?

A. Yes, sir, I believe so.

Q. Do you know why that was turned down, Mr. Frank?

A. The fluid volumes, basically the water volumes, there's an equation that they use that will give you the maximum amount of oil and water you can produce, and these are very high water-producing wells, and that equation was denied or -- the Application was denied because of the water volumes.

Q. Okay, both of these zones are high-producing -- high water producers?

A. Initially, yes.

Q. And that comes down?

A. Yes, typically it does. Some of the more easterly wells in the field, the water levels have remained quite high.

Q. What are we talking about here? What kind of volumes?

A. Some of these wells will make 400 barrels of water a day, from the current Ingle Wells-Brushy Canyon.

Q. From the Brushy Canyon?

A. Yes, sir.

Q. How about the Cherry Canyon?

A. The well that I have here as a go-by was making about 300 barrels of water a day.

Q. And you can adequately move that amount of water in a well completed in both zones?

A. Yes, sir.

Q. It's not going to be -- It's not going to harm either formation?

A. I don't believe it will, no. We're successfully keeping them pumped down significantly. We significantly were -- There is no crossflow, we don't believe there's any crossflow.

Q. Where would you guys drill some of these wells, if this were approved?

A. Well, we -- just to develop a possible Cherry Canyon flood we have, I believe, six wells, two development wells in 26, one in 23, one in 24 and one in 13, I believe. The reservoir engineering department handles that, typically, but to the best of my knowledge that's correct.

And -- But if we were granted this pooling, we may not have to drill but two or three of those to develop the waterflood. And all of the rest of the development we could do with the existing wells.

Q. Do you currently have any dual completions out there?

A. No, sir.

Q. But those are -- In your opinion, those would be kind of hard to accomplish operationally?

A. Yes. Currently we run 5-1/2-inch casing and one string of tubing. To run a dual completion and lift these fluid volumes, you'd have to run at least 7-inch with turned-down collars to get your 2-7/8 in, and it would probably be better in the long run to run 9-5/8-inch production casing to accommodate your 2-7/8-inch tubing strings. 2-3/8 just won't lift the fluid volumes we need to lift.

Q. Mr. Frank, did you guys talk to the District Office at all about your proposal, do you know?

A. I don't believe we did, no.

MR. BRUCE: I don't know, Mr. Examiner.

EXAMINER CATANACH: Okay. I think that's all the questions I have.

Are there any other questions of this witness?

MR. BRUCE: I have nothing further.

EXAMINER CATANACH: Mr. Bruce, just to let you know, I might check with the geologist down in Artesia to see if they have any concerns about this proposal, and to see what their opinion is on this.

All right, there being nothing further, Case 12,121 will be taken under advisement.

(Thereupon, these proceedings were concluded at 8:55 a.m.)

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that the foregoing
is a complete record of the proceedings
the Examiner hearing of Case
heard by me on February 6
Examiner
Oil Conservation Division

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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 February 6th, 1999.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002