NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10511

IN THE MATTER OF:

The Application of Mitchell Energy Corporation for an unorthodox gas well location and for nonstandard proration units, Lea County, New Mexico.

BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

July 23, 1992

REPORTED BY:

DEBBIE VESTAL
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE APPLICANT:

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I N D E X

E X H I B I T S

	Page Identified
Exhibit No. 1	6
Exhibit No. 2	7
Exhibit No. 3	18
Exhibit No. 4	18
Exhibit No. 5	18
Exhibit No. 6	6
Exhibit No. 7	28
Exhibit No. 8	29
Exhibit No. 9	30
Exhibit No. 10	30
Exhibit No. 11	31
Exhibit No. 12	32
Exhibit No. 13	38

EXAMINER CATANACH: At this time we'll Case 10511, Application of Mitchell Energy Corporation for an unorthodox gas well location and for nonstandard proration units, Lea County, New Mexico.

Are there appearances in this case?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey, appearing on behalf of the applicant. And I have three witnesses to be sworn.

EXAMINER CATANACH: Any other appearances?

[The witnesses were duly sworn.]

MR. KELLAHIN: Mr. Examiner, I'd like to call Mr. Steven J. Smith, who's a landman with Mitchell, as our first witness.

STEVEN J. SMITH

Having been duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Smith, would you, please, state your name and occupation?

A. My name is Steven J. Smith. I'm a

senior landman for Mitchell Energy Corporation in the Midland, Texas, office.

Q. On prior occasions have you testified before the Division as a landman?

A. Yes, I have.

Q. As part of your employment with Mitchell, have you had made a study of the ownership, the various spacing rules with regards to spacing configurations for all the potential zones your technical people say may be productive at this location?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Smith as an expert petroleum landman.

EXAMINER CATANACH: He is so qualified.

Q. (BY MR. KELLAHIN) Mr. Smith, let me ask you to turn to the package of exhibits, and let's select a couple of them by which to orient the Examiner as to what Mitchell proposes to do.

If you'll take Exhibit 1, which is your chronology sheet --

A. Right.

Q. -- and if you'll sift through the exhibit packages, let's get down to the first geologic display, which is No. 6, and simply use

that as a reference map for a moment.

Why don't we try to make it more interesting and also pick up Exhibit No. 2, so you'll be looking at three displays. Exhibit 1 is the chronology; Exhibit 2 is the color-coated ownership map; and Exhibit No. 6 is going to show the well locations.

All right. Let's start with the way Section 18 looks now in terms of how it has been divided between what is known as the Phillips operated Lusk Unit. When we look at Section 18, tell us how the section is divided in relation to that unit.

A. Section 18, the south half and the southeast-northwest quarter are all part of the Lusk Deep Unit, which is operated by Phillips. This agreement was entered into in 1959 and unitized all intervals below 4500 feet.

Q. When we look at the balance of the acreage that on Exhibit 2 within Section 18 is shaded in yellow, what does that represent?

A. That acreage is owned by Mitchell Energy Corporation 100 percent. It's a federal lease.

Q. Mitchell is attempting to develop that

acreage?

A. Yes, we are.

Q. And how do you propose to do that?

A. We are seeking approval of our proposed location at Crazy Horse Federal 18 No. 1 well to be located 1980 from the north and 660 from the west in Section 18. That would make that location an unorthodox location for the Atoka and the Morrow Formations.

Q. Stop right there. For the Atoka what is the appropriate spacing for a well to that depth?

A. Three hundred and twenty acres.

Q. The orientation that's available to you for the balance of the acreage in the section is what for a spacing unit? What do you have left in 18 to dedicate to the well?

A. Well, we have the northeast quarter, the north half of the northwest quarter, and the southwest-northwest quarter to dedicate that's Mitchell acreage. The rest of it is currently part of the unit.

Q. When we look at Atoka, standard spacing is 320?

A. That's correct.

Q. You're seeking a nonstandard proration unit?

A. Right, of 281.61 acres.

Q. Where does the odd number of acres come from?

A. The western edge of Section 18 is all lots. It's a correction section, and they're oversized. They're not standard 40-acre quarter-quarters. They're slightly larger.

Q. So for 320 Atoka gas spacing, what would be a standard well location?

A. I believe it would be 1980-1980.

Q. Well, it could be 1980 from the in-line of the 320 and 660 from a side boundary?

A. Right, that's correct.

Q. So your location is unorthodox as to that reservoir?

A. Right.

Q. And your spacing unit is odd-sized for that reservoir?

A. That's correct.

Q. When you go to the Morrow, how many acres in this area do you need for a Morrow gas dedication?

A. The pool rules for the Atoka in this

area -- or for the Morrow in this area is 640 acres.

Q. So you're also nonstandard as to acreage?

A. Right.

Q. What acreage do you propose to dedicate if the Morrow is productive?

A. Again the 281 acres, being the northeast quarter of the north half of the northwest in the southeast -- or the southwest-northwest quarter.

Q. And then again your well location is off-pattern because in the Lusk-Morrow you have specific well locations that require the wells to be on the interior 40-acre tracts of the 640?

A. That's correct.

Q. So you'll be too close to the western boundary?

A. That's correct.

Q. All right. With regards to the unorthodox location, have you provided notices to the offset operators towards whom that well location encroaches?

A. Yes, we have.

Q. And have you received any objection?

A. None.

Q. In fact, you've gotten waivers for most of them, don't you?

A. Most all but one.

Q. All right. We've talked about the Lusk-Atoka gas pool, the Lusk-Morrow gas pool. Are there any other options that require the attention of the Examiner as to formations for spacing on location?

A. The Strawn Formation. We're asking for a nonstandard unit for the Strawn.

Q. You're in the Lusk-Strawn oil pool?

A. That's correct.

Q. Spacing in that pool is what?

A. One hundred and sixty acres.

Q. Your well location is standard in that pool for Strawn?

A. That's correct.

Q. Why are you seeking the nonstandard proration unit in the Lusk-Strawn?

A. Well, we've attempted to secure cooperative measures from the owner, Phillips being the operator, in the southwest to northwest and could not reach any mutually agreeable method that was volunteered.

Q. We'll come back to the sequence of development of the section in just a moment. But picking up the section the way it now exists in this configuration, as shown on Exhibit No. 2, having been told by your technical people they want the well located here as you propose --

A. Right.

Q. -- what then did you do on behalf of Mitchell in trying to organize standard spacing units so that you would have acreage to dedicate to the wells?

A. Well, we quickly -- at first the well was first proposed internally, and we did a check of the acreage surrounding that would be involved. And we determined quickly that the balance of Section 18 not owned by Mitchell was in the Lusk Unit operated by Phillips. And also determined that the ownership was quite complicated. This area has been in production for a long time. It's been cut up to different horizons and quite heavily burdened by overrides and production payments.

We contacted Phillips to let them know what our plans were to see if they were interested in assisting, and they advised us that

they had no interest in this. But they were willing to help us in any way they could.

Q. All right. Their position is they would rather not have the equities disturbed in the unit, give the balance of the section over to you, and let you develop that as nonstandard proration units?

A. That's correct.

Q. Let's go back now and look at the chronology, Exhibit 1, and show the Examiner the well locations, using Exhibit 6, of the wells, and tell him how the development has occurred and what spacing units have been assigned as the section has been developed in these various pools.

A. Okay. The first well drilled in Section 18 was the Miller No. 1 well, located 1980 from the south line and 660 from the east line. That well was drilled in 1939 by P. B. English. It was drilled to a total depth of 4114 feet and was plugged and abandoned as a dry hole.

The second well drilled in Section 18 was drilled after the formation of the Lusk Deep Unit. It was the Lusk No. 2 unit well, located

660 from the south line and 1980 from the east line. It was drilled to a total depth of 13,974 feet, completed March 31, 1961, as a dual Morrow-Strawn producer.

It was allocated or given -- the operator of the unit at that time made application to the OCD for a nonstandard 360-acre gas unit for the Morrow Formation and received approval for that unit.

Q. All right. That nonstandard 360 in the Morrow for the well in the southeast quarter of the section, that 360 is what we've characterized as the unit acreage in 18?

A. Correct.

Q. Okay.

A. The well also produced from the Strawn. It produced until about 1972 and was plugged and abandoned.

Q. And it had the southeast quarter 160 dedicated to the Strawn?

A. That's correct.

Q. Then what happened?

A. The next well drilled in Section 18 was drilled in the northeast quarter by Shell. It was the No. 1 "A" Middleton Federal, located 1980

from the north, 990 from the east. It was drilled to a total depth of 12,515 feet, completed in August of 1962.

They ran pipe, I guess, or tested the Morrow, but the well was never produced from the Morrow. It was completed uphole in the Strawn and given a 160-acre standard spacing unit for that well.

The next well drilled in Section 18 was the No. 13 Lusk Deep "A" Unit A well, located 1980 from the south line and 1980 from the west line, drilled by Phillips as operator of the Lusk Unit. It was drilled to a total depth of 12,520 feet and completed in June of 1975 in the Morrow Formation.

In early 1980 the Morrow depleted and -- well, I need to back up. At the time the well was completed in the Morrow, it was dedicated to a 640-acre spacing unit. That was accomplished by a communitization agreement that brought in the north half of Section 18 to form 640 acres.

In early 1980 the well ceased to produce from the Morrow. They recompleted in the Atoka. That communitization agreement ceased to

exist. At the completion in the Atoka, the well was dedicated to a 320-acre standard unit for the Atoka.

And the last well drilled in Section 18 currently is the No. 1 Lusk Federal, located 1980 from the south line and 1980 from the east line, drilled by Phillips as operator of the unit. It was drilled to a total depth of 2820 feet and drilled and abandoned in 1989 as a dry hole.

Q. All right. Let's turn to Exhibit 2. If you'll identify and describe that exhibit and the attachments to the first page.

A. Okay. The cover page is a color plat, which represents the eight sections immediately surrounding Section 18. The numbers correspond to like ownership by tracts and colors.

Exhibit D represents the working interest owners in the Atoka and the Morrow which would be affected by an unorthodox location. The numbers next to the names again correspond to the tracts in which the entities own an interest.

Exhibit E attached are all of the entities, working interest owners and operators who would be affected by a nonstandard unit application and are thus all the owners in the

surrounding eight sections around Section 18. And again the numbers next to the names correspond to tracts in which those entities own an interest.

The Exhibit F is a list of all of the owners in Section 18 which would be affected by our applications. However, that sounds a little deceptive. It's not just Section 18 or people who own in Section 18 who are on this list.

Because of the unit and because the participating area in the Strawn and the Morrow encompass large portions of the unit, we opted to include all of the working interest royalty and burden owners in the entire unit in this notification because they would have an interest in the south half Section 18 by virtue of unitization.

Q. Did Phillips assist you in providing a tabulation of those owners that you could use for notice purposes?

A. Yes, they did.

Q. As a result of those notifications, have you received any objections to your application?

A. None at all.

Q. Let's turn to Exhibit 3. This is another land plat that you have provided. Describe for us the information you have depicted on this display.

A. Okay. The acreage highlighted in yellow, of course, is Mitchell's acreage, which is owned 100 percent by Mitchell. The orange outline on the plat is the outline of the current boundary of the Lusk Deep Unit. The unit has contracted to its participating areas. It also -- the orange boundary also happens to be the Strawn participating area boundary.

The purple outline within the orange is the Morrow participating area boundary. And the green outline is the current Atoka participating area boundary.

Q. Okay. Let's turn now to Exhibit No. 4. Would you identify and describe that exhibit?

A. That is the certificate of mailing that we prepared as evidence that we sent notice, timely notice to all of the parties affected by our applications.

Q. Okay. And then would you identify and describe Exhibit No. 5?

A. These are copies of the waivers and

certified receipt notices of all of the waivers we sent to the entities affected by our unorthodox location application and also the nonstandard unit.

We did not send them to all entities. We opted to send them to those people who we felt were most adversely affected and would likely have a complaint.

Q. From a landman's perspective, Mr. Smith, does Mitchell's proposed solution here, based upon the existing configuration of spacing units that already apply to Section 18, represent the optimum solution for Mitchell in order to develop its acreage that remains in Section 18?

A. Yes, I do. Again we feel like people in the balance of Section 18 that are to be excluded by the nonstandard units are currently in a participating area and receiving benefits from that. It's not that they're being excluded from participation in production in the area. They are currently receiving revenues for production from the unit.

And again we contacted Phillips initially as the unit operator to seek their assistance, and they opted to give us a waiver

and not to participate in the unit. And we've notified all the people who were adversely affected, and they've elected not to appear to complain.

Q. Having the Mitchell technical people propose to you this particular location, do you see any other way that you can form the spacing units in order to put the Mitchell acreage into production?

A. No, I don't.

MR. KELLAHIN: Mr. Examiner, we move the introduction of Mitchell's Exhibits 1 through 5.

EXAMINER CATANACH: Exhibits 1 through 5 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Smith, did Phillips give you any reason why they didn't want to participate?

A. Well, we initially contacted a Mr. Frank Hulls in their office, Odessa office. And his initial response was that they had tried to put something like this to together and had failed and couldn't get it past their management.

And they felt that our proposed operations would not get any better review by their management, and therefore they felt it was a waste of time.

Q. Did Mitchell ever consider compulsory pooling?

A. Well, we considered it, but we felt that going this route, if we could secure cooperation of people, notify everyone, and obtain waivers from those they most adversely affected, it was the most expeditious method to go about this. And as long as we gave everyone the opportunity to see what we proposed and take a position on it, that was the most expeditious method.

Q. The interest owners in the south half of Section 18 or that acreage in the unit in Section 18 have already actually participated in production from the Morrow?

A. Several times. Twice as a matter of fact.

Q. All of the wells in Section 18 are currently plugged and abandoned?

A. No. The well in the northeast-southwest quarter is currently

producing from the Atoka. And I believe that is the only currently productive well in Section 18.

Q. That being the -- is that the 13 well?

A. I believe it is.

Q. That's currently producing from the Atoka?

A. That's correct.

Q. That probably has a south half dedication?

A. It does.

Q. Now, you said you had waivers for the unorthodox location from all offset operators except one?

A. Yes. We didn't anticipate 640-acre spacing out here, so when we initially did this, we didn't pick up that Fina Oil & Chemical had an interest in a tract in Section 13 to the west. We did, however, send them notice of the hearing in a timely fashion.

And I spoke with their land manager last week, and they expressed at that time that they were not going to complain or file any complaint against this application.

Q. So you do have a waiver from all the parties on Exhibit No. 2 except for Fina -- on

the first page of Exhibit No. 2?

A. Exhibit D, we have waivers from all of those, and we've also sent waivers to the largest owner in the production payment in the Lusk Unit. We did not receive a signed waiver back from him, but we did send him a copy of the request for waiver.

Q. The most affected interest owners would be in Section 13; that's the acreage that you're encroaching on. And you do have a waiver from BTA and from Phillips?

A. That's correct.

Q. Was there any concern expressed by any parties that you notified over the formation of the nonstandard proration units?

A. None.

Q. The waiver executed by Phillips, was that just on behalf of the location or did that include the units as well?

A. It included the units as well. The waiver -- the request for waiver described our full intent.

Q. And you did notify all of the interest owners within the Lusk Deep Unit?

A. To the best of our knowledge. That

unit has a very, very complicated ownership. And we decided the only way to get accurate ownership was to go to the operators and seek their assistance. They agreed and provided us with a list of the owners. And that's what we -- the basis of our mailing was from.

EXAMINER CATANACH: That's all I have of the witness.

MR. KELLAHIN: I'd like to call Mr. Ted Gawloski. He's a geologist.

TED GAWLOSKI

Having been duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Would you, please, state your name and occupation?

A. My name is Ted Gawloski. I'm a staff geologist for Mitchell Energy in Midland, Texas.

Q. Mr. Gawloski, on prior occasions have you been qualified as an expert before the Division in the field of petroleum geology?

A. Yes, I have.

Q. Have you made a geologic study and interpretation for what we've characterized as

the Crazy Horse prospect in Lea County, New Mexico?

A. Yes, I have.

Q. Based upon that study have you come to certain geologic conclusions about the appropriate well location for the Crazy Horse well?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Gawloski as an expert petroleum geologist.

EXAMINER CATANACH: He is so qualified.

Q. (BY MR. KELLAHIN) Let me have you pick up with Exhibit No. 6, as your first display, and using this condition as a reference map, describe for us your concept as a geologist as you try to pick the optimum location in this vicinity to intersect all these multiple reservoirs and give Mitchell a chance to develop its acreage in the remaining portion of Section 18 that's not in the unit.

A. Okay. The No. 6, Exhibit No. 6 is a production plat that shows all the different producing horizons in the area. And as a geologist at Mitchell Energy in this particular portion of Lea County -- and we try to maximize

our locations based upon several horizons.

And what I have done in here to create this prospect was map several of the horizons, primarily the deep horizons, the Strawn, Atoka, and Morrow, and use them to determine the best location here in Section 18.

Q. Before we look at the specific displays, give us the conclusions about the Strawn. That would be the upper zone that has the greatest potential, although there may be others. Let's start with the Strawn. What are the key geologic points that caused you to believe that this is the best location for the Strawn?

A. The Strawn out here is a carbonate reef that produces out of porosity pods within the middle portion of the Strawn. And there's an effective limit to the northern part of one of these pods in Section 18. There's two wells in the southern part of Section 7 that essentially were drilled deep to test the Strawn and did not encounter any pay at all.

So the Strawn is -- essentially porosity is pinching out as you go to the northern portions of Section 18.

Q. When you investigate the Atoka potential, as a geologist, what were the factors that caused you to reach your conclusion about this location being the optimum one for the Atoka?

A. I assembled the logs and looked at all the Atoka section. The Atoka section -- the sand that produces in the Phillips well is limited in scope. And it just essentially extends across the northwest portions of Section 18. And it's only -- matter of fact, it's only in a couple of wells that are out there.

Q. Describe for us the geologic conclusions that support the Morrow location.

A. I have mapped two -- I split the Morrow into two separate horizons, the Morrow B, which is the upper producing group of sands, and the Morrow C, which is the lower producing group of sands.

The two isopachs actually coincide, both showing preferred northwest-southeast direction of thickness trends. And the maximum location, maximum spot of sand occurrence was again where our proposed location is.

Q. Based upon that study, what is your

ultimate conclusion about this location?

A. That the orthodox location as petitioned here, 1980 from the north, 660 from the west, is the most optimum location for all three of those horizons, and it would benefit us to maximize our potential for all three of those horizons.

Q. Are there other unorthodox locations in this area for any of the reservoirs?

A. You can refer to on Exhibit 6 the well in the southwest-southwest of Section 7. Pan Am No. 8 Greedwood was a Morrow test. And it is 660 from the south and west lines, which would make that an unorthodox location.

Q. Let's turn now to Exhibit No. 7 and have you identify and describe that exhibit.

A. The Exhibit 7 is an isopach of the Lower Morrow, what we would call the Morrow C in this area. And it shows a preferred sand thickness trend going from the northwest to southeast.

And you can see that the sand by -- the sands thin to the northeast portion of Section 18. The maximum thickness that we can encounter in our acreage in Section 18 is where our

proposed location is.

Q. Does Middleton 1 "A" well in the southeast of the northeast of 18, does that condemn that acreage?

A. No, sir, it doesn't. They did encounter some sand in the Morrow. As you can see, there is a production dot on there. That is put on there because the scout ticket showed that the well was actually potentialed out of the Morrow. Perforations were in both the B and C. However, they did not produce the gas, or there's no record of any gas production out of that zone for whatever reason.

The test was not a very good one. It was about 600 Mcf a day. And they may not have deemed it economic to do it at the time. And they went uphole and completed out of the Strawn Formation.

Q. Let's turn now to Exhibit No. 8. Would you identify and describe that display?

A. That's an isopach of the Morrow B zones again showing a preferred orientation from the northwest to the southeast. And again shows the best location within our acreage in Section 18 is our unorthodox location. Again the color coating

is the producers out of that particular horizon.

Q. Now, let's turn to the Atoka. Would you identify and describe Exhibit 9?

A. The Atoka is a sand that produces in the middle part of the Atoka Formation that Phillips recompleted to this particular zone. It is very limited in its extent. You can see it in a few of the wells to the west.

And again because of that the two wells in section -- to the west have 409 feet in there. And those are the only other wells that essentially have any of the sands so that the orientation is essentially northwest-southeast. And again the best location on our acreage in Section 18 is our proposed location.

Q. All right. Let's go up to the Strawn and have you identify and describe Exhibit 10.

A. Exhibit 10 is a structure map that was created on the top of the Strawn Formation. Again there's an abundance of well control out here. And it shows essentially a north to south trending structural ridge through here with a possible little closure in the northwest portion of Section 18.

It does show that we can get up-dip to

both the Phillips well, the 13-A and in the south half of Section 18, and also up-dip to the Tenneco well, which I've highlighted on the cross-section over there to the west in Section 13 the HJ No. 1.

Q. Why have you not proposed, at least for the Strawn, that the location be moved farther to the north and continue to gain structural position?

A. Well, we need to refer to the next exhibit for that.

Q. Exhibit No. 11?

A. Exhibit No. 11 is the isopach of that Strawn reef using the porosity cutoff of about 4 percent, which is effective for pay in here. As you move farther to north, you get out of the porosity that's developed within the Strawn.

It makes mention of the two wells in Section 7. They encountered no productive interval within that Strawn reef. And therefore you're at an effective limit of production there. So the farther north you move in Section 18, the riskier that gets for the Strawn.

Q. In the absence of approval of this location, what option does Mitchell have?

A. Well, based upon the geology I've done, this is the best location that we could use to drill the well. And forced to move it too far to the north or to the east, we may not eventually even drill the well down to the deeper horizons.

Q. Will approval of this application give Mitchell the opportunity to test for and develop hydrocarbons that might not otherwise be developed and produced?

A. Yes, that's correct.

Q. Let's turn to the structure map, which is the last of your displays. It's Exhibit 12?

A. The cross-section?

Q. I'm sorry. The cross-section. Summarize for us the structural cross-section.

A. This is a structural cross-section that was used in conjunction with exhibit -- the structure map, Exhibit No. 11 -- I'm sorry.

Q. 10.

A. Exhibit No. 10, the Strawn structure map. And it is used in conjunction with that, with the geologic picks that were made in here. What this exhibit essentially does is visually represent the potential pay zones from the Strawn down through the Lower Morrow and where our

proposed location is and why we feel that this location is the most optimum.

Starting from the bottom, the Morrow C in the Tenneco well, they have very well developed sands in the Lower Morrow, the Morrow C, that were tested in the Phillips well off to the east of us. However, that well made approximately 130 million cubic feet of gas and eventually watered out, made about 30,000 barrels of water.

The Tenneco well did not test this zone. However, looking at the resistivities on the logs here, it appears that they probably thought it was wet and did not test it. We're going to be significantly up-dip to the Tenneco well that has real good development in there and a little but up-dip to the Phillips well that already had gas and some water with it. So we feel that's an excellent target to take the well down this far.

The next horizon up is our Morrow B. And, as you can see in the Tenneco well off to the west, there's numerous sand leases in here that have been developed. They have perforated that zone in 1981, and the well has cum'd almost

a Bcf of gas and is still producing approximately 200 Mcf a day.

The Phillips well, they came over here and tried a recompletion. They made a little bit of water, but the well is -- the zones appear to have a low permeability, so they never were able to establish production.

We feel that we can get some of the benefit of some of the sands that are within this Tenneco well in a trapping position over here in our location.

As you move up, you get in the Phillips well. In between the pink and the top of the Atoka and top of the Morrow, there's a sand there that took perforation. That is the Atoka pay sand that has been developed out in this area that Phillips has produced, shown by the perforations here. They've made approximately half a Bcf out of that zone, and it's producing very little right now.

The sand is developed over here in the Tenneco well. They have not tested it yet. They're still down in the Lower Morrow. It is probably on the fringes of what would be a productive zone there.

But we also feel we're going to be gaining some structural position to the Phillips well and be able to get some hydrocarbons out of that particular zone as well.

The last zone up here on the top is our Strawn reef, which is very well developed in the Phillips well, has good porosity development. And we feel it has some potential pay in there. And if we do gain some structural position as anticipated, that would also be an excellent target in that area as well.

MR. KELLAHIN: That concludes my examination of Mr. Gawloski. We move the introduction of his Exhibits 6 through 12.

EXAMINER CATANACH: Exhibits 6 through 12 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Gawloski, is there a zone that you consider the primary target in this well?

A. We consider probably the Morrow the primary target. Both sections within the Morrow, the B and C, as the primary targets in here.

Q. The Morrow well that was drilled and produced in the south half of Section 18, it's

your opinion it did not recover all the Morrow reserves in Section 18?

A. The well in the south part of 18, the southernmost well, I believe you're referring to, the one 1980 from the east and 660 from the south? There's two Morrow wells in the south half of 18.

Q. Okay. Both of them.

A. Okay. The Morrow well, the southernmost Morrow well recovered approximately 3 Bcf out of the Morrow, out of the Morrow C, and did not produce anything out of the Morrow B. The Phillips well just encountered a small amount of gas out of the Morrow C. And the Morrow B has not been tested in Section 18 except in that well in the northeast quarter, which they never produced the gas from.

And I still think that the gas from the wells in the south did not get all of the gas out of Section 18 in my opinion.

Q. Did you just utilize well control to construct your isopachs and structure maps?

A. Yes, I did.

Q. As I understand it, the reason for the unorthodox location in the Strawn is to get into

the porosity within the pod?

A. Within the Strawn reef, that's correct.

Q. And you feel you have to move south to accomplish that?

A. Yes, sir. As you get -- we have definitive zeros up there with the wells in 7. It could even extend farther south than that. We have the Phillips well essentially goes up to zero. And the farther north we move, we feel that the risk increases greatly.

Q. Does structure have any significance in that proposed location for the Strawn?

A. For the Strawn? It's not as beneficial in the Strawn. You can see there's several wells in the Strawn that are off the structure down to the southwest. The structure has more of an implication on the Morrow horizons, especially the Morrow C horizon.

Q. Again the unorthodox location for the Atoka would be primarily based upon necessity of encountering a thicker sand section with more porosity?

A. That's correct.

Q. And essentially the same thing for the Morrow B and C?

A. That's correct.

EXAMINER CATANACH: I don't have anything further, Mr. Kellahin.

MR. KELLAHIN: I'd like to call my petroleum engineer. He's done some drainage calculations, Mr. Examiner, to answer some of those later questions you just asked. His exhibit package is marked as one exhibit number. And you can find it in your folder as Exhibit No. 13.

CARL DAVID RICHARD

Having been duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Would you, please, state your name and occupation?

A. My name is Carl David Richard. I'm a senior petroleum engineer for Mitchell Energy.

Q. Mr. Richard, have you testified before the Division on prior occasions as an engineer?

A. I have not.

Q. Summarize for us your education.

A. I have a bachelor of science degree in electrical engineering technology, and I have a

bachelor of science degree in petroleum engineering.

Q. In what year and from what university?

A. Electrical engineering technology degree was received from Nicholls State University in 1979. The petroleum engineering degree was received from the University of Southwest Louisiana in 1984.

Q. Summarize for us your employment as a petroleum engineer.

A. In 1979 I was employed by Shell Oil as a lug analyst in the petrophysical division. Area of responsibility was primarily South Texas. In going back to school to get the second degree, I worked part-time for Pennzoil as a production assistant.

And after receiving a degree in petroleum engineering in 1984, I became employed by Mitchell as a petrophysical engineer. In 1987 I was assigned to the reservoir engineering department and have continued in that capacity since, primarily West Texas.

Q. As part of your duties as a reservoir engineer, do you typically make engineering calculations to assist the geologist in picking

the optimum locations for drilling wells such as the Crazy Horse well?

A. Yes, sir, I do.

Q. Have you done so in this case?

A. Yes, sir.

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

EXAMINER CATANACH: Mr. Richard is so qualified.

Q. (BY MR. KELLAHIN) Let me have you turn to exhibit package, Exhibit No. 13. Does this represent your work product?

A. Yes, sir, it does.

Q. In looking at what Mr. Gawloski proposes as the optimum location, have you investigated the reservoir characteristics and the production information achievable for the three major zones?

A. Yes, sir, I have.

Q. Have you been able to determine whether or not his proposed locations are going to be located in each of these reservoirs in areas that are not otherwise being drained and developed by existing wells?

A. Yes, I have.

Q. Let's turn to the display and have you summarize for us the cover sheet.

A. Sure.

Q. Tell us what that shows.

A. What I've done, prior to economic analysis of this proposed location, assembled the petrophysical parameters and cumulative production for wells in Section 18. As noted here, there are three wells. What I've done is broken it out into the three productive horizons.

The petrophysical parameters were worked up under my direction. And what I've basically done is used these parameters to compile the remaining exhibits that we'll be discussing.

Q. All right. Let's turn and look at the Strawn. What calculations did you use to estimate drainage areas or areas of depletion from existing wells when you looked at the Strawn reservoir?

A. In looking at the Strawn, I took the "cum" production, the area of the largest circle. The Lusk Deep Unit No. 2 had a cumulative production of 647,000 barrels and 3

Bcf of gas.

Using the petrophysical parameters that were determined, I basically came up with a drainage volume. And based on that drainage volume, came up with a drainage area using the thickness that we saw in that particular wellbore.

What these drainage circles represent are probably the minimum drainage area that we would expect from the drained volume of that reservoir.

Q. When you look at the theoretical drainage circles for the two wells in 18 for the Strawn reservoir, have you also looked at Mr. Gawloski's isopach map of the Strawn to see how well that may fit within the actual drainage patterns occurring in the reservoir?

A. Yes, sir. Based on his Strawn isopach, we feel that the northwest quarter would probably be the least portion of the Strawn reservoir to be possibly depleted by Strawn production in this section.

Q. Okay. Can you confirm then that his proposed location in the northwest quarter of 18 is the optimum location in which to drill for

Strawn reserves?

A. Yes, sir.

Q. The effect of the Lusk Deep No. 2 well on Strawn is such that it has not fully depleted and developed the northwest quarter of 18?

A. That's correct.

Q. All right. Let's turn to the next reservoir. Let's look at the Atoka. Is the methodology the same as it was for the Strawn?

A. Yes, sir, it is.

Q. And what is your conclusion?

A. I feel that the Phillips 13-A well is basically, as reported by Mr. Gawloski, I think, that it was still producing, but according to my records, the well has not produced, I guess, in the last four months and had produced three months prior to that but had not produced the previous seven months.

So the volumes that I think that well is producing are pretty low. And I would venture to guess that the well is pretty close to its economic limit. The last reported production in February of -- let me see -- February of 92 was about 3 -- let's see, about 600 million cubic feet of gas for a month.

Q. Have you also, as you did with the prior reservoir, compared the Atoka mapping that Mr. Gawloski did to your drainage circle to see if this circle represented an accurate representation of the drainage pattern?

A. Yes, sir.

Q. The Atoka is 320-gas spacing in this area?

A. Yes, sir it is.

Q. And if the unorthodox well location for Mitchell is approved, are you crowding your wells too close together in this section?

A. No, sir. I don't think we'll be in a competitive situation based on the production information that I've seen.

Q. All right. So you would be putting yourself in the Atoka reservoir into an area that would support a well at this location independent of other wells?

A. Yes, sir.

Q. Let's turn now to the Morrow. And you specifically looked at the Morrow C. And here we're on 640-gas spacing?

A. Yes, sir.

Q. Is the methodology the same?

A. Yes, sir, it is.
Q. And did you confirm your drainage circle with Mr. Gawloski's isopachs of the Morrow?
A. Yes, sir.
Q. What did you conclude?
A. I would say that the northern half of Section 18 has not been developed adequately with the 640-acre spacing.
Q. Can you conclude that the Mitchell location for the Morrow is necessary in order to recover Morrow gas reserves that might not otherwise be recovered by any other well?
A. Yes, sir.
Q. In the absence of that well, the interest owners in the Mitchell acreage would not share in production?
A. That's correct.
MR. KELLAHIN: That concludes my examination of Mr. Richard. We move the introduction of his Exhibit No. 13.
EXAMINER CATANACH: Exhibit No. 13 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Richard, how did you obtain the parameters? Used the porosity, water saturation, et cetera, for your calculations?

A. We have a petrophysical group within Mitchell that do this on a routine basis at my request.

Q. Is that basically obtained from log?

A. Yes, sir, it is.

Q. Do you have an opinion as to whether or not a well drilled in the Morrow in this area will actually drain 640 acres?

A. Based on what I see out of the Lusk Deep Unit No. 2 having cum'd over 3.2 Bcf, I don't think we could possibly drain 640 acres with one well.

Q. That's just based on that one particular well, though --

A. Right.

Q. -- that opinion?

A. Right.

Q. It is your opinion that a significant portion of the south half of Section 18 has been drained in the Morrow and in the Strawn?

A. Yes, sir.

Q. According to your information the

quarter section, the southeast of the northwest, Section 18, has not been significantly drained in the Strawn or in the Morrow?

A. That's correct.

Q. Do you have an opinion as to whether your proposed well will drain that acreage?

A. Based on the geological mapping, I think we probably will drain that acreage if the reservoir quality is present.

Q. Have you calculated reserves that might be recovered in the north half of Section 18 by your proposed well?

A. I have a statistical average that I used to justify this well economically. That was 1.9 Bcf.

Q. From all three reservoirs?

A. No. Based on the Morrow only.

Q. On the Morrow?

A. Yes, sir.

Q. Did you do that for the other two reservoirs?

A. No, sir, I didn't.

Q. What is that based on?

A. I've got a 400-well sample in this area. We were sort of exploring for Morrow and

playing statistical. It's Morrow statistical play in doing the economic analysis. This work was done prior to proposing or really getting this well approved with management. I did show or proved to management that there was sufficient reserves remaining in the north half of Section 18 to justify this well.

EXAMINER CATANACH: I believe that's all I have of the witness.

MR. KELLAHIN: That concludes our presentation, Mr. Examiner.

EXAMINER CATANACH: There being nothing further, Case 10511 will be taken under advisement.

[And the proceedings were concluded.]

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10511, heard by me on July 23 1992.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Debbie Vestal, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; 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 JULY 28, 1992.

Debbie Vestal

DEBBIE VESTAL, RPR
NEW MEXICO CSR NO. 3