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. 12,378
APPLICATION OF TAMARACK PETROLEUM COMPANY, INC., FOR AN UNORTHODOX SUBSURFACE OIL AND GAS WELL LOCATION, LEA COUNTY, NEW MEXICO	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MARK ASHLEY, Hearing Examiner

April 20th, 2000

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MARK ASHLEY, Hearing Examiner, on Thursday, April 20th, 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.

* * *

I N D E X

April 20th, 2000
Examiner Hearing
CASE NO. 12,378

* * *

E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	7	23
Exhibit 2	8	23
Exhibit 3	13	23
Exhibit 4	15	23
Exhibit 5	17	23
Exhibit 6	17	23
Exhibit 7	17	23
Exhibit 8	20	23
Exhibit 9	27	33
Exhibit 10	27	33
Exhibit 11	29	33
Exhibit 12	31	33
Exhibit 13	32	33
Exhibit 14	33	33

* * *

A P P E A R A N C E S

FOR THE DIVISION:

LYN S. HEBERT
Attorney at Law
Legal Counsel to the Division
2040 South Pacheco
Santa Fe, New Mexico 87505

FOR THE APPLICANT:

KELLAHIN & KELLAHIN
117 N. Guadalupe
P.O. Box 2265
Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

* * *

WHEREUPON, the following proceedings were had at 9:42 a.m.:

EXAMINER ASHLEY: At this time the Division calls Case 12,378.

MS. HEBERT: Application of Tamarack Petroleum Company, Inc., for an unorthodox subsurface oil and gas well location, Lea County, New Mexico.

EXAMINER ASHLEY: Call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin, appearing on behalf of the Applicant, and I have two witnesses to be sworn.

EXAMINER ASHLEY: Any other appearances? Will the witnesses please rise to be sworn?

(Thereupon, the witnesses were sworn.)

MR. KELLAHIN: Mr. Examiner, Tamarack seeks your approval of this proposed well. It is intended to be at an unorthodox subsurface location. We'll see from the evidence as it's being presented that the primary objective is to re-enter the Anadarko Hood well and redirect this wellbore to a bottomhole location in the Strawn formation, in an attempt to maximize both the thickness of the Strawn and the structural position. The proposed bottomhole target will be at an unorthodox location.

In addition, Tamarack seeks the opportunity to

deepen the well an additional 600 feet below the Strawn formation, in an effort to test for the possibility of Atoka gas production.

If that is successful, then Tamarack will seek to dedicate the east half of this section as a standard 320-acre tract, to be dedicated to the well, and it has the possibility of being too close to the western boundary of that spacing unit.

As you know, the deep gas side boundary rules are 660 feet from the side boundary. The bottomhole target, as we will demonstrate on the displays, could be at a location 428 feet from the west line.

In addition, Tamarack seeks the opportunity to have a bottomhole target, the radius of which is 110 feet around this location, to allow them the flexibility to directionally drill this well, but to do so within an appropriate means of restriction.

This Application was originally filed some time ago administratively and would have been approved administratively but for the fact that the deep gas Atoka production would be closer than 660 to the side boundary, and Mr. Stogner has required us to come to a hearing.

I wish to share with you our concern about the processing of the request. Tamarack has leases that begin to expire on the 27th of this month, and then others

expiring next month. I recognize that's not your problem, but it's our dilemma, and we would ask that if you seek to approve this that you seek to do so in an expedited fashion.

I have two witnesses to present to you.

Mr. Bob Palmer is a consulting geologist. This is Mr. Palmer's prospect. This is his concept for how to access one of these small algal mound Strawn reservoirs that you and other Examiners are now seeing come before you. It is principally scribed based upon 3-D seismic work.

In addition, Mr. Hal Gill is one of Tamarack's engineers. He's the second witness, and he'll talk about the engineering components.

So with your permission, we'll ask Mr. Palmer to begin his testimony by stating his name and for whom he is employed.

THE WITNESS: Good morning.

EXAMINER ASHLEY: Good morning.

ROBERT W. PALMER,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Please state your name and occupation, sir.

A. Robert W. Palmer, petroleum geologist.

Q. And where do you reside, sir?

A. Midland, Texas.

Q. On prior occasions, have you testified before the Division?

A. No, I have not.

Q. When and where did you obtain your degree in geology?

A. Waynesburg College, 1977.

Q. As part of your duties as a petroleum geologist, have you made an investigation of the geologic data and come to geologic conclusions about the opportunity to test for Strawn Oil Production in Section 8?

A. Yes, I have.

Q. Are we about to see your recommendations and conclusions concerning the opportunity to re-enter the Anadarko well?

A. Yes, that is what I'm going to attempt to do.

MR. KELLAHIN: All right, sir. We tender Mr. Palmer as an expert witness.

EXAMINER ASHLEY: Mr. Palmer is so qualified.

Q. (By Mr. Kellahin) Mr. Palmer, to orient the Examiner as to where we are, would you please take what we've marked as Exhibit Number 1, which is an area locator map, and within Section 8 identify for Mr. Ashley the

subject well and its proposed re-entry.

A. Yes, we're located in 17 South, 38 West, in Lea County, New Mexico. As you notice in red is the surface location of the Anadarko Hood well, which was drilled in 1989 and plugged as a dry hole.

As you see in green, is the approximate bottomhole location that we are going to attempt, the actual target that we're going to hit, for reasons that I will specify a little more -- in a minute here, a little more specifically. But if you'll notice that to the south there is an old Signal and McAlester Toklan Royalty well, which was dry and abandoned in 1955, which was a deep Devonian test, and again in the west half of the section is an Anson Gibson, which was dried and abandoned in 1994.

Q. Let me have you turn to Exhibit Number 2. Let me ask you some questions about this display. First of all, the information that is superimposed on the base map, we'll discuss in a moment. This base map is what, sir?

A. This base map was generated by myself and my partner on our 3-D work station. It is a time map, which is taken from our 3-D seismic data that was loaded onto our database. As you can see, the location of the Anadarko Hood well, which is our re-entry candidate, and our bottomhole location.

Q. Let me ask you this about the Anadarko well.

A. Okay.

Q. Was it drilled deep enough to penetrate to and through the Strawn formation?

A. Yes, it was.

Q. In addition, was it drilled deep enough to also penetrate the Atoka?

A. Yes, it was.

Q. Approximately what is the vertical distance between the base of the Strawn before you get to the Atoka? How many approximate feet are you dealing with?

A. About 350 feet, I think, is pretty close. We'll see it on Exhibit 8 in a minute, a little closer. I don't want to say the exact number, but it's around there.

Q. Scribed on top of the top of Strawn structure map are two 40-acre tracts, one above the other, and the Anadarko well is located within Unit Letter B of Section 8; is that not true?

A. That's correct.

Q. All right. There's an area that's dashed in a blue line, and there is an identification indicating a possible oil-water contact. Do you see that, sir?

A. Yes, sir.

Q. Is that your interpretation that's been displayed on this exhibit?

A. Yes.

Q. All right. Was the Anadarko well successful in its efforts to produce Strawn oil?

A. The Anadarko well is obviously one of the reasons why we are in this area. The Anadarko well was not drilled with the advantage of having three-dimensional seismic data. And the Anadarko Hood well penetrated the Strawn and encountered one or more, depending, of these phylloid algal mounds which had porosity in them.

Anadarko thought enough of it where they ran casing through this zone, and they, in a succession of trying to complete this well, perforating, setting bridge plugs and coming up because of the structural position at the bottomhole location of the Anadarko Hood well, was structurally too low to produce water-free out of the Strawn. They did have a certain amount of oil, along with copious amounts of water.

So it was not feasible at the time for Anadarko to complete in this area. It's relatively a fairly wild area in here, there's not a whole lot of production within a stone's throw.

Q. Subsequent to the Anadarko well, then, 3-D seismic data has been accumulated and has been analyzed, true?

A. Yes.

Q. What is your conclusion about the reason the

Anadarko well failed to produce oil in the Strawn?

A. As further exhibits will state a little better, but quite frankly, it's just at a lower structural position than what our three-dimensional seismic data tells us that we can achieve at the bottomhole location relative to the Anadarko well, i.e., a much higher structural position.

Therefore, using the blue-dashed line you see present on the exhibit, we are making the assumption that the Anadarko Hood is at the present oil-water contact of this feature. Being that it is apparent that it is a completely convex or closed feature, we are assuming that there is substantial amounts, or at least economic amounts of oil trapped in this reservoir, in this closure.

Q. Will approval of the proposed unorthodox bottomhole location in the Strawn give Tamarack the opportunity to access that reservoir at its optimum position?

A. To the limits of the ability of our seismic, that would be the optimum location for us to bottomhole out because of the limitations of our seismic, which the target area is limited to, is 110 feet.

Q. Can you achieve the point of greatest structural height and maximum reservoir thickness at a standard location in a 40-acre tract?

A. No, we cannot.

Q. Okay. Let's talk about the 110-foot radius around the bottomhole location. You were talking about the accuracy of the data at this point.

A. Yes, sir.

Q. Am I clear in understanding that the method of developing this data gives you a square grid system, the side boundaries of which are no less than 110 feet?

A. That is correct.

Q. So within the accuracy of the data then, the point of greatest structural height and reservoir thickness is at a point which could have a radius of up to perhaps 110 feet?

A. Correct.

Q. If we achieve that flexibility in trying to hit this target, it approximates an area around this location within the smallest control contour line on this display; is that not true?

A. Yes, it's as close to being true as we can get, yes.

Q. All right, sir. Is this Strawn opportunity unique to this portion of Section 8, or is this part of a consistent pattern of activity by other operators to access and produce Strawn oil?

A. It is a standard procedure anymore. Some of the subsurface methods that are used to narrow down your area

to get your 3-D done so you can find these may be different, but in essence the ultimate goal to find these relatively small features, if you would, it is -- ultimately, 3-D seismic is the way to go on these.

There are prudent operators in this particular area that will drill 14-acre features around for these things, and it's guys that's pretty gutsy at 11,000-plus feet. But because of the nature of this reservoir and the sometimes very prolific nature of these phylloid algal mounds, it is worth the effort and the expense to get to a specific spot to maximize what you can achieve out of --

Q. Mr. Palmer, to illustrate this point, let me direct your attention to Exhibit Number 3 --

A. Okay.

Q. -- and without explaining it in detail, we are now looking at your map of the gross Strawn isopach in this general area, are we not?

A. Yes, we are.

Q. The purpose of these different small, irregular-shaped features, which are identified in yellow, is to show the Examiner your opinion as to the size and the shape of these other algal mound Strawn features; is that not true?

A. Yes, it is.

Q. Is what you see over in the upper right-hand corner of the Exhibit in Section 8, where we have the

Anadarko Hood well and its feature, is it similar in terms of the size and shape as we see other Strawn wells being produced farther to the west?

A. Yes, it is. It seems, in my examination of hundreds of wells in this area and in others for this same formation, the same genetic type of rocks and porosity development and everything, that there are certain rules of thumb that adhere to making substantial production out of these features, and I think it's evident by looking at the map that our Anadarko Hood well, of having a -- 202 feet of a total Strawn section, is just about -- and of course, the subsurface holds up with the seismic now -- is just about the cutoff point of making economic oil out of the Strawn.

As you can see, some of the better, more tightly contoured features on the west edge of the map are all in excess of 200 feet.

Q. Okay. The strategy of using Exhibit Number 3, then, is to find a point of greatest thickness, and that if you have less than 200 gross feet, the probability is that despite hitting the reservoir, it's not going to produce oil?

A. Yeah, that's a real good word, the probability. This is basically a probability-type map, where you can cut your odds. By that it tells you where to go in a lot of

cases, to go and shoot 3-D, to narrow this down to where you can really shoot for them, because they are small, and they are hard to find. We'll see in some other exhibits also.

Q. To further illustrate to the Examiner how important it is to position these wells based upon current available 3-D seismic data at the point of greatest thickness and structural height, let's look at Exhibit 4.

A. Okay.

Q. In addition to thickness -- I'm sorry, thickness alone is not going to tell you if you're going to get a successful well, true?

A. It's not the only point, no. There's many factors that go into it, but --

Q. The quality of that reservoir, in addition to its thickness, is going to have a direct correlation to the quality of the well?

A. Yes, exactly.

Q. How do you as a geologist take the gross map and further refine it in an effort to take into consideration the quality of the reservoir?

A. Well, I think if you lay the exhibits down next to each other, you'll see that the picture starts to get smaller, okay, when you get -- What I've done is, and it's a very common practice, I'm sure I'm not the only one who

does it, but I've done it in many other plays all in the Strawn formation.

After you've come up with some gross Strawn isopachs or thickness maps, if you would, the way to hone these down to tell you the absolute most you can about a reservoir, what I'll do is, as in this exhibit in front of you now, is, I will take a clean carbonate map, and that -- I use a certain API unit on the gamma ray, which is my cutoff point.

Anything that is, quote, over or greater than 30 API units is usually not considered a clean carbonate in this formation, and that comes from thousands of logs I've looked at. And of course under 30 is usually an indication of what's called a cleaning carbonate or a showing upwards carbonate like these are, and of course getting more mound in it. These areas have sometimes multiple mounds just within this Strawn section.

So what Tom was saying is very true. You increase the probability with a number of things. The thicker your entire Strawn section is, the more probability you have of having more cleaner carbonate, hence more opportunity of having greater reserves in the Strawn reservoirwise.

The third thing you still need is structural advantage, of which we'll get to in a second on the 3-D.

Q. Up to this point, then, adding in the gross area and net clean carbonate analysis, the proposed unorthodox location is the optimum place to penetrate this Strawn feature?

A. Yes, sir, I believe that it is.

Q. Now, let's look at the third part, which is your analysis of the 3-D data --

A. Okay.

Q. -- and let's look at all three exhibits together. If you'll start with Exhibit 5 --

A. Okay.

Q. -- it gives you two orientation lines, one north-south, one east-west, and let's put those lines out.

Exhibit 7 is the east-west line, and Exhibit 6 is the north-south line, correct?

A. Correct.

Q. All right. The end result of the analysis shows you that your conclusion is the proposed unorthodox locations at the point of greatest structural height?

A. It is at, in our opinion, the apex of structural advantage to the Anadarko Hood well, yes.

Q. Let's take Exhibit 6. You've superimposed on a vertical red line the location of the re-entry directional well, right?

A. Yes, sir.

Q. When it intersects the color-coded area in the Strawn, what does it show you at that position?

A. It shows, as you can see, superimposed on the seismic record section itself, spotted in is the -- you see on the north side is the Anadarko-Hood location projected down to the Strawn formation, and then on the south end of the line is the old Devonian test, the Toklan Royalty well.

And what we can gather from looking at this line is that there is an obvious structural advantage position going south and west from the surface location of the Anadarko Hood, which remember we're considering somewhat of an oil-water contact well because it did make some oil along with copious amounts of water, to a much more positive structural position at our proposed BHL.

And then of course down to the south we tie the Toklan Royalty well, which, if you'll look at the other, previous exhibits, is both a thin Strawn well and a tight Strawn well, and I think it's very evident by the thickness of the reflector that we have labeled "Strawn".

Q. Let's take a moment now and look at the east-west line.

A. Yes, sir.

Q. That's line 138 --

A. Line 138.

Q. -- Exhibit 7. It's got the same vertical line

showing how you project the position of the Anadarko well as re-entered, and when it penetrates the Strawn, show us why that's an advantage at that point in the Strawn as opposed to somewhere else?

A. Tom, on 138, are we saying?

Q. Yes, sir.

A. Okay, we do not have the Anadarko well projected in on that.

Q. No, I'm sorry, the re-entry of your Anadarko --

A. Oh, yes.

Q. -- well, which is the subject well.

A. Okay. I think again, from an east-west position we can see very obviously that following the marker colored in blue -- and the black reflector is our mapping point, the peak is what we call it -- if you notice, going from west to east we have a very tight, thick peak. We climb up onto our proposed bottomhole location, which is our phylloid algal mound. We not only get a thinning of that peak, which is what we call an interphase or a breakup in the interphase, and then going west again we see that it is again not only downdip, but we again start to get a thicker peak in there, indicating thinner, lower, tighter rock.

Q. So when you analyze all the 3-D data and examine this feature in both dimensions, east-west, north-south, it's your conclusion that the proposed bottomhole location

as we've requested, gives you the opportunity to penetrate that feature at its greatest height?

A. Yes, Tom, it does. It seems to be that that is the best spot that we can find on 3-D to bottomhole location this and make a Strawn completion.

Q. Finally, Mr. Palmer, let's turn to Exhibit 8 and illustrate to the Examiner your opinion concerning the opportunity to utilize this wellbore to test for the possibility of Atoka production. If you'll take a moment and unfold the display. You've got a four-well stratigraphic cross-section, sir; is that not true?

A. Yes, that is correct.

Q. All right. And the Anadarko well is on the far right. That's the re-entry well, the Hood 8, right?

A. Yes, sir.

Q. All right. Let's take a moment. You can see where they attempted to test for Strawn production, you've color-coded the perfs, and off to the right on that track you've shaded blue for the possibility of Strawn. Where does this wellbore intersect what you believe to be a point correlative to the Atoka sand?

A. As we can see, keep in mind, Mr. Ashley, this is a stratigraphic cross-section, hung below the Strawn. This is done for a number of reasons. It shows what we want to show in the Strawn, and it also shows what we want to show

in the Atoka. A structure section would not have sufficed for what we're trying to show.

As we can see in the Anadarko well, this well penetrated the Atoka to the upper Mississippian, which is a carbonate, so we're going from a shale to a carbonate.

If you'll notice, the Anson Gibson well, which is the second well from east to west on the cross-section, if you'll notice, they did not penetrate the Atoka. So we don't know exactly what the Atoka did in that well, because they did not penetrate the entire Atoka; they TD'd somewhere in it. We can tell by log response in there on a pickup on the gamma ray, we know they didn't get out of it.

But the interesting well is this, and this is basically our idea for coming to you on this. If you'll look at the third well from your right on the cross-section, you'll see it's the Nearburg Stillings well. This well is in -- It's an extremely low structural well. I think you can see we're looking somewhere 600 feet deeper than we're wanting to go. It's a structurally low well, very low, by the way. You can see in relation of the upper Mississippian section in the Stillings well to the upper Mississippian point on the Anadarko well, our re-entry well, our proposed re-entry well.

If you'll notice the difference in thickness between those two, well, the structural position of this

Stillings well is also so low it's what's called in a rift-faulted system, it's in a real hole. Okay?

Now, what we notice about the Stillings well is, being that it is in a hole, in a low, this low structural position afforded the opportunity of clastics or transported material to be preserved in that low.

But as we go east out of this low, we are projecting in strictly economics, because we're already going to be at a certain point to test our Strawn, which is our primary objective, of course, strictly economics -- I think Hal will know the numbers better than me exactly what it is, but -- and I think you can see, the theory is, and since we know that things are offlap from bottom up, okay? I think we can see that there's a couple sands here that might carry over into -- presumably below our Strawn at this bottomhole location.

Q. Mr. Palmer, is it fair to characterize the Atoka opportunity at your location to be very risky and can only be engaged in, in conjunction with the Strawn well and would not support drilling to the Atoka by itself?

A. No, it's my opinion that this section would never get looked at if anybody had to drill from top to bottom on it. I think the only way that we can ever evaluate the potential of these Atoka clastics in this area would be to test it in a much less expensive re-entry well that we

already have our primary objective being the Strawn above, with good evidence.

Q. In order to find the nearest Atoka production, you'll have to go some two miles, I think, to the west before you find a wellbore that will do that?

A. Yeah, there are a few Atoka completions off to the west in the -- on the west side, Mr. Ashley, on the west side of what I have colored purple, the rift and wrench zone. That field over there is not one field. I mean, it's a complex of fields. And there are a few Atoka wells. They are predominantly oil and gas wells. They do make some casinghead gas with them.

We are in a structurally higher position on the east side of the wrench or the rift system, so it is an assumption that we would be a little gassier than those wells on the west side of the wrench, and that's all, basically, our contention is.

MR. KELLAHIN: Mr. Ashley, that concludes my examination of Mr. Palmer. We move the introduction of his Exhibits 1 through eight.

EXAMINER ASHLEY: Exhibits 1 through 8 will be admitted as evidence at this time.

THE WITNESS: Any questions or anything I can help you with?

EXAMINER ASHLEY: Yes, just a minute, sure.

EXAMINATION

BY EXAMINER ASHLEY:

Q. Can you explain again, Mr. Palmer, why you wanted the 110-foot radius for the bottomhole?

A. Yeah, it's -- I think the best way to explain that would be to look at Exhibit 2.

Q. Okay.

Q. The way this data is shot, this particular batch of data, if you will, are shot on 110-foot intervals. In other words, 110 feet between receivers. Okay? And basically what you have is the tolerance of the data will just be a 110-foot square. We can't define anything any more than that, because that is where our lines and traces are laid down. Okay? And anything smaller than that is beyond the tolerance of this particular data.

Therefore, a 110-foot radius around is the best we can do to optimize. We know where our optimum spot should be, and we actually are asking for that leeway in there so we can -- We can't get any more accurate than that, is basically what we're saying.

Q. Now, when you directionally towards your bottomhole, in addition you're going to go another 600 feet?

A. Yes, sir.

Q. Is that going to TD in the Atoka?

A. Yes, we would like to go through the Atoka to TD. As soon as we get carbonate back, we'll know -- back in samples is what I mean -- we'll know that we have penetrated the entire Atoka section and are now in the upper Mississippian, and that is completely sufficient to test anything that we need to look at as far as the Atoka.

We'll be coming from clastics into carbonates, and we'll know like that by a number of petrophysical techniques, i.e. drill time, samples, everything. We'll know exactly where we are. We can get pretty close right now just guessing, so...

Q. Okay. Can you answer any questions regarding notification of offset operators or anything like that?

A. No, sir, I can't.

EXAMINER ASHLEY: Do you have a witness for that, Mr. Kellahin?

MR. KELLAHIN: Yes, sir, we do.

EXAMINER ASHLEY: Okay, I have nothing further. Thank you, Mr. Palmer.

THE WITNESS: Well, thank you.

MR. KELLAHIN: Mr. Ashley, our next witness is Mr. Hal Gill.

MR. GILL: Good morning, Mr. Ashley. Good morning ma'am.

EXAMINER ASHLEY: Hello.

HAL GILL,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Gill, for the record, sir, would you please state your name and occupation?

A. My name is Hal Gill. I'm a district engineer for Tamarack Petroleum Company in Midland, Texas.

Q. On prior occasions, have you qualified as an expert witness in petroleum engineering before the Division, Mr. Gill?

A. Yes, sir, I have.

Q. Pursuant to your employment on behalf of Tamarack, have you made yourself familiar with the various engineering aspects of this Application?

A. Yes, sir, I have.

Q. Does your effort of involvement include reviewing the proposed method by which this well will be entered and drilled to the proposed bottomhole locations that Mr. Palmer has described?

A. Yes, sir, it has.

Q. In addition, are you aware of the efforts that Tamarack has engaged in, in identifying the various parties to whom notice was sent of this Application?

A. Yes, sir, I am.

MR. KELLAHIN: We tender Mr. Gill as an expert witness.

EXAMINER ASHLEY: Mr. Gill is so qualified.

Q. (By Mr. Kellahin) Mr. Gill, let me turn your attention to Exhibit Number 9. Would you identify that for the record?

A. That is simply the Application for permit to drill the -- and re-enter the Hood 8 Number 1 well.

Q. Let's turn to Exhibit 10, which is the C-102, and to show the Examiner the particular specific aspects. The surface location, as demonstrated on the survey plat, is at what point, sir?

A. The surface location is located by the surveyors that we had to go out and locate this particular location, shown as 859 feet from the north and 1981 feet from the east line, which is a standard location within Unit B.

The proposed bottomhole location is south 35 degrees west, a distance of approximately 395 feet from that surface location.

Q. To the best of your knowledge, Mr. Gill, will this location access the Strawn reservoir at the point of greatest thickness and at greatest structural height, based upon Mr. Palmer's analysis?

A. Yes, sir.

Q. If that occurs, then, this well will be 40-acre oil spacing in the Strawn, to the best of your knowledge?

A. That is correct. I would expect, though, that should we find Strawn production, that we would come back and ask for an 80-acre proration unit at that time.

Q. Are you aware of the ownership in the northeast quarter of this section, in terms of whether it is uniform for each of the four 40-acre tracts in that quarter section?

A. Yes, sir, we have determined that ownership in the northeast quarter is uniform.

Q. So if the oil well encroaches to the south boundary of Unit Letter B, it encroaches on the same owners that are sharing in the production on 40-acre spacing?

A. That is correct.

Q. When we look to the western boundary, if you precisely hit this bottomhole target, then the west boundary will be 428 feet?

A. That is correct.

Q. And that would be a standard location for 40-acre oil, true?

A. That is true, yes, sir.

Q. However, it would be an unorthodox location if you are successful in producing any of the Atoka gas?

A. That is correct.

Q. All right. Has Tamarack caused a search to be made of the public records concerning the various working interest owners and unleased mineral owners in the west half of this section?

A. Yes, sir, we have.

Q. And you have provided me that list for purposes of notice?

A. That is correct.

Q. Let's turn to the mechanics of how you're going to do this re-entry. If you'll look at Exhibit 11, let's have you start with the 110-foot-radius target described by the circle, and describe for Mr. Ashley what you're proposing to do with the 110-foot-radius target area.

A. Exhibit 11 is the well profile data showing the directional profile that we plan for this particular well. The requested permitted area, shown as the 110-foot-radius circle around the bottomhole target location, as Mr. Palmer previously testified, this is the degree of accuracy of the 3-D survey. So in order to not expend considerable amount of money trying to direct this location to a specific point, we would like to have the latitude to have a 110-foot radius around that particular point.

Q. If that is approved, then, on the notation next to the circle it would show that that area could be as close as 318 feet from the west line of the 40-acre tract?

A. That is correct.

Q. And could be as close as 36 feet to the south boundary of the 40-acre tract?

A. That is correct.

Q. Let's look at the far left side of the display and have you describe for us how Tamarack proposes to re-enter this well and directionally drill it.

A. Tamarack, in order partially to save money in drilling this well, proposes to utilize the existing casing and surface location for the original Anadarko Hood well. We propose to drill out the cement plugs in the 8-5/8-inch casing, which is set at 4490 feet with the cement circulated to the surface.

And after we drill those plugs out, we propose to intentionally deviate that hole away from the original borehole, gradually building an angle up to eight degrees in a southwesterly direction towards the bottomhole target, and hold that eight-degree angle to -- almost to the target, and then allow the hole to go back to vertical, which it will naturally want to do if we cease holding that angle with directional tools, and then allow the well to go vertical at approximately 8300 feet, and drill from there a straight hole through the penetration point above the Strawn and the Atoka formations.

Q. So if the Examiner approves this bottomhole

target with this 110-foot radius for the Strawn, because the wellbore is vertical as it accesses the Atoka, the approval for the Strawn will be applicable to the Atoka?

A. That is correct, yes, sir.

Q. Let's turn to the Atoka opportunity. Is Exhibit 12 your summary of your justification for utilizing this wellbore to test for any Atoka gas?

A. Yes, sir.

Q. What have you concluded, Mr. Gill?

A. The conclusion from Exhibit 12, based on the economics of drilling a stand-alone well, versus the economics of simply taking the proposed bottomhole location 600 feet deeper in order to penetrate through the Atoka requires only a difference to casing point of approximately $33,000, and, should the well be completed in the Atoka, an additional $5000, for a total of $38,000 to test the idea that there is a possibility of Atoka production at this location.

And our conclusion in regard to that is that if we're allowed to penetrate the Atoka at this location, we will indeed test it for the potential of gas production at this location. However, we would not be willing to drill a well on a stand-alone basis to simply test the Atoka.

So we're requesting permission to drill deeper and test the Atoka in this wellbore.

Q. Directing your attention to Exhibit Number 13, is 13 a compilation of the various transmittals to me of your documentation and efforts to determine the ownership in the affected area that would be entitled to notice of this Application?

A. Yes, sir, it is.

Q. And how did you achieve this?

A. We got Mr. Christopher Corley, a landman, a certified landman in Texas, to do this land work. In addition to Mr. Corley, we have secured the records of mineral and leasehold owners in the west half of Section 8 from Harvey E. Yates Production Company, who also owns leases in that particular half section. And we've located all of the unleased mineral owners and the leasehold owners for purposes of notice.

Q. Has Tamarack received any objection from any of these parties?

A. No, sir, we have not. And I would note that Tamarack also owns some leases in the west half of Section 8 and will be participating with Harvey E. Yates Company in a similar type well to be drilled to the Atoka in that half-section, in the near future.

MR. KELLAHIN: Mr. Examiner, that concludes my examination of Mr. Palmer.

We move the introduction of his Exhibits 9

through 13. The final exhibit is my certificate of notification. It contains a sworn certificate attached to it as the notice for hearing, which included a copy of the administrative application, which was sent to all the parties identified by Mr. Gill.

Attached, then, are copies of the green cards that we received. Of all the parties on the list, there were three individuals that we have not yet received cards back from, and they're shown on the last page. We believe we have exhausted all reasonable opportunities to notify these people, and to the best of my knowledge there have been no objections.

So with your permission, we would ask the introduction of Exhibits 9 through 14.

EXAMINER ASHLEY: Exhibits 9 through 14 will be admitted as evidence at this time.

EXAMINATION

BY EXAMINER ASHLEY:

Q. Mr. Gill, you've applied with District for directional drilling approval?

A. That is correct, yes, sir.

Q. Have you received that yet?

A. We have not at this time. I think that they are withholding that pending your decision, is my understanding. Because I notified them that we were

applying for an unorthodox location.

Q. You have the east half dedicated for an Atoka gas well?

A. Yes, sir.

Q. Have all the interests been committed in that 320?

A. Not all of the interests. There are some interests that have not been committed, and it is likely that we will be back to force-pool those interests.

Q. Now, Exhibit 13, the notification list on the second page, the leaseholders, that's just in the northwest quarter of Section 8?

A. That's correct, these are the owners in the northwest corner of Section 8. Actually --

MR. KELLAHIN: Do you want to clarify that, Mr. Gill?

THE WITNESS: -- let me clarify that to say that I believe that includes the -- Exhibit 1, if you'll refer to Exhibit 1, and I do not recall the number of acres that that entails, but it goes down to that line, including the north half of the southwest quarter of Section 8. These are the same owners, and under all of that portion of Section 8.

And then the next page shows the ownership of the south half of the southwest quarter of Section 8. And I

apologize, that's difficult to read, but that was faxed to us, and then we copied it for this exhibit.

Q. (By Examiner Ashley) The south half of the southwest quarter?

A. Yes, sir. Shown below the line in the west half of Section 8 where it shows Troy McCold as the surface owner.

Q. Where does it show the surface owner?

A. Sir?

Q. Where does it show the surface owner?

A. Troy McCold is the surface owner in that tract --

Q. Oh, yeah, okay.

A. -- shown on the map.

EXAMINER ASHLEY: Mr. Kellahin, the Exhibit 14 list --

MR. KELLAHIN: Yes, sir?

EXAMINER ASHLEY: -- that you have in Exhibit A are all the lease holders and mineral interest owners affected by this?

MR. KELLAHIN: Yes, sir, and in addition to what Mr. Gill has shown you on Exhibit 13, the examining landman sent me some corrected addresses, which is shown on the page following Exhibit A, just before you get to the copies of the green cards.

EXAMINER ASHLEY: These are corrected interest

owners' addresses?

MR. KELLAHIN: As to their addresses, the original search showed Monument, New Mexico. We had him recheck all these addresses so we'd have the most current addresses, and it came up with three changes. We sent them, and all of these people, in fact, received their notice. To the best of our knowledge, these are all the parties in the west half that would be affected.

In the northeast quarter, the parties affected are common to the drill tract. So I think we've done all the notifications required.

Q. (By Examiner Ashley) Leasehold interests, then, are not common between the two different -- between the northeast quarter and the northwest quarter, correct?

A. That's correct.

Q. And then what about mineral interests? Did they vary as well?

MR. KELLAHIN: If they were unleased, then the unleased mineral owner in the west half got notice.

EXAMINER ASHLEY: Okay.

MR. KELLAHIN: In the northeast quarter, everybody's leased.

EXAMINER ASHLEY: Okay.

MR. KELLAHIN: In the southeast quarter there is a small percentage of parties that aren't leased. And if

we are incredibly lucky, and if this ever produces any Atoka gas, then we'll have to come back in and invite those missing parties an opportunity to share in production. But this is so risky, it didn't bear the expense of doing that yet. And for the Atoka, then, we've got everyone committed. I'm sorry, in the Strawn we've got everyone committed, and that's what we think this is going to produce.

EXAMINER ASHLEY: Okay, I have nothing further. Thank you.

THE WITNESS: Thank you, Mr. Ashley. Thank you, ma'am.

EXAMINER ASHLEY: There being nothing further, Case 12,378 will be taken under advisement.

(Thereupon, these proceedings were concluded at 10:30 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 12378, heard by me on 4-20, 2000.

Mark Ashley, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

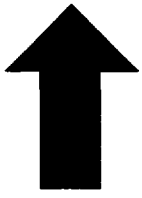
I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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 May 1st, 2000.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002



LTR

Job separation sheet

RMSH

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. 12378
ORDER NO. R-11367

APPLICATION OF TAMARACK PETROLEUM COMPANY, INC. FOR AN UNORTHODOX SUBSURFACE OIL AND GAS WELL LOCATION, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 20, 2000 at Santa Fe, New Mexico, before Examiner Mark W. Ashley.

NOW, on this ____day of May, 2000, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice having been given and the Division has jurisdiction of this cause and the subject matter.

(2) The applicant, Tamarack Petroleum Company, Inc. ("Tamarack"), proposes to re-enter the plugged and abandoned Anadarko Petroleum Corporation Hood "8" Well No. 1 **(API No. 30-025-30513)**, located 859 feet from the North line and 1981 feet from the East line (Unit B) of Section 8, Township 17 South, Range 38 East, NMPM, Lea County, New Mexico, and directionally drill to an approximate depth of 12,200 feet (TVD) at an unorthodox subsurface well location ~~to be~~ within 110 feet of a target point at the top of the Strawn formation that is 1179 feet from the North line and 2211 feet from the East line (Unit B) of Section 8. Further, the ~~(i)~~ E/2 of Section 8 is to be dedicated to this well in order to form a standard 320-acre stand-up gas spacing and proration unit for any and all formations from the top of the Wolfcamp formation to the base of the Atoka