STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

6 September 1989

EXAMINER HEARING

IN THE MATTER OF:

Application of Merrion Oil and Gas Corporation for a horizontal directional drilling pilot project, special operating rules therefor, non-standard oil proration unit, unorthodox oil well location, and simultaneous dedication, McKinley County, New Mexico.	CASE 9754

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:	Robert G. Stovall Attorney at Law Legal Counsel to the Division State Land Office Building Santa Fe, New Mexico
For Merrion Oil and Gas Corporation:	Tommy Roberts Attorney at Law P. O. Box 1020 Farmington, New Mexico 87499

I N D E X

E X H I B I T S

MR. STOGNER: We'll call next Case Number 9754.

MR. STOVALL: Application of Merrion Oil and Gas Corporation for a horizontal directional drilling pilot project, special operating rules therefor, nonstandard oil proration unit, unorthodox oil well location, and simultaneous dedication, McKinley County, New Mexico.

MR. STOGNER: Call for appearances.

MR. ROBERTS: Mr. Examiner, my name is Tommy Roberts. I'm an attorney in Farmington and I'm appearing on behalf of the applicant. I have one witness to be sworn.

MR. STOGNER; Are there any other appearances in this case?

Will the witness please stand and be sworn in?

(Witness sworn.)

STEVEN S. DUNN,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. ROBERTS:

Q Mr. Dunn, would you please state your name and your place of residence for the record?

A My name is Steven Dunn and I'm from Farmington, New Mexico.

Q What is your occupation?

A I'm Operations Manager for for Merrion Oil and Gas Corporation.

Q How long have you been employed in that capacity?

A About 13 years.

Q Are you familiar with the operations of Merrion Oil and Gas in the area which is the subject of this application?

A Yes, I am.

Q And have you testified on any prior occasion before the New Mexico Oil Conservation Division?

A Yes, I have.

Q And in what capacity did you testify?

A As a petroleum engineer.

Q Are you familiar with the application in this case today?

A Yes, I am.

MR. ROBERTS: Mr. Examiner, I

would tender Mr. Dunn as an expert in the field of petroleum engineering.

MR. STOGNER: Mr. Dunn is so qualified.

Q Mr. Dunn, would you briefly describe the purpose of this application?

A Merrion Oil and Gas is requesting approval from the Oil Conservation Division for a directional drilling project wherein we will drill a horizontal well in the Papers Wash Entrada Oil Pool.

We're also asking for a nonstandard oil spacing and proration unit of 80 acres and along with that we would like to have a special depth bracket allowable assigned.

We would also seek permission to drill our horizontal well in one of two ways, to either use an existing well or drill a new well.

Q Refer to what's been marked as Exhibit Number One and identify that exhibit.

A Exhibit Number One is an Entrada structure map of the Papers Wash Field.

Q And would you summarize the data illustrated on this exhibit which is pertinent to this application?

A The Exhibit One locates the Papers Wash

Entrada Field in Township 19 North, Range 5 West, McKinley County, New Mexico, and on the exhibit outlined in blue is the existing pool boundary.

Show on the exhibit is our proposed project area, which I have labeled as the target area, shown in red, and the target area is approximately 1250 feet wide, 2350 feet long, and is located in the proposed nonstandard proration unit outlined in brown.

That nonstandard proration unit will be comprised of two 40-acre tracts, namely the southwest quarter of the northwest quarter of Section 15 and the northwest quarter of the southwest quarter of the same section.

Q Mr. Dunn, on this exhibit is an area highlighted in a green marker. What is that area?

A The green marker outlines the -- the oil reservoir, the extents of the oil reservoir.

Q Now, are you familiar with the pool rules applicable to the Papers Wash Entrada Oil Pool?

A Yes, I am.

Q What do those rules provide for spacing, standard spacing?

A Standard spacing in the Papers Wash Entrada Pool is the statewide 40-acre spacing for each well.

Q Okay. Now why do you ask for 80-acre spacing?

A We're asking for 80 acres because that encompasses the location of our horizontal wellbore that we're proposing.

Q What do the pool rules provide for standard locations?

A Standard locations on 40 acres would be 330 feet from the external boundary of the drilling tract.

Q In what respect are the locations that you propose nonstandard?

A The horizontal wellbore will extend through the boundary between two 40-acre tracts, as well as approaching closer than 330 feet, and therefor is a non-standard bottom hole location.

Q Mr. Dunn, what's the significance of the area you've called the target area, which is designated in red or pink marker on the exhibit?

A The target area really has two purposes. Number One, it delineates where we want to be structurally in our -- in the oil pool. We're trying to stay in the top of the oil column.

And, two, it gives us a flexibility in the drilling of the horizontal well so that should be encounter operational problems we have some flexibility in

where the final wellbore would be.

Q Why do you request the option to either re-enter the existing well or to drill a new well?

A The primary reason -- well, it's actually two reasons.

One reason would be that we're not sure of the condition of the existing well and should it prove to be unsatisfactory, we would like the option of plugging that well and drilling a completely new well.

Secondly, there are some advantages and disadvantages to both that we are still evaluating and have not made a final decision. An example would be that if you drill a new well you can drill a larger hole and you're not restricted to a certain bit size. There are more tools available for the technological side of the drilling project.

Q Mr. Dunn, how will you ascertain that the bottom hole locations are within the boundaries of the area you've designated as the target area?

A As a standard part of drilling a directional hole you have to know where you are or else you cannot accomplish the objective, and so there is constant surveying going on. We run a measurement while drilling and even perhaps a wire logging tool that would establish the orientation and direction of the well and thus the

location of the target area.

Q What is the significance of the structure map?

A Well, the structure map is very significant in the Entrada reservoir because the structure controls the oil accumulation and, as you can see on Exhibit Number One, the oil is perched in a structural high and what I was trying to do is show, you know, where the oil area is and what the extent of the field is.

Q Exhibit One illustrates the location of various wells within the pool area. Do you intend to discuss the current status of those wells and productive histories of those wells at a later time?

A Yes, I do.

Q Then turn to what's been marked as Exhibit Number Two, Mr. Dunn, and identify that exhibit.

A Exhibit Number Two is an oil recovery and well summary page.

Q And summarize the data illustrated in this exhibit.

A In Section 1 under oil volume data I've indicated the -- that we've calculated original oil in place in the Papers Wash Entrada Pool of roughly 4-1/2 million barrels. To date, well, actually through July of this year, cumulative production was approximately 1-1/4

million barrels, or approximately 28 percent of the oil in place, and my point here is that there's still 3-1/4 million barrels, or 72 percent of the oil, remaining in the ground and if you'll notice, also, below the remaining oil in place, I have the calculated remaining primary recovery available to us using the current production means of 55,000 barrels, or basically one percent of incremental oil left to produce utilizing the means we're now using, and so there's a lot of oil left in the ground, and based on work that I've done, I know that reservoirs of this type generally recover more oil than this and we feel that we can expect to recover more oil if we can find a different method of getting that oil out of the ground and that's why we look to directional drilling among other options.

What I've shown in Section 2 is merely to summarize the possibilities, if we only recover 7 percent more of the oil in place we're talking about 300,000 barrels, so that's a lot of oil, and we feel like we can do better than that for certain. That's kind of a number that I picked as, I think, the reasonable minimum.

The bottom section of Exhibit Two, I've summarized the well data for all the wells in the field; their cumulative production; their location in the field and their current oil cut abilities, and also the present status of each well. The -- you'll notice that there is

only one producing well and that is the Navajo 15-4, which, referring back to Exhibit One, is located in the target area in Section 15.

The remaining wells are either shut-in due to uneconomic production or else they've been plugged.

Q Mr. Dunn, what is the -- specifically, what is the current status of the proposed re-entry well, the 15-2 Well?

A The 15-2 Well is presently shut in and temporarily abandoned.

Q Are you able to calculate current oil in place?

A Yes. Current oil in place is up in the oil volume data section --

Q Okay.

A -- under the title Remaining Oil in Place.

Q Okay.

A It's merely the original oil in place minus the cumulative production to date.

Q Okay. What is the basis for your 35 percent recovery factor and your 45 percent recovery factor as illustrated in the exhibit?

A Calculations that I've done using, for instance, the API equations, the water drive reservoirs

which kind of average water drive reservoirs worldwide, indicate that we should be recovering up in the 45 percent range of the oil in place and we're far under that, and that's -- that is not unusual in Entrada reservoirs in our experience, and we think that's not because the oil cannot be recovered, but it's because we have problems with water coning and reach a premature economic limit before we can get that oil out.

So those numbers are really just to kind of give a feel to the hearing examiner of what kinds of minimum numbers we think we might recover with a horizontal well.

Q Mr. Dunn, refer to Exhibit Number Three and identify the exhibit.

A Exhibit Number Three is a summary of reasons supporting horizontal drilling and was intended to kind of summarize the different considerations that we went through in determining whether we wanted to drill a horizontal well or not, and probably the best place to start would be to talk about the vertical well and the problems we have in Entrada reservoirs.

As I stated earlier, the Entrada reservoir is a water drive reservoir and our oil is a high viscosity oil and the water is fairly low viscosity. When you produce a vertical well you generally perforate the

very top of the oil sand and produce through those perforations in an effort to minimize the bottom water coming up but you're unable to get economic rates and avoid a water cone, so what essential happens is you produce the well and the water cones up, breaks through and before long you're faced with handling large volumes of water and relatively low volumes of oil.

This results in very expensive operating costs, low oil recovery due to the economics, and less efficient drainage.

When we look at the advantages of drilling a horizontal well, it just about counteracts every disadvantage of a vertical well. In essence, you have a long wellbore through the oil section, which allows you to pull very small pressure drops along a large area instead of a large pressure drop through a small perforation, and thereby you lessen the tendency to form a water cone.

And if successful, which we believe it would be, you have less produced water to handle. This lowers the operating costs and raises the oil producing rates and because you have a larger reservoir contact, we also have much better drainage.

Some of the disadvantages of the horizontal well that we had to consider were the higher drilling costs and the difficulty in repairing the well once you

drilled it and also it's very difficult to alter your completion; once you've drilled your well and set your casing, there's not a lot you can do to alter it after that point, so it requires a lot of preplanning to make sure you've got some flexibility.

Q Mr. Dunn, with respect to the wells in the pool which have been plugged and abandoned or temporarily shut in, to what extent has water coning been a problem?

A Well, in all cases, except, perhaps, the State 16-2 Well, which was -- produced very little oil and was plugged immediately, water coning has been the problem. The best well we have remaining produces at a 1 percent oil cut and to put that in some sort of realistic terms, it makes about 65 barrels of oil a day but it makes 6000 barrels of water a day.

Q And is the 15-4 Well?

A That's the Federal -- Navajo 15-4 Well.

Q Mr. Dunn, if this pilot project proves successful, what application does the technology have in other fields?

A Well, that's probably one aspect that excites us the most about the potential for this, this project, is that we -- we operate four other Entrada fields and if we're successful here, we see applications in those

fields, also, and it's possible that any future Entrada reservoirs that are discovered, you know, it may have applications initially, rather than drilling vertical wells to develop, people may come in and drill horizontally.

Q Refer to Exhibit Number Four and identify that exhibit.

A Exhibit Number Four is a net pay lease map of the Papers Wash Entrada Field.

Q Would you summarize the data illustrated in this exhibit?

A The exhibit, Exhibit Number Four, shows the location of existing wells. It shows the various leases upon which there exists net pay and also the -- Merrion Oil and Gas interest in those leases. To summarize, there are basically four leases involved, New Mexico 4953, which is larger than just the northwest quarter of Section 15, but that's the portion that is in the field, is a Federal lease where Merrion Oil and Gas owns approximately 72 percent working interest there and 100 percent under one well.

In the southwest quarter of Section 15 we have a Navajo allotted lease where Merrion Oil and Gas owns an 86, roughly, 86 percent working interest, and is operator.

In the southeast quarter of Section 16

is another Navajo allotted lease, NOOC 5370, where Merrion Oil and Gas also has an 86 percent working interest.

And finally there's the State Lease, V-1621, which is the northeast quarter of Section 16. Merrion Oil and Gas has 100 percent working interest there, and we are the operator upon all those leases.

Q In those situations where Merrion does not own 100 percent of the working interest, who owns the balance?

A The balance is owned by one entity, a partnership called Pitco.

Q And what relationship does Merrion Oil and Gas have with Pitco?

A Merrion Oil and Gas is the operator of these leases and we have an operating agreement in place between us that spells out how we're to operate.

Q Has Pitco been contacted with respect to this application?

A Pitco has been contacted with respect to the project, what we intend to do here in the field, and I did not contact them specifically about this, this case.

Q Okay. And can you relate what their reaction is to the concept?

A They're evaluating what we've told them and have not made a decision as to how they would like to

participate, or rather, they would not like to participate; however, the operating agreement spells out how that will -- how that will work should they decide to go nonconsent.

Q Mr. Dunn, now refer to what's been marked as Exhibit Number Five and identify that exhibit.

A Exhibit Number Five is a summary page of what we propose to do in order to protect correlative rights involved with this project.

Q And briefly describe what you propose.

A Our methodology basically is comprised of communitizing the leases, or the interests, in the field through a cooperative agreement which would be subject to BLM approval. Such a cooperative agreement has been approved in principal by the BLM and would include a description of the project, a plan of development and operation, and who will operate the project and how, parties to the agreement, also a reason for the project and the purpose, and thus a purpose for the project.

Also included as part of this cooperative agreement must be a detailed allocation schedule for production and revenues to the tracts and various interest owners.

As part of the allocation factor involved in the cooperative agreement, Merrion is proposing a dual factor participation formula, which will allocate

volumes to both remaining primary reserves in place and also the secondary production that would come as a result of drilling the horizontal well, and so it's a dual allocation formula. The primary factor credits future production to owners with remaining reserves at the time of project initiation, and so this -- the net effect of it is that it guarantees them their share of future revenue from these reserves without regard to which well might be producing in the field at any time, whether it be the horizontal wellbore or perhaps even the existing well.

The secondary factor, then, will be based upon the net pay under each lease and the proportionate share that each interest owner owns of that -- of that lease, and that will determine how much of the project cost each interest owner would pay and how much future revenue they would receive, and credit for the primary reserves would be made prior to an allocation for secondary production.

Q I believe you indicated that the cooperative agreement had been accepted in principle by the BLM. Specifically, what is the current status of that cooperative agreement as it runs through the jurisdictional agency?

A We have presently scheduled a meeting on Friday of this week where we're going to meet with the BLM

and we're going to finalize the details of that cooperative agreement and, hopefully, receive approval.

Q And the allocation formula which you've highlighted here is specifically detailed in that proposal?

A That is correct.

Q Okay. I want to give you a specific example and have you explain how this formula would deal with the equities, Mr. Dunn.

For example, let's assume that there was an interest owner, an overriding royalty interest owner under a lease on which the 15-4 Well is located. What impact would the allocation formula have on that interest owner?

A The net impact would be to guarantee them that they would receive their revenue from the remaining reserves under that 15-4, regardless of whether we continue to produce that well or not, and without regard to which well was producing. So they -- they would be guaranteed their -- their share of the revenue, future revenue, remaining in that well.

Q Can you describe the process or the mechanism by which the remaining reserves will be allocated to existing wells?

A Basically it would involve decline curve analysis of the remaining reserves in all the wells in the

field and then simply scheduling out those remaining reserves over time or per unit of time, and that would be the share of production each month or each period of time that will finally be agreed upon that will be allocated to the interest owners under that well.

Q Mr. Dunn, what depth bracket allowable has been established for wells drilled in the Papers Wash Entrada Oil Pool?

A Presently the depth bracket allowable is 750 barrels of oil per day for a 40-acre proration unit here.

Q Do you have a recommendation for a depth bracket allowable for the 80-acre nonproration unit, which is sought by the application?

A We would recommend doubling that allowable to 1500 barrels per day.

Q And what is the basis for that recommendation?

A Simply the fact that we're requesting an 80-acre nonstandard proration unit, which is two standard 40-acre proration units and simply multiplying two times the depth bracket allowable presently in effect.

Q And do you also seek a simultaneous dedication of the proposed 80-acre nonstandard proration unit?

A Yes, we do.

Q And what is the basis for that request?

A The basic reason for that request is to allow us the flexibility, should we desire to do so, to produce both the horizontal well and the existing wells on that lease, or in that proration unit.

Q Mr. Dunn, would the granting of this application result in the prevention of waste and the protection of correlative rights and be in the best interest of conservation?

A Yes, it would.

Q Are you familiar with the notice requirements set forth in Rule 1207 of the rules and regulations of the Oil Conservation Division?

A Yes, I am.

Q And in your opinion have you satisfied those notice requirements?

A Yes, we have.

Q How have you satisfied those requirements?

A As operator of the project area in addition to all offsetting leases, no further notification is necessary.

Q Mr. Dunn, were Exhibits One through Five either prepared by you or at your direction and under your

supervision?

A Yes, they were.

MR. ROBERTS: Mr. Examiner, I'd move admission of Exhibits One through Five.

MR. STOGNER: Where is Exhibit Number Five?

Oh, okay, Exhibits One through Five will be admitted into evidence, and do you have the notification requirements with you?

MR. STOVALL: No notification is necessary; they notified themselves.

MR. STOGNER: Okay. I was under the impression that you had gotten hold of the BLM and the Navajo --

A No. Well, we've gotten hold of the BLM because that's -- they have to be intimately involved in the approvals and procedures that we're going through here for the cooperative agreement. In other words, we have to be very specific as to what our purpose is for our cooperative agreement and in this case it's to drill this horizontal well, which, hopefully, will drain a significant amount of remaining reserves.

Q Okay.

A But to my knowledge we have not notified formally the BIA.

CROSS EXAMINATION

BY MR. STOGNER:

Q Okay. Now, as far as this cooperative agreement goes, what is the -- what lease are we talking about being included in this and who will be involved?

A Okay. Exhibit Number Four is a good summary of the four leases that would be involved and the entities that would be involved would be the working interest owners. It's a working interest owner agreement, which is basically Merrion Oil and Gas Corporation and Pitco, should Pitco decide to participate.

As far as those affected, that would also include the royalty owners and the overriding royalty owners.

Q And it will have to be approved by the BLM and the State Land Office?

A It will have to be approved by the BLM and I would assume that the State would have to have some approval in this, but I would point out that the State lease will be participating in this project even though there are no producable wells even on that lease, just by virtue of having net pay existing on the lease. So it's definitely to the State's benefit.

Q Okay, part of your dual factor participation formula included the primary factor and in looking

at Exhibit Number Four, there was a well in the southeast quarter or -- anyway, down there in 16 in the extreme southeastern corner of that State lease. Did that have any primary production?

A It has approximately 164 barrels of oil produced. It's summarized in Exhibit Number Two. That well was basically uneconomic and plugged shortly after completion.

Q And as I understood it, Friday you will be going into the BLM office and, hopefully, obtain a co-operative agreement at that time?

A That is correct.

Q Okay.

A That's our hope.

Q Okay, and I would like to put on the record now that we be supplied a copy of that particular cooperative agreement so that we'll make that a part of the case file.

A Certainly.

Q Okay.

MR. STOVALL: One questions, if I may, Mr. Dunn. Is the BLM the appropriate jurisdictional agency for the allotted leases or does the BIA have jurisdiction to approve the cooperative agreement on the allotted leases, do you know?

A Well, in normal circumstances the BIA is the jurisdictional agency representing the allotted leases, is my understanding, but the BLM controls the operational side and so they would be the ones that have to approved this cooperative agreement.

Q Now we are talking about an 80-acre non-standard proration unit and in having a proration unit that takes in two separate interests, then you usually have a cooperative agreement -- I mean a unitization agreement. This cooperative agreement would override such an agreement on a proration unit?

A That would be my understanding. The cooperative agreement is a form of a communitization agreement. It pools the interests. But instead of restricting itself merely to that proration unit, it extends itself to the reservoir, to the limits of the reservoir.

Q Now what is the present allocation for a 40-acre proration unit in this depth bracket allowable?

A 750 barrels per day, and that -- that was a special depth bracket allowable that was awarded after notice of hearing.

Q And do you have the particular order number which did that? I take it that's a no?

MR. ROBERTS: Just a second, I'm looking.

MR. STOGNER: Oh.

A The Order No. R-5419.

Q 5419. I'll take administrative notice of Order No. R-5419.

In looking at your map on Exhibit Number Four, the 15-4 Well, I assume, is in the most advantageous position in this particular reservoir.

A That's correct.

Q And am I to assume that this has the best production record at this point?

A Yes, it does. If you'll look at Exhibit Two, lay it beside Exhibit Four, you'll see that it has produced the bulk of the oil that has been produced from the reservoir.

Q What is its present production rate?

A Approximately 65 barrels of oil a day and around 6000 barrels of water a day.

Q The nature of these, do you see water production whenever you start producing operations or does the water come in later?

A Normally you might get a short period of 100 percent oil production but it's very short lived. It might be as little as 24 hours; sometimes it might last for several weeks, but it does not take very long for that water to break through. There's just very little practical

way to prevent it.

One option that I had looked at was just keeping the rate low enough to keep that pressure drawdown to a minimum and we calculated rates less than 10 barrels per day in order to do that, which is uneconomic. So we just don't believe there's any practical way to avoid handling the water.

Q Okay, let's go to Exhibit Number Three and then talk specifically about how these wells will be drilled and which of the two options that Merrion will try first, re-entry of the old well, the NO. 15-2, is that your proposed plan at this time?

A We believe that that will be the option that we will use. Several reasons for that, one being that it's cheaper to use an existing wellbore to plug back and sidetrack. You've already got the wellbore in place down to the point at which you're going to deviate.

Q Okay, let's talk about that a little bit. At what point will you plug back to, approximately?

A We're -- we're looking at drilling this well with a medium radius of curvature technique and that basically means that we'll be approximately 350 feet, or so, away from the wellbore when we reach horizontal and your about a similar distance vertical in the existing well- bore where you need to kick off and that's a minimum

distance. Generally when they -- when you talk about drilling a horizontal well, we also throw in a safety factor. They call it a tangent section and if you do that, that moves you up a little higher, but I would say you're talking maybe 500 feet above the Entrada top at the most, which is in the Morrison formation.

Q So if I look at Number Three, which, of course, is an artist's concept --

A Yes, that's right.

Q -- but I'm looking at about 500 foot from your wellbore to the top of the crest of that particular dome shape lens?

A The way I would explain it is from the point at which we enter the Entrada reservoir, which is where we should be, essentially, horizontal, to the point at which we first start deviating from vertical, would be around 450 to 500 feet, something like that.

Q Okay, I'm talking about the horizontal portion --

A Okay.

Q -- or is this going to be horizontal or are we going to have an actual dip?

A It's going to be essentially horizontal. What we're proposing to do is parallel the oil/water contact, which is tilted because it's a waterdrive reservoir.

Q What is that tilt angle?

A Approximately one half of a degree, so we're talking about 89-1/2 degree, which is essentially horizontal.

Q Okay. Now, you're planning to go to the roots of this particular lens.

A That's correct.

Q Or how far down from the base of the Morrison, I guess, on one of these lenses do you plan to be?

A Okay, once we enter the top of the Entrada we want to stay as close to the top of the Entrada sandstone itself as possible without re-entering the formation above, which is possible. You can actually deflect up into that formation.

What we'll do is establish a window, so to speak, a thickness, of approximately 10 feet, and we're going to try to stay in that 10-foot -- the top 10 foot of the Entrada sand while we're drilling the horizontal well.

Q Okay. For the record sake, you're talking about a medium radius of curvature. What is a medium radius of curvature?

A It -- I don't know the exact definition but you're talking in the range of, say, 10 to 14 degrees per foot 100 foot of deflection, or change of angle; some-

where in that range, versus short radius of curvature, where you're talking about degrees per foot, not 100 feet, and --

Q Okay.

A -- long radius of curvature is more in the range of degrees per, you know, 1000 feet, or something like that, or 1 or 2 degrees per 100 feet, something -- something in the low, low deflection range.

Q Will the horizontal portion be cased off or what is the proposed completion method?

A Our proposal right now, and this hasn't been finalized, this is really a critical part of the well, but what we propose to do is to run a slotted liner with an open hole packer placed at the top of that liner and then casing back through the curved portion of the wellbore, back into our existing casing if it's the sidetrack from the existing well, and we will cement from the open hole packer back up into the existing casing.

The horizontal portion would be un-cemented. So it would be essentially an open hole completion.

Q Let's talk about the geology in this area just a little bit. Are you familiar -- are you that familiar with the geology in this area?

A Ask me the question.

Q Well, I want you to explain a little bit what the Entrada in this particular area is, what kind of a structure do we have, and --

A Okay, I can tell you the Entrada sand itself is an Eolian dune sand deposit. It's Jurassic in age it basically covered the entire San Juan Basin during the time it was laid down, so we're talking about a huge, windblown dune deposit and what we have in these fields, really, is remnants of those dune tops that have been preserved. They were not eroded by subsequent deposition of other formations or just subsequent erosional mechanics, and so as oil migrated through the area it was trapped in the tops of these dunes and that's really what you see. The structure is the key trapping mechanism in there.

Q Where is the origin of this oil?

A I'd have to defer that to our geologist.

Q But it's there none the same (sic).

A It's there and it's hard to find.

Q Okay.

MR. STOGNER: I have no further questions of this witness. Are there any other questions of Mr. Dunn?

Mr. Chavez?

QUESTIONS BY MR. CHAVEZ:

Q For the record, Frank Chavez, District Supervisor of Aztec.

Mr. Dunn, where -- would the entry point of the Entrada and the end of that horizontal wellbore in the Entrada be at the standard locations within that 80-acre proration unit?

A No, they would not.

Q What -- what do you proposed would be the beginning and ending points?

A Well, I don't have a number for you. I'd have to sit here and scale it off on the map, but in the Exhibit Number One, our main consideration, let me tell you this, was to try to stay high on the structure, and that's what we're trying to do here, and we also have limits as to how far we want to go down the Entrada dune. If we go too far, we could actually drill back down into the oil/water contact, so we don't want to do that. We have to cut if off at some point and we've tried to maximize it, maximize the length of the horizontal section and still remain in the oil column, and I think, I estimated we'd be approximately 100 feet away from the leaseline in the re-entry, the plugback of the 15-2 sidetrack proposal, somewhere in that range.

MR. STOVALL: Mr. Chavez, let me interrupt you for a second and -- and ask Mr. Dunn a

question along those lines, maybe clarify.

At this time you have two alternatives which you're considering, re-entry of the 15-2 or a new well, is that not correct?

A That's correct.

MR. STOVALL: And you have not yet decided which you wish to do, is that also correct?

A That is correct.

MR. STOVALL: Prior to making that decision do you intend to do any more detailed I'll call it schematic, and that may be a lawyer's term and not an engineer's term, of description of actual well, where you're going to deviate the hole, at what depth, at what location, and a true horizontal and vertical plan for the drilling of whichever well you elect to drill?

A Absolutely, that's -- that's critical. That will be detailed out to the nth degree.

MR. STOVALL: I believe, and I believe it would probably answer some of Mr. Chavez' questions if -- would you be willing to submit that to the Division at such time as you actually submit your APD and request approval for a specific well?

A Certainly.

MR. STOVALL: I think that would be an integral part of understanding this applica-

tion and exactly what you intend to do, to approve the -- both the unorthodox location and the producing well -- wellbore.

Does that help, Frank, as far as you're concerned? With some of the questions you've got, I think it would be more specific as far as that.

MR. CHAVEZ: Are we on the record?

MR. STOVALL: We're on the record.

MR. CHAVEZ: My question would be adequate enough to approve a nonstandard bottom hole location or whether that would have to be approved subsequent, at another hearing, or with another administrative approval.

MR. STOGNER: Well, if I might, let me -- because the way this thing -- we are treating it as a pilot project and then the target area, special rules therefore, and target area that we have requested today, which I am -- most of the operators, if not all of them, request at this time because it gives them a little bit of a deviation. I've been on the other side of the bracket on these things and I know when you get down there you want flexibility to move either way. So a target area, which they have asked for today, is usually the --

broad enough of a spectrum in which we can go out any portion, whether it be the end point, the beginning point, or as far as that goes, anything that may curve around, that is the target area in which they are to stay in at all times.

A I might say that the net effect of this thing would be -- because the cooperative agreement protects everyone's rights and interests in this thing, that even if you did leave the target area, there would be effect on correlative rights.

MR. STOGNER: Any other questions of this witness?

MR. STOVALL: That target area would be included within the schematic for the particular wellbore that you -- you finally elect to do, is that correct?

A That's correct.

MR. STOVALL: I think, my suggestion, Mr. Examiner, is that in drafting the order should we approve this project, we may wish to keep it open to supplement the order to approve the particular wellbore and specific target area rather the whole project, to satisfy Mr. Chavez' concerns, which I think are valid, so we may in some manner wish to do something to leave the record open, so when we -- you make your final decision and sub-

mit that, that we give you approval for the specific plan that you have for whichever well you may elect to drill.

MR. STOGNER: Any other questions of this witness?

If not, he may be excused.

Anything further in Case Number 9754?

This case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6754, heard by me on 6 September 1957.

Michael E. Stogner, Examiner
Oil Conservation Division