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. 11,615
APPLICATION OF THORNTON OPERATING CORPORATION FOR POOL CONTRACTION, POOL CREATION, SPECIAL POOL RULES, NONSTANDARD SPACING OR PRORATION UNIT, DIRECTIONAL DRILLING AND AN UNORTHODOX WELL LOCATION, CHAVES COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

October 3rd, 1996

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner, on Thursday, October 3rd, 1996, 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

October 3rd, 1996
Examiner Hearing
CASE NO. 11,615

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ROBERT L. THORNTON (Engineer, geologist; President, Thornton Operating Corporation)	
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A P P E A R A N C E S

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* * *

WHEREUPON, the following proceedings were had at 8:57 a.m.:

EXAMINER STOGNER: At this time I'll call Case Number 11,615.

MR. CARROLL: Application of Thornton Operating Corporation for pool contraction, pool creation, special pool rules, nonstandard spacing or proration unit, directional drilling and an unorthodox well location, Chaves County, New Mexico.

EXAMINER STOGNER: At this time I'll call for appearances.

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

We represent Thornton Operating Corporation in this matter, and I have one witness.

EXAMINER STOGNER: Are there any other appearances in this matter?

Are we missing anything in this Application, Mr. Carr?

MR. CARR: I couldn't think of anything else to throw in there, Mr. Stogner.

EXAMINER STOGNER: Will the witness please stand and be sworn at this time?

(Thereupon, the witness was sworn.)

EXAMINER STOGNER: Mr. Carr?

MR. CARR: Thank you, Mr. Stogner.

ROBERT L. THORNTON,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Robert L. Thornton, T-h-o-r-n-t-o-n.

Q. Mr. Thornton, where do you reside?

A. Midland, Texas.

Q. And by whom are you employed?

A. Thornton Operating Corporation.

Q. And what is your position with Thornton Operating?

A. I'm the president.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. Yes, I have.

Q. And how were you qualified as an expert at the time of that prior testimony?

A. The other times I've been qualified as an expert geologist.

Q. Having been qualified as a geologist in the past, do you also have a degree in petroleum engineering?

A. Yes, sir, I do.

Q. And have you practiced petroleum engineering since you received that degree?

A. Yes, I have.

Q. When and where did you receive your engineering degree?

A. I have a BS in petroleum engineering from the University of Texas. I received it in August of 1978.

Q. Are you familiar with the Application filed in this case?

A. Yes, I am.

Q. Have you conducted a study of the subject area?

A. Yes, I have.

Q. And are you prepared to present the results of that study to Mr. Stogner today?

A. Yes, sir.

MR. CARR: Mr. Stogner, at this time we tender Mr. Thornton as an expert witness in petroleum engineering.

EXAMINER STOGNER: Mr. Thornton is so qualified.

Q. (By Mr. Carr) Mr. Thornton, we have a lot of component parts to this Application. I think the best way to approach it would be if you would refer to what has been marked Exhibit 1, and using this exhibit, could you review for Mr. Stogner what it is we seek in this case?

A. Okay, we seek contraction of the South Lone Wolf

Devonian Pool to exclude the northwest quarter of Section 26 and the northeast quarter of Section 27 of 13 South, Range 29 East.

Q. If we go -- Mr. Stogner, if you would also take out, perhaps, at this time Exhibit Number 10, the last exhibit in this packet, this is a plat which shows the current boundary of the South Lone Wolf-Devonian Pool, and what acreage on this Exhibit 10, Mr. Thornton, are you seeking to delete from the pool?

A. Section -- The easternmost acreage consisting of the northwest corner of Section 26 and the northeast quarter of Section 27.

Q. What else are you seeking?

A. We're seeking the creation of a new pool for the production of oil from the Devonian formation underlying the southwest of the southwest of Section 23 and the northwest of the northwest of Section 26 of Township 13 South, 29 East, that being the acreage within -- on Exhibit 1, within the boundaries of the proposed -- what it says is the proposed proration unit, also would be within the proposed pool.

Q. Okay. So you're seeking the creation now of an 80-acre pool, and this is also in the Devonian formation --

A. Yes --

Q. -- is that right?

A. -- we're seeking promulgation of special pool rules and regulations for the new pool, including 80-acre spacing and proration units and well-location requirements being within 150 feet of the center of the governmental quarter-quarter section.

Q. Now --

A. In addition, we're seeking a nonstandard oil proration unit comprised of the southwest of the southwest of Section 23 and northwest of the northwest of Section 26, which would be the 80-acres comprising the pool.

Q. What's your -- in essence -- What, in essence, you're trying to do is break out 80 acres from the South Lone Wolf-Devonian Pool and create a new 80-acre pool that crosses this section line; is that not in summary what you're trying to do?

A. That's correct.

Q. And as to the development of this pool, how do you propose to go about that?

A. We plan to re-enter the currently existing well, which was drilled by Manzano, interchangeably referred to as the McClellan Federal Number 1 well and the West King Camp Unit Number 1 well, re-enter that well from its surface location, which -- unorthodox surface location, which was approved earlier, 182 feet from the north line and 507 feet from the west line of Section 26, and drill a

diagonal -- directionally drill to a bottomhole location within a hundred feet of a point 148 feet from the south line and 177 feet from the west line of Section 23.

Q. Now, if we look at Exhibit Number 1, what you're doing is going -- proposing to develop this 80-acre reservoir with -- by re-entering the existing well in the northwest-northwest of 26, and ultimately directionally drilling and bottoming that, north and --

A. -- west.

Q. -- west of the current surface location?

A. That's correct --

Q. All right.

A. -- where it shows -- at the end of the arrow that says "proposed bottomhole location".

Q. Now, to put this in some sort of context, I think it would be helpful if you could now review the background for this particular Application.

A. Okay, this project was put together by Manzano Energy Corporation, and they put together a 160-acre federal unit designated the NMNM-92,016-X by the Bureau of Land Management, which consisted of the south half of the southwest quarter of Section 23 and the north half of the northwest corner of Section 26, being that 160-acre square that straddles the boundary and is labeled as leases NM-62,195 and NM-50,415 on the map.

They got the formation -- you know, approval of the formation of that unit from the federal government, and they -- from -- on the basis of a 3-D seismic structural high that appeared to be on the lease line between those two sections, Section 23 and Section 26.

Q. And that structural high is indicated also on Exhibit Number 1; is that right?

A. That's correct.

Q. And Manzano was the operator of that original unit?

A. That's correct. Manzano Energy Corporation was the operator of that unit.

Q. Was the location, surface location for the well on this unit, approved by the Oil Conservation Division?

A. Yes, the OCD approved the unorthodox well location for a Devonian test on this unit by Order R-10,295, which was Case 11,166, and Manzano subsequently drilled the McClellan Federal Number 1 well, subsequently being re-named the West King Camp unit.

Q. And what did they encounter when they drilled that well?

A. They drilled a 9862-foot Devonian test during September of 1995. They encountered a permeable -- porous and permeable Devonian zone. It tested at 90-percent oil and 10-percent water in the drill stem test. It appeared

to be a commercial well. But unfortunately the results were not -- the results during completion were not what was to be expected from the drill stem test results.

They tried several times to obtain the production that was anticipated from the drill stem test by various acid jobs. When they acidized it, finally it went on a vacuum and it started producing. They could not draw it below 600 feet below the surface as fast as they took fluid out of it. So it obtained extremely high permeability finally, reached the high permeability, but by the time they reached that, they had evidently acidized down into the water zone and were producing 96-percent water.

Q. Is it your opinion there were completion problems that, in fact, probably ruined the well?

A. Yes, and we don't know why, but there were some completion problems.

Q. All right. What then happened with the well?

A. Well, they subsequently attempted -- They subsequently squeezed the well, they shut off permeability completely, then they went back in and perforated it some more and put on a very light acid job this time.

Finally, by May of 1996, they had determined that they weren't going to get any better than eight barrels a day of -- they were getting about eight barrels a day of oil and about 80 barrels a day of water. Due to the lack

of water disposal facilities right there on-site, they decided that the well was noncommercial. They shut the well in with -- and mentioned to the BLM their intentions to plug and abandon it.

The BLM, after finding out these intentions by a letter dated July 3rd, 1996, they terminated the unit effective April 30th, 1996.

Q. What is the status of the leases now that the unit has been terminated by the BLM?

A. Lease Number NM-62,195, being the south half of the southwest quarter of 23, was given an extension till April 30th, 1998, as was the lease down in NM-50,415, being the north half of the northwest quarter of Section 26, was also given an extension of its primary term to that period of time. But by virtue of the fact that 40 acres was in this producing well, it was given an HBP status, or held-by-production status. So the lease in the NM-50,415 is currently held by production, whereas 62,195 is scheduled for expiration 1998.

Q. Now, Mr. Thornton, what interest does Thornton Operating Corporation have in this property?

A. Thornton Operating Corporation, along with several other entities, acquired the interest of Manzano and Marathon in these tracts, NM-62,195 and NM-50,415. The northern lease was a farmout from McClellan -- I mean from

Marathon, and the southern lease was a farmout from McClellan Oil Corporation out of Roswell, and we acquired the interests equally divided between those two leases, you know, for all interest owners.

Q. And have you discussed plans to return this acreage, or again attempt to establish commercial production from this acreage? Have you discussed those plans with the BLM?

A. Yes, I have --

Q. And what has --

A. -- twice.

Q. -- the BLM advised you?

A. The BLM advised me that it would be very awkward for them to extend the unit, because when they form a unit they have a -- you know, they have a geological picture that they're attempting to -- They're forming the unit to attempt to -- justifying the formation of the unit in the public interest.

And once that idea has been tested, which they believe it was tested in the Manzano well, they cannot -- they feel it's very awkward for them, they have no basis to extend the unit, once that idea has already been tested.

Q. And what did they tell you that you should do if you were going to go forward with your plans to develop the unit?

A. They recommended that we take the matter to the OCD, bring it here, in order to attempt to get a larger spacing unit approved and then communitize the two tracts in order to develop this.

Q. And it was in response to that BLM directive that we developed the Application which we have brought to the Division today; is that right?

A. That's correct.

Q. Does Thornton Exhibit Number 1 indicate the ownership in the area of the proposed pool?

A. Thornton Exhibit Number 1 and also Number 10. There's -- the -- Number 10 is over a larger area and includes the entire pool, and any changes to Number 10 since January of this year are all as a result of our purchasing -- you know, our agreements with Marathon and McClellan, and are reflected on Unit [*sic*] Number 1.

Q. Is Exhibit Number 2 an affidavit confirming that notice of this Application has been provided to all affected operators in accordance with OCD rules?

A. That's correct, all operators within the pool -- there were no unleased mineral owners within the pool -- and then the operators of the Devonian wells within a mile of the pool, through an oversight, were not notified but have granted waiver notice.

Q. But you have notified -- either given notice of

this Application or received a waiver from all operators in the proposed new pool? That's right?

A. Yes.

Q. And also from all operators in the original South Lone Wolf Pool?

A. That's correct.

Q. And you've either given notice or obtained waivers from all operators of Devonian wells within a mile?

A. That's correct.

Q. All right. Let's take a look at what has been marked as Exhibit Number 3. Would you identify this, please?

A. Exhibit Number 3 is a color geologic map of the Mississippian lime formation in the area. The -- It shows the existence of the black dot in the central southeast area, is the -- By the way, these are the section lines, and we failed to label the section lines, but they're the same as shown on Exhibit 1, which has the same geology, not in color on that, contour lines. But the -- showing the existence of the Manzano well, which of course is now operated by Thornton Operating Corporation, the existence of the proposed bottomhole location, and the contour lines showing closure of the Mississippian lime in this structure, separate and distinct.

Q. Why was the Mississippian lime utilized?

A. In this particular area, it's been our experience that the major differences in structure are due to variations in thickness of the Penn clastics directly overlaying the Mississippian lime, and that they're only slight regional -- there's regional trends in the thickness, changes in the thickness between the Mississippian and the Devonian, but from proration unit to proration unit we can assume they're constant in the purpose of mapping.

The Mississippian lime is a much stronger reflector, being caused by the difference in acoustic impedance between the Pennsylvanian clastics, which are much slower in velocity, and the hard, dense Mississippian lime, whereas the acoustic impedance between the Mississippian lime and Woodford shale versus the porous dolomite below it is very minor. Therefore the picks on the Devonian are very hard to see and can be overwhelmed by noise, whereas the picks in the Mississippian are very strong.

Since we have the luxury of having an area where the top of the Mississippian and the top of the Devonian are fairly constant, we can map the Mississippian and find the Devonian structure.

Q. Let's go to Exhibit Number 4. Can you identify that, please?

A. Exhibit Number 4 is a color seismic line running east-west through the project, being through the well that -- the green lines on each of them -- Each of these are the same. The one on the left and the one on the right are the same seismic line, the difference being that the one on the left is in strictly black and white wiggle-trace; the one on the right shows peaks with blue and troughs with red, and then the white represents where it's crossing over and it's neither a peak nor a trough, and so you get a three-color diagram.

But basically they're the same line, they show -- The green line is the assumed bottomhole location of this well, and it shows that -- The Mississippian formation is the one that is highlighted in blue, the Mississippian reflector is the one that's highlighted in blue on the left side. This goes directly east-west.

And the significance is, it shows closure to the west from the South Lone -- other wells in the South Lone Wolf -- currently in the South Lone Wolf field.

Q. All right. Let's go now to Exhibit Number 5. What is this?

A. Exhibit Number 5 is similar, although it's drawn on a different computer and it looks somewhat different. It's a similar seismic line from the survey. It's a line that runs northwest-southeast. It runs through the

existing well, as indicated by the green line, and the Mississippian, again, is marked down around 1.15 to 1.2 seconds.

By the -- Well, I can't tell the color exactly, but you can see the green line through there, I think it is, that marks the top of the Mississippian.

And you can -- the proposed -- The benefit of this is, it runs through our proposed bottomhole location, which would be exactly two traces to the left, or the northwest, to the left on this display, of the vertical green line.

And you can see in the Mississippian that the Mississippian appears to get higher, slightly higher, directly to the west, two traces to the west of the vertical green line.

Q. About how many feet of structure do you gain by moving to the proposed bottomhole location?

A. We figure it's about 15 feet.

Q. And is that an significant increase in structure in a reservoir of this nature?

A. In a reservoir of this nature, it's extremely significant.

Q. Let's go to Exhibit Number 6. Can you explain what this is and what it's designed to show?

A. Exhibit Number 6 is a time slice or a series of

time slices through the data.

What a time slice is, it's a picture of the area in question, in map view, and the 3-D seismic survey consists of a grid of seismic points.

And what we're looking at here is that -- For instance, in the first slice at 1160 -- that means at 1160 milliseconds -- on that map grid, what -- Are we looking at a peak, represented by blue, or a trough, represented by yellow, on the seismic data for each of those specific points in that grid or matrix?

The significance of this is, the Mississippian would be a blue reflector on this particular graph, being a peak, the top of the Mississippian. And the top of the Mississippian enters the picture on our wellbore at 1162 --

Q. And the wellbore is shown in the center of this --

A. Yes, the wellbore is shown --

Q. -- slice?

A. -- as is the projected bottomhole location, the proposed bottomhole location, which is just northwest of the block dot, the black dot being the current well bottomhole location and the white dot being the projected bottomhole location.

Q. All right. We go -- It appears the Mississippian on time slice 1162, correct?

A. Yes, it's just barely, in 1162 -- You can see it more plainly in 1164. And what that is is, it's showing the broadening of this pool as we go through time. In 1164 and 1166 the blue area is getting larger, 1168 it's getting larger, 1170 it's getting larger.

By the time you get to 1172 it's gotten large, and that's the Mississippian reflector. You can see that it's -- a blue reflector is coming in from the west, and it makes contact with the blue reflector in the center, meaning that we have lost closure at that point in time.

What that means is that from the top at 1162, our limit of closure would be 1172. That would be 10 milliseconds. Ten milliseconds would be equivalent to around 70 feet in this particular area.

Since we know from the drill stem test, the fact that we got water in it, that the oil-water contact is less than 70 feet, we know that we have its own closure within this interval.

Q. Let's go to Exhibit Number 7, the drill stem test information.

A. Exhibit Number 7 is a drill stem test run on the well drilled by Manzano prior to setting casing in that well, by Baker Oil Tools.

This test, the first page of this test, shows that they recovered 40.9 barrels of oil and five barrels of

water, which is a 490-barrel-a-day rate.

The pattern on the test of increasing flowing pressures and then an almost instantaneous buildup to the final reservoir pressure -- it's so rapid you can't discern it off of this test, the time that it took to do it -- shows a reservoir, extremely high permeability, with extremely high formation damage. And yet even with the formation damage, it produced at the rate of 500 barrels of oil a day.

It shows it recovered some water, in the sample we recovered some water. The water that was recovered, the chlorides in it indicated that it was formation water.

The mud pit sample was 85,000 parts per million, the sample was 20,000 parts per million, which is nearly -- well, it's about half as salty as seawater. There's no other place that that 20,000 parts per million could have come from except from the formation. So it shows that we're fairly close to the oil-water contact.

The last page of this shows the -- or the next-to-the-last page of this shows the calculations that Baker made at the time from the data and -- You know, from the knowledge of viscosity and the density of the oil, gravity of the oil, they determined that there was a skin -- a very -- extremely high skin damage, 592 S factor, which is just almost unheard of.

The permeability was 3.5 darcies, which is extremely high. I don't know how to explain that to you except for on Exhibit Number 1, they calculate a figure called radius of drainage, and they calculate a radius of drainage of twenty-seven hundred and -- let me see exactly -- 2786 feet is shown on Exhibit 1.

What that figure means, that's a calculated figure from the data, which means that if it were -- if this reservoir were unlimited water drive and reached no boundaries, that the pressure effect would be felt within that period of time during that four hours that that well was shut in, the pressure wave would have propagated out more than a half a mile in every direction.

It doesn't mean it did propagate, because it would be like having a bathtub with water in it. You shut the drain in, it doesn't take very long for the pressure wave to propagate to the other side of the bathtub and level out and seek its own level once you shut the drain in. You could calculate how far that pressure wave would go within a four-hour period of time in your bathtub, but obviously it would reach the boundary effects of the walls of the bathtub prior to the four-hour period of time, just in a matter of a second or so.

Q. But this information does establish that you have high permeability?

A. Extremely high permeability, far beyond what we normally see in this basin.

Q. Let's go to Exhibit Number 8. What is this?

A. Exhibit Number 8 and 9 are very similar. I had Schlumberger do their own analysis on the data from this chart. They read the chart, so it's a kind of a verification-type analysis. They read the chart, they input the data into their own computer system, and they came up with these charts.

And what these charts show, there's two curves on Chart Number 8. One of them is what they call the inflow performance -- is labeled the "inflow performance curve". And what that is is, that's a -- that relates bottomhole flowing pressure with the production rate for a 9862-foot well lifting a 10-percent water cut, 90-percent oil cut, at the density of oil, how many barrels a day that that would produce.

But there's another factor that influences the production rate, and that is the restriction caused by the size of the tubing.

They've assumed 2 3/8 tubing. That's called the tubing intake curve, and that's saying 2 3/8 tubing -- the resistance caused by that tubing is -- and the flow rates, what would flow at certain pressures through that tubing, is indicated by the other line. Where they cross would be

the equilibrium, what that well would -- they project the well would flow at.

From the crossing of that point they figure that the bottomhole flowing pressure would be -- it's located down at the bottom left-hand corner -- is, X would be the flow rate, 401 barrels a day of fluid, and Y, 2907, that would be the flowing pressure.

The next exhibit, Exhibit Number 9, is the same exhibit, or the -- It's trying to show the same thing. The difference between Exhibit 8 is the well using the reservoir energy to push the oil up through the tubing, against the tubing friction, against the hydraulic head, and overflow into the tanks.

The second one assumes that you are going to provide a pump 100 feet above the bottomhole interval that will take -- assume the entire load of lifting that fluid out of the reservoir and pushing it through the tubing and lifting it out of the reservoir against the hydraulic head.

In other words, you've taken the weight of the column of fluid off the formation, and it basically measures -- What you're trying to get here is, you're measuring how much fluid would that reservoir give up if it doesn't have to fight hydraulic head. If you provide the energy to get that oil out of the fluid, how fast will it put it into the wellbore?

And what this graph is showing is that it would -- that well with a high-volume pump, at 10 percent water cut, would produce 1658 barrels of fluid a day and 3908 barrels -- I mean 3908 pounds of flowing pressure into the wellbore.

Q. Both of these exhibits, 8 and 9, show very high permeability --

A. That's true.

Q. -- in this reservoir?

Mr. Thornton, what conclusions can you reach from your study of this particular reservoir?

A. Our study, we feel, reveals that there are recoverable reserves that unfortunately for some reason or another, they did not obtain -- in the completion, did not overcome the damage in the completion and were not recovered in the original well.

We feel we can get slightly high to that and recover more reserves and hope to not have the problems in getting the permeability that we expect.

Q. There's definitely risk associated with --

A. Yes --

Q. -- what you're proposing?

A. -- it is a very high-risk effort to recover these reserves.

We feel that the costs can be reduced

substantially by using the existing wellbore on the acreage and drilling to the proposed bottomhole location, because we can -- we already have casings set to depth in this well, which will not only simplify the drilling, lower the risk of drilling, because we're holding back all the Abo shale, et cetera, and Pennsylvanian shales that can slough into the wellbore, but also it will save the cost of setting casing down to that depth.

We feel that OCD approval of this method of developing the reserves is necessary, or we don't feel it will be economical to proceed.

Q. If you're able to go forward with your desire to develop these reserves, as it stands now, based on negotiations with the BLM, it is essential that you obtain approval from the Oil Conservation Division for an 80-acre unit crossing the section line that you have requested; is that --

A. Yes, the spacing --

Q. -- not true?

A. -- spacing unit.

Q. Right.

A. That's correct.

Q. In your opinion, will approval of this Application enable you to attempt to recover these reserves and otherwise be in the best interests of conservation and

the prevention of waste and the protection of correlative rights?

A. Yes, sir, I feel it can't be recovered any other way.

Q. Were Exhibits 1 through 10 either prepared by you or compiled under your direction?

A. Yes, they were.

MR. CARR: Mr. Stogner, at this time we would move the admission into evidence of Thornton Operating Corporation Exhibits 1 through 10.

EXAMINER STOGNER: Exhibits 1 through 10 will be admitted into evidence.

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

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Thornton, do you know briefly what the past history on that South Lone Wolf-Devonian Pool -- I'm sorry -- yeah, the Lone Wolf-Devonian Pool was?

A. Yes, I know from firsthand knowledge because I was involved in the drilling of the discovery well in that pool, and I was --

Q. Where was the discovery well?

A. The discovery well was in the -- let me get my map and make sure -- it was in the northeast quarter -- the

southwest of the northeast of Section 28, I believe. Let me make sure.

Yes, it was the -- it was originally -- It was kind of complicated. It was drilled as the Stevens Operating Corporation Number 1 McClellan Federal -- or McClellan Federal Number 1 well.

Stevens Operating Corporation, subsequent to the -- Yeah, that well was, of course, originally drilled without any spacing unit, you know, it was given a 40-acre spacing unit normally required by the State.

Subsequent to that, Mr. Stevens, as president of Stevens Operating Corporation, requested and obtained -- through data very similar to ours showing 1.5 darcies of perm in that well -- obtained a 160-acre temporary spacing unit for that well. Unfortunately, Mr. Stevens passed away in the airplane accident.

McClellan Oil Operating Corporation, or McClellan Oil Corporation, took over operations of that well and renamed it the McClellan Oil Corporation Stevens Number 1 -- Stevens Federal Number 1 well, and they did not return to the OCD at the required time to perpetuate those -- those temporary spacing, and the spacing reverted automatically from 160 back to 40 acres.

Subsequently, Thornton Operating Corporation took over operations of that well from McClellan. So I

currently operate that well in the unit.

It produces currently about 40 barrels of oil a day and 1000 water a day.

Q. Is its production profile similar to what you're showing today for this particular --

A. Yes, the drill stem test on that well showed a permeability, as I say, of 1.5 darcies. So it's similar to -- You know, it's extremely high permeability. We expect very similar type of results. We've produced that with the production of water for a considerable length of time. We have obtained about 110,000 barrels of oil out of that well to this date, and we expect a well very similar to that in our re-entry.

The current owners of that well are identical to -- or mainly identical. There are a few exceptions, but basically the same owners that are in the Manzano tract. Or the former Manzano tract, because we now...

Q. In the current wellbore that we're talking about today, the West -- What do you call that well?

A. Well, it's -- The current name is the West King Camp Unit Well Number 1. It was originally drilled as the McClellan -- another separate well. Both these wells started out as the McClellan Federal Number 1 well for the name, but by different operators.

This well was the Manzano Energy Corporation

McClellan Federal Number 1 well. It should have been called and was subsequently renamed -- because the unit was in existence at the time that they drilled it, and it should have been called, and was subsequently forced to be renamed by the BLM, the West King Camp Unit Well Number 1. That's the current name of it.

The unit terminated effective April 30th, and the name probably should be changed back or changed to some other name to reflect it's not in a federal unit anymore.

Q. Okay, well, I'm talking about the McClellan Federal Number 1, the one that we're -- that you're proposing to --

A. Right.

Q. -- directionally drill.

What is the current status of that well, again?

A. It's currently shut in.

Q. Shut in. Do you have the past production history, i.e., oil or fluids, whether it be water -- Do you have the cumulative -- cumulatives on that? That would have been through tests or actual production or whatever the case may be.

A. I'm not sure exactly how much water -- Yes, I do have the day-to-day. I don't have it added up.

As I say, I think it produced right around 230 barrels of oil, if I'm not mistaken. Let me see if I can't

find that. I do have the cumulative day-to-day production. That could be provided because...

Q. That might be of some help if we could get that, cumulative day-to-day.

Of that 230, plus or minus at this point, what we talk about that oil production, what became of it? Was it sold? Was it used on the lease? What did you do with it?

A. Well, you know, that's a good question. Manzano was the operator when it was produced. There is some oil in the tanks currently out there.

They never went to get a Division order on it, or a Division order title opinion, because the Division order title opinion would cost more than what the value of the oil was.

But they -- I think the Skurlock Permian has picked up a load, if I'm not mistaken, because I'm sure that's the purchaser on it; they've established them as the purchaser. So they wouldn't have established them as the purchaser without having picked up the load. There's a small amount --

Q. That would have been --

A. -- I believe, in the tank.

Q. -- what Manzano had?

A. Yes, that's correct.

We have not produced it since we have taken over,

because at the time we purchased it from Manzano, their interest in those two tracts, those two 80-acre tracts, at the time we purchased those, part of the deal was that they would get to keep the pumpjack. And so in order to return it to production, we're going to need to purchase a new pumpjack.

Q. How about water production? What was the cumulative water?

A. Again, I don't have that. All I know is -- The well went through several different phases of production. At the end, it was producing an average of eight barrels of oil and 80 barrels of water. I do have that production history for the last --

Q. Well now, your daily cumulative, would that show the water?

A. Yes, the daily cumulatives would show the water.

I have some pages that show the daily production for, say, from April 25th through May 24th.

They went through -- Like I say, they went through various stages in the production of that well. The initial production, it flowed at eight barrels with no water. Then when they put a pumpjack on it -- They acidized it and they put a pumpjack on it, and it flowed more fluid but no more oil, eight barrels and about -- and more water.

And then subsequent to that, they acidized it again. They've got -- They could not draw it down. It was producing almost unlimited water, just as fast as they could pull it out. They couldn't bring the surface level below 600. So they reached the permeability, but by reaching a fracture and bringing up the water.

Subsequent to that, they squeezed the well. At this point in time they got zero production, they completely shut off production. Then they went back in and perforated it with a hydrojet, trying to notch the thing and not getting into the fractures again. At that point in time they recovered a very low recovery of fluids.

They put on another acid job, and they've changed the pump several times, and they eventually ended up with this production of about eight barrels a day and 80 barrels of water, that I'm speaking of, when they finally decided to give it up.

The water costs -- Because of their lack of ownership of a water-disposal well in the area, they were hauling the water by -- and without a pipeline to the water disposal, they were hauling the water. It was costing them about a dollar and a half a barrel to get rid of the water, and it made the well uneconomic.

The major owner of this well, the owner of the well in the -- the easternmost well in the South Lone Wolf

field, while I'm the operator, Thornton Operating, King Camp Water Disposal, Limited, is the major working interest owner, and King Camp Water Disposal owns a commercial water-disposal well in the vicinity, within a mile and a quarter, and would be able to lay a line over there and dispose of water very cheaply.

That's one of the items that entered into the economics and us deciding to pursue this project, was that we had an access to low-cost water disposal.

Q. What's the proposed completion method for the directional well?

A. Well, we -- Of course, like I say, one thing we don't have to contend with is the sloughing shales above us, because they're within -- held behind -- back by pipe. The Abo formation and the Penn clastic shales are notorious for giving problems during the drilling of this well, and we are forced -- we're required to use a 6-percent oil in the mud to keep it from getting water-wet, high starch, which helps clog up the formation when we get to it.

We haven't determined exactly what drilling fluids we're going to use, but ideally the -- since we're shut off from the risk of the other formations in the well, in drilling this, we should be able to design a fluid and a method of drilling it that would keep the burden off of the well. The overpressure of the mud column is one thing that

causes the damage near the wellbore in these wells. Then we would open-hole complete the well.

Q. Okay --

A. We'll probably put a string of tubing down to the well inside the deviated wellbore.

Q. In Sections 22 and 27, that shows the McClellan oil, et al., in lease Number NM-2824.

A. That's correct.

Q. Does that belong to Thornton, or is that still McClellan's?

A. Those are McClellan Oil leases, held by production. That's part of a 2560-acre lease, which happens to also be the leasehold that our well in the South Lone Wolf produces on. That well is currently -- in the South Lone Wolf, is holding that by production.

The southern tract of this NM-50,415, in our proposed -- that 80-acre tract that's comprising the north half of the northwest quarter of 26, also came from -- resulted from a farmout with McClellan Oil Corporation. So they're well aware of what's going on in this thing.

We've sat down and talked with the McClellans and Mark McClellan, the president, and while they have -- from our geology may have a fractional piece that's above the oil-water contact, he already is involved -- McClellan Oil already is involved in this project through their farmout

and a retention of override in this particular well.

And I at one time broached the possibility of putting the entire 160 that comprised the 40 acres out of each of these sections into the unit, and his opinion was that since we paid for the well down here, he felt it would be very difficult to try to accomplish that, and so he said just go ahead and do it like this, as 80 acres.

EXAMINER STOGNER: Does anybody else have any other questions of this witness at this time?

You may be excused, Mr. Thornton.

Do you have anything further, Mr. Carr?

MR. CARR: Nothing further, Mr. Stogner.

EXAMINER STOGNER: I'm going to take administrative notice of the previous orders concerning the South Lone Wolf-Devonian Pool, and I believe that's Orders Number R-9514 and 9514-A, and also any other production or well records within that pool.

If there's nothing further in Case Number 11,615 this case will be taken under advisement.

(Thereupon, these proceedings were concluded at 9:40 a.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11615, heard by me on March 3, 1996.

, 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 October 8th, 1996.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998