NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE , NEW MEXICO

Hearing Date DECEMBER 4, 1985 Time: 8:00 A.M.

NAME	REPRESENTING	LOCATION
Tommy Roberts	Merrion Oil + Gas Corp.	Farmington
STEVEN DUNN	MERRION OIL & GAS	FARMINGTON
[illegible]	MERRION OIL & GAS	Farmington
BEN DONEGAN	LEONARD MINERALS Co.	Albuquerque
W. T. Kellahin	[illegible]	[illegible]
Tracy Le Cocq	Byram	Santa Fe
Sue Umshler	QUERAM, INC	Albuq.
William F. Carr	Campbell and Black	Santa Fe
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T CALDER EZZELL, JR	HINKLE LAW FIRM	Roswell
Ann J. Murphy	Murphy Operating Corp.	Roswell
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Michael E. Stogner	NMOCC	Santa Fe, NM
DAVE TINSLE	[illegible]	[illegible]
[illegible]	Kris[illegible] Exploration, Inc.	[illegible]
Ernest Szabo	State Land Off. Oil & Gas Div	Santa Fe

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NAME	REPRESENTING	LOCATION
John Yuronka	John Yuronka	Midland
Ed Hartman	Manana Gas, Inc.	Roswell
Dave Catanach	Comm. Engr.	Santa Fe

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

4 December 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Leonard Minerals Company for a unit agreement, Colfax County, New Mexico. CASE 8771

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

BEN DONEGAN

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MR. CATANACH: This hearing will come to order this morning for Docket Number 37-85.

We'll call first Case 8771.

MR. TAYLOR: The application of Leonard Minerals Company for unit agreement, Colfax, Mora, and Taos Counties New Mexico.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant and I have one witness to be sworn.

MR. CATANACH: Are there other appearances in this case?

Will the witness please stand and be sworn?

(Witness sworn.)

BEN DONEGAN,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

A Mr. Donegan, would you please state your

name and your profession?

A I'm Ben Donegan. I'm Regional Manager of Leonard Minerals Company.

Q Where are you located, Mr. Donegan?

A I manage the Albuquerque office of Leonard Minerals Company, headquarters in Ft. Worth, Texas.

Q Mr. Donegan, are you a Certified Professional Geologist in New Mexico?

A Yes, I am.

Q And as a geologist have you previously testified before the Oil Conservation Division?

A Yes, I have.

Q Pursuant to your employment with Leonard Minerals Company, have you made a study of the facts surrounding this appication for approval of the Taos Trough Unit Agreement?

A Yes, I have.

MR. KELLAHIN: Mr. Examiner, we tender Mr. Donegan as an expert petroleum geologist.

MR. CATANACH: He is so qualified.

Q Mr. Donegan, let me direct your attention, first of all, to Exhibit Number One, which is the plat of the area.

Would you identify for us without

explaining the exhibit, identify for us the map?

A This map shows the outline of the Taos Trough Unit, proposed Taos Trough Unit Area.

It shows the tract numbers. It identifies the Federal leases by the Federal lease number, the date of expiration of the lease, and it identifies the fee lands by the pattern that is shown on the tract numbered 24 through 30 through 43.

It also shows at the bottom the total amount of Federal lands in the unit area; total amount of fee lands; and the percentages of each.

Q The information indicated on Exhibit Number One, is that information that you have compiled or that has been compiled under your direction and supervision?

A Yes, sir.

Q I notice that the total acreage number is slightly different than the acreage declared in the first amended application.

My question, Mr. Donegan, is the acreage number used on Exhibit Number One true and accurate to the best of your knowledge?

A Yes, it is.

Q That is the acreage number, then, that the Examiner needs to use in examining the Federal lands and the fee lands.

A Yes, sir.

Q The unit boundary depicted on the exhibit, how is that shown?

A The unit boundary is shown by a dashed line about one-quarter of an inch wide, that -- that -- actually it's in Zipatone pattern/

Q The outline of the unit, has that changed from the time the first amended application was filed?

A No, it has not.

Q So the boundary of the unit's the same on this exhibit as it was at the time you filed the first amended application?

A Yes, it is.

Q Is this the unit boundary that has been approved by the Bureau of Land Management?

A Yes, it is.

Q Within the unit boundary, Mr. Donegan, how have you identified for us the fee tracts?

A The fee tracts are identified by hachure lines.

Q The Federal lands, how are those identified?

A They're identified by the Federal lease numbers preceded by NM and in blank pattern.

Q Who is the current lessee or operating

interest holder for all the Federal leases?

A Leonard Mineral Company and Kriti Exploration, Incorporated.

Q This is a voluntary exploratory unit, is it not, Mr. Donegan?

A Yes, it is.

Q And have you reached a voluntary agreement between Leonard Minerals Company and Kriti?

A Yes, I have.

Q Let's go now to Exhibit Number Two. Would you identify for us what Exhibit Number Two is?

A Exhibit Number Two is the legal description of the lands included in the proposed Taos Trough Unit Area.

Q There are several different drafts of legal descriptions, perhaps, in the Commission case file at this point. Does this Exhibit Number Two represent the correct description of the unit tracts?

A Yes, it does.

Q So if the Examiner wants to use a description for the unit, he ought to use this?

A Yes, he should.

Q Let's go to the unit agreement itself, now, Mr. Donegan, if you'll turn to Exhibit Number Three. Will you identify that for us?

A Exhibit Number Three is the Taos Trough Unit Area Agreement.

Q Is this a unit form that has been approved by the Bureau of Land Management and the Oil Conservation Division for use in an exploratory unit?

A Yes, it is. It conforms with and is the same except for the blanks that are indicated by underlines as the form in the Code of Federal Regulations.

Q All right, sir. What is the purpose of the unit agreement? Would you describe generally what you seek to accomplish with the unit?

A The Taos Trough Unit is proposed for the orderly exploration and development of a proposed unit area.

The unit agreement provides for -- describes the unit area; describes for a unit operator, Leonard Minerals Company; defines unitized lands, unitized substances; provides for resignation, removal, or succession of the unit operator; and for the rights and obligations of the unit operator.

Also provides for the drilling to discovery of initial test well; and it provides for plans for further development and operation and for participation and allocation of production.

Q Let's identify for the Examiner the location of the initiall test well to be drilled pursuant to the

unit agreement.

A The initial test well is shown on Exhibit One by an arrow and a circle and the words "proposed initial well location." The initial well location is proposed to be in the southwest one-quarter of the northeast one-quarter of Township 24 North, Range 14 East, Taos County.

Q What is the formation that you propose to test with the initial well?

A The initial well is proposed to test the Sandia formation or 6000 feet, whichever occurs shallower.

Q All right, sir, let's turn to Exhibit Number Four and have you identify Exhibit Number Four.

A Exhibit Number Four is the Exhibit B portion of the unit agreement.

Exhibit Four describes all of the lands in the unit. It first sets out Federal lands and tract numbers that match the tract numbers shown on Exhibit One.

It gives the number of acres for each lease, the Federal serial number, and the royalty and working interest ownership.

Exhibit B of the unit agreement also lists the fee lands and in the case of the proposed Taos Trough Unit there are only Federal and fee lands. The fee lands are set out following the Federal lands, beginning with Tract Number 24.

In addition to the listing of these lands, at the end of the list there is a recapitulation showing total acearage and percentages in the proposed Taos Trough Unit Area.

Further, there are metes and boundes descriptions attached to the list for those leases that are either unsurveyed or partially surveyed.

Q As of today, Mr. Donegan, what percentage of the working interest and royalty interest ownership has voluntarily committed their interest to the unit?

A In excess of 95 percent.

Q In your opinion does the unit operator have effective and efficient control of the unit operations at this point?

A Yes, sir.

Q Let's turn to the operating agreement, then, Mr. Donegan. It's Exhibit Number Five.

What is the form of operating agreement used?

A The unit operating agreement is the Rocky Mountain Mineral Law Foundation Form 2, which provides for a divided interest type unit.

Q Have you submitted the operating agreement to the Bureau of Land Management?

A No. The -- we will furnish them an executed copy upon approval; however, the Bureau of Land

Management has not requested a copy of the unit operating agreement to this date.

Q Is this the unit operating agreement that's been executed by you and Kriti Exploration?

A Yes, it is.

Q Let's turn now to Exhibit Number Six, Mr. Donegan. Would you identify that for us?

A Exhibit Number Six is a copy of the letter from the Bureau of Land Management to Leonard Minerals Company in which the Bureau of Land Management designates the proposed area as a logical unit area.

This exhibit is the result of a number of meetings with the BLM; most recently a designation hearing on November the 15th, 1985.

Q I notice that the BLM is using a different total acreage number than you have shown on your Exhibit Number One. Has the BLM discussed with you modifications of the total unit acreage dedicated to the unit?

A Yes, they have, and they're aware of the -- of the acreage that is shown on the current map of the unit area, your Exhibit One here today.

The difference in acreage there is a result of a number of meetings and changes of -- particularly redescriptions by the Bureau of Land Management of certain Federal lands that were -- that have been taking place the

last couple of months.

Q As a geologist, Mr. Donegan, have you an opinion as to whether or not the proposed boundary of the unit is one that's geologically reasonable for the exploration of the Sandia formation prospect?

A Yes, sir.

Q Let's turn to your geologic report, Mr. Donegan, Exhibit Number Seven, and have you describe for us the reasons and the basis upon which you reached that conclusion.

A Yes, I have.

Q All right. Let's -- let's go to the plat in the geologic report. and let's look at Plate No. I, I guess is the first one.

Does the geologic report and Plates I, II, and III represent your geologic work, Mr. Donegan?

A Yes, it does. Yes, they do.

Q All right, let's go to the Plate No. 1, sir, and have you identify for us what it is that you're showing.

A Plate No. I shows regional geology in relation to the location of the Taos Trough proposed unit area.

The Plat I is an Isopach map of the Sandia formation based on well control in the east part of the

area and on measured sections and outcrops northwest of the proposed unit area, west of the area, and to the south.

In addition to the contours it shows the thickness of the Sandia formation. The map shows by colors the critical formations, the rocks that are important to the potential for hydrocarbons in the Taos Trough Unit Area.

The beige color is PreCambrian outcrops. It's the area of PerCambrian outcrops. And the light blue color shows the area of Pennsylvanian outcrops.

Q What significance is Plate No. II -- Plate No. I to you as a geologist in forming an opinion that the unit boundary is one that is a reasonable boundary for this unit?

A Plate I gives the geologic setting of the unit in relation to these rocks and the thickness of the Sandia to enhance the understanding of the other plates that more specifically define the purpose of and the reason for the boundaries of the unit.

Q All right, let's go to Plate No. II, then, sir. Would you identify that plate for us?

A Plate II shows the --

Q All right, sir, tell us what Plate No. II shows.

A Plate No. II shows by color -- colors the various facies of the Sandia formation, which is the forma-

tion which is the primary exploration target for the Taos Trough Unit Area, and particularly shows the location of the proposed unit area in relation to these facies boundaries and to the transition facies of the Sandia Formation.

The yellow pattern on Plate II, or the yellow color, that is, indicates the areas of fluvial clastics, the area of alluvial fan-braided stream and fan-delta sediments.

The green area represents the basinal facies of the Sandia formation.

The blue area shows the Pecos Shelf carbonate facies of the Sandia formation.

And most importantly, the orange color shows the transitional facies. The transitional facies where the coarse clastics to the northwest interface in a terrigenous shelf into the basinal facies.

The boundaries of the proposed Taos Trough Unit Area were determined by the -- by the boundaries between these facies.

Q Would you turn to Plate No. III, Mr. Donegan?

All right, sir, would you identify Plate No. III for us?

A Plate No. III is a larger scale map of the area of the proposed Taos Trough Unit, showing the same

information as shown on Plate II in smaller scale and gives an opportunity to more critically review the boundaries of the proposed unit in relationship to the -- to the primary target of the Taos Trough Unit; that is the transition facies of the Sandia Formation.

Same color patterns as shown on Plate II are used on -- for the same facies on Plate III.

Q In terms of reservoir potential for the Sandia Formation, what does this exhibit and the other geologic data that you've examined tell you about this prospect and this unit?

A I refer you to Figure III of the geologic report for a schematic cross section, which will help in describing this target area.

Q That would be on page seven of your report?

All right, sir.

Q I think it would be in order for a brief description of the predicted stratigraphy of this area as we look at the -- at the transition facies.

In the area of the proposed Taos Trough Unit the thicknesses on Plate I, the facies shown on Plates II and III are based on outcrop sections to the west, where the rocks that underlie the Taos Trough Unit Area come to the surface. Inasmuch as there are no wells present, or to

better phrase that, no wells have been drilled in this immediate area and in the Taos Trough Proposed Unit Area.

The measured sections are shown on Plate II by, or rather Plate III, by -- let me correct that; go back to Plate I.

The measured sections are shown on Plate I by the "X's" with the thicknesses shown by the numbers adjacent to the "X's".

Back again to Figure 3. Figure 3 shows in the Sandia Foramtion a basal, fluvial to shallow marine facies, which is of the Morrowan age.

These lower rocks are essentially a similar facies over the -- all of the Taos Trough Unit Area. These rocks, that is, the Morrowan part of the Sandia, are mainly near shore marine sandstone shales and limestones for about 200 to 500 feet thick.

Above the Morrowan part of the Sandia Formation we have the primary target rocks of the Taos Trough Unit; that is, the Atokan age Sandia Formation.

The Atokan rocks are about 1000 feet thick north and west of the unit area and consist predominately of very coarse clastics in an alluvial fan-braided stream and fan-delta facies.

To the south of the proposed unit area the Pecos Shelf carbonates of the Sandia Formation are only a few hundred feet thick.

Southeast of the proposed unit area the basinal facies of the Atokan part of the Sandia Formation thicken to over 2000 feet of Basinal black shale.

But back to the schematic cross section, the Taos Trough Unit boundaries are defined by the interface of a progradational alluvial fan-braided stream fan-delta system.

Progradational is described, as you'll see in the cross section, if you were looking at it, that the -- that the fluvial facies are moving out into the basin through time so that this boundary of the proposed unit area --

Q The west boundary.

A The west boundary, is -- is at the interface which is located in earliest Atokan time.

The boundary to the east is the point of the progradation of those same facies out into the basin at the end of Atokan timed.

Q And in your opinion as a geologist, that forms a rasonable basis upon which to draw the unit boundary of the surface?

A Yes, sir.

Q Geologic reason and justification to the boundary as you've outlined it?

A Yes, sir. When we talk about reservoirs,

if we do, I would like to describe one other boundary that's related to a change in porosity.

The boundaries, in answer to your question, the northwest, south, and southeast boundaries are determined by -- by the changes in facies.

Q How have you determined any of the other boundaries for the proposed unit?

A The reservoir rocks in this area, and the porosities of those rocks, are the reason for the east boundary.

The outcrops of the -- the outcrop in sediments have very poor porosity in this area due to cementation and compaction, the presence of authigenic chlorite, clay minerals.

We expect that out in the Taos Trough Area farther from the source area more mature sandstones with good porosities and permeabilities; however, to the east of this area in the area of the True Medina Well shown on Plate I, and the Continental Well shown on Plate I, we have these favorable sandstones, the Terrigenous Shelf sandstones that have poor porosity as a result of silica overthrows, apparently due to hydrothermal silica introduced in the numerous -- from the numerous intrusives present in that area.

The intrusives are absent in the proposed

Taos Trough Area and that east boundary of the proposed Taos Trough Unit Area is based on the predicted west boundary of the area where porosity has been destroyed by hydrothermal silica.

Q Mr. Donegan, in your opinion as a geologist will the unit operations of the proposed unit, is that a method that is most likely to lead to the orderly exploration of this area as opposed to some other method of operation?

A Yes, sir, and particularly important in this area because of some unusual circumstances. We're in an area here of -- of mountainous country entirely in the Sangre de Cristo Mountains, entirely in the Carson National Forest, except a very small portion that's in the Santa Fe Forest.

The elevations in this area are -- average about 9500 feet. The lowest elevations in the unit area are about 8100 feet and the central part of the area is a high mountain ridge with peaks above 11,000 feet and one peak, the highest peak in the area, 11,939 feet.

The high elevations are the site of a lot of snow and harsh winters.

For example, the snowfall at Black Lake, the nearest State Climatological Station to the east of the proposed unit at an elevation of 8600 feet, is 73.5 inches

with a high in 1980 of 158.2 inches.

Much of this area is unsurveyed and the approval of a unit here, besides enhancing the orderly development of this area and providing for econmic and efficient production of hydrocarbons, will also mitigate the problems of the -- of the of the densely forested parts of the unsurveyed high mountain country.

Q At this point, Mr. Donegan, have you received the necessary preliminary approvals from the Bureau of Land Management for your unit?

A Yes, I have.

Q You've already used that letter into evidence, Mr. Donegan?

A Yes, sir, that was Exhibit Six, that described their approval.

Q And their approval was based in part upon the same geologic presentation that you've made here today.

A All of the maps and reports that were -- that were submitted here today were submitted to them.

Q What is the timing, sir, for the effective date for the unit?

Once we get Oil Conservation Division approval, will that trigger the effective date for the unit? How does -- how does that work?

A Following approval from the Oil Conserva-

tion Commission, we plan to contact the fee owners, the 3000 -- the owners of the 3000 -- 398.50 acres owners, and then following our having invited those people to join in the unit, and so informing the Bureau of Land Management, we expect final approval from the Bureau of Land Management.

Q All right, sir.

MR. KELLAHIN: That concludes my examination of Mr. Donegan.

We move the introduction, Mr. Examiner, of Exhibits One through Seven.

MR. CATANACH: Exhibits One through Seven will be admitted as evidence.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Donegan, the description of the lands in the unit area, has that been approved by the BLM?

A Yes, it has.

Q They have accepted that description that you have?

A I should -- they've accepted it as I've submitted it at this meeting. I believe the BLM is now taking each lease to -- to review it, to be sure we actually own it, through the BLM records in Santa Fe, and that our figures match those that are of record with the BLM in Santa

Fe.

Q The initial well drilled on the unit. do you know if that's going to be at a standard well location?

A The location was surveyed as a standard well location and drilling contractors have reviewed the location and there is a possibility that -- that the contractors might want to move it a few hundred feet to -- for different reasons, for topography or otherwise, but it was surveyed as a -- as a standard location, and when we make our application to drill, there is a possibility it would be for an unorthodox location.

Q Leonard Minerals is to be designated the unit operator?

A That is correct.

Q Is that correct?

MR. CATANACH: I have no further questions. Are there any other questions of the witness?

If not, he may be excused.

Is there anything further in Case 8771?

MR. KELLAHIN: No, sir.

MR. CATANACH: If not, it 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. 8771 heard by me on December 4, 1985.

David R. Catanach, Examiner
Oil Conservation Division