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:	)	
APPLICATION OF XTO ENERGY, INC., TO AMEND THE SPECIAL RULES AND REGULATIONS FOR THE UTE DOME-PARADOX GAS POOL AND TO EXPAND THE HORIZONTAL LIMITS OF THE POOL, SAN JUAN COUNTY, NEW MEXICO	)	CASE NO. 13,544

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: RICHARD EZEANYIM, Hearing Examiner

August 25th, 2005

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, RICHARD EZEANYIM, Hearing Examiner, on Thursday, August 25th, 2005, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

August 25th, 2005
Examiner Hearing
CASE NO. 13,544

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E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	6	11
Exhibit 2	7	11
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* * *

A P P E A R A N C E S

FOR THE DIVISION:

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FOR THE APPLICANT:

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* * *

ALSO PRESENT:

G.D. SIMON
Petroleum Engineering Consultant
Data Consultants Incorporated
P.O. Box 14749
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* * *

WHEREUPON, the following proceedings were had at 9:13 a.m.:

EXAMINER EZEANYIM: At this point, I call Case Number 13,544. This is the Application of XTO Energy, Inc., to amend the special rules and regulations for the Ute Dome-Paradox Gas Pool and to expand the horizontal limits of the Pool, San Juan County, New Mexico.

Call for appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe, representing the Applicant. I have three witnesses.

EXAMINER EZEANYIM: Any other appearances?

MR. BRUCE: Mr. Examiner, appearing on behalf of the Ute Mountain Ute Tribe is Mr. Jerry Simon of Data Consultants, Inc., and he may like to make a statement later.

EXAMINER EZEANYIM: Okay. May the witnesses stand up to be sworn?

(Thereupon, the witnesses were sworn.)

EXAMINER EZEANYIM: Before you proceed, Mr. Bruce, I got a letter from the Ute Mountain Ute Tribe in support of this Application. Is that why he's appearing in this? I don't know if -- they didn't copy you on this letter, but I got a letter.

MR. BRUCE: We thought the letter would come in. And yeah, Mr. Simon is aware of that.

EXAMINER EZEANYIM: Okay, good. Go ahead, Mr. Bruce.

CHRISTOPHER SPENCER,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Could you please state your name for the record?

A. Christopher Spencer.

Q. Where do you reside?

A. Fort Worth, Texas.

Q. Who do you work for and in what capacity?

A. XTO Energy, Inc., I'm a landman.

Q. Have you previously testified before the Division?

A. No.

Q. Could you please summarize your educational and employment background?

A. I have a bachelor's in business administration. My employment, I've been a landman -- approximately 10 years of experience. My employment background, I used to work for Meridian Oil, I've worked for a small independent, and then I've worked for XTO for five years.

Q. Does your area of responsibility at XTO include this area of San Juan County?

A. Yes.

Q. And are you familiar with the land matters involved in this Application?

MR. BRUCE: Mr. Examiner, I'd tender Mr. Spencer as an expert petroleum landman.

EXAMINER EZEANYIM: Mr. Spencer is so qualified.

Q. (By Mr. Bruce) Mr. Spencer, could you turn to Exhibit 1 and identify that for the Examiner and describe the lands involved in this Application?

A. The lands involved are within the bounds of Township 32 North, Range 14 West, and 31 North, 14 West, San Juan County, New Mexico.

Q. And what does the red outline depict?

A. The red outline depicts the boundary of the Ute Dome Paradox Field.

Q. As it currently exists?

A. As it currently exists, yes.

Q. And what does the yellow designate?

A. Yellow designates acreage that is leased by XTO.

Q. Okay. When did XTO acquire this interest?

A. In November, 1997.

Q. Who was it owned by previously?

A. Amoco Production.

Q. Since XTO's acquisition, has it undertaken development activity in this pool?

A. Yes.

Q. Before that it had been dormant for some 20 years, I believe, at least insofar as development activity goes?

A. Yes, since 1979, I believe.

Q. Okay. And as a result of that development activity, XTO is here today requesting a change in the pool rules; is that correct?

A. Yes.

Q. Could you turn to Exhibit 2 and just briefly identify this for the Examiner?

A. Exhibit 2 is the defined gas pool with the original order adopting that gas pool.

Q. And it adopted 640-acre spacing for this pool?

A. Yes.

Q. And at this time how many wells are allowed in each section?

A. There would be two.

Q. And what are the current footage-location requirements for wells in this pool?

A. Current footage-location requirements, I would need to look. I don't recall off the top of my head.

Q. Okay. Are they set forth down toward the end of Exhibit 2?

A. Yes.

Q. Okay, 1650 from the outer boundary of the section line; is that correct?

A. Correct, right.

Q. At this time, how many wells does XTO request be allowed in each section?

A. Four.

Q. One per quarter section?

A. Yes, sir.

Q. And what footage requirements from the outer boundary of the well unit is XTO requesting?

A. XTO is requesting -- the outer boundary, I'd have to look at the Application. I do not -- Thank you. We're looking at 660 feet from the boundary.

EXAMINER EZEANYIM: What?

THE WITNESS: 660 feet, sir.

EXAMINER EZEANYIM: Outer boundary?

THE WITNESS: Yes.

Q. (By Mr. Bruce) And will the other witnesses discuss the need for these relaxed location requirements?

A. Yes.

EXAMINER EZEANYIM: What is it currently now? 660 feet -- I'm sorry, what is it currently now? Is that --

MR. BRUCE: 1650 feet.

EXAMINER EZEANYIM: It's currently 1650? Go

ahead.

Q. (By Mr. Bruce) Now, with respect to the Exhibit 1 and the yellow-colored acreage, XTO's acreage, is this all or primarily Ute Mountain Ute oil and gas leases?

A. Yes.

Q. Have representatives of XTO been in discussions with the Tribe and the BLM regarding this Application?

A. Yes.

Q. Okay. Let's move on to Exhibit 3, Mr. Spencer, and some of the other witnesses might get into this exhibit a little bit also, but what does this depict?

A. This depicts the boundary of the Ute Dome-Paradox Field as it exists currently.

Q. In green?

A. In green. It depicts XTO's leasehold position in the hached area. The red outline in Sections 4 and 12 depict two sections currently not included in the Ute Dome Paradox Field.

Q. And what does XTO request with respect to that acreage?

A. We would request that those be included in the Ute Dome-Paradox.

Q. It also -- this exhibit also -- well, let's just take within the outer boundaries of the pool, who is the -- within in the interior boundaries of the pool, who are the

operators, within the defined pool?

A. XTO Energy.

Q. Are there any other operators within two miles of the pool?

A. Yes, there are, Robert Bayles Producer, LLC, and Burlington Resources Oil and Gas Company, LP.

Q. Those are -- So there are really only three operators in this pool?

A. Correct.

Q. Were the operators other than XTO given notice of this Application?

A. Yes.

Q. And was the Ute Mountain Ute Tribe and its representatives and the BLM also notified of this Application?

A. Yes.

Q. And is Exhibit 4 an affidavit of notice with copies of the notice letters and green cards attached?

A. Yes.

Q. Were Exhibits 1 through 4 prepared by you, under your supervision, or compiled from company business records?

A. Pardon?

Q. Were Exhibits 1 through 4 compiled by you or from company business records?

A. From company business records.

Q. And in your opinion is the granting of this Application in the interests of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I'd move the admission of XTO's Exhibits 1 through 4.

EXAMINER EZEANYIM: Any objections?

Exhibits 1 through 4 will be admitted into evidence.

MR. BRUCE: I have no further questions of the witness, Mr. Examiner.

EXAMINER EZEANYIM: Okay, Mr. Spencer, maybe most of these questions will be -- maybe I'll ask that question -- How many witnesses do you have, three?

MR. BRUCE: I have a geologist and an engineer also, Mr. Examiner.

EXAMINER EZEANYIM: Let me defer my questions until I hear them.

Did you want to ask anything?

MS. MacQUESTEN: I have no questions, thank you.

EXAMINER EZEANYIM: I might want to ask questions after I've heard everything.

MR. BRUCE: Okay. Mr. Examiner, next we're going to call the geologist, but I need to go get Richard to set

up -- He's going to do a PowerPoint display, so if we could have five minutes to set up for the PowerPoint display.

EXAMINER EZEANYIM: Okay, do you -- Maybe at this point we'll take a quick, short break. Come back in five minutes.

(Thereupon, a recess was taken at 9:25 a.m.)

(The following proceedings had at 9:40 a.m.)

REED H. MEEK,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. My name is Reed Meek, I live in Keller, Texas.

Q. Who do you work for and in what capacity?

A. I work for XTO Energy, and I'm the --

EXAMINER EZEANYIM: Excuse me, how do you spell your last name?

THE WITNESS: Meek, M-e-e-k. -- and I am a geologist.

Q. (By Mr. Bruce) Have you previously testified before the Division?

A. Yes, I have.

Q. And were your credentials as an expert petroleum

geologist accepted as a matter of record?

A. Yes.

Q. And does your area of responsibility at XTO cover this part of San Juan County?

A. Yes, it does.

Q. And are you familiar with the geology involved in this -- in the Ute Dome-Paradox Pool?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Meek as an expert petroleum geologist.

EXAMINER EZEANYIM: Mr. Meek is so qualified.

MR. BRUCE: Mr. Examiner, as you can see, Mr. Meek is going to do a PowerPoint presentation. All of his exhibits have been marked Exhibit 5. They have not been marked individually, otherwise we'd be getting up to 40 or 50 exhibits for the hearing. So they are all included in the package marked Exhibit 5.

Q. (By Mr. Bruce) Mr. Meek, could you start off with your first display and discuss what XTO seeks in this Application and the reason for that?

A. Okay, we are looking to downspace the Ute Dome Pool to be able to drill four wells in each 640-acre tract.

Q. Now, when you say downspace, spacing will remain 640 acres?

A. That's correct.

Q. You just seek to -- permission to infill --

A. That's right.

Q. Okay --

EXAMINER EZEANYIM: At this point, the last testimony by Spencer says two wells per 640, but I think the Rule says one well per 640.

MR. BRUCE: One well.

EXAMINER EZEANYIM: I don't know, which one is it?

MR. BRUCE: It is one well per 640, Mr. Examiner. In the past, XTO has come before the Division to drill a couple of infill wells to test out its theories.

EXAMINER EZEANYIM: And they were approved?

MR. BRUCE: Yes.

EXAMINER EZEANYIM: Okay, that's why -- Okay.

Q. (By Mr. Bruce) Go ahead, Mr. Meek.

A. Okay, and then I've just listed here the proposed infill area, which Mr. Spencer has covered already.

Q. Could you give a little history of the pool and the production from the pool?

A. Yes, on the next slide, the field was discovered in 1948. Again, initial drillblock size was 640 acres. XTO became the operator of the field. We acquired the field in 1997 but took over operatorship in early 1998.

Subsequent to becoming operator, we have drilled

a number of wells in the field, two of which we regard as replacement wells, and I'll show those to you on a map.

So in a portion of the field we've, in effect, drilled the field down to 320-acre spacing, and production results from these wells has encouraged us to believe that infill drilling will be an economically successful venture.

And then currently the cumulative production for the field stands at 115 billion cubic feet of gas.

Q. And will XTO's next witness, the engineer, discuss what reserves, additional reserves, XTO hopes to gain by this Application?

A. Yes.

Q. And what does this slide depict?

A. Okay, this slide is a map of the area which includes the Barker Dome field, which is up to the northwest, and then the Ute Dome field to the southeast. The two fields are in the same area, but they are separated. There is a geologic feature through here, a fault that separates the two, so they're two separate structures. You'll see that more clearly on the next map.

Also depicted on the map are circles around each of the wells that depicts the relative amount of production from these wells. So in the Ute Dome field, this well in -- I guess that would be Section 11 -- is the well that's produced the most at 23 billion cubic feet. And then each

of the other wells in the field has produced a lesser amount of gas.

Also I'll be showing a type log, which is indicated, which is that well that I just spoke of. And then the --

Q. From the most productive well?

A. Right. Then the green outline shows the area that is the subject of our Application.

Q. Okay. Would you move on to the next display and discuss the structure in this pool?

A. Okay, this is a structure map contoured on the top of a geologic horizon we call the Ismay. This is based on a 3-D seismic survey. And as you can see, it shows clearly that the Barker Dome field up to the northwest is a separate structure from the Ute Dome field to the southeast.

The Ute Dome field is productive throughout the area that's been drilled, so we really haven't found a downdip limit, if you will, but there probably is one. You know, the wells haven't tested the very lowest parts of the structure.

Q. There is additional room for -- there is room for additional expansion of the pool, perhaps, in certain areas?

A. Yes, I think that's possible.

Move on to the next slide?

Q. Yes, sir.

A. Okay, this -- again, this is showing the well size relative to the cumulative production from the wells, with the contours of the structure.

One of the main points that I wanted to make with this slide is to show the location of wells that XTO has drilled subsequent to becoming operator of the field. So there's a yellow symbol that represents wells that we drilled in 1999 to 2000, so that's three wells down in this area. And then in the year 2003 we drilled three wells out in this area.

Q. The northwest -- kind of the northwestern part of the pool?

A. That's correct, yeah.

So the circles, the colored red circles around each well in this slide shows the cumulative production from the well, and the next slide, I'll be showing the current production. So I wanted to contrast these two slides so that you can see that the wells here down in the southeast have been historically the most productive. But if we look at the current production, which is now the next slide, you can see that two of the wells that XTO drilled in 1999 to 2000 are now two of the most highly productive wells currently. And then also the two wells to the

northwest that were drilled in 2003 are also two of the most productive wells.

So the main point to show here is that four of the six wells that XTO has drilled have been what we consider highly successful. We've achieved high production rates out of those wells, and they are currently the most productive wells in the field.

EXAMINER EZEANYIM: On your map here, your circles are directly proportional to the cumulative production; is that what you're trying to show?

THE WITNESS: The first map, the circles are relative to the cumulative production; in this map, the circles are relative to the current --

EXAMINER EZEANYIM: Current.

THE WITNESS: -- production, yeah.

EXAMINER EZEANYIM: Okay.

Q. (By Mr. Bruce) Mr. Meek, is the current producing rate given under -- or within each circle?

A. Right, under the well symbol in each circle is printed the current producing rate.

Q. Okay, so that well in Section 27 is producing about 1450 a day?

A. Right.

Q. Okay. And then the green, are those the wells which XTO would like to drill in the somewhat near future?

A. That's correct, these are wells that we have internally proposed drilling. Some of these locations may have been permitted. I'm not exactly sure of the current status on the permitting of those locations.

Q. Okay, why don't you move on to your next display?

A. Okay, this is a cross-section of the field, and what I want to show here is to begin to help you understand the stratigraphic complexity of the field. The productive interval is the Paradox formation, which is a rather thick interval.

Over here on the right side of this figure, I show the depth, the measured depth at the top of the cross-section, of 7250 feet, and the bottom of the cross-section of 8150 feet. So this is 900 feet of gross interval that I'm showing in the cross-section.

And then over on the left-hand side I'm showing the geologic names that have been assigned to several of the units that we've used to subdivide the field up. So from the top to the bottom these include the Honaker Trail, the upper Ismay, the lower Ismay, the Desert Creek, the Akah, the upper Barker Creek, the lower Barker Creek, and the Alkali Gulch.

Q. Before we leave this display, Mr. Meek, are there any studies which show if any of these individual zones within the Paradox formation are more productive than the

others?

A. Yes, I will address that question to some extent. Well, let me answer it this way. The production from all of these zones is commingled --

Q. Right.

A. -- so there is not separate production data for each of these individual zones in this field.

Q. It's considered one formation, so it's not really commingling, it's just -- you don't need to test the separate zones?

A. That's right, yeah. So it's difficult to say precisely how much gas is being produced from each of these individual zones.

Q. Okay.

A. But what I wish to show in the subsequent slides is that within each of these zones there are zones of porosity that we can identify from the well logs. However, these zones of porosity are very discontinuous. They show up in one well but they don't show up in adjacent wells. So it's a very complex stratigraphic reservoir in the sense that there's not a uniform distribution of porosity throughout the reservoir.

Q. And when you say it's discontinuous, can it be discontinuous from one well to the next?

A. That's what we interpret from the well logs, is

that generally the zones of porosity that we see in one well are not the same zones of porosity that are present in the adjacent well.

Q. Go ahead.

A. Okay, what I wish to do next is, I'll show a type log that will show in a little more detail each of these zones, and then I'll go through a series of maps that will show some of these zones individually, to show how -- the way that they map out, you can see the stratigraphic complexity.

I guess I'd also just like to comment on the type of rock that we're dealing with here. This is a sequence of carbonate rocks. They were deposited in the Pennsylvanian period, and at that time there was a shallow marine shelf in this area, and the sea level fluctuated regularly. And so each one of these different subdivisions represents a rising and a falling of sea level.

And there are some shales in there. This is depicted here, the brown color just below the zone marked the lower Ismay, is one of the thicker shales in this area. And the thick shales represent a time when the sea level was high. And then as the sea level dropped, carbonate rocks were deposited in this shallow marine environment.

This is somewhat analogous to areas kind of -- in the modern areas like the Bahamas where you have shallow

marine carbonates being formed. And so in -- we have some modern analogs that have some similarities to this, and we recognize from those, and also from outcrop studies, that the types of porosity that we see here are generally very discontinuous and cover fairly small areas. And I guess I'll address that a little more as I show a few more of the slides.

Let me move on to the next slide. This is a type log. This is from the well, the Ute Mountain Gas Com Number 1, and this well has produced 23 billion cubic feet of gas, so it is the -- historically the most productive well in the field.

This type log starts here on the upper left and then goes down and then continues in the middle panel and then on the far right. So the bottom of the log is on the lower right, and the top of the log is on the upper left. So you can see here each of the individual zones that are productive. Again, the Honaker Trail, upper Ismay, lower Ismay, et cetera.

Also depicted on the log in -- There's a depth track which, if you can see where my arrow is pointing, there are some perforations that are marked. So you can see where this well has been perforated and where the gas is being produced, and that is throughout this entire interval. So there's perforations up in the Honaker Trail

section, which is near the top of the Paradox, all the way through the Paradox and down into the lower Barker Creek, there are perforations, here, which are the lowest in this particular well.

So one of the key points to make here is that the field produces from this entire stratigraphic section, which is almost 1000 feet thick. So it's a very thick gas column, and there are, you know, multiple zones that produce in that gas column.

Q. And is it typical of most of the wells in the pool to have a number of the separate zones perforated in a well?

A. Yes, in virtually every well there are a number of zones perforated.

Q. Why don't you move on to your next display?

A. Okay, the next display -- I'm going to be showing some cross-sections, and the first one will be just focusing on this upper Ismay interval, which is here in this particular well, just below 7500 feet. So this is the cross-section.

Over on the right-hand there's a little index map that shows the three wells. They're located in the northeastern portion of the field. What I wanted to show here is, this is a good example of the discontinuous nature of the reservoir.

In particular, if you look at the well that's in the middle of this slide, the Ute Indians A 10, in the section that's labeled "Upper Ismay", which is in the middle of the log, there's a number of zones in there, you can see where the perforations have been made in this particular well.

And if you look at the log curves on the far right, where my arrow is pointing, this represents the porosity logs that we have on the well. There's both a density and a neutron log curve. And these porosity logs show a very nice, porous interval at this depth, which, I regret to say, I can't remember what the depth is, but you can see where my arrow is pointing. There's a nice porosity zone there, and then there's a couple just below that. And I've got those flagged with a little red pay marker out on the right-hand side of the log.

Now, if you look at the adjacent wells going to the -- first the well to the right, which is moving to the northeast, you can see that that same porosity zone that we see in the upper Ismay is not developed nearly as well as it is in the Ute Indians A 10 well. And then --

Q. That well is only about a quarter mile away?

A. That's right, quarter to a half a mile. And then if you go to the south, to the next well to the south, you see the same situation, that that same zone is not nearly

as well developed and some of those porosity zones are really not developed at all.

So I think this is a nice example of the kind of discontinuous nature that we see to these zones of porosity. And from what we understand about the depositional environment, these porous zones represent small buildups, carbonate buildups, composed of an organism called phylloid algae. And in outcrop studies it's been demonstrated that many of these mounds will cover just a few tens to maybe a few hundred acres.

Q. Does the next display exhibit the same heterogeneity?

A. Yes, the next display is a different zone. We're moving down to look at the lower Ismay and the Desert Creek zones, and it's a different set of wells, again on kind of the northeast side of the field.

What we see in this display, I guess the first thing I want to point out is the lower Ismay section, where I'm pointing with the pointer. On the -- the well on the far right of the cross-section, the Ute Dome Federal Number 1, there's a very nice zone of porosity developed in that lower Ismay section, which has been perforated. And we consider it one of the primary gas-producing zones in this particular well, but we don't see that same porosity developed in any of the other three wells in the cross-

section. So again, just to emphasize the discontinuous nature of these porous zones.

And then if we move down into the Desert Creek section, there's three wells in this cross-section that show a good development of porosity. The one on the far left which I'm pointing to, the Ute Indians A 10, there is this zone which shows a good porosity development.

And one thing I want to point out here in this particular zone that seems quite common in these wells is that we get a lot of washouts when we drill the well, the well washes out. And that's shown, if you look on the far right there's a -- what's called a caliper curve that measures the size of the borehole, and it's depicted in red. And through this zone here it's washed out. And that's actually causing our porosity logs to probably read much more optimistic porosity numbers than we might expect. But it makes it hard to really understand, you know, how good the porosity really is in the Desert Creek.

And in three of the wells in my cross-section, we have these same types of washouts. The well to the far left and then the two wells on the far right both experienced severe washouts in the Desert Creek. We think that this is an indication that the rock is actually quite porous and is a pretty good reservoir, but because we don't get good log readings, it's difficult to say. We typically

perforate this interval, and we feel like it's one of the main producing zones in the wells as well.

But I wanted to also point out the second well from the left. In this well we don't see that same type of washout and we don't see good porosity developed. So I think this is, again, a good example of how from one well to the next the nature of the reservoir changes quite dramatically and the zones appear to be, you know, discontinuous and really not connected from well to well.

Q. And thus the need for additional wells to develop all of the reservoir?

A. Exactly. So I'll move on to the next slide. Let me back up one before I go to the maps. Let's see, how do I page up on the thing here? Well -- okay, there's a previous, there we go. Okay, back up a little bit.

So before I move on to the maps, what I'm going to do now is go through a series of maps that show the entire field and the distribution of these little zones of porosity that I've shown on the cross-section.

So if we look at this upper Ismay zone on the cross-section, for example, I'll be showing a map, first of all, that will show the total gross interval, the thickness from top to bottom of this. And then I will show a map that depicts how much porosity we're able to map from the logs in that interval, using the density log. And then we

also typically run a neutron and a density log, so we get an average porosity.

And those porosity readings vary quite a bit. Sometimes they're quite similar, and sometimes there's quite a bit of difference in the way that the two logging tools show and depict the porosity in the zone.

So what I wanted to show with the maps, again, is just how the porosity that we see is located in sort of small pods, if you will, in each of the zones. So I'm just going to step through a number of the zones, and I'll show a series of three maps for each zone. The first one will be a gross interval, the second one will be a density porosity, and the third one will be an average porosity.

Q. Okay, why don't you go do that? Starting with what, the upper Ismay?

A. So I starting with the upper Ismay, and again this is the gross interval, and you can see that the upper Ismay zone thickens quite a bit in the southern and eastern parts of the field and is thin through this portion of the area.

And then if we look at the porosity where it's developed, it's somewhat consistent with where the isopach map shows porosity, but we see thick zones of porosity in the upper Ismay down here in -- I believe that's Section 4, over here in Sections 26 and 35, and then up here in

Section 20. So you can see that it's not a uniform distribution.

And then if we look at the average porosity, the first one was the -- just from the density logs. This is the average porosity, which encompasses both the density and the neutron logs, and it changes the picture a little bit more. So we get a little bit different story, depending on what kind of logs we're looking at. But the main point is that the zones of porosity are isolated and discontinuous.

This is the lower Ismay, again a gross-interval isopach, so this zone is thickest over on the western part of the mapped area. And the porosity distribution is -- there's a very thick porous zone in one of the wells -- or actually two of the wells located down here in Sections 10 and 11. And then also up here in the Barker Dome field we see some thick porosity pods. But again, quite discontinuous and --

Q. Highly variable?

A. Right. And then this is the average porosity map of the same interval.

If we look at the -- There's one of the shales that I decided to show on a cross-section, the Gothic shale, which lies above the Desert Creek zone, and you can see even in the shale intervals there's quite a bit of

variability in the thickness where there's a really thick shale through here, but it thins quite a bit as you go to the south.

Q. Is there any production from the shale?

A. No, there's no production from the shale.

Okay, this is the isopach of the Desert Creek interval, and it shows that it's thickest on the -- sort of the south and east sides of the field and thins as you go to the northwest.

The porosity distribution is in many ways similar. This is looking at the density porosity. It's best developed on the eastern and southern part of the field, but there's also one well over here in Section 20, in the -- actually in the Barker Dome field, that has a nice porosity thickness.

And then because of all the washouts in the Desert Creek, we get quite a different picture if we look at the average porosity instead of just the density porosity. But again, the zones are discontinuous and don't, you know, and have a uniform distribution of porosity across the field.

The next slide is looking at the Barker Creek interval. It's thickest in the northwest -- excuse me, the northeast part of the mapped area. And the porosity development is best in the north, and actually up in the

Barker Creek, Barker Dome field, is where this is -- the porosity is best developed, but there are some zone down in the Ute Dome field that are -- also have good porosity development, such as this area in Section 1. And then this is the average porosity map for the same interval.

And finally, this is just looking at the overall Paradox, the whole package, the whole thousand feet, and adding up all of the porosity zones that we see, and we have probably the best porosities developed down here in the southeast part of the Ute Dome field. There's also this well in Section 34 where we have a nice net porosity thickness. But really there's, you know, good porosity development throughout. And I'm quite certain, as we continue to drill more wells, you know, we'll encounter new zones of porosity that we have not seen in any of the existing wells. And I think as you get into the testimony of the reservoir engineering from the production, we can see that we're producing gas that wasn't accessed with the original wells that were drilled before we took over operatorship.

Q. And you don't have to put this up, but in looking at your cumulative production map versus your Paradox total net pay, it doesn't appear there's a one-to-one correspondence between cumulative production --

A. That's correct, we don't see a real direct

correspondence with cumulative production and the amount of porosity we're able to map. And part of that may be because there -- we believe the reservoir does have a fracture component, which is difficult to map with the type of data that we have on the field. So that adds another complexity to the nature of this particular reservoir.

Q. And as a result, as you stated before, it supports the need for additional wells to be drilled within this pool?

A. That's correct.

And I believe that is the last of my slides.

Q. And was what is marked as Exhibit 5, which you just presented on the PowerPoint -- was it prepared by you or under your supervision?

A. Yes, it was.

Q. And in your opinion is the granting of this Application in the interests of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: That's all the questions I have of the witness, Mr. Examiner.

EXAMINER EZEANYIM: Do you have any questions?

MS. MacQUESTEN: No, thank you.

EXAMINER EZEANYIM: I have questions, but I think I want to ask those questions when the last witness -- so

that any of them can answer it at that point.

Any objection to admitting this into evidence?

Well, at this point Exhibit 5 will be admitted into evidence.

Call your next witness.

MR. BRUCE: Mr. Examiner, Mr. Voigt's exhibit is simply marked Exhibit 6. Again, because there are so many displays, we just marked it as a cumulative exhibit, and we'll let Mr. Voigt go through it.

BARRY VOIGT,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Could you please state your name for the record?

A. Barry Voigt.

Q. Could you spell your last name for the court reporter?

A. V as in Victor, -o-i-g-h-t.

Q. Where do you reside?

A. Azle, Texas.

Q. Who do you work for and in what capacity?

A. XTO Energy as a reservoir engineer.

Q. Have you previously testified before the Division?

A. Yes, I have.

Q. And were your credentials as an expert reservoir engineer accepted as a matter of record?

A. Yes, they were.

Q. And does your area of responsibility at XTO include the Ute Dome-Paradox Pool?

A. Yes, it does.

Q. And as a matter of fact, have you previously testified before the Division on matters regarding this pool?

A. Yes, I have.

MR. BRUCE: Mr. Examiner, I'd tender Mr. Voigt as an expert reservoir engineer.

EXAMINER EZEANYIM: Mr. Voigt is so qualified.

Q. (By Mr. Bruce) Before we get into your exhibits, Mr. Voigt, what is your conclusion about the need for infill drilling in this pool?

A. Based on everything I've looked at and since I've worked this field, since we've taken it over, it appears that we need more than the current spacing allows, which is one well per section. We need up to four wells per section.

Q. And that is necessary to adequately recover the reserves in this pool?

A. Yes, it is.

Q. Would you refer to what's been marked Exhibit 6, and start with the first page. What does that reflect?

A. The first page is a Paradox Field P/Z curve, and what you can see, the line that is labeled "Base Wells", those are all the wells that were drilled up and through 1979, and the pressures taken on those wells.

All the triangles for pressures on these wells are the wells that XTO has drilled, and the individual pressures, in some of the individual zones that the geologist went through all the logs.

What you have is the 2000-drill wells, you have the -- which are colored, the first set of color going vertically. Some of the triangles that are not colored, those were workovers that we performed, in which we obtained shut-in pressures on. And then you see the next column of triangles for the 2003-drill wells.

Q. Okay. But to take a step back, you mentioned that the base wells are those drilled up to 1979?

A. Yes.

Q. Those wells were drilled by Amoco, I believe?

A. Correct.

Q. And then what period of time was it before any wells were drilled again?

A. Approximately 20 years.

Q. And those next batch of wells were drilled by

XTO; is that correct?

A. Correct. One other thing that I'd like to note on this is that if this field and the base wells, original wells, one well per 640, were draining the field, all of these pressures would be expected to line up on that P/Z line.

And what you see here is quite a few points way above that line. And for instance, even the points on the Ute Mountain Tribal D 8 and the Ute Indians A 36, which were drilled in 2003, are fairly close to the original pressures of the field. And you can see that through time wells have been drilled that have encountered near virgin pressure.

Q. Or at least pressures substantially higher than what the decline curve would have indicated?

A. Yeah, the P/Z curve, yes.

Q. Okay.

A. And the other thing to note on here is that the base wells up and through 1979 have a cum of about 109 BCF. And the base wells decline EUR is about 118. The P/Z suggests that there is about only 111 on the base wells. So basically, you're recovering fairly close to slightly higher than what the base wells suggest.

Now, if you look at all the wells together, including the wells that XTO has drilled, the total wells

cum is 114, which surpasses what the P/Z would have predicted off the base wells. And also, the total wells decline EUR for the entire field is about -- approximately 134 BCF.

Q. Does this indicate that if there were no additional wells drilled, you'd recover about an extra 19 BCF?

A. Correct.

Q. Okay.

EXAMINER EZEANYIM: Now, before you go, how do you get that red line?

THE WITNESS: That red line? That is the total wells decline EUR, and if you flip to the plots, the next two sheets, those are the decline curve EURs.

EXAMINER EZEANYIM: So that's how you got that point?

THE WITNESS: Yes. And we currently have two wells shut in from the wells that we drilled as additional wells per section. So when you see a bump up on that forecast curve --

EXAMINER EZEANYIM: Okay.

THE WITNESS: -- that assumes returning those wells to production to account for those reserves.

EXAMINER EZEANYIM: Go ahead.

Q. (By Mr. Bruce) Why don't you move on to the next

portion of your exhibit, Mr. Voigt?

A. The next portion of my exhibit, one of the sections that we ended up drilling a second well in was Section 2 of 31 North, 14 West. We shut in the Ute Indians A 7 well to drill the Ute Indians A 26 well, since current field rules would not allow us to produce two well in a 640-acre unit.

If you look at this -- and the three sheets behind this are the backup material for the summary sheet on the front -- the Ute Indians A 7 decline curve EUR would be approximately 11.8 BCF. The Ute Indians A 26 decline curve EUR, which was the well that we drilled --

EXAMINER EZEANYIM: Which well are you looking at now?

THE WITNESS: The A 2- --

MR. BRUCE: The --

THE WITNESS: Yeah, the second --

MR. BRUCE: The Section 2 reserve summary, plus the subsequent sheets.

EXAMINER EZEANYIM: Oh, okay.

THE WITNESS: Yeah, the next three sheets, sorry about that.

If you look at those two decline curve EURs, the Ute Indians A 7 was capable of approximately 11.8 BCF, the Ute Indians A 26 approximately 5 BCF, and the first backup

sheet after the summary sheet is the P/Z curve for the Ute Indians A 7 well over time. And that would have predicted approximately 12.1 BCF. So basically the A 26 is recovering approximately 4.7 BCF over what the P/Z would have predicted. And I coin those as kind of unique reserves that the A 7 would not have recovered.

EXAMINER EZEANYIM: Well, what is the nature of your abandonment pressure in this one?

THE WITNESS: Excuse me?

EXAMINER EZEANYIM: Abandonment pressure, what --

THE WITNESS: Approximately 400 pounds, which gives you between an 85- and 90-percent recovery factor.

Q. (By Mr. Bruce) About how far are these two wells apart, Mr. Voigt?

A. They are approximately one mile. It's less than a mile, probably three-quarters of a mile. And --

Q. What -- Go ahead.

A. -- if you just look at decline curve comparisons, the Ute Indians A 26 EUR, of course, is a little 5 BCF; the Ute Indians A 7 remaining reserves, if it were returned to production, is about 1.6 BCF. So it's recovering reserves that the A 7 would not have recovered.

Q. Let's move on to the Section 10 infill information.

A. Section 10, we did the same type scenario as the

previous section in which we shut in the Ute Mountain Tribal D 1 well to drill and produce the Mountain Ute Gas Com N 1 well. And same setup as the last, where we have the following three sheets are the backup documentation.

The Ute Mountain Tribal D 1 decline curve EUR is approximately 8.7 BCF; the Mountain Ute Gas Com N 1 decline curve EUR is approximately 3.5 BCF; and the P/Z EUR from the Ute Mountain Tribal D 1 predicted approximately 10.7 BCF. So the difference is about 1.6.

And you do the same type decline curve comparison on this, and it's approximately 3.4 BCF of unique reserves. The D 1 was producing at approximately 30 MCF a day at the time we shut it in.

Q. So again, your calculations show that there are several BCF that will be recovered by the infill drilling?

A. Correct.

Q. Why don't you move on to your volumetric calculations and discuss what that indicates about the pool?

A. On the volumetric calculations what we did is went through all of the logs and looked at porosity and water saturation. We got a ϕh number, and what this exhibit shows is the individual wells, the porosity thickness. And average HPV is average hydrocarbon pore volume, which is basically your ϕh times 1, minus your

water saturation.

The decline curve EUR for each well, the average drainage acres, which is a calculated number based off the previous information, a 640-acre average original gas in place number, and then an average recovery factor based on 640-acre spacing, and that decline curve EUR.

And all the wells that are highlighted in bold are the wells that XTO has drilled, so they were beyond the 1979 time frame. And if you look at an average of all the wells, the recovery factor is approximately 37 percent. If you look at the average of the older wells or the base wells that Amoco drilled, the recovery factor is approximately 42 percent. Just to look at the one-well-per-section type deal, the recovery factor is approximately 42 percent.

Then I went and looked at the Section 2 where we drilled the additional well, the A 26 for the A 7 well, and if you look at that, with both wells, using just the A 26 log data, you have a recovery factor of about 50 percent. If you average the offset wells and their log data, you get approximately a 65-percent recovery, and that is a two-well recovery per section.

If you look at the original well using the same type data, you get -- using the A 26 data, you only had about a 35-percent recovery off that base well in that

section, and using the offset average it's approximately a 45-percent recovery factor.

And the main difference in those numbers can be the heterogeneity in the reservoir, and I'm trying to account for that using the offset average.

Section 10, going through the same scenario, using the N 1 data, the recovery for both wells in the section is approximately 34 percent, and using the offset average is approximately 57 percent, whereas the base well was only going to recovery 24 percent, using the N 1 data and, using the offset data, approximately 40 percent.

So in a sense, drilling those additional wells in those sections, we've only taken our recovery factor up to 57 and 64 percent.

Q. But that still represents what, about a 50-percent increase in the recovery factor, just with the one additional well?

A. Correct. And all the sheets, the backup sheets behind here, are just the decline curve production curves for the wells, to show where the EURs came from on the wells.

Q. Just to show the backup data?

A. Correct.

Q. Exhibit 3 showed the additional acreage that XTO requests be added to the pool. What is the basis of that

request, Mr. Voigt?

A. In Section 4 we drilled the Ute Mountain Tribal D 8 well in 2003, and it has productive Paradox, so we'd like to include that section in the pool.

EXAMINER EZEANYIM: Section 4?

THE WITNESS: 4 of 31 North, 14 West.

EXAMINER EZEANYIM: Yeah. You drilled your well in that section?

THE WITNESS: The Ute Mountain Tribal D 8, in 2003, and it is currently producing out of the Paradox.

Q. (By Mr. Bruce) And it was never taken care of through the normal nomenclature procedure of the OCD?

A. Correct. And Section 12, we -- in 2000 we had drilled the Ute Mountain Tribal J 7 well, which we ended up having to junk and abandon. The test rates on the Paradox showed productive Paradox in that well, and we are currently looking for a redrill location on that.

EXAMINER EZEANYIM: Are you also asking for Section 12?

THE WITNESS: Yes. Yes, in 31 North, 14 West.

EXAMINER EZEANYIM: It is not in the notice.

THE WITNESS: Yeah.

EXAMINER EZEANYIM: It's here, but it's not in the notice.

MR. BRUCE: And we could amend and readvertise

for that, Mr. Examiner.

THE WITNESS: Yes, I apologize for that.

EXAMINER EZEANYIM: Just a moment.

(Off the record)

EXAMINER EZEANYIM: Go ahead.

Q. (By Mr. Bruce) Now -- So what is the summary of your testimony with respect to the need for infill drilling, Mr. Voigt?

A. Basically from the engineering analysis and from actually drilling additional wells in sections, it shows that we are not going to get up to recovery factors that are typical for a gas reservoir. We are quite a bit lower. And it appears that we need more than two and more than likely upwards of four wells per section.

Q. What is a normal gas recovery factor for --

A. I would expect 85 to 90 percent.

Q. And you are substantially below that at this point?

A. Correct.

Q. As Mr. Spencer testified, you're requesting a relaxation of the well location requirements. What is the basis for that?

A. The 1650 was based on one well per section, and if we're going to drill four wells per section the topography in the area and some of the cultural aspects of

the area require you to have quite a bit of leeway in well location, so that those are the main concerns on that.

Q. And would it also allow more proper placement of wells to maximize drainage from the wells?

A. Correct.

Q. Was Exhibit 5 prepared by you, Mr. Voigt?

A. Yes.

Q. I mean, excuse me --

A. Six.

Q. -- Exhibit 6. And in your opinion, is the granting of this Application in the interests of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I'd move the admission of XTO Exhibit 6.

EXAMINER EZEANYIM: XTO Exhibit 6 will be admitted into evidence.

MR. BRUCE: No further questions of the witness.

EXAMINER EZEANYIM: Do you have any?

MS. MacQUESTEN: No questions, thank you.

EXAMINER EZEANYIM: I have some. In fact, that's why I -- my questions at the end, some of the questions that I wanted to ask were answered at the end. However, I still have a couple I'm going to ask.

I'm going to ask this question, you're going to

readvertise, because I wasn't -- to my knowledge that you're asking for Section 12 in that township to be added. You were only asking for 4, so we need to do another public notice.

So I think the case will be -- you know, in this hearing, to get that public notice done, maybe to September 22nd, to give you four weeks to do that.

But we can conclude the case here by asking you some of the questions, and then get all the information. So all you need to do in the next hearing is to submit that advertisement, and if there is no objection to that --

MR. BRUCE: I'll take care of that, Mr. Examiner.

EXAMINER EZEANYIM: Okay.

EXAMINATION

BY EXAMINER EZEANYIM:

Q. So Mr. Voigt, one of the questions I am going to through -- which is -- I think, is very good.

You have obtained some -- permission to drill two wells in some of these sections, right? --

A. Correct.

Q. -- and that's why you are comparing the production from one well, the original well that you call the base well, and the two wells. That way you are allowed to drill two wells, and you are getting approximately 57 percent.

Do you know what you might get when you have four wells, if you get the approval to get four wells on that? Did you do any calculation to get that information?

A. I didn't calculate it, but if you look at -- *per se*, if you added up -- look at this exhibit here.

MR. BRUCE: On your material balance sheet?

THE WITNESS: Yeah -- no, on my -- yeah, on my volumetric calculations. If you look at it on -- we are going from 45 to 64 on one section, so we increased our recovery factor by 19 percent, and from 40 to 57 on the other section. So in a sense we're getting about 18 percent additional recovery on those wells.

If that holds true for the field in general, the average of the older wells is about 42 percent, so that would take it up to -- you know, an additional well would take it up to 60, 78, and then you'd be slightly over 90, but typically those incremental recovery factors will go down over time as you drill additional wells, you know, they're not always exactly the same. And the heterogeneity of the reservoir might govern that too.

Q. (By Examiner Ezeanyim) Yeah. Okay, could you explain to me why you are asking for that? I know you said something about it, but I need to hear that again, about the relaxation of your requirement from 650 feet to 660?

A. The topography in the area is very rugged, and so

well placement is sometimes difficult at times.

And also you have some cultural issues, since it is on an Indian reservation, and to allot for that you need some leeway in well placement. And with all the original wells being drilled at 650 from the lease line -- or -- some of them have been nonstandard locations -- you need a little bit of leeway to direct yourself away from those wells too.

Q. And you drilled the well in Section 4?

A. Yes.

Q. And you think it is producing from this part of the formation?

A. Correct, it is perforated and currently producing from the Ismay zone, the Desert Creek and the Akah zones.

Q. And the testimony from the geologist says it's about -- Is it 900 to 1000 feet thickness for the Paradox --

A. Correct.

Q. -- those Ismay formations?

And the testimony today demonstrated that, you know, going across that 900-foot formation, there are some porosity -- heterogeneity and discontinuous porosity formations in that area; is that true? Is that correct? The testimony of the geologist, Mr. Meek.

MR. BRUCE: Meek.

MR. MEEK: Yes, that's true.

EXAMINER EZEANYIM: Okay, at this point I have no more questions.

Like I said before, we're going to take administrative notice of the fact that that Section 12 is not included in the public notice, so we're going to do that, and probably at the next hearing on September 22nd we might take this Case Number 13,544 under advisement, after due process has been accomplished.

MR. BRUCE: Okay.

Oh, Mr. Examiner, one thing. Mr. Simon is in the audience. I don't know if he has any statement or comment he'd like to make.

EXAMINER EZEANYIM: I'm sorry about that. I think you wanted to make a statement?

MR. SIMON: Yes, sir.

EXAMINER EZEANYIM: You can go ahead if you want.

MR. SIMON: Mr. Examiner --

EXAMINER EZEANYIM: May you state your name for the record?

MR. SIMON: My name is Jerry Simon. I am a petroleum engineer, representing the Ute Mountain Ute Tribe.

EXAMINER EZEANYIM: Thank you. You may proceed.

MR. SIMON: Please let the record that the Ute

Mountain Ute Tribe, the 100-percent mineral owner of the land subject to this petition, fully supports XTO in their request to amend the special rules and regulations for the Ute Dome-Paradox Gas Pool and to expand the horizontal limits of the pool.

EXAMINER EZEANYIM: Thank you very much. We got your letter attesting to the fact of what you just said. We got a letter from the Ute Mountain Ute Tribe saying that you support this Application.

MR. SIMON: I think your letter is from the BLM office --

EXAMINER EZEANYIM: Oh, well...

MR. SIMON: -- and this is in addition to their letter.

EXAMINER EZEANYIM: Oh, in that case --

MR. SIMON: We are basically speaking for ourselves in this case --

EXAMINER EZEANYIM: Okay.

MR. SIMON: -- and not having the BLM speak for us.

EXAMINER EZEANYIM: Okay, very good.

MS. MacQUESTEN: Mr. Simon, were you aware that XTO is asking to add Section 12, and is that --

MR. SIMON: Yes, ma'am, that is perfectly satisfactory with us. We think it is conducive to

additional recoveries.

MS. MacQUESTEN: Thank you.

EXAMINER EZEANYIM: Okay.

(Thereupon, these proceedings were concluded at 10:35 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 13564, heard by me on 5/26/05.

, Examiner
Oil Conservation Division

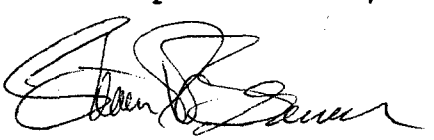
CERTIFICATE OF REPORTER

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 September 7th, 2005.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006