INDEX

	WITNESS	DIRECT EX.	REDIRECT	CROSS EXAM.	EXAM. BY BD/STAFF
1.	Barbara Roberts	5-7	--	--	7-8
2.	Barclay Rader	13-16	--	--	--
3.	David Higginbotham	22-44 64-78	--	45-47 97-110	48
4.	Travis Kimble	--	--	50-52	--
5.	Paul Lerwick	54-57 78-89	--	89-97	--
6.	Donald McGuire	112-119	--	132-134	--
7.	Kenneth Brimberry	121-128	--	134-140	--
8.	Robert Kennedy	130-131	--	140-142	--

EXHIBITS

TITLE	DESCRIPTION	OFFERED	RECEIVED
Exhibit 1 (Item 1)	Affidavit of Barbara Roberts	7	7
Exhibits 2, 3, 4, & 5 (Item 1)	Proofs of publication from newspapers	--	--
Exhibit 1 (Item 2)	Affidavit of Bert Green	11	11
Exhibit 6 (Item 2)	Affidavit of Steven F. Harrison	10	10
Exhibits 2, 3, 4, & 5 (Item 2)	Proofs of publication from newspapers	10	10
Exhibit 1 (Barclay Rader)	Well location plat Scott 22-13, Lamar County	16	16
Exhibits 2, 3, 4, & 5 (Item 3)	Proofs of publication from newspapers	16	16
Exhibit 1 (Item 5)	Affidavit of notice by William T. Watson	20	20
Exhibit 7 (Item 4)	Affidavit of notice by William T. Watson	20	20
Exhibit 8 (Item 4)	Affidavit of corrected notice by William T. Watson	20	20
Exhibit 1 (David Higginbotham)	Well location plat S35, T15S, R16W, Lamar Co.	42	42
Exhibit 2 (David Higginbotham)	Proposed drilling unit Star Field	42	42
Exhibit 3 (David Higginbotham)	Structure map top Carter Sand, Star Field	42	42
Exhibit 4 (David Higginbotham)	Recoverable reserves Carter Sand, Star Field	42	42
Exhibit 5 (David Higginbotham)	Isolith map net Carter Sand, Star Field	42	42

EXHIBITS
(Contd.)

TITLE	DESCRIPTION	OFFERED	RECEIVED
Exhibit 6 (David Higginbotham)	Structure map top Carter Sandstone, Star Field	42	42
Hopper Exhibit 1 (Travis Kimble)	Surface map S35, T15S, R16W, depicting Hopper family ownership	49	49
Rebuttal Exhibit 7 (Paul Lerwick)	Recoverable reserves Carter Sand, Star Field	58	58
Exhibit 2 (Item 5)	Affidavit of David V. Rigsby	60	60
Exhibit 3 (Item 5)	6-29-88 letter to William T. Watson from Board	60	60
Hopper Exhibit 3 (Item 4)	6-22-88 letter to Board from James Hopper	60	60
Hopper Exhibit 2 (Item 4)	7-7-88 letter to Board from James E. Hopper, Liffie R. Hopper, James A. Arnold, and Mary R. H. Arnold	60	60
Exhibit 8 (Item 6)	Affidavit of notice by William T. Watson	64	64
Exhibit 1 (David Higginbotham)	Well location plat in S16, T18S, R14W, Pickens Co.	88	88
Exhibit 2 (David Higginbotham)	Structure map top Carter Sand, Coal Fire Creek Field	88	88
Exhibit 3 (David Higginbotham)	Isopach map Upper Carter Sand porosity Coal Fire Creek Field	88	88
Exhibit 4 (David Higginbotham)	Isopach map Lower Carter Sand porosity Coal Fire Creek Field	88	88

EXHIBITS
(Contd.)

TITLE	DESCRIPTION	OFFERED	RECEIVED
Exhibit 5 (David Higginbotham)	Structural cross section A-A', Coal Fire Creek Field	88	88
Exhibit 6 (Robert Kennedy)	BHP vs Time (Carter zone) Coal Fire Creek Field	88	88
Exhibit 7 (Paul Lerwick)	Microlog isopach Carter Sand, Coal Fire Creek Field	88	88
Exhibit 1 (Don McGuire)	Structure map top Carter Sand, Coal Fire Creek Field	142	142
Exhibit 2 (Don McGuire)	Isopach Carter Sand gross thickness, Coal Fire Creek Field	142	142
Exhibit 3 (Don McGuire)	Isopach Upper Carter porosity, Coal Fire Creek Field	142	142
Exhibit 4 (Don McGuire)	Isopach Lower Carter porosity, Coal Fire Creek Field	142	142
Exhibit 5 (Don McGuire)	Reservoir map Coal Fire Creek Field	142	142
Exhibit 7 (Kenneth Brimberry)	Well data Coal Fire Creek Field, Carter zone Sections 16, 17, 20, T18S, R14W, Pickens County	142	142
Exhibit 13 (Kenneth Brimberry)	BHP/Z vs Time S17, T18S, R14W, Pickens County	142	142
Exhibit 8 (Kenneth Brimberry)	Volumetric summary Coal Fire Creek Field Carter zone, Sections 16, 17, 20, T18S, R14W, Pickens County	142	142

EXHIBITS
(Contd.)

TITLE	DESCRIPTION	OFFERED	RECEIVED
Exhibit 9 (Kenneth Brimberry)	Volumetric calculation Coal Fire Creek Field, Carter zone, Sections 16, 17, 20, T18S, R14W, Pickens County	142	142
Exhibit 10 (Kenneth Brimberry)	Volumetric reserve summary by section, Coal Fire Creek Field, Carter zone, Sections 16, 17, 20, T18S, R14W, Pickens County	142	142
Exhibit 11 (Kenneth Brimberry)	BHP/Z vs Cumulative Production S17, T18S, R14W, Pickens County Shelton 17-6 No. 1	142	142
Exhibit 12 (Kenneth Brimberry)	BHP/Z vs Cumulative Production Shelton 17-8 No. 1, S17, T18S, R14W, Pickens County	142	142

STATE OIL AND GAS BOARD OF ALABAMA

Tuscaloosa, Alabama

Special Hearing Officer Meeting

July 12, 1988

Testimony and proceedings before a Hearing Officer in the Board Room of the State Oil and Gas Board Building, University of Alabama Campus, Tuscaloosa, Alabama, pursuant to adjournment, on this the 12th day of July, 1988.

BEFORE:

Mr. Marvin Rogers.....Hearing Officer

BOARD STAFF

Dr. Ernest A. Mancini.....Secretary & Supervisor

Mr. Gary Wilson.....Assistant Supervisor

Mr. Jay Masingill.....Assistant Supervisor

Mr. Frank Hinkle.....Geologist

Mr. Tom Sexton.....Geologist

Mr. Richard Hamilton.....Petroleum Engineer

(Reported by Jean W. Smith)

APPEARANCES

	NAME	REPRESENTING
1.	Gregory C. Rader (Address not listed)	Enmark, Inc.
2.	Barclay Rader 234 E. Capitol Jackson, MS	Enmark, Inc.
3.	Barbara Roberts Tuscaloosa, AL	Taurus Exploration, Inc.
4.	Kathy Clayton Birmingham, AL	Taurus
5.	Tom Watson Tuscaloosa, AL	Taurus, Terra
6.	Travis Kimble San Antonio, TX	Hopper Family
7.	James E. Hopper San Antonio, TX	Hopper Family
8.	Mike Hopper Floresville, TX	Hopper Family
9.	James Hopper San Antonio, TX	Hopper Family
10.	Terry Hopper San Antonio, TX	Hopper Family
11.	David Higginbotham Jackson, MS	Terra Resources
12.	Paul Lerwick 118 Bayleaf Madison, MS	Terra Resources
13.	Mark Ayers Jackson, MS	Terra Resources
14.	Bill Dement Tuscaloosa, AL	Tom Joiner & Assoc.

APPEARANCES
(Contd)

	NAME	REPRESENTING
15.	Paul McGee Columbus, MS	McGee, Ltd.
16.	Robert T. Kennedy Houston, TX	Meridian Oil, Inc.
17.	Donn McGuire Houston, TX	Meridian Oil
18.	Bill Smithart Tuscaloosa, AL	Meridian Oil

PROCEEDINGS

(The hearing was convened at 10 a.m. on Tuesday, July 12, 1988, at Tuscaloosa, Alabama)

MR. ROGERS: This hearing is in session. This hearing is convened before a Hearing Officer in order to hear petitions by Taurus Exploration, V. Monta Currie, Jr., and Enmark, Inc. Mr. Watson is here on behalf of Taurus Exploration, Inc. Mr. Watson?

MR. WATSON: Yes. I have one witness and I'd like to have her sworn before we start, Mr. Rogers, if you'd stand up and state your name and address, please.

WITNESS: My name is Barbara Roberts and my address is Tuscaloosa, Alabama.

(Witness was sworn by Mr. Rogers)

MR. WATSON: Mr. Rogers, this item comes before you on a publication notice only and I'll explain the reason for that in just a minute. Ms. Roberts, you've never appeared before this Board and you've not had your qualifications as a landman accepted, is that correct?

MS. ROBERTS: That's correct.

MR. WATSON: Would you very briefly give us your background and work experience as a landman?

MS. ROBERTS: I've been employed in the oil and gas business since 1977. From 1977 to 1980 I was employed with the

Land Department of Terra Resources. From 1980 until '84 an employee with the Land Department of Charles Cherry & Associates, from 1984 to '87 I was an independent petroleum landman primarily working for Carless in Northport, Alabama. I'm currently a staff landman with Taurus Exploration, Inc.

MR. WATSON: In that capacity, are you familiar with ownership in the E/2 of Section 19 of 17 South, 13 West, Fayette County, Alabama?

MS. ROBERTS: Yes, I am.

MR. WATSON: Mr. Rogers, before I go further I would say that this publication only notice on this force pooling is due to the fact that we have been unable to locate the heirs of a man who severed minerals back in 1906, so that's the reason you do not have a prefiled affidavit of notice.

BARBARA ROBERTS

Appearing as a witness on behalf of Petitioner, Taurus Exploration, Inc., testified as follows:

DIRECT EXAMINATION

Questions by Mr. Watson:

Q Ms. Roberts, does Taurus own or control 100% of the rights

in the E/2 of this section?

A No.

Q To the best of your knowledge, has Taurus or your other working interest partners in this unit attempted to lease or notify or find the owners of these interests?

A We have not been able to find the owners.

Q O.K. As of this date, what percentage of the rights are not owned or controlled by Taurus?

A 8.75% of the unit or 28 net acres.

Q Is Taurus ready and willing to proceed with the drilling of a well on the E/2 of this unit?

A Yes.

Q And will Taurus continue to attempt to locate these heirs?

A Yes.

Q In your opinion, if the Board sees fit to grant this item, will waste be prevented and coequal and correlative rights be protected?

A Yes.

MR. WATSON: Mr. Rogers, I prefiled and affidavit of testimony in support of this item signed by Ms. Roberts. I would

ask that you receive that into the record of this hearing.

MR. ROGERS: That affidavit is admitted.

(Whereupon, the affidavit was received in evidence)

MR. WATSON: And I'm assuming, although I didn't slow up long enough for you to accept her as an expert petroleum landman, that she is accepted as such?

MR. ROGERS: She is accepted as an expert petroleum landman.

MR. WATSON: And she has prefiled an affidavit of those qualifications, Mr. Rogers.

MR. ROGERS: All right.

MR. WATSON: We have nothing else in this matter and would ask that you make a recommendation to the Board based on the testimony and the prefiled affidavit of testimony on behalf of Ms. Roberts.

EXAMINATION BY BOARD OR STAFF

Questions by Mr. Rogers:

Q I might ask on this case since it's a matter where you weren't able to contact a party if you could just state briefly what efforts you made to, that Taurus made to notify these people, Ms. Roberts?

A Our partners were the ones that have made the efforts up

until this point. They have---

Q Do you know what they did?

A Sir?

Q Do you know what they did to notify these people?

A Yes. They have worked on this for almost two years. Out of--the original person that severed the minerals had 10 children. Three--the heirs of three of those 10 children have been located at this time and leased. They have searched the Mormon records in Salt Lake City. They have examined census records, visited with family members that they have located, and they have searched courthouse records and the library and numerous other avenues that they have pursued, and at this point we are taking up the search.

Q Who was the company that did that work?

A Coastal Exploration.

Q All right. And to your--you can testify then to the Board and into the record that you're aware that they made a diligent effort to find these parties that were outstanding?

A Yes.

MR. ROGERS: All right. We want to mention that--is there any objection to waiving the 10-day rule for comment period of this item?

MR. WATSON: We have no objection. We waive that.

MR. ROGERS: Then that's waived and we'll review the matter, prepare a record, and make a recommendation to the Board.

MR. WATSON: Thank you.

MR. ROGERS: Thank you. The next item is a petition by V. Monta Currie, Jr., requesting force pooling of an irregular 160-acre unit. Mr. Harrison is here on behalf of petitioner, V. Monta Currie, Jr. Mr. Harrison.

MR. HARRISON: Yes, sir, Mr. Rogers. This petition bears Docket No. 7-12-882A. It is an amended petition and as you stated the petitioner proposes to drill the Smith, et al Unit 38 No. 1 well on an irregular drilling unit that is described by metes and bounds in Sections 30 and 38 of Township 8 South, Range 4 East, Baldwin County, Alabama, containing approximately 160 acres. I have prefiled affidavits of notice in this matter. I would point out that in both the Baldwin County newspaper and in the Montgomery newspaper they made minor errors

in the description of the metes and bounds boundary of the unit. However, we did give actual notice to the only party in this matter that is being force pooled. That owner does not object with proceeding with this hearing, therefore, we would suggest, or request, that this item be heard even though there are minor flaws in those two publications.

MR. ROGERS: Since the only outstanding owner received actual notice with the proper description of the unit, then we believe that the notice is sufficient.

MR. HARRISON: All right, thank you. I have prefiled copies of all those notices and would ask that they be accepted into the record.

MR. ROGERS: They're admitted into the record.

(Whereupon, the notices were received in evidence)

MR. HARRISON: I have also prefiled an affidavit of notice that I have executed indicating that the first class notice was given to the outstanding owner. Would ask that that be admitted.

MR. ROGERS: The affidavit is admitted.

(Whereupon, the affidavit was received in evidence)

MR. HARRISON: And I have also submitted and affidavit of testimony from Mr. Bert Greene and would ask that that affidavit be admitted.

MR. ROGERS: The affidavit is admitted.

(Whereupon, the affidavit was received in evidence)

MR. HARRISON: Therefore, I would request that this petition be granted on the basis of those affidavits.

MR. ROGERS: We'll review the matter and is there any objection to waiver of the 10-day comment period?

MR. HARRISON: No, sir. We would request that be waived.

MR. ROGERS: Then it will be waived and we will make a recommendation to the Board as soon as we prepare a record of the hearing.

MR. HARRISON: All right, thank you.

MR. ROGERS: Thank you. The next item is a petition by Enmark, Inc., requesting approval of an irregular gas unit in Lamar County, Alabama. Mr. Harrison is here representing Enmark. The docket number of this item is 7-12-883. Mr. Harrison.

MR. HARRISON: Mr. Rogers, I have one witness I'd like to have sworn, please.

MR. ROGERS: Sir, would you stand and state your name and address?

WITNESS: My name is Barclay Rader and it's 234 E. Capitol, Jackson, Mississippi.

(Witness was sworn by Mr. Rogers)

MR. HARRISON: Mr. Rogers, as we stated in the petition, Enmark is a foreign corporation. There's application for authority to do business in the State of Alabama. It is currently pending before the Secretary of State. I have spoken with the Secretary of State's office this morning and the only thing holding up the application right now is final approval of the franchise tax application by the State Department of Revenue. Although Enmark has petitioned in the name of Enmark, Inc., the Secretary of State's office has informed us that there is currently a corporation in Alabama using that name. Therefore, they have suggested that we use the name in Alabama of Mississippi Enmark, Inc., so when you see a permit application for this item it will bear the name of Mississippi

Enmark, Inc. Mr. Rader, have you previously testified before this Board?

MR. RADER: No, I have not.

MR. HARRISON: Do you have an affidavit of qualifications on file with the Board?

MR. RADER: Yes, I do.

MR. HARRISON: All right. Could you briefly tell us what your qualifications are as a petroleum landman?

MR. RADER: I worked as a staff landman from 1981 to 1983 for Dixie Energy in Jackson, Mississippi. From 1983 to 1987, I worked with C & R Resources as a landman, and from 1987 to present I'm a landman and president of Landmark, Inc.

MR. HARRISON: All right, I would ask that Mr. Rader be accepted as an expert petroleum landman.

MR. ROGERS: He is so recognized.

BARCLAY RADER

Appearing as a witness on behalf of Petitioner, Enmark, Inc., testified as follows:

DIRECT EXAMINATION

Questions by Mr. Harrison:

Q Mr. Rader, Enmark proposes to drill a well in Lamar County,

is that correct?

A Yes, sir, it is.

Q And what is the unit that you are proposing to drill on?

A The S/2 of Section 22, Township 12 South, Range 16 West, lying--it's in the S/2 of Section 22.

Q That portion of the S/2 of 22 lying in the State of Alabama?

A Yes, it is.

Q All right. Approximately how many acres is that?

A 314.

Q Is your proposed well location in the State of Alabama?

A Yes, it is.

Q All right, where is that location?

A It's 660 feet from the South line and 660 feet east of the state line.

Q O.K. And this location would be an exception to wildcat Rule 400-1-2-.02 of the rules and regulations of this Board?

A Yes.

Q And also an exception to Rule 3A of the Special Field Rules for the Wesley Chapel Field, is that correct?

A Yes.

Q Now this well is not--this unit is not in the Wesley Chapel Field but it is immediately adjacent to the field, is that correct?

A That's correct.

Q So--but do you believe at this point in time that if this well is productive it will be a productive extension of the Wesley Chapel Field?

A No, I do not.

Q All right. Are you currently contractually obligated to drill this well prior to the last week of this month?

A Yes, I need to spud the well by July 26th of this month.

Q All right. So you would request that this petition be expedited as quickly as possible?

A Yes, please.

Q All right. Are you familiar with the term "waste" as defined by the statutes of the State of Alabama?

A Yes, I am.

Q And in your opinion will granting this petition prevent waste?

A Yes, it will.

Q Will it protect the coequal and correlative rights of all owners in this proposed unit?

A Yes, it will.

MR. HARRISON: All right. We have submitted a plat of this proposed unit and would request that that plat be accepted into the record.

MR. ROGERS: The plat is admitted.

(Whereupon, the plat was received in evidence)

MR. HARRISON: We have also previously submitted affidavits of notice in this matter and would request that those affidavits also be admitted. (Affidavits referred to were newspaper advertisements)

MR. ROGERS: They're admitted into the record.

(Whereupon, the affidavits were received in evidence)

MR. HARRISON: Thank you. We have nothing further at this time.

MR. ROGERS: Also the notice by the--the publication notices are admitted.

(Whereupon, the notices were received in evidence)

MR. HARRISON: All right. We would also request that the 10-day comment period be waived in this matter.

MR. ROGERS: Your request is granted. We'll take a brief recess.

(The hearing was recessed 2 minutes)

MR. ROGERS: This hearing is back in session.

DR. MANCINI: Mr. Rogers, during the recess I asked Mr. Harrison a question or two to clarify this relationship with Mississipi Enmark, Inc., and Enmark, Inc. Mr. Harrison, would you address that?

MR. HARRISON: Yes, sir. Although the petition is in the name of Enmark, Inc., since the Secretary of State has requested that we do business in Alabama as Mississippi Enmark, Inc., I would verbally amend the petition at this time to state that the petitioner is Enmark, Inc., a foreign corporation doing business in the State of Alabama as Mississippi Enmark, Inc. Would request that that amendment be approved at this time.

MR. ROGERS: The amendment is approved, and we will accept at a later time a written amendment to the petition.

MR. HARRISON: All right. So you will leave the record open

until you receive proof that Enmark, Inc., has been approved in the State of Alabama to do business?

MR. ROGERS: That's what we'll do. The record will remain open in this matter. We'll--when the record is complete we'll prepare a record for the Board and make a recommendation to the Board.

MR. HARRISON: All right, thank you.

MR. ROGERS: Thank you. This hearing is adjourned.

(The hearing recessed at 9:20 and reconvened at 10 a.m.)

MR. ROGERS: This hearing is in session. We have before us two petitions filed by Terra Resources, Inc., Docket Nos. 6-23-886, a petition for an exceptional unit, and 6-23-887, a petition for force pooling. These items were continued from the June 24 meeting of the Board. These items will be consolidated for hearing purposes. Initially, would the parties identify themselves? Mr. Watson is here on behalf of Terra Resources, Inc. I see a number of people here. Would you like to identify yourselves if you're gonna participate in this hearing?

FROM AUDIENCE: Terry Hopper with the Hopper family.

FROM AUDIENCE: James E. Hopper, Hopper family.

MR. ROGERS: I assume you--do you all own the same interest

or connected with the same interest?

MR. HOPPER: Yes. This is James Hopper of the Hopper family.

MR. ROGERS: All right. And you, sir?

MR. KIMBLE: I'm Travis Nichols Kimble, San Antonio. I'm just representing the Hoppers.

MR. ROGERS: All right. You, sir?

MR. HOPPER: Mike Hopper.

MR. ROGERS: All right. Well, briefly, the procedure will be that the petitioner, Terra Resources, will present its case in chief and then you gentlemen would have an opportunity to cross examine their witnesses and then to present your own evidence, if you have any, and present any evidence or statement you want to make. All right.

MR. WATSON: Mr. Rogers, I have two witnesses and I'd like to have them sworn, please.

MR. ROGERS: Would you state your names and addresses?

FIRST WITNESS: David Higginbotham, Jackson, Mississippi.

SECOND WITNESS: Paul Lerwick, Jackson, Mississippi.

(Witnesses were sworn by Mr. Rogers)

MR. WATSON: Mr. Rogers, since we've consolidated these items for hearing purposes, I'd ask at the outset that you receive into the record of this hearing the prefiled affidavits of notices for these two items.

MR. ROGERS: The affidavits are admitted.

(Whereupon, the affidavits were received in evidence)

MR. WATSON: I've handed up exhibit booklets that you've passed out, and I've furnished the gentlemen at the other table with a copy of those exhibit booklets. My first witness will be David Higginbotham, and before I start with Mr. Higginbotham and his exhibits, let me make a statement for the record in this matter. Terra Resources is requesting the Board to consider approval of an exceptional unit in the Star Field. Terra Resources, by no stretch of the imagination, is recommending to this Board that a wholesale abandonment of governmental half sectional units be approved for the Warrior Basin. Quite the contrary, we have an extraordinary set of geological and engineering facts here that warrant special consideration and special consideration for this exceptional unit. Our testimony

will show to you that unless this exceptional unit is approved what we believe to be substantial gas reserves will never be recovered. The normal drilling pattern in the Star Field of governmental half sections would require, at the optimum geological location we're suggesting, at least two wells. Our testimony will show that no one's economics would support that. We bring this matter to you after careful consideration and deliberation. The weight of the evidence, we think our testimony will show, warrants approval of this unit. We will be confirming our interpretation by other general interpretations in the area, and on that basis and with that preface I would like to proceed with the testimony in this case, my first witness being David Higginbotham, a petroleum geologist. Mr. Higginbotham, you have testified before this Board and you have on file an affidavit of those qualifications, is that correct?

MR. HIGGINBOTHAM: That's correct.

MR. WATSON: And you're familiar with the petitions on file here today requesting an exceptional unit consisting of the SW/4 of Section 35 and the SE/4 of Section 34 of Township 15 South, Range 16 West, in Lamar County, Alabama?

MR. HIGGINBOTHAM: That's correct.

MR. WATSON: And you've prepared or have prepared under your supervision exhibits in support of this petition?

MR. HIGGINBOTHAM: I have.

MR. WATSON: I tender Mr. Higginbotham as an expert petroleum geologist qualified to testify on this matter.

MR. ROGERS: He is so recognized.

DAVID HIGGINBOTHAM

Appearing as a witness on behalf of Petitioner, Terra Resources, Inc., testified as follows:

DIRECT EXAMINATION

Questions by Mr. Watson:

Q Let's turn, if you would, Mr. Higginbotham, in the booklet of exhibits and let's take Exhibit No. 1, and would you tell Mr. Rogers and the staff what this exhibit shows?

A Now if you all will pull out Exhibit No. 1, Exhibit No. 1 basically shows our proposed location. Our proposed unit is in the SE/4 of Section 34 and the SW/4 of Section 35. Our proposed location is in Section 35 and is 1550 feet from the South line and is 77 feet from the West line.

Before I go into these exhibits, I want to tell you what these exhibits intend to prove. I'm gonna prove that there is a Carter Sand Gas Pool which has a maximum of 180 to 190 productive acres in Star Field, which is currently not being drained by any existing well. I'm gonna show the limits of this reservoir based upon an extraordinary amount of geologic control. Now if you all will put that exhibit aside and go on to Exhibit No. 2.

Q This exhibit is the proposed drilling unit plat with other wells shown, is that correct, Mr. Higginbotham?

A That's correct.

Q Let's describe the exhibit to Mr. Rogers and the staff, please.

A O.K. What I want to show on Exhibit No. 2 is show you all the dry holes that have been drilled in this vicinity looking for this small gas reservoir, and I think an understanding of these wells will better help us understand why we're--why we've chosen to, for this exceptional case, to get an exceptional location rather than use the standard half sections. First of all, if you'll look at the

Tucker-Hayes 34-10, the Coley 34-14, and the Williamson 34-16. I'll mention these wells real briefly. The Southland-Williamson 34-16 well was perforated in the Carter Sand and it flowed at a rate of two million cubic feet a day, and this well produced 120 million cubic feet of gas in the first three months of production. O.K. But it suddenly went to water and when they tried to continue producing it, it would just load up with water. All right. When I was working with a former company, we drilled two wells to the west trying to tap into this same reservoir. The first one was the Coley 34-14. We encountered the same Carter Sand in the Williamson 34-16, but we tested it and it produced a lot of water. We then came up the hole and tested some stray Carter Sands and were able to make a commercial completion out of that, but the big thick Carter Sand that we had sought after, you know, was wet in that well. And then we came and drilled a well updip, the Hayes 34-10, and we set pipe on this well and tested three different zones and they all proved to be noncommercial and the Carter objective was wet. And now I'd

like to go over and mention the two wells in Section 3. The first one is the Tucker-Bruce Rogers 3-2 well. We got an oil sand in the Carter, which apparently was downdip from the gas column, and this well produced quite a bit of oil for awhile but it just--the water gradually came in and it ended up making too much water to be a commercial well. And the Southland Royalty-Smith 3-7 was wet in the Carter. And now we'll look over in Section 35. I'd like to mention what happened to these wells. In Section 35, Browning & Welch drilled the Chandler 35-13 well looking for the same reservoir that went to water in the Williamson 34-16. They perforated the Carter, they acidized it, and they fraced it and were unable to make a commercial completion, and what I intend to demonstrate later in my exhibits is that that was because there's a permeability barrier in the Carter and the Chandler well happens to sit right on it. In the Browning & Welch-Odom 35-15, the Carter Sand was downthrown and it was wet, and in the Grace-Anderman Clearman 35-16 the Carter Sand was downthrown and wet. The point of all this is that there's an extraordinary number of dry holes

surrounding our proposed drilling unit. We don't think we're going for a big reservoir at all. We think there's exceptional control to demonstrate that this reservoir has a maximum of 180 to 190 productive acres. Now what I'd like to do is go on to Exhibit No. 3.

Q All right, sir. That's your structure map on top of the Carter Sand?

A Right.

Q Let's describe what's shown on that exhibit.

A O.K. This is Exhibit No. 3. Again, this is a structure map on top of the Carter Sand. This map indicates the trapping mechanism for our proposed exceptional location. This is a structure contour map on top of the Carter Sand in Star Field. Up on the north is a major east-west trending down-to-the-south fault. This fault exceeds 1500 feet of throw. It cuts both the Roberts 26-11 well and the Greer 25-6 well. The Star structure is a very well defined and generally recognized as a major graben system. I'd now like to discuss the southern portion of this graben system and the trapping structure on there. In the southern

portion of this, you can see a northwest striking down-to-the northeast normal fault system. This fault is very well defined by subsurface control. Now I haven't done this on the maps that I gave to you all, but right now I'd like to take a minute and point out the fault cuts in the individual wells that can be picked out from correlating the different logs. O.K. First of all, in the Tucker-Hayes 34-10 you've got a 50-foot fault at a subsea depth of 512 feet, and we ran a dipmeter across that and that confirmed the existence of this fault in addition to the missing section. And this dipmeter showed that--showed you that you had--updip was to the northeast. O.K. In the Southland-Williamson 34-16 well, there are two faults that cut this well. The first fault, a hundred-foot fault, cuts the well at a subsea depth of 732 and there's a 50-foot cut at a subsea depth of 1,032 feet. And now if you all will look over in Section 35. The Browning & Welch-Chandler 35-13 well cuts a 300-foot fault at a subsea depth of 2152. The Browning & Welch-Odom 35-15 cuts three faults, a 50-foot fault at a subsea of 3513, 170-foot cut at a subsea

3758, and a hundred-foot fault at a subsea depth of 4013. And in the Anderman-Clearman 35-16 well there's a 50-foot cut at a subsea depth of 4609. And in the Hayes in Section--down here in Section 2--the Hayes 2-8 well, there's a 220-foot fault at a subsea depth of 2508, and over there in Section 1, the Hayes 1-5 well cuts a hundred-foot fault at a subsea depth of 2766 and a hundred-foot fault at a subsea of 3547. The well-defined structure in Section 34 and 35 is one of our foundations for our request for an exceptional location. I believe that this map demonstrates a small drainage area for our proposed location. An extraordinary amount of well control and structural information I believe supports our request for an exceptional location.

Q Mr. Higginbotham, let me ask you this question. Why have you not recommended to your company that this proposed location be moved further to the east from the section line separating Sections 34 and 35?

A O.K. There's a big fault that cuts the Chandler 35-13, that 300-foot cut at a subsea of 2152. We don't know the angle on that fault and all indications from all of our

fault plane mapping and other geophysical data is that this fault, trapping Star, is a fairly steep fault, and since we don't have three points where the fault cuts the exact--where the fault cuts with the same amount of throw, we can't be certain exactly what the angle of that is. Therefore, I believe moving to the east and drilling at a legal location would be very risky as far as being faulted out by that 300-foot fault, and that's a risk that's really got to be reckoned with because it's very possible that that 300-foot fault in the Chandler well trends more east-west than I've shown it. You know, I've--I've chosen to map this optimistically in order to maximize our drainage area, but a more pessimistic case, you could bring that fault down right near the top of our proposed location.

Q Let me ask you this question, Mr. Higginbotham. If you did not have that risk and could move a well further east, based on the fault control that you've just testified to, would the NW/4 of Section 35 be affected by, and by affected I mean communicated with or drained by a well at either a regular legal location, if that were completed as a

successful well, or at your proposed location?

A In my opinion there's absolutely no way that the NW/4 of 35 or the NE/4 of 35 is in anyway gonna be affected by anything in the SE/4 because of the very nature of this fault.

Q Would the inclusion of the NW/4 of Section 35 protect the coequal and correlative rights of the owners who you appear--who appear to you to have gas underlying their tracts? Do you understand my question? Would the inclusion of the NW/4 in a standard W/2 unit protect coequal and correlative rights of those owners who are underlain by gas as you show it?

A Well, I think the NW/4 doesn't have any gas in it at all.

Q So the inclusion would not protect those coequal and correlative rights, is that correct?

A That's correct, not in my opinion. In my opinion, the gas--any gas trapped in Section 35 is only gonna be in the very SW/4, and including the whole SW/4 is quite optimistic as you can see how I've mapped it, based on your fault picture.

Q All right.

A You know, actually, I believe a very, very small portion of the SW/4 is actually productive as demonstrated by my map.

Q But based on the geological control that you've testified to, the best geological location for the well is in the SW/4 at a 77-foot setoff from the section line?

A That's my opinion and there are two reasons for that, and one of the reasons here is fairly clear is structural dip in Star Field is clearly toward the southwest and that Williamson well went to water but had, I believe, a substantial gas reservoir there because it had a separate pressure from Star Field from which I'll testify about that later. But I believe to get the best structural advantage we need to move in a due northeast direction just as far northeast as we can without taking an unnecessary risk of getting too close to that fault. So that's why I believe the southwest--where I've got the location is the best structurally. In another exhibit I'll show you why sandwise that I think you need to have this location also based upon the permeability barrier in the Chandler 35-13 well.

Q All right, sir. Let's go to your next exhibit.

A All right.

Q Exhibit No. 4.

A All right, this next exhibit is Exhibit No. 4. This is basically a reservoir map. What I've done here is I superposed upon the previous structure map, which I just testified about, an isopach map of permeable Carter Sand. A permeable sand here is defined as positive microlog separation. Now we're really fortunate in this area in that the Carter Sand was tested in so many of these wells that in addition to microlog separation confirming the existence of permeability, we also have completion data, you know, telling whether or not the sand was permeable. Now I'd like to discuss the details of this trapped gas reservoir. All right, I'm gonna explain to you all what the Carter did in each of the wells surrounding our proposed unit, within our unit, and around our proposed location. All right, the Hayes 30--Tucker-Hayes 34-10 well had 13 feet of good microlog separation, and it clearly had enough permeability to produce but it had water in it, and so we're not able to make a completion out of the Carter

because it was obviously wet. If you look on my structure map, it was just slightly downdip from the gas in the Williamson 34-16 well. O.K. I believe the Hayes 34-10 provides us control to the west of our proposed location, demonstrating a gas-water contact. O.K. We know the Williamson well went to water and it had 10 feet of permeability and we can put another point of control illustrating where we believe the gas-water contact is. And now I'd like to show you the permeability barrier in here. As you can see from my map, I've drawn a zero line illustrating basically where your permeability pinchout is. O.K. The Browning & Welch-Chandler 35-13 well came in structurally perfect. It came in structurally just where you want it to, but it only had one feet of microlog, but Browning & Welch went ahead and gave it a try anyway. They perforated it, acidized it, and fraced it, but they were not able to make a commercial completion. I believe this information, plus with the way I've mapped this, strongly suggests a permeability barrier which strikes in a northeast direction at about the position of the Chandler

35-13 well. The Williamson 34-16 well, what I want to show you next is, is that I believe there's a trapped gas pool just to the northeast of the Williamson well which is currently not being drained by any existing well in Star Field, and that this reservoir is small but it's still there, and there's a fair amount of gas in there I believe. Enough, enough that you could justify the drilling of one well. Now I'd like to tell you about the Williams--the details on the Williamson 34-16. O.K. The Williamson well had an original pressure taken July 11, 1981, and was reported to the Alabama Oil and Gas Board as 1,818 pounds at a depth of 4340. Now this is in the middle of the Carter Sand. The nearest gas producer at the time in Star Field was the Hayes 2-8 well. If you all will look with me down there in Section 2 to the Hayes 2-8 well. On May 25, 1981, two months earlier, the Hayes well had a bottom hole pressure of only 1500 pounds. So two months earlier it had 300 pounds less than the Williamson well had two months later. To me this pressure data, and our engineers, this pressure data conclusively suggests that the

Williamson 34-16 has a separate Carter Gas Sand Pool from the Star Field. The Williamson produced 120 million cubic feet of gas and then went to water. Now one of the things that we looked at here was the potential for depletion. You know, was this reservoir depleted? Well, it rapidly, we built back up to regular pressure, or almost original pressure, and then they'd open it up and flow it and then it'd go right back to water. Because of these water problems, the well was eventually plugged and abandoned. In my opinion, the detailed sand map and the pressure data strongly indicate that there's a Carter Sand Gas Pool just to the northeast of the Williamson 34-16 well. The detailed structural control coupled with the sand and pressure data suggest a Carter Sand reservoir of 180, 190 acres of maximum productive area. Now we can economically drill one well for this reservoir. In my opinion there's no way you can drill two wells and make economics to get this reservoir. And that's why we went into this with the intention of getting an exceptional location, cause in my opinion, you know, there's no, there's no conceivable way to

drill two economic wells and using governmental half sections, based on this extraordinary amount of control.

Q Mr. Higginbotham, if your theory is correct, that theory being that there is a separation from the Carter Sand Gas Pool as presently defined at the Star Field, once this well is drilled, you understand that we would need to come back to this Board to amend the Star Field--Star Special Field Rules--to type a new Carter Sand Gas Pool, do you not?

A That's correct.

Q All right. And the only way, even though you have pressure data that indicates that, really the only way to confirm that for purposes of setting up a new separate sand is to drill a well, test the well, bring that testimony and evidence in with the additional evidence already on file for the Star Gas Pool, is that correct?

A That's correct.

Q All right, sir. Now, you've given quite a bit of testimony about your geological opinion based on this area and your interpretation of the data in there. Have you looked to existing literature for confirmation of your interpretations

and have you been successful in finding some confirmation of your interpretations in existing literature?

A Yes, I've been able to find existence for confirmation in existing literature and among other geologists from other companies.

Q All right.

A The Star Field has been around for quite a while and it's been mapped pretty much the same way by just about everybody.

Q All right, sir. Your Exhibits 5 and 6 are from publications of the Geological Survey of Alabama, is that correct?

A That's correct.

Q And the State Oil and Gas Board? Mr. Rogers, for the record, I'd like to make it clear before we start our testimony on these exhibits that Mr. Higginbotham and Terra Resources is certainly aware of the disclaimer in Atlas 21 that says: "The views and conclusions in this document are those of the author and should not be interpreted as necessarily representing the official policies or

recommendations of the Survey or the Board. All reviewers of this report should satisfy themselves as to the accuracy of all data, maps, and interpretations presented. The maps and other illustrations presented herein represent reasonable interpretations of subsurface data. Other interpretations are possible." You're familiar with that disclaimer, are you not?

A Very much so.

Q Now, with that fact, let's look at your exhibit that you--your Exhibit No. 5, which as I appreciate it is an excerpt from the Survey Atlas 21, and tell us how your opinion squares with this interpretation.

A All right, these are maps from pages 216 and 17 of Survey Atlas 21 and this was compiled by Mike Epsman, and I believe it was published out last year sometime. O.K. First of all, if you'll look over on his map on the right, he has an isolith map of the permeable Carter Sand. The first thing that hits me is that this interpretation is very similar to ours. This map shows that our proposed location is seeking a separate Carter Sand body from those wells that are currently producing in Star Field.

Q Let me interrupt you just a minute and say based on this map we appear to see wells that are productive in the Carter. At this point in time, are any wells producing in this separate isolith body?

A There are no wells currently producing in this--in this sandstone body.

Q All right, go ahead, Mr. Higginbotham.

A O.K. If we'll now look at the map on the left. This is a structure contour map on the base of the Millerella Limestone. Again the first thing that hits you is that this interpretation is very similar to ours. However, this fault picture is even more pessimistic than mine. You know, if this map is correct you could barely justify drilling one well, you know. In any case, these maps tend to confirm our interpretation of fault placement. Like I've said earlier, I've mapped this thing optimistically, both from a structural position and a sand position, and based on my interpretations, you can just barely justify the drilling of one well. I don't think there's any way you can drill two in here.

Q Is it your impression, not only from your interpretation but from the consensus of these other operators, these several other operators who've developed in the Star Field, that the NW/4 of Section 35 doesn't appear to have any potential to contribute to a well bore in the SW/4 of Section 35?

A I've heard an operator who drilled three wells right in this vicinity call Section 35 a dry hole graveyard. I don't see any way that the N/2 of 35 is gonna in any way be productive or in any way share with the gas that I believe is present in the SW/4.

Q But there's nothing to prevent someone from having a theory separate from yours and separate from this as published in Atlas 21 that would indicate that possibly there is communication across these faults and that the NW/4 might contribute to a well is there?

A There's the--I'd love to see someone drill up there and I'd like to be proven wrong.

Q All right, sir. What about your Exhibit No. 6 now?

A O.K. This Exhibit No. 6 is from a study that Bennett

Bearden did.

Q Does this--does this exhibit predate Atlas 21, to the best of your knowledge?

A Yes, this was done before that.

Q All right, sir, go ahead.

A Again, Bennett Bearden's map essentially shows the same picture as the map from the atlas and my maps. The two points I want to point out, first of all, if you look at the fault placement in Section 34 and 35, it shows a very small portion of potential gas reservoir in Section 34 and 35. When you--especially when you take into account that Williamson well that's shown as a gas well in 34 has gone to water. It shows a very small productive area, and then only in 35. The second thing I'd like to point out is that there's a permeability barrier where Bennett shows that squiggly line and has a tight streak. The main thing about this is that his fault picture is similar to ours and the existence of permeability barriers is pretty well recognized in Star.

Q I believe you're showing a permeability barrier on your

Exhibit 4 in the vicinity of the Chandler 35-13 well, is that correct?

A That's correct. And again, we know that Carter Sand was impermeable. First of all, it only had one foot of microlog, but mainly is that they perforated, acidized it, and fraced it, and it just wouldn't produce anything at a commercial rate.

Q All right, sir. Mr. Rogers, I'd ask that you receive into evidence Exhibits 1 through 6 to the testimony of Mr. Higginbotham.

MR. ROGERS: The exhibits are admitted.

(Whereupon, the exhibits were received in evidence)

Q Now, Mr. Higginbotham, I reiterate for the record that your recommendation for the drilling of a well at an exceptional, on an exceptional unit at a location that you described, 77 feet off the West line of Section 35, is in your opinion the most optimum geological location for a well to be drilled in this area, is that correct?

A That's correct.

Q Is it further your testimony that the unit that you have proposed for the well we've just described, being an exceptional unit, SE/4 of 34, SW/4 of 35, is the most reasonable drilling and potentially production unit for this well?

A I believe that definitely.

Q And that unit, if the well is successful, would protect coequal and correlative rights of owners in the unit?

A That's correct.

Q Would the creation of that unit also prevent waste as that term is defined, particularly in relationship to the drilling of unnecessary wells?

A I definitely believe so.

Q Is it your testimony that if this well were moved further to the east the risk would be so great that your company would probably not drill that well?

A If we moved further to the east---

Q To a legal location?

A To a legal location, we're just, you know, basically drilling right on top of two wells that were wet.

Q Aren't you also, if you did that and made that recommendation, aren't you ignoring the geological facts for this area?

A If I was to recommend a legal location?

Q Yes, sir.

A If I--if we drilled at a legal location, I think there would be a real strong chance of having another dry hole in there.

Q And you would be doing that--just ignoring all the geological facts that are available to you, which you cannot do, can you?

A With this kind of subsurface control, it's very easy to pinpoint where your gas reservoir is. You'd have sand data, structure data, and pressure data.

MR. WATSON: That's all we have in our case in chief, Mr. Rogers. I tender my witness to the opponent for any questions he may have on any of the exhibits.

MR. ROGERS: Do you have any cross-examination?

MR. KIMBLE: Yes, sir, please.

MR. ROGERS: All right.

CROSS-EXAMINATION

Questions by Mr. Kimble:

Q The first question, I just want to get it clear, Mr. Watson, you said that you treated this as abandonment?

MR. ROGERS: You need to direct the question now to the witness.

Q To the witness? O.K. Didn't you start off by saying that this is abandonment of all governmental half sections in the Star Field?

A I think you misunderstood him.

Q O.K. That's why I wanted a clarification on that.

MR. ROGERS: If he can answer the question.

A Me? No, we strongly believe in governmental half sections. We're not proposing the abandonment of any. I think in 99% of the cases the most fair and equitable way is to go by governmental half sections. I think it's only in a case where it's, you know, extraordinary amount of control justifies an exception to that, that you ought to, you know, think about split section units. You know, I'm--you know, both me and the position of my company is

that we're in favor of governmental half sections, and we're not trying to rock the boat and, you know, change things. We're just trying to get into a little gas pool that we think is, the only way to recover is to drill one well.

Q You clarified it. I was under the impression that it said abandonment of all governmental half sections, so that answered my question. One other thing, I'd like to present the Board with a map.

MR. ROGERS: Let's--do you have any other questions to this, to these, to this witness?

Q O.K. I have one last question.

MR. ROGERS: Ask the question to the witness first and then Mr. Watson will have redirect.

Q O.K. Mr. Higginbotham, by looking at this, and I haven't done a lot of the title work on this, but it appears that Terra has no leasehold per se in Section 35, and it seems like by drilling a well and splitting those sections, by having the lease in Section 34, it would increase your net revenue interest in that unit and---

MR. WATSON: I'm gonna answer that question for you and tell you that we qualified Mr. Higginbotham as an expert petroleum geologist, not a landman.

A Let me go ahead and answer this one though.

MR. ROGERS: Answer it if you know...

A I'm a geologist but I can tell you why we did what we did. You know, I know there's acreage available up in 34 and 35 just because of the preponderance of dry holes, you know. I went into this with the premise that I know there's some gas trapped up there against the fault but there's just a little bit, and we did not go out and purchase leases and then come and say, "Well, how can we do this." We went in with the specific intent of getting this little reservoir and having split units, cause I can tell you right now if they're not--if we're not able to get split units, we can't justify the drilling of a well and we won't drill a well there.

Q O.K. Thank you.

MR. ROGERS: All right. Mr. Watson, do you have any redirect?

MR. WATSON: No redirect. I assume now that the gentleman would present the evidence that he has, Mr. Rogers?

MR. ROGERS: The staff may have some questions.

EXAMINATION BY BOARD OR STAFF

Questions by Dr. Mancini:

Q Mr. Higginbotham, I'm looking at Exhibit No. 1, which has Permit No. 4703, Tucker-Colley 34-14.

MR. WATSON: We can't---

A I'm sorry, Dr. Mancini.

Q Exhibit No. 1, Tucker-Colley 34-14, Permit No. 4703, which is indicated as a dry hole, and then on your other exhibits it's indicated as a gas well.

A I think that dry hole is a, probably is a misprint.

Q O.K.

A In any case, the Colley is completed as an Upper Carter, and I think that's a misprint.

MR. WATSON: That--this plat was prepared by Engineering Services, and Dr. Mancini, we, with that information, we would propose to amend this plat with Mr. Higginbotham's testimony.

MR. ROGERS: All right. Mr. Kimble, do you have any

evidence you want to present?

MR. KIMBLE: Yes, sir, I'd like to enter in a map. And I've already given one to Mr. Watson. This is a surface owner map showing, depicting the Hopper property and location of the well.

MR. ROGERS: How do you spell your name, Mr. Kimble?

MR. KIMBLE: K-i-m-b-l-e.

MR. ROGERS: This exhibit is admitted.

(Whereupon, the exhibit was received in evidence)

MR. ROGERS: All right. Do you have any other evidence you want to present?

MR. KIMBLE: No, sir. The key point to the deal is that by laying down this unit and crossing section lines the Hopper family will stand to have 40 acres in the unit as Terra Resources and Mr. Higgibotham proposes. If it was moved over 253 feet to the east and they went for an exception of 330 feet off the section line, then if it was approved the Hopper family would have a potential of having approximately 160 acres in that unit. And I just wanted to put that fact out.

MR. ROGERS: All right.

MR. KIMBLE: Thank you.

MR. ROGERS: Mr. Watson, do you want to cross-examine?

MR. WATSON: Yes, I have a question or two and may very well have some rebuttal to the exhibit, Mr. Rogers.

MR. ROGERS: All right.

CROSS-EXAMINATION

TRAVIS KIMBLE

Questions by Mr. Watson:

Q Mr. Kimble, you understand that---

MR. ROGERS: Mr. Watson, let me interrupt you. I'd better swear you in and ask you to identify this. Would you--since you testified concerning this exhibit, would you stand and state your name and address for the record?

MR. KIMBLE: Yes, sir. My name is Travis Nichols Kimble of San Antonio, Texas, and this map depicting the property---

MR. ROGERS: Just raise your right hand.

(Mr. Kimble was sworn by Mr. Rogers)

MR. ROGERS: Well, we'll just say you're available for cross-examination.

Q All right. Mr. Kimble, you have no geological evidence to indicate that any portion of your clients' property other than that 40 acres in the northeast of the southwest should be included in a drilling unit, do you?

A I'm not a geologist. I'm not qualified to answer that, although I have talked to numerous geologists although I didn't have any--didn't have time to get it typed up and brought into the deal, but geology is kind of a funny creature. There seems to be a lot of room between that top fault and the bottom one.

Q And what was your statement about moving a well 200 and something feet to the east?

A Yes, sir. All I said was would--I would like to see that well just, the location moved 253 feet to the east, which would make it 330 feet off of the west section line. By doing that it would be possible to bring up another hearing for a possible exception of a location for 330 feet off that west section line.

Q Do you have any evidence, Mr. Kimble, that gas underlies the NW/4 of Section 35?

A No, sir, but it appears that these units have not been set up on geological structures.

MR. WATSON: Can I have just a minute, Mr. Rogers?

MR. ROGERS: Yes, sir.

(Pause while Mr. Watson talked with his client)

MR. WATSON: Mr. Rogers, our entire case here is trying to make for the record and for the interested parties a clear distinction between governmental half sections and the unit that we're requesting. I think that there's some question, and as certainly raised by Mr. Kimble, though not in a technical form, but there's certain questions about why we're doing this. We've tried to address that in direct testimony. Mr. Kimble is certainly making a pitch for a governmental half section unit. We have prepared and have quantified the reserves and the economics that we think justify the unit that we are requesting. We have that in the form of a rebuttal exhibit and I think at this point in time I have no further questions of Mr. Kimble, but I would like to present an exhibit to rebut this exhibit that he's introduced into the record.

MR. ROGERS: All right.

(Exhibits distributed)

MR. WATSON: Mr. Rogers, my witness for this rebuttal exhibit is Paul Lerwick. Mr. Lerwick has never testified before the Board but I handed up to you prior to the commencement of this hearing an affidavit of his qualifications. I'd ask that he very briefly state what his qualifications are.

MR. ROGERS: Yes, sir, go ahead.

MR. LERWICK: Yes. I'm a petroleum engineer. I graduated from the University of Wyoming in December 1975 with a B.S. in petroleum engineering. From 1975 to 1981 I served in the capacity of a petroleum engineer, more specifically a reservoir engineer for ARCO Oil and Gas Company, working both in their operations in Alaska and in West Texas, Permian Basin in particular. From 1981 to '87 I served as the reservoir engineer for an independent in Midland known as Clayton W. Williams, Jr., handling all of his reservoir engineering in a number of states and basins. Beginning in October of 1987 to the present, I have been employed by Terra Resources as a reservoir engineer in their exploration department focusing on the Black Warrior Basin.

MR. WATSON: And Mr. Lerwick, you're familiar with the petition on file here today and you've prepared the rebuttal

exhibit that I've handed up and marked as Exhibit No. 7?

MR. LERWICK: That is correct, sir.

MR. WATSON: I tender Mr. Lerwick as an expert petroleum engineer.

MR. ROGERS: He is so recognized.

PAUL LERWICK

Appearing as a witness on behalf of Petitioner, Terra Resources, Inc., testified as follows:

DIRECT EXAMINATION

Questions by Mr. Watson:

Q Now Mr. Lerwick, let's take your Rebuttal Exhibit No. 7 if you would, please, and our purpose here would be to quantify the amount of gas that we've heard Mr. Higginbotham talk about as a small gas pool and to discuss the economics associated with drilling a well in here, and to further address the point made by Mr. Kimble that a governmental half section unit should be considered and more of his clients' acreage should be included in this unit. Tell us what's shown on Exhibit No. 7.

A Yes, this exhibit shows my calculation of recoverable

reserves from each quarter section underlain by the reservoir as previously described by Mr. Higginbotham. I will then explain why the potential reserves do not justify drilling more than one well for their recovery. I used the reservoir parameters based on the Williamson 34-16 well, which is our key show well and which was the only well that produced any substantial amount of gas from this reservoir. The average water--porosity--that I used was 10%. I used an original bottom hole pressure of approximately 1800 pounds, bottom hole temperature of 108 degrees F., and a 90% recovery factor. I also used in calculating recoverable reserves from this reservoir a water saturation of 25%, which is consistent with productive Carter Sandstones. All of these parameters that I've mentioned are very consistent with the Carter Sand and productive Carter rocks in this area. I used microlog as a cutoff for the productive sand, which is also consistent with reservoir practice and agrees with actual recoveries. Using the parameters I just mentioned, I calculate recoverable reserves in the SW/4 of Section 35 of 372 million cubic feet of gas. In the SE/4 of Section 34, I

calculate 481 million cubic feet of gas, and in the NE/4 of Section 34, 186 million cubic feet of gas. The total recoverable reserves based on the geologic interpretation and engineering data for this entire gas pool comes to just over one BCF of gas. That is a substantial amount of gas, but as previously testified to by Mr Higginbotham, there are also substantial risks in this area as evidenced by the number of dry holes drilled subsequent to the show well. These include the Tucker-Hayes 34-10, the Tucker-Colley 34-14, and the Browning & Welch-Chandler 35-13, all which were keying off of this show well attempting to tap into the reservoir that was indicated by that well. So there is some obvious risk even at this point in drilling another well in this area. However, the reserves as I've outlined I think justify the drilling of a well as long as it can be set up under the irregular unit that we've requested.

Q Is your testimony, Mr. Lerwick, that two wells into one BCF of potential gas would not be economically justified?

A Yes, sir, that is correct.

MR. HIGGINBOTHAM: Something else I'd like---

Q Wait just a minute. He's testifying.

A If we--assigning any risk at all, you cannot justify economically drilling two wells in search of a reservoir of this size.

Q All right, sir. Is it your opinion as a petroleum engineer, Mr. Lerwick, that if a well is approved at the location, the optimum geological location that we have recommended, that the recovery from that well would protect the coequal and correlative rights of all the owners in the proposed unit?

A Yes, sir.

Q All right. Is it your testimony that that well should efficiently and economically recover the gas reserves that you have calculated to be present there?

A Yes, sir.

Q And to restate your testimony, it would be uneconomical to drill two wells for the amount of gas you compute as being there, is that correct?

A That is correct.

Q All right, sir. I tender my witness to Mr. Kimble for any

questions he would have on Rebuttal Exhibit No. 7.

MR. ROGERS: Mr. Watson, this exhibit is admitted. This rebuttal exhibit is admitted.

(Whereupon, the exhibit was received in evidence)

MR. WATSON: Thank you.

MR. ROGERS: Mr. Kimble, do you have any questions of this witness?

MR. KIMBLE: No rebuttal, thank you.

MR. WATSON: Any questions from the staff?

(The staff had no questions)

MR. ROGERS: Anybody else want to make a statement? Is there anything further on this? Come ahead, I'm sorry. Identify yourself.

MR. MCGEE: I'm Paul McGee from Columbus, Mississippi, representing McGee, Ltd., and McGee, Ltd., and myself own some property on and near around these wells in different locations and different fields, and I want to let it go on record that I do oppose of the split of the governmental half section, and for, and the witness, I meant the complaintiff has stated and

put out a map other than theirs showing that this is probably and could be a dry hole, and so I recommend to the Board that they recommend that we should, since this is in a new strata, you're talking about this being a new Carter Sand, that you go ahead and make this a 40-acre wildcat and then if it is not a dry hole you can come back and then set up a unit that will fit whatever that they find in the strata or whatever they find in the hole. So like I say, we don't have any evidence, but the evidence that they put on show that it could be very likely a dry hole. So I recommend that we don't tear up what we've got going in the fields, that field, and adjacent fields around it and everything in order to accommodate this one well. Thank you.

MR. ROGERS: Thank you. Anybody else like to make a statement? (No response) We'll take a brief recess.

(The hearing was recessed 20 minutes)

MR. ROGERS: This hearing is in session. Mr. Watson, do you want to put into the record these items having to do with the force pooling petition?

MR. WATSON: Yes, sir. Even though we consolidated this, I kind of bifurcated the hearing to get all of the geological stuff

in. We have consolidated our request to force pool the SE/4 of Section 34 and the SW/4 of Section 35 of Township 15 South, Range 16 West, Lamar County, Alabama, in the Star Field. I have prefiled an affidavit of testimony of David Rigsby showing that there are 47 net acres, more or less, or approximately 14.56% of the proposed unit that remains outstanding. I would ask that you receive that prefiled affidavit of testimony into the record and make your recommendations accordingly.

MR. ROGERS: The prefiled affidavit is admitted and a letter from me to Mr. Watson concerning notice is admitted into the record. Also, we have letters from James E. Hopper, Liffie R. Hopper, James A. Arnold, Mary and R. H. Arnold. That is one letter dated July 7. That letter is admitted and also a letter from James Hopper dated June 22, 1988. Those letters are admitted into the record.

(Whereupon, the described letters were received in evidence)

MR. ROGERS: Is there anything else?

MR. WATSON: We have nothing further, Mr. Rogers.

MR. ROGERS: Then this--I'll take the matter under advisement. The staff and I will prepare a report. That will be submitted to the Board. Thereafter the parties, or interested parties, would have 10 days to issue comments on the proposed order.

MR. WATSON: Mr. Rogers, I'd like to ask--I'd like to waive that 10-day period if my opponent would.

MR. KIMBLE: Let me clarify that. We have nothing against the force pooling, and at that time we had no idea what was going on. We had to get something into writing. What we're contesting or wanted the hearing on was the split sections. So the Hoppers at that time had nothing to do with the force pooling.

MR. WATSON: I understand. Mr. Rogers' point was though that what they will do they will make a recommendation, propose an order, and we'll each have 10 days to comment on their proposed order. I waive my right to comment on that order. I am willing to accept the decision of the staff.

MR. ROGERS: You can waive it but by doing that you would have no right to comment on the proposed order. If you want to

waive your right to do that, this is the time to do it. If you want to make comments on the proposed order when it comes out, then you need to make that decision. He said that he wants to waive that right. Do you want to waive your right to make any comment?

MR. KIMBLE: The Hoppers want to see what the order is going to be.

MR. ROGERS: O.K. Well, you have your right to make the comment. The 10-day period stays in effect. Is there anything else? (No response) The hearing is adjourned. Thank you.

(The hearing recessed at 11:20 a.m. and reconvened at 1:30 p.m.)

MR. ROGERS: This hearing is in session. This is a petition by Terra Resources, Inc., bearing Docket No. 6-23-888. It's a petition by Terra Resources, Inc., for an exceptional location. This item was continued from the June 24, 1988, meeting of the Board. Mr. Watson is here representing Terra Resources, Inc., and if the other parties would identify themselves.

MR. SMITHART: I'm Bill Smithart representing Meridian Oil.

MR. ROGERS: All right, Mr. Watson?

MR. WATSON: I have two witnesses and I'd like to have them sworn, please.

MR. ROGERS: Would you gentlemen stand and state your names and addresses?

FIRST WITNESS: David Higginbotham, Jackson, Mississippi.

SECOND WITNESS: Paul Lerwick, Jackson, Mississippi.

(Witnesses were sworn by Mr. Rogers)

MR. SMITHART: Mr. Rogers, let me interrupt you just a second. I also represent Ladd Petroleum.

MR. ROGERS: All right.

MR. SMITHART: Who owns an interest in the offset.

MR. ROGERS: That will be noted on the record. Thank you.

MR. WATSON: Let's receive into the record of this hearing, Mr. Rogers, the prefiled affidavit of notice.

MR. ROGERS: The affidavit is admitted.

(Whereupon, the affidavit was received in evidence)

MR. WATSON: Terra is here today seeking approval of what we consider to be a routine exceptional location in the Coal Fire Creek. We're asking for no closer than half the distance to the unit line, and we have an exception to an offset well, approximately 1800 feet as opposed to 2,000 feet as required in the Special Field Rules for Coal Fire Creek. I have two witnesses that will present evidence in support of this exceptional location. My first witness is David Higginbotham who's previously appeared before this Board, has on file with the Board an affidavit of his qualifications, and I tender him as an expert petroleum geologist.

MR. ROGERS: He is so recognized.

DAVID HIGGINBOTHAM

Appearing as a witness on behalf of Petitioner, Terra Resources, Inc., testified as follows:

DIRECT EXAMINATION

Questions by Mr. Watson:

Q Mr. Higginbotham, you're familiar with the petition on file here asking for an exceptional location and an exception from an offset well in the Coal Fire Creek Field, Pickens County?

A Yes, I am.

Q Have you prepared exhibits in support of this exceptional location request?

A Yes, I have.

Q Would you please turn with me in the packet of exhibits to Exhibit No. 1? And tell me what's shown on that exhibit, please.

A O.K. On Exhibit No. 1, this exhibit shows our proposed location. Our proposed unit is in the W/2 of Section 16, Township 18 South, Range 14 West, Pickens County, Alabama. Our proposed location is 2300 feet from the South line and 330 feet from the West line. The well is proposed to be an exception to the unit and to the Shelton 17-8 well. Our proposed location is 1803 feet from the Shelton 17-8 gas well. Our proposed location is 197 feet closer to the

Shelton 17-8 well than the current field rules allow. In the following exhibits, I'm going to demonstrate significant geologic risk and the presence of gas in Section 16 which I believe supports our request for an exceptional location.

Q All right, sir. Let's go to your Exhibit No. 2, which is a structure map on top of the Carter Sand. I'd ask that you describe in some detail the information shown on that exhibit, Mr. Higginbotham.

A Like Tom said, this is a structure contour map on top of the Carter Sand. A northwest-striking down-to-the-south fault essentially separates the N/2 of Section 16 from the S/2 of Section 16. This fault cuts a number of wells, and I'll just briefly go through those. It cuts the, in Section 8, the Southland-Smith 8-15 well. It cuts 140 feet at a subsea depth of 2709, and it cuts the Terra Carpenter-Shirley in Section 16 125 feet at a subsea depth of 1867, and it cuts the Cunningham 16-7 167 feet at a subsea depth of 2344. Most geologists recognize the presence of this down-to-the-south fault. The Hughes Texas-

4

Richardson 8-13 is downthrown to that fault, and it consequently is approximately 100 foot low to that fault. Now I'd like to discuss the trapping fault for our proposed exceptional location. The big trapping fault strikes northwest and is downthrown to the northeast. This fault cuts a number of wells and I'm gonna briefly review these from the northwest to the southeast. In the Howell Petroleum-Irwin 7-15 well, it cuts at 126 feet at a subsea depth of 2080. In the Richardson 18-1 you have 148-foot fault at a subsea depth of 1570. In your Shelton 17-6 you have 129-foot fault at a subsea depth of 2367.

Q Is that 67 or 77?

A 2377.

Q All right, sir.

A O.K. Now either this fault splays off into a smaller fault, into two smaller faults, or you're getting decreasing throw with depth. If you look at the wells that are highest up in section, like the Richardson 18-1, there's where you achieve your maximum amount of throw, nearly 150 feet. As you propagate down the stratigraphic

section--column, your fault throw appears to decrease in magnitude. At the level of the Carter Sand, we believe this fault either bifurcates into two smaller faults or one of the faults bends toward the east and is not seen in the Shelton 17-8 well. There's a 30-foot cut, a splay fault in the Shelton 17-8 at a subsea depth of 4144. In the Terra-Cunningham 16-12, there is a 40-foot fault at a subsea depth of 3493. The existence of this small fault constitutes a geologic risk which is the reason why we've proposed an exceptional location. Drilling a well at our location, which is 2300 feet from the South line and 330 feet from the West line, tends to minimize the risk of having a major part of your Carter Sand faulted out by this small splay fault. As a prudent operator we've got to reckon with these small faults and consequently assess our risks accordingly. The Shelton 17-8 well is an E/2 unit and our proposed exceptional location is in the W/2 of Section 16. The Terra Carpenter-Shirley 16-7 well is shown to be a gas producer in the N/2 of 16, but it's currently producing out of the Fayette Sand, not the Carter Sand.

Q I believe that the Carter Sand in that well, the Carpenter-Shirley 16-3, has been temporarily abandoned, is that your understanding?

A That's correct, and most people conclusively agree that that's a separate structure from the one we're looking at on the south.

Q All right, sir.

A Now I'd like to take a second and discuss my structural contours and my rationale for mapping the structure the way I've chosen to do so in the area around our exceptional location. If you look at the subsea depth of your Carter Sand in the Shelton 17-6 and the 17-8, it readily becomes apparent to you that these two wells are basically flat to each other. I've got them, you know, one foot apart, but in my opinion these wells are essentially flat. And if you look over to the southeast in Section 16, the Cunningham 16-12 well is 30 foot low to the two Shelton wells. Now in my opinion you've got a flat Shelton 17-6 and a flat Shelton 17-8, and in my opinion two flat wells constitute a structural strike line. And you've got a well to the

7

southeast which is downdip, and I believe that strike in this area is roughly east-west and dip is toward the south or toward the southwest.

Q And that's been a limiting factor on your contouring in this area, is that correct?

A That's why I've chosen to contour this map the way I have.

Q All right, sir.

A Regional dip in the Black Warrior Basin is toward the south and toward the southwest at a rate of 100 to 150 feet per mile. The way I've contoured this map is very consistent with regional dip in the Black Warrior Basin. So taking the well control, I've chosen to contour the map honoring all the most reasonable constraints that we know of.

Q All right, let me just stop you for a minute, Mr. Higginbotham. What your--at this point in time you've testified to a limitating factor to the north being a major fault which you've testified splays off as you go to the southeast, correct?

A That's correct.

Q And the Cunningham 16-12 well being a nonproductive well?

A That's correct.

Q What other limitations do you have on this structure as you have shown it on this map?

A O.K. Both the 17--Shelton 17-6 well and the 17-8 well are gas productive. The Cunningham 16-12 was questionably gas productive out of your Carter Sand, and as a matter of fact the Carter Sand was tested in this well and it produced some gas. However, it produced a whole lot of water too, and they were not able to make a commercial completion. Based on the elevation of your Carter Sand in your 16-12 and your elevations of your Carter in your Shelton 17-6 and 17-8, and based upon correlation of the sands, I believe that these sands are stratigraphically correlative. I believe that the critical saturation between gas productive Carter Sand and water-wet Carter Sand lie somewhere between the subsea depth of 4250 and 4275 as I've estimated on this map based upon the results of the tests on the Cunningham 16-12.

Q And you've shown that as an estimated gas-water contact zone, have you not?

A That's correct.

Q All right, sir.

A In my opinion my structure map clearly demonstrates that there is a significant quantity of gas trapped in Section 16 up along the big fault trap. Additionally, the small splay fault which bifurcates from the major trapping fault constitutes a definite geologic risk as far as us drilling a well in there because if we were to drill a well right in there on the fault, we could conceivably have our best part of our Carter faulted out.

Q Would a legal location put you in the near proximity of that splay fault, Mr. Higginbotham?

A In my opinion a legal location would put us in a position where we would be--potentially have much of the Carter Sand conceivably faulted out.

Q If that fault is where you think it is?

A If that fault is where I think it is, and I've assumed a standard fault angle, say 55 to 60 degrees, and that's pretty typical for faults in the Black Warrior Basin.

Q All right. before we leave this exhibit, Mr. Higginbotham,

the unit orientation, though not shown on this map, you've testified that we have a W/2 unit for the Terra Carpenter-Shirley well, an E/2 unit for the Shelton 17-8 well, is it not also true that the Terra-Cunningham 16-7 is on an E/2 unit, E/2 of Section 16?

A Yes, the Cunningham 16-7 is currently producing out of the Carter Sand on an E/2 unit in Section 16, and we're proposing an exceptional location for a W/2 unit in Section 16.

Q All right. So as I appreciate this exhibit, the real critical mapping parameter that you have is the flatness between the Shelton 17-6 and the 17-8 that give you a strike, a geological strike, that you must honor in preparing this structure map, is that correct?

A That's correct.

Q And honoring that geological strike between these two wells makes your geological interpretation of this structure compatible with structure along these major faults in the Warrior Basin?

A That's correct.

//

Q That is the structure hugs the fault, if I can use that term?

A That tends to be the case with our experience.

Q All right, sir. Let's go to your next exhibit, Mr. Higginbotham.

A Your high points to tend to trap the gas tend to be up next to the faults and going away from the faults you tend to be going downdip in a south to southwest direction.

Q O.K. Let's go to your next exhibit, which is an isopach map on the Upper Carter Sand porosity marked Exhibit No. 3. As I appreciate this exhibit, you're attempting to show here the potential sand thickness that you expect to encounter at the proposed exceptional location, is that correct?

A That's correct.

Q And what is that approximate sand thickness?

A The approximate sand thickness that we should encounter, that your Upper Carter Sand could be between 10 and 15 feet. What this map is intended to portray is that the Carter Sand, the Lower--the Upper Carter Sand is

12

stratigraphically continuous and it forms a relatively thin blanket over this part of Coal Fire Creek Field.

Q All right, sir. Let's look at your Exhibit No. 4, which is an isopach map on the Lower Carter Sand porosity. For what purpose did you include this exhibit, Mr. Higginbotham?

A This exhibit is included to again demonstrate that your Lower Carter Sand can indeed be correlated throughout this area, and again it tends to form a thin blanket where you get thins and thicks, but the sand itself appears to be pretty much of a blanket.

Q All right, on both of these exhibits, Exhibits 3 and 4, what have you used as a cutoff in depicting the isopach?

A I've used anything greater than or equal to 9% density porosity.

Q All right, sir. Let's go then to your next exhibit, No. 5, which is a structural cross section?

A That's correct.

Q A-A'.

A Exhibit No. 5 is a structural cross section going in a west to southeast direction. This illustrates the

stratigraphic relationships and structural relationship of the Carter Sand in the vicinity of our proposed location. In the Shelton 17-6 well, that was perforated in the Carter Sand from 4672 to 4694, had an initial flow rate of 3114 MCF per day on a 20/64 choke with 1315 pounds tubing pressure. The Shelton 17-8, as you can see, is structurally flat to the Shelton 17-6 well. It was perforated in the Carter Sand from 4550 to 4591, and it had an initial flow rate of 1.9 million cubic feet of gas per day and 18 barrels of oil a day on a 21/64 choke with tubing pressure of 1460 to 1475 pounds. Just downdip of these two wells is the Terra Resources-Cunningham 16-12. This well was drilled--the perforations illustrated on the bottom of this cross section are Lewis perforations and for a while this well was a Lewis gas well, but it was proved to be noncommercial out of the Lewis Sand and was abandoned. What's interesting though is that the Carter Sand in this well was tested. The interval from 4760 to 4764 was perforated and acidized. This well tested a good bit of water but it also tested noncommercial amounts of gas. So in my opinion the gas-water transition zone lies

14

somewhere between the Cunningham well and the two Shelton wells.

Q Also shown on this line of cross section A-A' is your proposed location?

A That's correct.

Q And you expect that proposed location to be up out of the Carter wet zone and into a portion of the Carter Sand that should be productive of gas, is that correct?

A That's correct. And I also believe that a well drilled updip of the Cunningham 16-12 will be able to effectively drain gas productive zones in the Cunningham 16-12 and downdip of that. I don't believe you can commercially complete a well which has marginal water saturations like the Cunningham 16-12, but there is definitely gas present in that well and I believe a well updip will effectively be able to recover that gas. Another point on this cross section I want to illustrate is that you can notice that your Carter interval is 40 to 50 feet thick in most of these wells, and the splay fault which cuts the Cunningham 16-12 well is between 30 and 45 feet and that constitutes the geologic risk of having most of this section faulted

15

out.

Q All right, sir. Thank you, Mr. Higginbotham. My next witness, Mr. Rogers, is my engineer, Mr. Lerwick, Paul Lerwick, who has testified before this Board and has on file an affidavit and has previously been accepted as an expert petroleum engineer and I tender him as such for this hearing.

MR. ROGERS: He is so recognized.

PAUL LERWICK

Appearing as a witness on behalf of Petitioner, Terra Resources, Inc., testified as follows:

DIRECT EXAMINATION

Questions by Mr. Watson:

Q Mr. Lerwick, you have prepared some exhibits in support of this exceptional location request?

A I have.

Q Your first exhibit is a bottom hole pressure versus time marked Exhibit No. 6, is that correct?

A That's correct.

Q I'd ask Mr. Rogers and members of the staff if they would to

16

take out not only Exhibit No. 6 but Exhibit No. 7 so in going through your Exhibit 6 you can follow the location of the wells about which you're to testify, so with that, Mr. Lerwick, would you please tell us what's shown on Exhibit 6?

A The purpose of Exhibit 6 is to demonstrate that the Shelton 17-6 and 17-8 wells and the pool of gas that they're completed in are not draining any gas from the western-northwestern direction. The pressure data you see plotted on Exhibit 6 versus time comes from those pressures reported to the State Oil and Gas Board on a regular basis as required. All of the wells on this particular plot have measured bottom hole temperature--pressures--excuse me. They're measured at the perforation and they were shut in for 72 hours each one. I think it's very evident from the pressure data that the Shelton 17-6 and 17-8 are in pressure communication with each other, but are not in communication with wells such as the Richards 18-1 and the Irwin 7-15 to the west. The Shelton wells were drilled before the Richardson 18-1 and/or the Irwin 7-15, and their pressure was lower than either of these wells which show

17

virgin pressure when they were drilled. If you will notice the star representing the Richardson 18-1 is pretty much on a flat line with the original pressures in the 17-6 and 17-8, and so is the original pressure for 7-15, indicating that each of these wells saw essentially virgin pressure at the time of their completion although they were completed as much as a year or two apart. Subsequent to that time, while the 17-6 and 17-8 followed a very, very similar pressure decline, both the Richardson 18-1 and the Irwin 7-15 demonstrated separate and unique pressure declines, indicating that they are not in communication with the 17-6 and the 17-8.

Q And the importance of that point, Mr. Lerwick, is to try to confine to an area the gas that you believe to be recoverable out of the two existing Southland wells and the wells you propose, is that correct?

A That is correct.

Q All right. Let's go in then to your Exhibit No. 7, and taking the information, the bottom hole pressure information, tell us what this exhibit shows.

A Exhibit No. 7 is based on the continuation of the geologic

18

evidence along with the pressure evidence I just went over, and it is designed to show that there is likely substantial drainage of gas reserves occurring from Section 16. The reason being that the productive area as mapped under Section 17 is insufficient to account for the reserves being recovered from the Shelton 17-6 and 17-8. We've previously demonstrated that this recovery is not coming from the north due to the large fault. It is not coming from the west due to the pressure exhibit you've just seen, Exhibit 6, and is likely not coming from the south due to the geologic evidence submitted by Mr. Higginbotham.

Q That being a limitator--the limitator there being the estimated gas-water contact zone, albeit at the exact point on the map a little further south of that or a little further north of that it is still a limitating, or it limits the southern extent of that gas pool, is that correct?

A That's correct. Now this map does show the drainage area that we believe the Shelton 17-6 and 17-8 are seeing, and I honored the geologic data and the gas-water contact area as

19

established previously in calculating volumetrics for this area. I'll run briefly over the reservoir parameters I used in coming up with these volumetrics for your benefit. I used an initial bottom hole pressure of 1878 pounds, a bottom hole temperature of 115 degrees F., an average porosity of 8.9%, an average water saturation of 25%, and average thickness of 23 feet. Now the net thickness that I used was based on microlog cutoff. It is possible that you could have contribution from the rock other than that demonstrated by your microlog cutoff, and I did look at that but that adds at most as much as 10 to 20% additional reserves, not a significant factor. One of the things that becomes immediately obviously when you look at this map, first look at the pink area, and you see that based on a microlog cutoff and the reservoir parameters that I just went over that the recoverable reserves in Section 17 will be 1.7 BCF. I did use a recovery factor of 90% which is consistent with high quality Carter reservoir rock as we see in this area. Under Section 16 I show 90 acres, which would indicate .75 BCF of gas that is seen by the Shelton

17-6 and 17-8. Now as Mr. Watson and David have already commented on, it's possible to move the gas-water contact since we don't see an actual gas-water contact in any existing well bore. You could possibly move that around somewhat. You could say that there is some additional gas coming from portions of the Carter that aren't--don't--do not have microlog. You could maybe drop the water-gas contact in the--in Section 16 farther down to the east of the Cunningham 16-12. The placement, exact placement of the fault as you move farther to the east is not as well tied down as it is to west, but in any event it is very hard to believe that you could put the 5.2 BCF of reserves that we see being drained by the Shelton 17-6 and 17-8 all into their respective units.

Q Now, let me stop you just a minute. The 5.2 BCF, where do you get that figure, Mr. Lerwick?

A The 5.2 BCF is the total original gas in place as evidenced by three sources, one being the P/Z curves that are kept by the Alabama Oil and Gas Department.

Q Filed there by the operators of the well, is that correct?

A That's correct.

Q All right.

A It's also evidenced in the well data sheet which will be shown as one of Meridian's exhibits.

Q All right.

A And it is also consistent with our own independent P/Z data for these wells.

Q All right. Your picture of gas in place, as I appreciate it, is rather conservative because you have honored the geologic limits that have been testified to by Mr. Higginbotham, is that correct?

A That is correct.

Q Even this conservative estimate of gas underlying both 16 and 17, is it your opinion that there is a substantial amount of gas underlying Section 16 and particularly underlying the W/2 of Section 16?

A That's correct.

Q Is there a sufficient amount of gas there to warrant the drilling of a well, Mr. Lerwick?

A Yes, sir.

Q If a well is not drilled in the W/2 of Section 16, Mr. Lerwick, will drainage occur?

A Yes, sir.

Q Has drainage occurred, in your opinion?

A In my opinion it has.

Q Is the only way that you can, your company can protect the coequal and correlative rights of the owners in the W/2 of Section 16 to drill a well?

A Yes, sir.

Q Is it your opinion, based on the engineering information that you've had an opportunity to observe, that the proposed exceptional location is the most optimistic and the most optimum location that we can drill a well at in this W/2 section?

A Yes, sir.

Q Your figures here are showing original gas in place. The 5.2 BCF as depicted on P/Z represents the original gas in place. Have the wells, the Shelton wells in Section 17, been producing?

A Yes, sir.

Q Do you know approximately what those wells have produced to date?

A Yes, sir.

Q What is that figure?

A For the Shelton 17-6, I have, and 17-8, I have data through April of 1988.

Q And what does that indicate?

A The Shelton 17-6 has recovered 486 million cubic feet of gas. The Shelton 17-8 has recovered approximately 1,516,000,000 cubic feet of gas.

Q Now, so the 17-8 is a relatively good well, would you say?

A It's a---

Q Very good well?

A A very good well. The 17-8 is the second best well in all of Coal Fire Creek Field.

Q Now, Mr. Lerwick, you can understand any company choosing to protect a very good well in a field, can you not?

A Yes, I can.

Q All right. And one can only assume that the reason your request for an exceptional location is being opposed today

is because your opponent does not want to see another gas well drilled to and completed in this Carter Sand Gas Pool, is that correct?

A I would presume that is the case.

Q To the best of your knowledge, has this Board implemented in the promulgation of the Special Field Rules for the Coal Fire Creek Field a rule that will protect the Shelton 17-8 as well as the proposed exceptional location that you have in the W/2?

A Yes, it has.

Q Is that known as Rule 8 in the Special Field Rules for Coal Fire Creek?

A That is correct.

Q Is that a reserve based allowable rule?

A Yes, sir.

Q Will the allowables that you are allocated for your well if it's completed as a producer reflect, directly reflect, the reserves attributable to the W/2 of Section 16?

A Yes, sir, that is correct.

Q Would you be under Rule 8 allowed to produce a disproportionate amount of gas from under your unit that

would adversely affect the E/2 of Section 17?

A No, sir.

Q If you're not allowed to drill this well at an exceptional location, Mr. Lerwick, will you or your company or the royalty owners in the W/2 of Section 16 receive any compensation for the gas that may be drained from that and produced through the Shelton 17-8 well?

A No, sir.

MR. WATSON: Mr. Rogers, I'd ask that you receive into evidence Exhibits 1 through 7 to the testimony of Mr. Higginbotham and Mr. Lerwick.

MR. ROGERS: The exhibits are admitted.

(Whereupon, Exhibits 1 through 7 were received in evidence)

Q I ask both of my witnesses these questions. Is it your opinion that the granting of this petition for an exceptional location both to the unit line and to the Shelton 17-8 well will prevent waste and protect coequal and correlative rights of the owners in the W/2 of Section 16, as well as the owners in the E/2 of Section 17?

MR. LERWICK: Yes, sir.

Q Mr. Higginbotham?

MR. HIGGINBOTHAM: Yes.

MR. WATSON: I tender my witnesses to cross-examination.

MR. ROGERS: Mr. Smithart, cross-examination?

MR. SMITHART: Thank you. I'll start, I guess, with Mr. Lerwick, since he went last.

MR. ROGERS: All right, either way.

MR. SMITHART: I can remember what he said better.

CROSS-EXAMINATION

PAUL LERWICK

Questions by Mr. Smithart:

Q Based on--you've received the Meridian exhibits that have been prepared and submitted haven't you, Mr. Lerwick?

A Yes, I've seen them.

Q Geologically and engineering interpretation wise, there is not a whole lot of difference between our exhibits and yours, is that correct?

A There's not, from an engineering standpoint, there's not a great deal of difference. I can't address the geology

27

specifically.

Q O.K. Mr. Watson asked you some questions about Rule 8 to the Special Field Rules. I would assume that in asking for an allowable that you would present the same evidence that you presented today on your Exhibit No. 7 and mapped on showing 90 acres and .75 BCF of possible recovery?

A Not necessarily. I think all that would reflect the results of the well after we drilled it.

Q But that's what you would anticipate today, is that correct?

A Today, that's what we would possibly anticipate.

Q But clearly the majority of that 90 acres lies to the east of that possible fault, is that not correct? That we're talking about as being such a severe geologic risk?

A That is correct.

Q O.K. Assuming for a moment, since you presented evidence, that if that fault essentially is not there or is not a trapping fault, that's how you derived this 90 acres of drainage and this .75 BCF, correct?

A Yes, that is assuming that the fault was not entirely a trapping fault.

Q O.K. All right. Now let me ask you this. Suppose for a

28

moment that that fault there was a trapping fault there.

A O.K.

Q That would significantly affect your reserve calculation, is that correct?

A That would have a significant effect, that's correct.

Q It would turn that .75 BCF down there to about .14, is that correct?

A I don't know the exact numbers but it would certainly make it much smaller.

Q And that well wouldn't be economic unless you could look for some drainage from the Shelton 17-8, is that correct?

MR. WATSON: Would you mind defining what's economic?

MR. SMITHART: Well, I--can you tell me how much money you have to make from a well to make money on it?

A I think, to answer your question, that that's a risk that we have to assess.

Q You sent out an AFE, your company has, showing a completed well cost of $361,000, is that correct?

A That's correct.

Q And that would be a fairly conservative estimate to drill

29

5,000 some odd feet, is that correct?

A We think that it's a realistic estimate because we put it on the AFE.

Q O.K. So you're talking about a recovery of at least $361,000 before you start making money?

A That's correct.

Q Would .14 BCF yield you that in today's market?

A First of all, we're not starting from the assumption that there is absolutely only .14 BCF of gas.

Q But you want to drill this well based on that fault, so you are starting from that presumption I believe.

A If you remember my testimony, I have some serious reservations whether that is entirely a sealing fault over the entire length of it or at, at, certainly at some point on the fault. I feel like there's a, there's a great chance that there may be communication at some point across that fault.

Q O.K. Now let me ask you this then since we've turned around and the fault is substantially not likely to be there, or may not be there---

A No, we're not saying it may not be there. We're saying since we have 45 feet of sand, which I think is supported by your testimony as well, we're saying that it may not be entirely sealing.

Q O.K. If it is not sealing, would it not be viable and in fact most optimal for the recovery of your reserves that you're mapping in Section 16 for you to drill in a legal location?

A The fault represents additional risk. If we're to go to a legal location, the increased risks adversely affects our economics.

Q O.K. Let me ask you this. Suppose the fault is there, and it's a trapping fault, how, and we're seeing that that would substantially affect the recoverable reserves in Section 16, is that correct?

A That's correct.

Q Would it not--if you consider the section line then a geological boundary because that gas that's west of it doesn't belong to you, would, is that what makes this an acceptable economic risk to Terra?

A I think there's some risk that if the fault is sealing and it's there that we may never recover the cost on our well.

Q That's right. But if the fault is not there, that's the presumption that makes this well economically viable in the first place, is that not correct? The fault would have to not be there to make this well economically viable, this proposal? Or not be trapping?

A Not necessarily. You know, it depends on---

Q Tell me how you're gonna recover, if that fault is trapping, and if it's there, you tell me how you're gonna recover your money from that little area down there that you're showing on this Exhibit No. 7 to be productive?

A When you say if the fault is not there you're presuming that we'll, we've got to the point where we've determined that. At that point a lot of changes could happen in the geologic picture and often do. What we're requesting is the right to drill the well and establish that and whether we---

Q What I'm asking is why, if you're presuming in your estimated reserves that that fault is not there, which is

what you're doing, or it's not trapping, why can't you first drill a well in a legal location within the rules and then if you encounter some geologic information that we're not aware of come back then and request your exceptional location?

A That requires another well at that point in time.

Q If--if you drill a well and if you discover this fault in this location, you're saying that it would not be economic, is that correct?

A I'm not sure I understand what you're saying.

Q If the fault is there where you've got it mapped and it's a trapping fault, and if you consider the West line of Section 16 to be a geological barrier, do you have a location picked that would yield an economic recovery for this well?

A It's likely that we wouldn't.

Q O.K. So essentially, what you're hedging on is even if the fault is there you're going to be able to recover some gas out from under the Shelton 17-8 well, which is a real good well?

33

A No, I don't know that that's the premise we're making. The premise is that there's some chance that the fault that we see in the Shelton 17-8, the Cunningham 16-12, which is, has almost as much throw as the Carter Sand, may be sealing or may not. If we drill in a location, in a legal location, we're taking not only the--we're taking additional risk in our well here.

Q O.K.

A And that mitigates the economics of it.

Q We've--we've gone to from, I believe, substantial geologic risk down to some chance at this point. How long has this location been picked for this well?

A I'm not--I'm not sure I know exactly how long we've had this location.

Q All right. Let me ask you this. You're proposing a W/2 oriented unit, is that correct?

A That's correct.

Q But under your mapping you're gonna recover a significant amount of hydrocarbons from under the SE/4 if you're right?

A I think that there's always the opportunity for a well to be drilled in the SE/4 on an E/2 also.

34

Q Doesn't this entire reservoir lie in the S/2 of the section that you've got mapped?

A That's correct. We have, I think I can answer your question. There is an existing E/2 and W/2 unit already and we chose the W/2 because we prefer to stay with an orderly development and with the interests that have already been fixed in each of these units.

Q Well, let me ask you this. Why can't you drill a replacement well to your Carpenter-Shirley well up there in the northwest at a legal location? If that's what, you know, if that's what you're trying to do?

A I can't address the geologic risks associated with that proposal. I'm not sure that's what we're here to discuss.

Q I think that's all for this person. Thanks. David.

DAVID HIGGINBOTHAM

A Yeah.

Q Am I correct in my assumption that substantially the way you're mapping this reservoir and the way it's been mapped by Meridian is pretty close to the same? Is that---

A I would say---

Q Meridian seems to be more sure about this fault that we're talking about, but essentially?

A Pardon me?

Q I say essentially the mapping is the same, is that right?

A The placement of the fault, the placement of the major fault---

Q Uh-huh.

A Which--let me pull out a map. O.K. The placement of the major fault which traps on the Shelton 17-6 and the smaller fault in the 17-8 is essentially the same. We also show the same down-to-the-south fault up to the north. So from a fault picture our mapping is virtually identical. I think where we differ is the honoring of the geologic data along the fault.

Q That would involve the placement of the estimated initial gas-water contact line? Would that affect that? I'm noticing that the Meridian exhibits show it coming further down to the south than what you're mapping.

A O.K. Where we differ is on the gas-water contact.

Q Uh-huh.

A Well, first of all, let me as you this.

MR. WATSON: Just answer his question.

A O.K. Restate your question, please.

Q Well, what I'm asking essentially, and I've gotten into something probably--they show the gas-water, estimated gas-water contact, to hold, to encompass a lot bigger land area than what you have mapped, is that correct?

A I disagree with that.

Q I understand but that's--I know that you disagree with their mapping---

MR. ROGERS: David, just answer the question...

Q But what I'm asking is they map it further to the south than you do?

A They map it further to the south. I map it further to the east.

Q O.K. That's what I want to know. But other than that, substantially the formations are the same and the faults are about the same and the location of them are about the same, is that correct?

A That is correct.

37

Q O.K. Now, would it not be fair to say that it's a fairly significant issue here as to whether or not the fault that you draw on your maps as a questionable fault that has question marks in it is a trapping fault or is it there and is it located where it is? Significant to Terra's economic recovery from this well?

A O.K. We have the fault picked, both myself and Meridian, have the fault picked at about the same subsea depth, and we both show the fault to have throw slightly less than the package of the Carter Sand. Where we differ is Meridian has taken the fault and from the position of the 16-12 well they've taken it and drawn it more toward the east, whereas, I've broken it back down to the south.

Q Is that based on some kind of geological mapping procedure rule or do you have some---

A That's not---

Q Information for that or---

A That's not based, as far as going west of the Cunningham 16-12, that's not based, that's not based on anything.

Q O.K.

28

A I could have very conceivably taken the fault from the Cunningham 16-12 and moved it on over toward the east, and that would certainly have increased the drainage from Section 16, had I chosen to do it that way.

Q Looking at your Exhibit No. 2 and where you're mapping that fault down through there and you've got question marks in it and call it a possible fault, assume that that's a fault, and assume it's a trapping fault, would that significantly affect the viability of drilling this well, in your opinion, geologically?

A If I assume it's a trapping fault?

Q Yes.

A If I assume it's a trapping fault, I could very easily take this fault over to the east and that in itself is why we need--why geologic risks suggest an exceptional location.

Q O.K.

A Because you need to be right up next to the fault in order to get out of the gas-water.

Q Let me ask you this. If that fault is there, and if it's a trapping fault, and given the location that you've picked,

could you then assume the reserve base, or the reserve area, that your engineer has made his calculations on?

A I'm not certain I understand the question.

Q Could you assume that--that--let me show you this exhibit. I'm referring to the engineering Exhibit No. 7. Could you then assume with any amount of certainty, if this was a trapping fault, that this area showing 90 acres and .75 BCF would be productive of that? From that well bore?

A If you assume this is a trapping fault, you could alternatively map the fault the way Meridian does and that would jive real well with the way we've pictured our reserves up along the fault.

Q O.K. And then--but then you could drill in a legal location, is that correct?

A No, because the geologic risks of being, having a significant portion of your pay faulted out at a legal location makes it a very risky possibility.

Q What I'm asking you David is if--you're saying this is a significant geologic risk?

A That's correct.

10

Q All right, if it's there, a well without recovering from under the Shelton would not be economical, is that right?

A I would rather drill a well and get my 40 feet of Carter Sand rather than get two feet of Carter Sand.

Q But it would not be economical, if the fault is there and if it is a trapping fault, for Terra to drill this well if they could not recover from under the Shelton 17-8 area?

A I think you don't understand. Why don't you restate your question?

Q O.K. That's what I'm asking. All right, you've got a fault that's drawn here, a possible fault, and you're saying there's a significant geologic risk to drilling to the east of that fault?

A That's correct.

Q This one you've got picked. But if the fault is there, a well, assuming that you can't produce west of the section line, would not be economical, is that right?

A Not if the fault trends east-west from the Cunningham 16-12.

Q O.K. That's what I'm asking. So, would it not be--you're basing your whole engineering evaluation picture on draining

90 acres?

A We're in the business to drill productive wells and to reduce the risk of drilling a dry hole.

Q I understand that.

A And we believe that the gas is trapped up along the fault in Section 16.

Q All right.

A A few hundred feet either way could put you faulted out at your Carter, for having your best porosity and permeability faulted out.

Q But in order to recover the reserves that you have mapped for Section 16, that fault can't be there, is that not right? Or it can't be trapping?

MR. ROGERS: Answer the question if you can, Mr. Higginbotham.

A It doesn't need to be trapping along its entire length, that's correct.

Q So in order for you to recover this 90 acres and this .75 BCF, you must assume that that fault is not there or it's not trapping?

A You must assume somewhere along the fault that it does not form an effective seal.

Q All right. My question is then based on the economics and based on your testimony, why is a legal location not viable? Because you have to assume the absence of that fault or that it's not trapping to get the reserves that you're showing this Board.

A I'm afraid you don't really understand how you can have a fault that seals along part of it but doesn't seal along another part of it. Your sand package is actually thicker than the fault.

Q I understand that.

A And we've demonstrated that the fault changes throw along strike.

Q I understand that, but you, I don't see how you're gonna recover, if this fault seals, across this area here. Then the testimony has already been that the well would not be economical unless you could recover some out of the Shelton, and you can only recover this .75 BCF if there's some flow through from the fault.

43

MR. WATSON: Before you answer that question, just a minute. Now you've just made an assumption that I'm not sure he's testified to.

Q O.K.

MR. WATSON: You've made an assumption that there's recovery out of the Shelton 17-8 well. I don't think Mr. Higginbotham has stated that there's recovery out of the 17-8 well.

Q O.K.

MR. WATSON: I think we've testified on direct about Rule 8 and the protection of the 17-8. He's made no assumption of drainage.

Q I apologize.

MR. ROGERS: Mr. Smithart, you ask the questions and give a responsive answer if you can, Mr. Higginbotham.

A I'm trying to.

MR. ROGERS: If there are anymore questions.

Q I'm sorry about being unclear about it, David, because you know and I know that I don't understand a lot of this, but I do understand from looking at your map, this engineering

Exhibit No. 7, that you're basing your economic estimates on this well---

MR. ROGERS: Just ask the questions now.

Q Huh?

MR. ROGERS: O.K. You just ask the questions and let's get a responsive answer from Mr. Higginbotham.

Q Of this 90 acres and .7 BCF, is that correct?

A The question marks indicate that I believe the fault does not seal along its entirety. That's how come we got the .75 BCF. That's correct.

Q Then why can't you drill a well east of that fault in a legal location?

A We don't know where the fault seals and where it doesn't, and we won't know that until we drill a well.

Q But why can't you drill it in a legal location? Wouldn't that give you the same information and the same potential recovery?

A As I've testified previously, the presence of a 30-foot fault in the Shelton 17-8 and a 40-foot fault in the Cunningham 16-12 in their subsea depths, I don't want to

45

drill a well at a legal location and have the bulk of my porosity and permeability faulted out.

Q O.K.

A I don't want to take that risk, and as a prudent operator I don't think we can afford to.

Q But as a prudent operator, can you drill a well, assuming that fault is there and assuming it's trapping, could you drill a well period in that triangular area down there that's got about 14 or 15 acres in it?

A I don't believe that fault traps along its entirety. That's why we're drilling the well.

Q O.K. Why can't you drill it east of there then? If you don't believe it traps.

A Because of this existence of the small splay fault. I don't want my pay, most of pay sand, faulted out.

Q O.K. If most of your pay is sand faulted out, then the well would not be economically viable anyway?

A If it's faulted out, that's correct.

Q But you don't really believe it's faulted out or else you can't give it that .75 BCF, is that correct?

A I think you don't quite understand how hydrocarbons can migrate along a fault.

MR. ROGERS: All right, let's try that--if you can ask that question one more time. Let's just have it one more time.

MR. SMITHART: I don't think I have anymore. Wait a minute. Let me ask you one other question. If this, and maybe I'm just dense, but if this is not a trapping fault, which you have to presume to get this area in here, why can't you drill a well anywhere along in this place to recover? In fact, it looks to me like, being as crazy as I am, that there are a lot more optimum locations in this area to drain the reservoir that you've mapped. I mean do you think this well is gonna reach all the way down here and drain the edges of this reservoir?

A As a geologist, you always like to stay closest to your control points. We've got a fault in the Irwin 7-15, the Richardson 18-1, the Shelton 17-6, Shelton 17-8, Cunningham 16-12. We've got that fault pretty much--the big trapping fault pinned down to me. We've got--the W/2 of Section 16 is currently producing gas. The most geologically prudent place to drill a well is in the E/2 of 16, and geologically

47

your best chance of making a productive well, which is economic, and which is gonna drain Section 16 is playing off your control.

Q And getting up as close as you possibly can to the Shelton 17-8 well?

A Getting up as close to my control as I can. Look at this, the Cunningham 16-12 is a dry hole. We're offsetting that by a few hundred feet.

Q You said there was gas in it.

A That's right. We believe there's gas in it.

Q O.K.

A And we believe that, moving a little---

Q I don't have anything else.

MR. ROGERS: All right, let's have it in questions and answers. Any other cross-examination, Mr. Smithart?

MR. SMITHART: No, I don't think so.

MR. ROGERS: Any redirect, Mr. Watson?

MR. WATSON: Just a minute, please.

MR. ROGERS: All right.

(Mr. Watson talked with client)

48

MR. WATSON: No redirect.

MR. SMITHART: I have two witnesses that I would like---

MR. ROGERS: You gentlemen stand and state your names and addresses. The men that are going to testify, of course.

FIRST WITNESS: My name is Donn McGuire, Meridian Oil.

MR. ROGERS: What's your address?

MR. MCGUIRE: 1366 Trailwood Village Drive, Kingwood, Texas.

SECOND WITNESS: Kenneth Brimberry, Meridian Oil. Address is 36 Tangier Trail, Woodlands, Texas.

(Witnesses were sworn by Mr. Rogers)

MR. SMITHART: I'll call Mr. McGuire first.

(Exhibits were distributed)

MR. SMITHART: Mr. McGuire, would you state your name for the record, please?

MR. MCGUIRE: Donald Edward McGuire.

MR. SMITHART: And where are you employed?

MR. MCGUIRE: I'm employed by Meridian Oil in Houston, Texas.

MR. SMITHART: Could you tell me what your job description is?

MR. MCGUIRE: I am a senior staff geophysicist.

MR. SMITHART: How long have you held that position with Meridian?

MR. MCGUIRE: With Meridian, two and a half years.

MR. SMITHART: Have you ever testified before the State Oil and Gas Board of Alabama in the past?

MR. MCGUIRE: No, sir.

MR. SMITHART: Have you prefiled an affidavit with the Board as to your qualifications?

MR. MCGUIRE: Yes, sir.

MR. SMITHART: I move to have those affidavits recognized that they have prefiled.

MR. ROGERS: He is so recognized, recognized as an expert.

MR. SMITHART: O.K.

DONALD MCGUIRE

Appearing as a witness on behalf of Meridian Oil, testified as follows:

DIRECT EXAMINATION

Questions by Mr. Smithart:

Q Can you tell me please have you on behalf of Meridian taken

a look at the current Terra exceptional location proposal in the W/2 of Section 16, Coal Fire Creek, Pickens County?

A Yes, I have.

Q O.K. Have you prepared exhibits for presentation to the State Oil and Gas Board regarding the Terra petition?

A Yes, sir, I have prepared five exhibits.

Q All right. Let me understand. You've looked at the Terra exhibits in behalf of Meridian and you've also prepared exhibits for submission, is that correct?

A That is correct.

Q O.K. Could you begin, please, and turn to your Exhibit No. 1 in your exhibit booklet and explain what that exhibit is and what it shows, and if you could, explain how it differs from the Terra exhibit.

A Exhibit 1 is the structure map on the top of the Carter Sand. It agrees essentially with the placement of the faults and the throws of the faults in the wells as Terra's with the exception of the orientation of the faults in the W/2 of Section 16. It also differs in the areal extent and location of the gas-water contact and the reservoir in Section 17. One minor difference is the elevation of the

Carter Sand in the Terra-Cunningham 16-12 differs by approximately 17 feet from Terra's evidence, but ours agrees with the Carter Sand call that they prepared on their cross section exhibit. We believe, based on seismic information in the area, which we have a significant amount, that the fault in Section 16, which is down-to-the-southwest, continues through that section with the down-to-the-northeast faults terminating into it. We do not have evidence that these faults continue in a parallel manner as mapped by Terra. The other significant difference, as I mentioned, is the areal extent of the reservoir in Section 17 which we show continuing down into the northern part of Section 20 based on a well that's located in the No. 8 location of Section 20, which is approximately flat to the Cunningham 16-12 and requires us to map our contours in such a manner. This is, as we will show in the engineering data, allows computation of our field size such that we agree with the recoveries to a certain extent. This is basically a map of the reservoir in the area, and as Terra has testified, the Southland

52

Royalty wells, the Shelton 17-6 and 17-8, are essentially flat. We used this map to calculate the area of the reservoir and, as we will show in other exhibits, the potential pay that we encountered.

Q O.K. Would you turn, please, to your Exhibit No. 2 and explain the significance of that exhibit?

A Exhibit 2 is an isopach of the Carter Sand gross thickness, the total thickness of both the Upper and the Lower Carter Sands, showing a northeast-southwest trend of this sand thickening to the northwest and thinning to the southeast, showing, in our opinion, very good control for this lenticular shape of the sands themselves. This was used to calculate the gross reservoir thickness within the productive horizon.

Q O.K. Could you turn then to your Exhibit No. 3, please?

A Exhibit 3 is an isopach of the Upper Carter porosity mapped at five-foot contour intervals. This is the same type of map that Terra prepared although we show a lot more detail and some discrepancy in the numbers that we used for the contouring. We also used the 9% density porosity cutoff,

which is in a line matrix, calculates out to approximately 7% in sand which we consider an economic limit, showing that there is significant reservoir change, thickness change, from 17 into 16 and as well as throughout this mapped area.

Q O.K. Exhibit No. 4?

A Exhibit No. 4 is the isopach of the Lower Carter porosity using the same cutoff numbers, and again shows a correlative trend to the Upper Carter Sand. There is not near as much discrepancy between the thicknesses as there is in the top of the Carter.

Q Exhibit No. 5?

A Exhibit No. 5 is a composite map of the structure, structural features from Exhibit 1, i.e., the fault placement and the initial gas-water contact combined with the gross Carter isopach map showing the thickness of the pay section in this area. This identifies the extent of the reservoir in acreage as well as the thickness of the reservoir in feet, which is necessary to calculate the volumetric contents of this reservoir.

Q O.K. In your expert opinion, Mr. McGuire, is the fault that we've been discussing that runs approximately through the proposed location, is it a trapping fault? Or is it likely to be?

A In our opinion it is likely to be a trapping fault because we consider it to be a trapping fault in the Shelton 17-8 well of which it is the same magnitude.

Q All right. Assuming for the moment, for a moment, that it is a trapping fault and that you're correct, and I understand that you're not sure of that, in your opinion as a geologist would a well in the proposed location be economically viable?

A In my opinion it would not be.

Q All right. You don't think it would be viable if you could recover out of--do you think it would be viable if you could recover out of Section 17 in that location?

A I'm not sure that it would be viable even with recovering in Section 17 unless it was a significant recovery from Section 17.

Q Would it be likely to be a significant recovery if it produces at all from Section 17?

A I would think so, yes.

Q O.K. Supposing that it's not a trapping fault, that there is gas lying up next to the larger fault and there's communication through there, is the proposed location the optimum location to drain that area?

A In my opinion it's not in an optimum location.

Q Would a legal regular location under the field rules for Coal Fire Creek be a more viable placement assuming nontrapping of that fault?

A Assuming nontrapping, I would say that among numerous legal locations that there are better locations to extract those hydrocarbons.

Q In your opinion what would be the only rationale for putting the well in its proposed location?

A The only economic rationale for putting that location there would be to acquire reserves from Section 17.

Q Kind of shore up the risks?

A Correct.

Q O.K. Mr. McGuire, are you familiar with the term "waste" as that term is defined by the oil and gas laws of the

State of Alabama?

A Yes, sir.

Q In your opinion would allowing Terra to drill a well in this exceptional location prevent waste?

A No, sir.

Q Would you tell me why not, please?

A Drilling a noneconomic well is a classic definition of wasting economic reserves.

Q Mr. McGuire, in your opinion would the granting of this special location, exceptional location, protect the coequal and correlative rights of the owners in the reservoir?

A No, sir.

Q O.K. Could you tell me why not there?

A I feel that it would unfairly drain the mineral reserves in Section 17, and therefore not be equitable.

MR. SMITHART: O.K. I don't have anything further. I would like to call Kenneth Brimberry as my second witness. Mr. Brimberry, could you state your full name, please, for the record?

MR. BRIMBERRY: John Kenneth Brimberry.

MR. SMITHART: And where are you employed?

57

MR. BRIMBERRY: With Meridian Oil, in Houston, Texas.

MR. SMITHART: Tell me your job description, please.

MR. BRIMBERRY: My job description presently is reservoir engineer. I've been in this capacity for the last four years.

MR. SMITHART: O.K. Have you ever testified before this Board before?

MR. BRIMBERRY: No, sir.

MR. SMITHART: Have you prefiled an affidavit with the Board stating your qualifications?

MR. BRIMBERRY: Yes, I have.

MR. SMITHART: Is that--I would tender Mr. Brimberry as an expert witness.

MR. ROGERS: If he could just briefly state them, state his qualifications, Bill, just very briefly.

MR. SMITHART: That will be fine. Could you tell me how long you've worked for Meridian in your present capacity?

MR. BRIMBERRY: O.K. Overall, I've worked for Meridian for seven years. The first three years was a production engineer and the present time from then to now, the last four years as a reservoir engineer working the midcontinent area.

MR. SMITHART: Could you tell me where you received your degree and what it was in, please?

MR. BRIMBERRY: My degree was from the University of Texas at Austin, a degree, a B.S. in petroleum engineering.

MR. SMITHART: I tender this witness.

MR. ROGERS: He's recognized as an expert.

KENNETH BRIMBERRY

Appearing as a witness on behalf of Meridian Oil, testified as follows:

DIRECT EXAMINATION

Questions by Mr. Smithart:

Q Mr. Brimberry, on behalf of Meridian have you prepared exhibits for presentation to the State Oil and Gas Board of Alabama?

A Yes, I have.

Q Also in connection with your employment with Meridian, have you examined the Terra exhibits that have been presented in support of their proposed special location?

A Yes, I have.

Q O.K. Could you please then, Mr. Brimberry, begin with your

exhibit, I believe it's No. 7 in the exhibit booklet, and describe to the Board and to the Hearing Officer and the staff what that exhibit is and what it means to this petition?

A Exhibit No. 7 is a table summarizing reserves that were determined for the Shelton 17-6 and the Shelton 17-8, and these reserves were determined by a plot of P/Z versus cumulative production. The pressures that were used in order to calculate these reserves were determined from initial reservoir pressure and the bottom hole pressures associated with the annual state test.

Q Those tests are on file with the Board?

A These tests are on file with the Board and were performed in conjunction with the laws of the Oil and Gas Board of Alabama?

Q O.K.

A Referring first to initial bottom hole pressure of both wells, which is 1,905 pounds, we'll see is the same for both wells. Referring next to the most recent bottom hole pressure, for the Shelton 17-6, 1,445 pounds, and the

Shelton 17-8 1,454 pounds, or virtually the same pressures. Now for a minute, if you refer to Exhibit No. 13, which is a plot of bottom hole pressure versus time, you will see that the pressures recorded for both wells over time are identically the same.

(Witness was asked to get closer to mike)

A little closer, o.k. I'll start again with Exhibit No. 13, which is a plot of bottom hole versus time for each well. Can you hear me?

MR. ROGERS: Yeah, we, no problem. Did you not get that testimony, Jean?

(Hearings reporter indicated had heard testimony)

MR. ROGERS: I don't see any reason to go through the exhibit again. I think we heard it.

A O.K. From the Exhibit 13 and the initial bottom hole pressure and the most recent pressure, Exhibit No. 7, you'll see the Shelton 17-8 and Shelton 17---

MR. ROGERS: To be sure, just put the microphone closer to yourself, sir, to be sure.

A In the Shelton--how is that?

MR. ROGERS: That's fine.

A And the Shelton 17-6 are both producing from a common Carter reservoir. Now starting the Shelton 17-6, you'll see that the estimated oil, I mean gas in place, is approximately 1.23 BCF. The estimated ultimate recovery is .97 BCF based on abandonment pressure of 500 pounds, and this information can be gathered from Exhibit No. 11 of the plot of the P/Z versus cumulative production for Shelton 17-6. Referring to the Shelton 17-8, the original gas in place was estimated at 4.06 BCF, estimated ultimate recovery of 3.14 BCF, and abandonment pressure of 500 pounds. Exhibit No. 12 shows the plot of P/Z versus cumulative production for this well. In summary, the original gas in place for the Carter reservoir is 5.29 BCF, estimated ultimate recovery of 4.11 BCF for this reservoir. The Shelton 17-6 and 17-8 will produce 4.11 BCF of the gas in place. Refer to Exhibit No. 8. Exhibit No. 8 is a volumetric summary of the Carter reservoir. This volumetric summary is based on Exhibit No. 5, which is a geological interpretation of the area. The volumetric summary is based on the volumetric calculations which can be

found, Exhibit No. 9. Now this volumetric summary, briefly, breaks down the reserves. They are divided in the Carter reservoir among Section 16, Section 17, and Section 20, which are based on the geological interpretation of Exhibit No. 5. Section 16, the bulk reservoir volume, 631 acre feet. The original gas in place is 165 million. The estimated ultimate recovery is 128 million, and the percentage of the total reserves for Section 16 is 2.9%. For Section 17, the bulk reservoir volume is 17,362 acre feet. The original gas in place for this bulk reservoir volume is 4.544 BCF. The estimated ultimate recovery for this reservoir volume is 3.512 BCF, and the percentage of the total reserves for Section 17 for the Carter reservoir is 80.8%. Section 20, the reservoir bulk volume, or the bulk volume of the reservoir, is 3,497 acre feet. The original gas in place for this 3,497 acre feet is .915 BCF. Estimated ultimate recovery is .707 BCF, and the percentage of the total reserves is 16.3% of the Carter reservoir.

Q Mr. Brimberry, let me ask you then, I see it's your

testimony based on the maps that all of the recovery in Section 16 constitutes only 2.9% of the reservoir, is that correct?

A That is correct.

Q Based on you map?

A Based on geological mapping.

Q O.K. Based on the mapping of Meridian?

A Correct.

Q That Meridian has submitted. O.K. So if in fact there is some drainage occurring over in Section 17 by the Shelton 17-8 well, or by the two wells, that's gonna be a very insignificant part of the reservoir as a whole?

A The drainage as far as Section 16 is concerned is very insignificant.

Q If it's occurring?

A If it's occurring.

Q O.K. Go on, please.

A O.K. The final exhibit, which I've mentioned so far, is Exhibit No. 10 which is a pie chart showing the breakdown, the percentage of the reservoir occupied by each section

64

according to the geological interpretation of the area.

Q O.K. Mr. Brimberry, let me ask you this. Assuming that the geological mapping submitted by Meridian is accurate and assuming that that fault that runs through the proposed location is a trapping fault, would you as an expert engineer consider the proposed location to be economically viable if you couldn't recover from the Section 17 reserve pool?

A No, the well would not be economically viable if you cannot recover from Section 17.

Q O.K. If the fault was not there or if it was not a trapping fault, has the location that Terra--is the location that Terra proposes the optimum location to drain the reserves that their engineers show?

A No, it would not be the optimum location to effectively drain the reserves as presented in their exhibit on their isopach map.

Q So it would be your opinion then that the only reason for picking the location where it has been picked is to insure drainage from the Shelton 17-8 well?

65

A That's correct.

Q Mr. Brimberry, are you familiar with the term "waste" as defined by the oil and gas laws of Alabama?

A Yes, I am.

Q O.K. In your opinion would the drilling of a well in this exceptional location be likely to prevent waste?

A No, this well would not prevent waste.

Q Would this well be likely to protect the coequal and correlative rights of all the owners in the producing area?

A No, as far as the Carter reservoir in this area, a well in a location as Terra has picked would drain substantial reserves from under Section 17 of different owners.

Q Let me ask you this. Based on the Exhibit No. 7 submitted by Terra, would that location that they picked protect the coequal and correlative rights of those people in the Southeast Quarter of Section 17--Section 16?

A This location--you're referring to the SE/4 of Section 16?

Q Right. With a W/2 unit orientation?

A I do not believe it would.

MR. SMITHART: I don't have anything further. I tender my witnesses to---

66

MR. ROGERS: Mr. Watson, cross-examination?

MR. SMITHART: I tender--let me--I want to call one additional witness please. Mr. Bobby Kennedy is the landman for Meridian. Could he be sworn? He wasn't sworn, Marvin.

MR. ROGERS: Would you stand and state your name and address?

MR. KENNEDY: My name is Robert Kennedy. I work for--I'm a landman for Meridian Oil in Houston, Texas.

MR. ROGERS: What's your address?

MR. KENNEDY: 17922 Garden Manor Drive, Houston, Texas.

(Witness was sworn by Mr. Rogers)

MR. SMITHART: Mr. Kennedy, have you prepared an exhibit that's been presented to the Oil and Gas Board in the exhibit package?

MR. KENNEDY: Yes, I have.

MR. SMITHART: And what number of exhibit is that, please?

MR. KENNEDY: No. 6.

MR. SMITHART: O.K.

MR. ROGERS: Bill, I assume he's a---

MR. SMITHART: Yes, he's testified. Have you testified

before the Board?

MR. KENNEDY: Yes, I have.

MR. SMITHART: Is there a prefiled affidavit on file as to your qualifications?

MR. KENNEDY: Yes, there is.

MR. SMITHART: And you've been recognized as an expert before?

MR. KENNEDY: Yes.

MR. SMITHART: I tender this witness as an expert.

MR. ROGERS: He's recognized as an expert petroleum landman.

ROBERT KENNEDY

Appearing as a witness on behalf of Meridian Oil, testified as follows:

DIRECT EXAMINATION

Questions by Mr. Smithart:

Q Bobby, do you own, does Meridian Oil own an interest in the Shelton 17-8 well?

A Yes. Meridian/Southland Royalty Company owns an interest in the Shelton 17-8 well in the E/2 of Section 17.

Q O.K. And what about the W/2 well?

68

A Yes, we also own an interest in the W/2.

Q O.K. Could you tell me what your interest is, please, in the Shelton 17-8 well?

A In the Shelton 17-8 well, working interest is 50.3125% and we also are the operator of that well and unit.

Q Who owns the remaining interest in the well.

A Ladd Petroleum owns the, all the remaining interest. That's 49.6875%.

Q And Ladd Petroleum also stands in opposition to the Terra position?

A Yes, they do.

Q O.K. In the W/2, the proposed area, the W/2 of Section 16, does Meridian have an interest in that?

A Yes, in the W/2 of Section 16 we own a 31% working interest.

Q O.K. What does Terra own in that W/2?

A 24.90569%.

Q So Meridian is the largest owner in the W/2?

A That's right. Largest single owner.

MR. SMITHART: I don't believe I have anything further.

MR. ROGERS: Mr. Watson?

CROSS-EXAMINATION

DONN MCGUIRE

Questions by Mr. Watson:

Q Mr. McGuire, in preparing your Exhibit No. 1, you testified on direct that you had extensive seismic information. Did you use that seismic information in preparing this map?

A Yes, sir.

Q Do you have any of that seismic information with you?

A No, sir.

Q You also testified that you had looked at the Brookshire well down in Section 20?

A Yes, sir.

Q Why did you elect not to present that well and the data on this map?

A It was my opinion that we were countering a proposal by Terra and we decided to use the same mapping that Terra used.

Q Your testimony on Exhibit 5, Mr. McGuire, was that the proposed exceptional location would drain reserves from Section 17?

A That is my interpretation, yes.

Q Are you familiar with Rule 8 of the Special Field Rules for Coal Fire Creek?

A I am somewhat, yes.

Q And would you explain to me how that's possible?

A How it is possible--how it is possible to drain from Section 17?

Q Yes, sir.

A It is my opinion that given the distance from the 17-8 well from the unit line proportional to the distance for the proposed location from the unit line would allow a disproportionate amount of production to come from Section 17.

Q What does that have to do with a reserve based allowable system, Mr. McGuire?

A I am not qualified to answer that.

Q So do you want to qualify your statement that the exceptional location would unfairly drain Section 17?

A No, sir.

Q You're gonna stick to that?

A That's my interpretation, yes.

Q Is it your opinion, Mr. McGuire, that there is an amount of gas underlying the W/2 of Section 16, some amount of gas?

A I would have to agree, based on the production from the Carpenter-Shirley, yes, sir.

Q The gas does underlie the W/2 of Section 16?

A There appears to be gas in the W/2 of Section 16.

Q All right, sir. Now, Mr. McGuire, you made some reference to the Carpenter-Shirley well, which is in the NW/4 of Section 16, are you familiar with the status of that well?

A Yes, sir.

Q Is it producing from the Carter?

A No, sir.

Q Do you know where it is producing from?

A I believe it's producing from a Pennsylvania section.

Q All right. Mr. Brimberry.

KENNETH BRIMBERRY

Questions contd. by Mr. Watson:

Q Are you familiar with Rule 8 of the Special Field Rules for the Coal Fire Creek?

A I am somewhat familiar with the rule.

Q Do you agree with Mr. McGuire that there would be unfair drainage of Section 17 under the operation of that rule if this well is drilled and completed as proposed in the W/2 of Section 16?

A There's a possibility there could be unfair drainage.

Q If Rule 8 is complied with?

A That is correct.

Q Does Rule 8 not protect coequal and correlative rights of owners?

A It does.

Q Is there a contradiction in your testimony?

A No, sir.

Q Do you propose any amendment to Rule 8?

A At this time, no, sir.

Q Mr. Brimberry, what fields are you aware of in the Warrior Basin where an abandonment pressure of 500 pounds is used in determining reserves?

A We used that pressure based on existing pipeline pressures we have to produce into. Existing pipeline pressures range

from 400 to 500 pounds, and since the depth is only 5 to 6,000 feet 500 pounds is not unreasonable.

Q Are most wells produced beyond that to a lower abandonment pressure?

A Yes, they are.

Q Your recovery factor that you used was 80%, is that correct?

A Which?

Q Your recovery factor in calculating your---

A As far as volumetric summary is concerned?

Q Yes. I believe you test---

A That is not a recovery factor?

Q What recovery factor did you use then in---

A The recovery factor I used was an abandonment gas formation volume factor based on abandonment pressure of 500 pounds, which can be seen on Exhibit No. 9.

Q All right, sir, and can you answer my question as to what percentage of recovery that would represent from the Carter Sand?

A Would you repeat your question again, please?

Q Could you tell me what percent of recovery that represents

from the Carter Sand?

A As far as Section 17 is concerned?

Q Just in general---

A For the Carter reservoir or---

Q In determining the recoverable reserves that you're showing for 16, 17, & 20?

A O.K. That represents approximately, the estimated ultimate recovery represents approximately 77% of the gas in place.

Q Is that typical for the Warrior Basin?

A The areas that I have looked up, I believe it is typical?

Q About 77%?

A 70--well, I would say 75 to 80%.

Q So, in quantifying the original gas in place under Section 16, you've used approximately 500 pounds abandonment pressure and about 77% recovery factor, is that correct?

A I used abandonment pressure of 500 pounds. The 77% recovery factor just happens to equate that way.

Q All right. Now if there were--if we used a lower abandonment pressure, isn't it true that your original gas in place for, particularly Section 16, would change, would be greater?

A Gas in place wouldn't change. The ultimate recovery would change.

Q All right. And that ultimate recovery would then be closer to the 165 million that you're showing, is that correct?

A Lowering the abandonment pressure would increase the ultimate recovery closer to the original gas in place.

Q Mr. Brimberry, will this 128 million cubic feet of gas that you say underlies Section 16 be recovered by the Shelton 17-8 well if a well is not drilled in Section 16?

A It may or may not. I cannot actually testify to whether the 17-8 will drain the little pie section.

Q But you admit that there is gas underlying the W/2 of Section 17?

A There is gas but whether a gas is commercial or not. It has been proven that the well recently drilled was not a commercial gas producer, so therefore, I cannot testify whether a well actually drilled there will be commercial.

Q Look at your volumetric calculations summary, and my exhibit booklet is not numbered so---

A It's No. 8.

Q All right. You've got a gas saturation of 57.2%. Do I infer from that that your water saturation is approximately 42.8%?

A That is correct.

Q Is that a reasonable inference for wells in the Warrior Basin? Do they--do gas wells normally produce with a water saturation of 42.8%?

A Yes, they do. That's reasonable because we're taking the saturation across the total perforated interval.

Q Would you disagree with me that maybe a more reasonable figure for gas saturation cutoffs would be about 35%?

A Yes, I would.

Q So would it be fair to say, Mr. Brimberry, that you just disagree on the amount of recoverable gas and therefore on the economic risks associated with drilling a well, with Terra's proposal? Is that just basically your testimony? There's a quantity differential between your position and that of Terra's?

A Well, I disagree with the fact that drilling a well--the proposed location of a trapping fault existing will be uneconomical due to the small amount of recovery that could

77

be obtained at that location.

Q And is it also your testimony, Mr. Brimberry, that Rule 8, the reserve based allowable, would give unfair advantage to a well drilled at an exceptional location in the W/2 of Section 16?

A Would you repeat your question, please?

Q Is it your testimony that Rule 8, the reserve based allowable system that's in place for the Coal Fire Creek Field, would give a well drilled at an exceptional location in the W/2 an unfair advantage to the Shelton 17-8 production?

A Well, a well drilled at that location, as far as I am concerned, would probably be uneconomic, so therefore, there would be no commercial reserves recovered from that well, based on your estimated gas-water contact and the existence of the trapping fault.

Q Mr. Kennedy?

ROBERT KENNEDY

Questions contd. by Mr. Watson:

A Yes.

78

Q Was the point of your testimony that Meridian owns a larger working interest in the W/2, that you would not recommend the drilling of a well in the W/2?

A No, that's not the point. I just wanted to present the facts, that's all.

Q Would your company participate in the drilling of a well in the W/2?

MR. SMITHART: I object. We don't, we don't have to answer a question like that...

MR. ROGERS: What's your objection, Bill? I didn't understand.

MR. SMITHART: There's an agreement, a JOA agreement, that we would have to make an election under presumably at sometime but this certainly wouldn't be the time to make that election.

MR. ROGERS: Well, he can just answer the question if he, you know, if he knows the answer.

MR. SMITHART: If you know.

A I don't know the answer to that right now.

Q I guess I was just kind of floundering a bit as to the purpose of this exhibit.

A All I wanted to do was present the working interest ownerships in the separate units and show our interest in both wells and units, that's basically it.

Q So I think we both can stipulate that there is diverse working interest ownership in the two units, is that correct?

A We certainly can.

Q Could I have just a minute recess, two minute recess, Mr. Rogers?

MR. ROGERS: All right.

MR. SMITHART: At this time I would like to tender my exhibits for admission.

MR. ROGERS: All right, the exhibits are admitted. All the Meridian exhibits.

(Whereupon, the exhibits were received in evidence)

(The hearing was recessed 2 minutes)

MR. ROGERS: The hearing is in session. Mr. Watson continuing his cross-examination.

MR. WATSON: I have nothing further on cross, Mr. Rogers. I

80

would like to reserve rights for a closing statement.

MR. ROGERS: Mr. Smithart, do you have any redirect?

MR. SMITHART: No.

MR. ROGERS: All right. Would anyone else like to make a statement here?

MR. SMITHART: I would tender my witnesses to the Board for any questions--to the staff if they would have questions.

MR. ROGERS: The staff has no questions. Mr. Watson, if you would like to make a closing statement, this would be the time to do so.

MR. WATSON: All right.

MR. ROGERS: And of course, Mr. Smithart.

MR. WATSON: Mr. Rogers, what we've asked for here is an opportunity to drill a typical exceptional location only half the distance to the unit line based on a geological interpretation which albeit is ours. It's a risky venture as all drilling in this area is risky. We're only 1800--we're 1800 feet from the existing well. It's our position that Rule 8 of the Special Field Rules for the Coal Fire Creek Field, the reserve based allowable, protects the interest of Meridian Oil as

81

it protects our interest. It's our opinion that we have honored the geological controls that we have in this area. We've stayed as close to the limits of those controls as we can in proposing this well for the purpose of protecting the rights of those owners in the W/2 of Section 16 that are underlain by gas that in our opinion could only be recovered from the drilling of this well. This is counterdrainage to drainage that we feel like is occurring from the 17-8 well. I think both cases show gas potential under the W/2 is a question of how much. Terra Resources is willing to risk its money to drill a well to prove it's theory that this gas is recoverable and that there is a significant amount of gas recoverable that would warrant the economic risks associated with that, thereby not committing waste of our economic resources. Exceptional locations of this nature are standard throughout the Basin. We've asked for no more or no less than any other prudent operator would ask for. The fact that we differ on our control points is what makes this Basin develop. If we all had the same opinion, there would be concentrated areas of development and vast areas yet unexplored. This matter has been carefully analyzed by Terra Resources. They're here sincerely suggesting to this Board that

the exception should be granted to give them an opportunity to prove their theory that gas is there and if its not then no one is at any loss other than Terra Resources and the money expended for a dry hole, but that's the business we're in. The risks are reasonable. The controls are definite enough for us to take the chance. The rights are in jeopardy if this well is not drilled. So we're talking about a quantum of evidence here. Who do you believe? Do you believe our evidence or do you believe Meridian's evidence? The point is that there's gas, some gas, underlying the W/2. We're willing to drill a well at a reasonable exceptional location to prove that point.

MR. SMITHART: I guess what we are talking about is reasonableness and who should be expected to do what when you want to deviate from the normal rule. Meridian, or Southland, its predecessor, drilled their Shelton 17-8 well 990 feet from the East line of Section 16, relying on the field rules of 660 feet to keep somebody from crowding up next to the section line and drilling a well. This is not a typical exceptional location request. It's justified, being justified, by a geologic risk factor that would ultimately deny every other bit of testimony

43

we've had as to the amount of reserves there. They want to get south of a fault that they have to prove is not there in order to prove the reserves that they're calculating on the economic side. We would submit that the testimony and evidence has been that this is likely to be a trapping fault, that if it is a trapping fault that a well drilled in this proposed location would certainly not be economic and what they're doing is hedging their bets based on recovery, possible recovery from under the 17-8 well. I think this Board and this staff knows as well as I do that Rule 8 is not going to be a complete protection from draining and also would certainly not be a complete protection from the possible damage to the ultimate recovery by another well in that little corner, if in fact that is a trapping fault. If it's not a trapping fault and it's not a geologic barrier, the evidence clearly shows that the well could be drilled anywhere in the productive zone shown on Terra's Exhibit No. 7, and in fact the--at a much more optimal location for the drainage of their gas from up under the W/2 of Section 16. We would submit that rather than give them an exceptional location which is sure to somewhat harm the recovery

of the Southland wells that were drilled a long time ago, that Terra should have to come to this Board with proof that there is economic, is in fact economically recoverable reserves from their proposed location that could not be recovered any other way. I'm asking this Board to put the burden for the exception on the person that's asking for it. Not say it's a toss-up, as Mr. Watson has said, and we ought to be able to drill the well cause we'll spend the money. They'll spend the money because of potential recovery from under the Shelton wells. There's no question about it. Or else if their maps are right they would pick the location far to the east at a legal location because that would be more to the center of their reserve base. I ask that the Hearing Officer and the staff make a recommendation to the Board that this petition be denied without further evidence. Thank you.

MR. ROGERS: We will review the evidence. We'll prepare a transcript and make a recommendation to the Board, and thereafter the parties will have 10 days to submit comments on the proposed order, unless they wish to waive that right. All right, I see that Bill doesn't agree to that so that will be the procedure. Is there anything else? (No response) This hearing is adjourned. Thank you.

(Whereupon, at 3:18 p.m. the Hearing was adjourned)

REPORTER'S CERTIFICATE

STATE OF ALABAMA ()

COUNTY OF TUSCALOOSA ()

I, Jean W. Smith, Hearings Reporter in and for the State of Alabama, do hereby certify that on Tuesday, July 12, 1988, in the Board Room of the State Oil and Gas Board Building, University of Alabama Campus, Tuscaloosa, Alabama, I reported the proceedings before a Hearing Officer in Special Session; that the foregoing 147 typewritten pages contain a true and accurate verbatim transcription of said proceedings to the best of my ability, skill, knowledge, and belief.

I further certify that I am neither of kin or counsel to the parties to said cause, nor in any manner interested in the results there.

Jean W. Smith
Hearings Reporter
State of Alabama