STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF:	)	
	)	
APPLICATION OF RICHMOND PETROLEUM,	)	
INC. FOR A HORIZONTAL DIRECTIONAL DRILLING	)	CASE NO. 10198
PILOT PROJECT, SPECIAL OPERATING RULES	)	
THEREFOR, AN UNORTHODOX OIL WELL LOCATION,	)	
AND A NONSTANDARD OIL PRORATION UNIT,	)	
RIO ARRIBA COUNTY, NEW MEXICO.	)	
	)	
	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

January 10, 1991
8:35 a.m.
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on January 10, 1991, at 8:35 a.m. at Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Deborah F. LaVine, RPR, Certified Court Reporter No. 252, in and for the County of Santa Fe, State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: DEBORAH F. LAVINE, RPR
Certified Court Reporter
CSR No. 252

HUNNICUTT REPORTING
1660 OLD PECOS TRAIL, SUITE F
SANTA FE, NEW MEXICO 87501 (505) 982-9770

I N D E X

January 10, 1991, 1990
Examiner Hearing
Case No. 10198

	PAGE
APPEARANCES	3
APPLICANT'S WITNESSES:	
STEVE ROACH	
Direct Examination by Mr. Kellahin	6
Examination by Mr. Stovall	12
Examination by Examiner Catanach	13
Further Examination by Mr. Stovall	45
GEORGE CARLSTROM	
Direct Examination by Mr. Kellahin	14
Examination by Examiner Catanach	23
Examination by Mr. Stovall	25
KENT MYHRE	
Direct Examination by Mr. Kellahin	29
Examination by Examiner Catanach	38
Examination by Mr. Stovall	42

** ** ** **

APPLICANT'S EXHIBITS:	MRKD	ADMTD
1.	7	12
2.	8	12
3.	9	12
4.	9	12
5.	10	12
6.	16	23
7.	18	23
8.	21	23
9.	32	38
10.	35	38

A P P E A R A N C E S

BEFORE: DAVID R. CATANACH, Hearing Examiner

FOR THE DIVISION:
ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Commission
State Land Office Building
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

FOR THE APPLICANT:
KELLAHIN, KELLAHIN & AUBREY
Attorneys at Law
BY: W. THOMAS KELLAHIN, ESQ.
117 North Guadalupe
Santa Fe, New Mexico 87501

FOR AMOCO PRODUCTION COMPANY:
CAMPBELL & BLACK, P.A.
Attorneys at Law
BY: WILLIAM F. CARR, ESQ.
110 North Guadalupe
Suite 1
Santa Fe, New Mexico 87501

** * **

EXAMINER CATANACH: We'll skip over case 10197, and we'll call 10198.

MR. STOVALL: Application of Richmond Petroleum, Inc. for a horizontal directional drilling pilot project, special operating rules therefor, an unorthodox oil well location, and a nonstandard oil proration unit, Rio Arriba County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey appearing on behalf of the applicant, and I have three witnesses to be sworn.

MR. CARR: May it please the examiner, my name is William F. Carr with the law firm of Campbell & Black, P.A. of Santa Fe. I represent Amoco Production Company, and I do not intend to call a witness.

EXAMINER CATANACH: Are there any other appearances? Will the three witnesses please stand and be sworn in.

(Witnesses sworn.)

MR. KELLAHIN: Mr. Examiner, as a preliminary statement with the hopes that it might expedite the presentation, let me describe to you a couple of points with regards to the application of Richmond. First of all, our research causes us to believe that we will be subject to the Gavilan-Mancos pool rules for the well to be drilled in this Section 28. I've

confirmed that with the Aztec office of the division, and they say, yes, that we are within a mile of the northwest boundary of the Gavilan-Mancos. We therefore propose to dedicate Section 28 to the well. One of the items for you to attend to will be the fact that Section 28 is a nonstandard size section containing 430 plus acres. Offsetting us to the south is the Bear Canyon unit. That production is from the Niobrara section which is the Gavilan-Mancos pool. And Amoco is the operator of the Bear Canyon. After providing Amoco with notice, they were concerned about a couple of points. And we have reached agreement with Amoco on several items, one of which is that we will apply the Gavilan-Mancos allowable rules to Section 28 whereby the 800 barrel a day oil allowable assigned to 640 acres would be proportionately reduced to reflect the nonstandard size of the spacing unit. I think the net result is that the oil producing rate on a maximum daily basis averaged over a month is 537 barrels.

The other point that Amoco was concerned about is that the case is advertised whereby we are starting at a surface location that is unorthodox. Under the Gavilan-Mancos rules, those outer boundary setbacks are 790. And because of surface constraints and requirements of the Jicarilla tribe for use of the surface, we're proposing to start the well 500 feet from the southeast corner of the section. But it will be our plan to intersect the Niobrara in the pool and to expose

that formation for production at a standard location so that we would be no closer than 790. That was the second point for which Amoco had some concern and for which we publicly want to express our intent to stay at a standard location. There were some additional matters between Amoco and Richmond with regards to exchange of information between the two properties, but those were the two items that we would ask that you integrate into the order.

MR. CARR: May it please the examiner, based on these matters which we have been able to reach agreement on, the record should reflect that Amoco is protesting the application.

MR. KELLAHIN: I have three witnesses to present today: First of all, a landman to talk about the surface use, the ownership that offsets the spacing unit; second of all, the geologist to describe his geologic concept for the horizontal well; and finally a horizontal well drilling expert, a petroleum engineer on a consulting basis that has designed the well profile for the horizontal well. I'd like to present Mr. Steve Roach first. He's a petroleum landman for Richmond.

EXAMINER CATANACH: All right.

STEVE ROACH

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Roach, for the record, would you please state your name and occupation.

A. Steve Roach, I'm a consulting landman for Richmond Petroleum.

Q. Have you on prior occasions testified before the division as a petroleum landman?

A. Yes, I have.

Q. Pursuant to your employment by Richmond on a consulting basis, what were you asked to do?

A. Basically it was check title for the area and find an appropriate location for this particular well in working with the tribe, in working with all parties involved.

Q. When we look at the subject section, Section 28, what does your research show you is the size of that section?

A. The size of the section is, I believe, 430 acres, approximately. And the actual location in the southeast southeast is dictated by some surface problems that we had in working with the tribe.

Q. At this point, have you obtained on behalf of Richmond all the necessary approvals required for the commencement of this well with the exception of the approval of the Oil Conservation Division?

A. Yes, we have.

(Applicant's Exhibit No. 1 was

marked for identification.)

Q. Let me have you turn to Exhibit Number 1. Would you identify that for me.

A. This is a land ownership map for the area showing where our well is and the surrounding sections and some of the ownership there.

Q. When we look at the area north of the township line that divides the two townships --

A. Uh-huh.

Q. -- we're looking at an area the minerals of which are controlled by what parties?

A. The Jicarilla Apache tribe.

Q. When we look at Section 28 and the adjoining sections around that, excluding those to the south, those are all Jicarilla tribe minerals?

A. Yes, sir, everything above the pink line on the map is reservation, 100 percent.

Q. When we look south of that line, have you provided a tabulation to the best of your knowledge, information, and belief of the offsetting operators and owners?

A. Yes, I have.

(Applicant's Exhibit No. 2 was marked for identification.)

Q. Let me show you Exhibit Number 2 and ask you if that is an accurate compilation of that ownership.

A. Yes, it is.

Q. To help orient the examiner, identify for us, Mr. Roach, the Bear Canyon unit.

A. On your map there, the heavy dark line running down between Sections 3 and 4 and across the southern border of the reservation boundary which exists between the two townships is the boundary most close to us in the Bear Canyon unit.

Q. Other than contacts with Amoco in response to notice of the application by Richmond, have you had any other contacts from any of the other interest owners notified?

A. No, we haven't.

(Applicant's Exhibit No. 3 was marked for identification.)

Q. I'll direct your attention to Exhibit Number 3 and ask you to identify that exhibit.

A. This is a certificate of mailing that we did mail out all the notices to these particular people.

(Applicant's Exhibit No. 4 was marked for identification.)

MR. KELLAHIN: Let's go to Exhibit Number 4 now, Mr. Roach. And I apologize for having only one copy of that topomap, Mr. Examiner. But if you would unfold it in front of you, I'll ask Mr. Roach to describe his efforts to obtain a satisfactory surface location within Section 28 that met the requirements of the Jicarilla tribe.

Q. (By Mr. Kellahin:) Tell us what you did, Mr. Roach.

A. Basically, I'm sure as a lot of the people in this room know whenever you work with the Jicarilla Apache tribe, you have to deal on their playing field. So you have to adhere to a lot of things that you might not ordinarily have to. On the topomap, I think you can see that in the southeast southeast of 28, there's a meadow that comes up through there. And on the whole eastern side of Section 28, there is no other access except for in the green part of the map which is a total forestation type area. And so there's no way to get at a legal 790 without cutting a tremendous amount of trees, and that's kind of a no no in this area with the tribe because they're very concerned about tree cutting. They're very concerned about this area because it's a high wildlife area. There's a lot of elk and deer in this area, and they're pretty sensitive about that. So they would only allow us to get within the meadow areas or very near to the meadows so as to minimize tree cutting, minimize roads, minimize any kind of damage to the surface.

(Applicant's Exhibit No. 5 was marked for identification.)

Q. Let me direct your attention to the compilation of photographs labeled photograph 1 through 6 and shown as Exhibit Number 5. If you'll start with photograph number 1, describe approximately where you would be when you see that

view.

A. Okay. What we try to do with photographs, with all these photographs starting with number 1, is to show the examiner exactly the size of the some of the trees, the nature of the thickness of the trees at a legal location, and then as you go through the pictures down to 2, 3, 4, 5, and 6, 5 and 6 represent showing what's left of the almost like an open area where we try to cut the location at. But if you compare 5 and 6 with pictures 1 and 2 and 3, you can see how dense the trees really get at the edge of our location, which is in picture number 3, and then how big the trees get the further you move into the forest.

Q. If you were at the approximate standard location out of the southeast corner of the 790 setback, what would your view be?

A. Well, your view would be really picture number 3. It just starts getting to be solid trees from that point on. I mean, there's no open space whatsoever. There's no -- as represented on the topomap map, there's just nothing but trees. And you have to have a heck of a lot of tree cutting to go further than the 500 foot.

Q. Photograph number 4 shows the existing road that would be utilized for access into the drill site?

A. Yes. 4 is the road in from, that's reflected on that map in red, on the topomap in red, the actual turnoff

into the location.

Q. Are there any constraints with regards to the commencement of this well concerning weather conditions or hunting seasons or any of those kind of conditions?

A. There's not with relation to hunting, but there is a kind of a window here. On the Jicarilla, you have a pretty bad mud problem in the spring. And so we'd like to get in as soon as we could while everything is frozen. And there's been considerable snow up there, too, so we feel like this is kind of an ideal time to beat the mud in the spring.

Q. Were those photographs taken by you?

A. Yes, they were.

Q. And you've been on the site to compare the actual topography of the surface with the topomap?

A. Yes, I have.

Q. And do you find the topomap to be accurate with regards to its depiction of the area involved in Section 28?

A. Yes, I do.

MR. KELLAHIN: That concludes my examination of Mr. Roach. We move the introduction of Exhibits 1 through 5.

EXAMINER CATANACH: Exhibits 1 through 5 will be admitted into evidence.

(Applicant's Exhibits Nos. 1 through 5 were admitted into evidence.)

EXAMINATION

BY MR. STOVALL:

Q. You have had discussions with the tribe; is that correct?

A. Uh-huh.

Q. Have you heard anything from them since you've given them notice of this hearing?

A. I talked to Thurman Velarde who heads the oil and gas division. He doesn't have a problem. In fact, I had to get approval of this location before we even made application to the State. The tribe recommends a development plan that's very extensive. And it took two or three months just to do that, and we had to meet with their natural resources people, their oil and gas people, the tribal council. There's been a lot of input by the tribe into this decision.

Q. You're drilling this under the Gavilan-Mancos rules because you're within a mile of that pool, and that puts it on 640-acre spacing; is that --

A. Right.

Q. Has the tribe had any comment to you on that issue?

A. No, they have not.

MR. STOVALL: I don't have any further questions.

EXAMINATION

BY EXAMINER CATANACH:

Q. The location that you have right now, that has been approved by the tribe?

A. Uh-huh, yes, it is.

EXAMINER CATANACH: That's all we have of the witness. The witness can be excused.

MR. KELLAHIN: Mr. Examiner, my next witness is Mr. George Carlstrom, C-a-r-l-s-t-r-o-m.

GEORGE CARLSTROM

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Carlstrom, would you please state your name and occupation.

A. George Carlstrom. I'm a consulting geologist for Richmond Petroleum.

Q. On prior occasions, have you testified before the division as a petroleum geologist?

A. No, I have not.

Q. Summarize for us your educational background.

A. I have a bachelor of science degree in geological engineering from the University of Missouri at Rolla. I received that in 1975. And from 1975 --

Q. Describe your employment experience.

A. From 1975 through 1989, I was employed by Quinoco Oil Company as a geological engineer.

Q. Where were you employed?

A. I spent four years in the Gulf Coast division in Houston, and from 1980 through '89, I worked the Rocky Mountain division out of Denver.

Q. Did that area of the Rocky Mountains include the San Juan Basin?

A. Yes, it did.

Q. Describe generally for us what you did.

A. My experience in the San Juan Basin as the division geological engineer with Quinoco, I supervised the development drilling program. Over a two-year period, we drilled approximately 90 wells in the central portion of the San Juan Basin. As a staff geological engineer, I worked on projects, evaluated potential in the Chakra in the central portion of the basin, worked the Dakota-Lindrith, and worked the fractured Mancos potential along the eastern flank of the basin.

Q. Describe for us in a general way what you've done in this particular case.

A. In this particular case, I have evaluated the Jicarilla-Richmond Joint Venture for its oil and gas potential and have recommended drilling, developing the Mancos as the highest potential on that property.

MR. KELLAHIN: We tender Mr. Carlstrom as an expert petroleum geologist.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Kellahin:) Let me have you orient us to the geology by taking a type log that you have selected and describe for us the formation.

(Applicant's Exhibit No. 6 was marked for identification.)

A. Okay. Exhibit number 6 is a type log of the entire Mancos formation. The Mancos on the east flank on this type log or this is representative of the Mancos in the east flank of the basin. The Mancos is everywhere from the base of the Mesa Verde approximately 6500 feet down to the top of the Graneros at approximately 7350. Our interval of interest in this area is the Niobrara which on this exhibit is from 6400 to about 6600 feet, approximately 300 feet. That is an interval of tight sand and silt stones that can be broken into three members, the A, B and the C.

Q. When we look at the Niobrara development in the Bear Canyon unit, Mr. Carlstrom, which of those Niobrara zones, A, B, or C, has been developed by Amoco in that unit?

A. They have all three been perforated and tested. The C has been individually tested in most of those wells and found to be productive. And in several of those, the A and the B has been added to that interval.

Q. When you examine the choices between drilling to test the Niobrara with a vertical well versus the horizontal well that's proposed, what criteria did you select in making

the choice and why did you ultimately decide on a horizontal well?

A. The production from this interval is from fractures. There is no reservoir quality to the sands and silts. The fracturing is not uniform in this area, and we felt with a horizontal well, we would statistically have more exposure to those fractures, from an expiration standpoint, more apt to get production and from a development standpoint, more apt to efficiently drain the section we're in.

Q. In establishing the geologic criteria for the drilling engineers to design the well program, what did you tell them with regards to which of the three Niobrara members to penetrate?

A. According to the current well plan -- well, I recommended going horizontal in the C because the C is productive. If we went horizontal in the A or the B, you would not have the C open to the wellbore. As the well is currently planned, we will be horizontal in the C. But the A and the B will be open in the high angle portion of the well. So we will potentially produce from all three members.

Q. As a geologist, describe your recommendations with regards to the program itself for the well. How will it be drilled through the Niobrara sections, and then how will you establish the horizontal section?

A. The well will be -- of course, it is being staked

in an unorthodox location, so we will be at some angle from vertical when we penetrate the formation. The current plans are to drill through the formation and make sure we know where the tops are, possibly log this well. Hopefully, we'll be able to log it and see what kind of fracturing and the orientation of the fracturing that we have. We will then plug back and drill horizontally out into the C.

Q. To aid the engineers in designing the well profile, have you prepared a structure map?

A. Yes, I have.

Q. Let's look at the structure map.

A. (Witness complies.)

Q. Before we talk about your interpretation and conclusions, identify the display for me.

A. What number is it?

Q. Do you have what I have?

(Applicant's Exhibit No. 7 was marked for identification.)

A. Exhibit Number 7 is a structure map on a marker in the Niobrara. It's a 1 to 2,000 scale. The contour interval is 50 feet. Elements on the map include the location in Section 28 of 27 North, 2 West. The current proposed direction of the horizontal portion of the whole, the colored blocks on the north half of the map show Richmond's acreage position at this time. The checkerboard, the different

colors, are because the terms are different on the different sections up in there.

Q. What's your marker for establishing the structure?

A. It is a marker in the Niobrara which on the type log is at the interval at 6540 on the type log. The reason I did that is that the sand tops vary across the area as to where you encounter the first sand in the top of the Niobrara. It's not a real good structural marker. And this particular interval correlates across the entire area very well.

Q. Having mapped the structure on top of the Niobrara, describe for us your conclusions.

A. My conclusions are in general in this particular area, bed dips are very gentle, but you do have a low relief structural anticline that's essentially north/south, a little bit west of north, bounded by a small normal fault.

Q. Why have you proposed a well in the approximate corner, southeast corner, of 28 moving then in a north or westerly direction?

A. The location was selected because it's on trend with good production in the Bear Canyon unit and along the crest of this anticline.

Q. Does the topographical constraints that the tribe has placed upon the drilling for Section 28, is that in any way inconsistent with your geologic conclusions about how best to develop Section 28?

A. Not really.

Q. Are they compatible?

A. Yes, they are.

Q. The plan then is to drill the well at some angle from the unorthodox location at the surface and intersect the Niobrara then at some point where you're at a standard location, 790?

A. That's correct.

Q. The horizontal section, I'm interested in that. Why have you chosen the horizontal section and the general direction?

A. Well, from a practical standpoint, essentially you have to go to the northwest to get legal. But that causes no problem with the development of the fractures in this area. Intuitively, I feel that the fracturing is probably northwest, north trending, northwest trending along the axis of this anticline and that this would be, considering the location, would be the most optimum direction to intersect many of those fractures.

Q. In order to give the operator the greatest flexibility of choice in the drilling of the well, are you asking that you be allowed to drill the well at any position in the formation so long as it's not closer than 790 to the outer boundaries of the section?

A. Yes. I have no hard evidence telling me exactly

what direction this fracturing goes. We would like the option to, after we've logged the well, to make minor adjustments in that direction according to what our logs tell us about that fracture direction.

Q. Your geologic plan, however, is one which you could stay 790 from the outer boundary with the actual perforations or the open hole interval that would be subject to contributing production from the formation?

A. Yes.

Q. In choosing the mud program, the drilling fluids that would be used for the well, do you want the option of choice to change fluids during the operation of the well?

A. Yes.

Q. Do you have any definitive evidence at this point as to what the mud program or the drilling fluid program should be from a geologic point of view?

A. No. Current plans are now, I believe, to just use water-based systems. But we are currently evaluating that. There is some evidence that this is water sensitive, and we would like the option to alter that program as we see fit.

(Applicant's Exhibit No. 8 was marked for identification.)

Q. Let's turn to Exhibit Number 8. Identify and describe that display for us.

A. Exhibit Number 8 is a unscaled diagram, a cartoon,

if you will, of our tentative plans for this well. On the left side of the exhibit is a trace of the gamma ray and resistivity logs of the Amoco-Simmons well in Section 3 to the south, which is the closest Niobrara producer. Marked on that are the A, B, and C benches. And in the depth track is my interpretation from the log curves of the lithology showing the silt or tight sand stringers within the Niobrara section.

The diagram itself shows us the vertical surface position of the well. And at some depth below the Mesa Verde, the well will be control drilled at some angle to get us to the top of the Niobrara within the legal constraints of this. We tentatively plan to drill at that angle straight through the entire section, log the well, and then plug back and kick the well and control drill it to the northwest in the Niobrara C.

Q. As a geologist, why would you propose that?

A. The vertical part of the hole will give us good control on where our tops are and more confidence in exactly what zone we should be in, whether we should be in the top of the C or the base of the C.

MR. KELLAHIN: That concludes my examination of Mr. Carlstrom. We move the introduction of his exhibits. I believe it's 6 through 8.

EXAMINER CATANACH: Exhibits 6 through 8 will be admitted into evidence.

(Applicant's Exhibits Nos. 6 through 8 were admitted into evidence.)

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Carlstrom, what effect does the fault running through Section 28 have on the Niobrara formation?

A. The fault was picked off small fault cuts mostly up in the Lewis shale. I made a fault plane map and then used that to project down for the fault. And it just basically bounds the western flank of that low relief anticline. It is an observation that as you step west across that fault, you rather abruptly get into dry holes and very poor production. I believe that bounds the western edge of this local producing area.

Q. So production in Section 28 may be limited to anything on the east side of that fault?

A. Possibly. This fault also is dying out as we go that far north. I'm not sure. At its maximum, the fault only has about 35 feet of throw, and it is dying out with depth and at the northern extent of this area. It does not continue on up across the township to the north.

Q. The well in the southwest corner of Section 28, is that a dry hole in the Gavilan?

A. That was drilled through the Mancos section and was tested, not productive in the Mancos or Niobrara, and was

subsequently completed as a Mesa Verde well.

Q. Do you have a general opinion as to the direction of the fractures in the Niobrara?

A. Locally in this area, I would guess that they trend north, northwestward along the axis of that low relief anticline. I have no hard evidence of that.

Q. The proposal is to drill the well through the Mancos vertically and log the well?

A. Well, drill the well at a high angle to the Mancos, log the well, and then plug back and drill horizontally in the C, yes, sir.

Q. At a high angle into the Mancos?

MR. STOVALL: At a high angle, you mean more towards the vertical than the horizontal; is that correct?

THE WITNESS: Yes, yes, more toward the -- we will drill at enough of an angle to make sure we are within legal limits when we penetrate the top, so we will be at 30 degrees or so at the time and then drill on through. To answer your question, yes, essentially vertical through there.

Q. (By Examiner Catanach:) And the reason you're going to log that, will that help you in determining the direction of the fractures?

A. That will give us additional evidence in determining the direction of the fractures. I have not seen any of the FMS logs which Slumber J run or Borehole

Televiewers in this area to know how definitive the information is from those. But it is our desire, our hope, to find that information out by logging the well.

Q. Is there any Niobrara production north of the Bear Canyon unit?

A. No, sir, not in this immediate area.

Q. The closest producing well would be in Section 3?

A. Yes, sir, the Amoco-Simmons Federal Com Number 1.

Q. Was that a pretty good well in the Niobrara?

A. That well has cumed almost 62,000 barrels of oil. It is an okay well, not a great well.

EXAMINER CATANACH: I believe that's all I have.

MR. STOVALL: I've just got a couple questions.

EXAMINATION

BY MR. STOVALL:

Q. It's identified as the Jicarilla-Richmond Joint Venture. Are the Jicarillas actually working participants in this area, or is that just a name that you came up with from a --

A. No, that is the name of the project, and it is. The deal with the Jicarillas is a joint venture rather than us simply taking a lease from them.

Q. I guess that was my -- and I certainly don't want you to reveal any proprietary business arrangements that you've got with the tribe. Are they actively participating in the planning as far as this drilling planning?

A. Not really. We are making them aware, and they tentatively have to approve what we do. But, no, they don't have technical people working the project that I'm aware of.

EXAMINER CATANACH: Just a couple more.

Q. (By Examiner Catanach:) Now the intent of drilling the horizontal well is to intercept the fractures perpendicular; is that right?

A. Ideally, you would like to intercept them at a perpendicular.

Q. Are there any contingency plans in case the fracture trend is running some other way than you have hoped?

A. Not really. We're pretty much constrained by the location. But I don't believe we know enough about the actual fracture direction out here. And plus, I don't believe that we're dealing totally with a linear fracture set. I believe the stuff is pretty well broken up in most directions.

Q. (By Mr. Stovall:) We don't have a wider area map, but the Quinoco Hitos unit is 1 West, is it not?

A. Yes.

Q. And it does extend up into 27 North?

A. The northern end, yes, it does.

Q. It does not or does it -- I don't remember.

A. The gas maintenance unit does not. The overall unit boundaries do.

Q. The unit does, but the pressure or maintenance

project area does not; is that what you're saying?

A. I don't believe it does. If it is, it's just the very northern tip of it.

Q. Are you familiar with the proceedings in the Gavilan-Mancos cases that took place a number of years ago, particularly from the geologist's perspective? I don't care about the rest of it, but from the geology aspect of it.

A. Casually, as an observer. I did not work that.

Q. The reason I ask that question is the next question I want to know is, Are you familiar with it enough to express an opinion as to any similarities or differences between the Mancos formation in this further north region compared to what it is, say, down in the southern portion of Township 26?

A. Stratigraphically, the Mancos changes very little over this entire area. The fracturing, the production has local sweet spots where it is more highly fractured than areas around it.

Q. Is that true up in this area as well? I know that's true down in 26, southern 26 and northern 25.

A. I believe as we develop this area, we will find that to be true, that there will be local areas of much better production than what offsets it.

Q. In taking my statement for what it's worth, it's not an actual statement of testimony, but there appear to be some extensive lengthy fractures down in the, as I say, the

sweet spot of the Gavilan-Mancos pool.

A. Yes, sir.

Q. With rather extensive and lengthy fractures, if you hit them, they evidence a communication over a wide area. Do you expect that to be potentially possible up in this?

A. I would hope that we would find production like that.

Q. And then the area you've identified as all in the Jicarilla and all the colored sections that you've talked about, you say, are all operated by Richmond and in some sort of agreement with the tribe; is that correct?

A. Yes, sir, that is correct.

Q. So is it under a common ownership, not necessarily the percentages, but the parties involved?

A. We're pushing my level of knowledge --

Q. Is that beyond your level of knowledge? I'm sorry.

A. -- on the deal with the Jicarillas.

Q. I guess what I'm saying is, Are there any other, any leases and overrides or other working interests? Could there be a disparity in ownership at all in there which could affect correlative rights is the issue, or do you know?

A. I don't know.

MR. STOVALL: We may want to call Mr. Roach back at some point and just see if he knows. I don't think it's critical to the case, but I think it's of interest in this development.

And I don't have any further questions.

EXAMINER CATANACH: That's all I have. He may be excused.

MR. KELLAHIN: At this time, Mr. Examiner, I would like to call Mr. Kent Myhre.

KENT MYHRE

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN

Q. Mr. Myhre, for the record, would you please state your name and occupation.

A. My name is Kent Myhre. I'm a district drilling engineer for Eastman Christensen Company.

Q. Spell your last name for the record.

A. M-y-h-r-e.

Q. Mr. Myhre, describe for us your educational background.

A. I was awarded a bachelor of science in petroleum engineering from the University of Wyoming in 1987.

Q. Subsequent to graduation, summarize for us your employment experience.

A. Since my graduation, I have been in the employment of Eastman Christensen Company. My primary job responsibilities include directional and horizontal well

planning, job monitoring and optimization, and recommendations for drilling procedures and downhole tools to most efficiently drill the wells.

Q. Describe the type of services rendered by Eastman Christensen to Richmond Petroleum for this particular well.

A. Eastman Christensen is providing directional drilling and tools and services and related products and services to drill and provide drilling fluids, cement, and other services to drill this well.

Q. During the regular course of performing your duties for your company in a monthly period, how many horizontal wells would you be involved in?

A. In an average month over the past 12 months, I am typically involved in four to seven horizontal wells.

Q. Have you been responsible for designing the well profile for this well and integrating the information available to you from Richmond including their geologist who designed what you consider to be an optimum, efficient, safe horizontal procedure for this well?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Myhre as an expert horizontal drilling engineer.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Kellahin:) Let me have you describe, before we look at the well profile itself, Mr. Myhre, the key

elements or the key ingredients that you as an engineer gather and make decisions on in trying to decide on how best to design a well profile for a well such as this.

A. Yes. Basically it's a two-dimensional problem. Given the section, dimensions, and the legal setbacks and a desired azimuth, direction of the wellbore, given to me by the operator, and also the vertical depths of the formation tops and the vertical depths of potential problematic zones and pay zones, I can design a well profile geometry to fit those parameters.

Q. And have you done so in this case?

A. I have.

Q. Is the end result of the well profile for this particular well one that is on the fringes of technology, if you will, for this type of operation, or is it what you would consider to be a typical, if not conventional, certainly not an unusual process? How would you characterize the well?

A. Well, this well would need to utilize horizontal drilling technology. Conventional directional drilling technology and tools would not achieve the goals of the well profile. Horizontal technology, drilling technology, and tools and services are in somewhat mature stages. It's no science project anymore.

Q. And this is not a side project?

A. No.

Q. What else do you need to integrate in order to make choices about the well profile? The client gives you and the regulators give you the constraints, a certain surface location, a certain bottom hole target. They give you the geology and tell you where they want to be?

A. Correct.

Q. What else goes into the design?

A. Basically, the operator must provide me with a surface hole location and a desired bottom hole location and the vertical depth of the pay zone. I'll design a well profile to fit that scenario, and then I will tweak that profile, if you will, to fit the different build radiuses to fit the capabilities of our downhole tools to achieve those radiuses.

(Applicant's Exhibit No. 9 was marked for identification.)

Q. Let's go through Exhibit Number 9 and have you describe then the recommendations you have made to Richmond with regards to the well profile for this well.

A. Exhibit Number 9 is a well profile schematic and profile data of my well profile to Richmond. What I have achieved in this well profile was, given a surface hole location of 500 feet from the south and from the east line and a stipulation that at the Niobrara entry point we must be legal, 790 foot from the south line and 790 feet from the east

line, to set intermediate casing, I have fit the profile to build at nine degrees per hundred feet, which is in the medium radius realm of build radiuses, to B. That's at the 790 foot setback at the top of the Niobrara A.

Given the vertical depth from that point to the desired horizontal point of the Niobrara C at approximately 7430 feet TVD, 32 feet TVD, I have constructed a profile that would incorporate a tangent interval and, of course, another medium radius build rate curve to achieve horizontal.

I may point out here that our inclination at the top of the Niobrara A would be nearly 70 degrees, so we're at a very high angle there. Our vertical depth from that point to the Niobrara C is such that we have various options to get to horizontal, different build rate options, different tools. This profile was selected because it utilizes the least horizontal displacement from surface hole location providing the maximum horizontal displacement, lateral displacement from the end of curve.

Q. Describe for us what choices you have made and what options you had with regards to the hole size for the well.

A. The hole size and casing program is not the decision of Eastman Christensen Company, but we do make suggestions as to preferred hole sizes, given an option.

In this case, there is an intermediate casing point at the top of the Niobrara. We have a choice of hole sizes

and tools. We can go large hole and/or a smaller hole size. We prefer the casing program and hole sizes in this plan. It allows us to use more conventional and readily available tools, downhole tools, in the lateral interval below the nine and five-eighths casing point.

Q. When we look at Mr. Carlstrom's schematic on Exhibit 8, the well starts vertically to a certain point and then is directionally steered to a point where it encounters the top of the Niobrara at a standard setback and then continues using that angle through the base of the pool. And then the idea is to come back up and do a horizontal leg in the C section. Is that a design or is that a plan or a concept that you have integrated into your well profile?

A. Yes, I have. This is a somewhat standard procedure in many cases, and it has been accomplished many times.

Q. What options of choice do you recommend be retained by the operator with regards to the performance of certain activities? For example, the choice of a drilling fluid program, a mud program for the well, do you see any reason that the division should mandate or require a certain drilling fluid program?

A. I do not.

Q. Why not?

A. The hole must dictate what procedures and methods are used and what drilling fluid medium is used. Hole

problems may occur which would dictate needing to change drilling fluid mediums in order to accomplish the objective of drilling the horizontal. And this would be a function of sensitivity and competency of the formation.

Q. Should the examiner adopt the specific angle or turn that you had developed in the well to get it from the vertical to the horizontal, or does the operator need the flexibility of choice in the field during the operations in order to properly drill and complete the well?

A. The operator would absolutely need flexibility in the well design. For a number of reasons, different assemblies may not perform actual versus design. There may be differences. And as a previous witness stated, azimuth changes may be desired based on shows, et cetera. But actual build rates and downhole assemblies used to achieve the final goals of the well profile may change. And we do need the option to use different tools which may incorporate different build rates than the initial design.

Q. If the examiner were to require that the well be drilled from the unorthodox surface location to a standard bottom hole location in the top of the Niobrara and that you be provided a drilling window in the Niobrara that honors a 790 setback, would that accomplish the drilling objectives as you see them?

A. Yes.

(Applicant's Exhibit No. 10 was marked for identification.)

Q. Let's talk about the horizontal leg, if you will. Let me ask you to turn your attention to Exhibit Number 10. Identify and describe that for us.

A. Exhibit Number 10 is a plan view of the section geometry showing the location of the horizontal well bore with points shown as the surface location, the casing point, the end of build, and the proposed bottom hole location.

Q. At the end of build, where would you be?

A. At the end of build, we would be at a point which is not specified on this plat. But in Exhibit 9, the well profile data, the end of build would be at a point from the surface hole location of 290 feet north and 290 feet west of the surface hole location.

Q. And that corresponds then to the 790 setbacks from the south and east lines of the section when we get to the top of the Niobrara?

A. Correct. I may point out that this is a two-curve profile. So end of build number 1, which would be casing point, would correspond to the 790 foot setback. End of build number 2, which would be at the horizontal point, would be at a point of 702 feet north and west of the surface hole location.

Q. The schematic that you have provided in 10 as well

as the diagram in 8 demonstrates a horizontal leg to it?

A. Yes, it does.

Q. But that doesn't necessarily represent where the well will actually go within the 790 window, does it?

A. I'm not sure if I understand your question.

Q. Well, my question is whether or not the operator is going to drill in the Niobrara formation, the exact location of that horizontal leg as depicted on the plane view?

A. Oh, certainly, that can vary somewhat.

Q. The well profile as designed, a horizontal leg of approximately how long?

A. 1,500 feet from the end of curve.

Q. How long could that horizontal leg be under this well profile and still honor the 790 setbacks as it approaches the west boundaries and the north boundaries of the section?

A. Given this well profile in Exhibit 9, the maximum amount of horizontal displacement at 90 degrees from the end of curve to the 790 foot setback from the north line would be approximately 2200 feet north and west giving a total of approximately 2300 feet from the end of curve.

Q. Are there any constraints on the length of this horizontal leg in terms of designing the well profile?

A. In terms of design, no.

Q. It'll simply be an operator's choice when he's drilling in the formation to determine how far he wants to go

and yet honor the 790 setbacks?

A. Right.

Q. The technology is there and presently available so he can drill that distance in this particular formation without difficulty?

A. We anticipate that he can without difficulty. Horizontal displacements of greater than 4,000 feet have been recorded in various formations.

MR. KELLAHIN: That concludes my examination, Mr. Myhre. We move the introduction of Exhibits 9 and 10.

EXAMINER CATANACH: Exhibits 9 and 10 will be admitted into evidence.

(Applicant's Exhibits Nos. 9 and 10 were admitted into evidence.)

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Myhre, has Eastman been involved in drilling the Niobrara either in this area or in Colorado?

A. Yes, we have. We have approximately six Niobrara wells that Eastman Christensen has contracted on.

Q. That have already been drilled?

A. That have already been drilled or are in the process of being drilled.

Q. Been successful at it?

A. Successful, yes, from a mechanical drilling

standpoint, yes.

Q. I guess I'm a little confused on the surface location down to the top of the Niobrara. The well will actually be potentially deviated from the surface location?

A. Correct. Given the vertical depth from the top of the Niobrara A to the proposed target interval in the Niobrara C and the surface location, it is necessary to directionally drill the well to that point at that particular inclination.

Q. Do you know what depth the surface casing will be set on this well?

A. I understand approximately 350 feet, but I'm not positively certain.

Q. What method does Eastman utilize in determining the correct direction for the horizontal section?

A. Well, the direction of the horizontal section is typically specified to us by the operator. It is generally a function of the proposed bottom hole location relative to the surface hole location.

Q. Let me go a little further than that. What I want to know is, How does Eastman determine -- actually when you know the direction the well is supposed to go in, how do you know or how do you determine actually using mechanical tools that direction?

A. During the drilling operation of the well, there are various bore hole surveying methods that are utilized,

both wire line and real time. In the drilling of a medium radius profile well, real time surveying methods must be used, both measurement while drilling tools and wire line steering tools.

Q. What method do you utilize to plug back to the kickoff point, or what tools do you use to do that?

A. Well, that, again, is not Eastman Christensen Company's area of expertise. I am familiar with plug back procedures, but I don't feel qualified to comment on the exact procedures used.

Q. So it's the operator's responsibility to plug back the well, and then you take it from there essentially?

A. Correct.

Q. The advertisement for this case actually showed a 7100-feet kickoff point; that's not correct?

A. This particular well design that is presented in Exhibit 9 incorporates a kickoff point at 6,645 feet vertical depth.

Q. And the actual horizontal portion of the wellbore is projected to be 1,500 feet long at this time?

A. Correct.

MR. KELLAHIN: Mr. Examiner, I believe the operator wanted the flexibility to go farther than that so long as he honored the 790 setbacks. There is some difference in the profile and the actual distance that the operator may in fact

choose to drill it.

EXAMINER CATANACH: Okay.

Q. (By Examiner Catanach:) Mr. Myhre, during the actual horizontal drilling, have you previously utilized what type of drilling fluid while this is taking place?

A. We have utilized basically the whole spectrum of drilling fluids from oil base, water base, and various aerated and air systems. The most common utilized would be the fluid, water-base and oil-base systems.

Q. Were you given the dimensions of this section, Section 28?

A. Yes, I was.

Q. Do you have those anywhere?

A. The dimensions that were given to me are 352 feet north and south and 5280 east and west.

MR. KELLAHIN: Say that first number again.

THE WITNESS: 3,552.

MR. KELLAHIN: 3,552, north/south?

THE WITNESS: Correct, north/south.

MR. KELLAHIN: And the east/west dimension?

THE WITNESS: Is a standard 5,280.

EXAMINER CATANACH: I believe that's all I have of the witness.

MR. STOVALL: Let me just ask one thing just to make sure I understand where you're --

EXAMINATION

BY MR. STOVALL:

Q. Looking at your Exhibit 9 and Exhibit 8, is the kickoff point on your cross section schematic there on your 9?

A. Yes.

Q. And when you look at 8, they say start vertical and set up this 30 degrees off vertical through the formation, log it, and then come back. Is that kickoff point the same one that gets them onto that roughly 30 degree? Or are we talking two different things here? Are we talking strictly once you get to the point of trying to get to a horizontal well?

A. Correct. This would be to the discretion of the operator whether we stop the first curve short at some point and drill through the base of the Niobrara C at a lower angle or whether we finish building the entire curve to approximately 70 degrees at casing point and then drill a high angle traverse. I would suspect that the operator would choose to drill a lower angle, which would utilize less measured depth to drill through the Niobrara.

Q. And then the kickoff point that you're showing on Exhibit 9 would actually be further to the west, is that correct, or am I misunderstanding what's going on here?

A. If I understand what you're questioning here, of course, again you may understand, too, that as Mr. Carlstrom had indicated this Exhibit 8 is not to scale. It's showing

the conceptual idea here. But in the true sense of the word, yes, there may be two kickoff points, the initial deflection from vertical at 6,645 feet and at some point before the end of the first curve where the well is drilled to traverse through the Niobrara and then plugged back to some point in that curve and the wellbore rekicked off of that cement plug, if you will.

Q. Exhibit 8 and Exhibit 9 are not necessarily consistent. You've more shown now on Exhibit 9 the concept of what's going on, and there may be some changes in terms of where both vertically and horizontally these things take place; correct?

A. Correct. But actually Exhibit 9 shows a to-scale representation of the proposed well profile where Exhibit 8 is showing -- the conceptual point that they're making is that at some point in the first curve that the well will be drilled at a high angle traverse through the formation, then plugged back and the wellbore reinitiated off of that old hole and drilled to horizontal.

MR. STOVALL: As long as I know I don't have to try to figure out or reconcile the two exactly, then I'm comfortable with the thing. No further questions.

EXAMINER CATANACH: The witness may be excused.

MR. KELLAHIN: Mr. Examiner, you were asking some operational engineering questions of Mr. Myhre awhile ago for

which he did not have an answer. I do have an operating engineer available if you still have questions about the plug back procedure or any other aspect of the well plan that Mr. Myhre was unable to answer for you. I do have that witness.

EXAMINER CATANACH: I don't think it's critical, Mr. Kellahin, but what I would ask you to do is provide us with a detailed description of how the well will be drilled as we do in our standard, the ones we use in our standard orders.

MR. KELLAHIN: Okay.

EXAMINER CATANACH: Just the standard detail description of all the things we need to put in there just to make sure that we have everything correct.

MR. KELLAHIN: Perhaps you'll allow me to draft a sample order for you that will have those informations in it, and then you may edit it from there.

EXAMINER CATANACH: That would be great.

MR. KELLAHIN: All right, sir.

MR. STOVALL: I would like to talk to Mr. Roach again.

MR. KELLAHIN: One further issue. As you obviously are aware, there are some changes from the advertisement with regards to what was initially asked for and what we have presented today. The initial application was much more aggressive, if you will, in what it had sought for. And in response to Amoco's concern, we have redesigned the well profile and have stepped back to a more standard location. So

I can't imagine that there's any kind of defective notice here because the notice in the ad is much more aggressive than what we sought for today. And I wouldn't suggest that we would have to readvertise this for any purpose. It's certainly detailed enough that if anyone cared about the operation, they would have come. Mr. Carr, in fact, is here for his client, and we have in response to their desires redesigned the program. So there are some differences between the ad and what we've asked for.

EXAMINER CATANACH: Mr. Kellahin, are you talking about the horizontal distance of the well?

MR. KELLAHIN: I'm talking about the kickoff point and the fact that there is a difference in the point of kickoff and the fact that we've asked for in the application an unorthodox location, if you will, and in fact this will be standard at the bottom hole location.

EXAMINER CATANACH: I think that should be sufficient.

MR. KELLAHIN: Mr. Roach.

STEVE ROACH

the Witness herein, having been previously sworn, was examined and testified as follows:

FURTHER EXAMINATION

BY MR. STOVALL:

Q. Mr. Roach, I started to get into some areas with Mr. Carlstrom which he was not familiar with, and I think you

probably are more so. I'm talking about referring to his exhibit, where is that, 7? 6 or 7? 7, yeah. The structure map, and I'm looking at it from a land standpoint at this point.

As I understand from what he said that actually Richmond is not the lessee from the Jicarillas but are rather engaged in a joint venture with the Jicarilla tribe in drilling this well; is that correct?

A. That's correct. It's a joint venture that covers this whole township and some other lands. And I think what he's tried to do in this instance is reflect that there's a little bit different type of deal on the odd numbered sections than there are the even numbered section. And that's what he's trying to represent here by the different colors.

Q. And then one of the questions I had to him is, Looking at this area in general, are there any actual leases on any of these sections?

A. No, there's not. This is entirely reservation acreage, and it's unleased. There is a part of this that's held by a division of the tribe called Jicarilla Energy Company, but that's still 100 percent tribally owned. So it's not really any different.

Q. So with respect to particularly in the immediate vicinity of Section 28 but in the larger sense of the township, are you saying that while the interest may not be

the same uniform percentages, it is the same people involved throughout Richmond and the tribe and that's it?

A. Exactly, exactly.

Q. So the correlative rights issue is not a significant issue?

A. I don't see any problem with correlative rights because the only other entity in the whole township is the JECO, the Jicarilla Energy Company, and that's just the tribe's operating arm. And they have, oh, five or six wells off the west of here that were actually bought by the tribe years and years ago. And all the leases that at one time did exist on part of this township have all expired. And they've put it into the joint venture with Richmond.

Q. And have you negotiated directly with the tribe yourself? Have you been involved?

A. Yes, for about two and a half years it took to negotiate all the details and work with all the lawyers and work all these things out.

Q. And is there any sort of development plan? I don't need the details of it, just rather to know do you have a development plan?

A. Yes, there's a development plan and a continuing obligation to drill. And it's specifically for the Mancos, but it provides for other formations also.

Q. And as far as the spacing on wells, does the tribe

have any problem with using current spacing rules as they would apply under --

A. No. We discussed that with their attorneys and with Thurman Velarde, the head of the oil and gas administration for the tribe, and with the BIA. And I think they're willing to go along with the existing spacing rules that the State has adopted.

MR. STOVALL: I have no further questions of Mr. Roach.

EXAMINER CATANACH: Mr. Roach may be excused. Is there anything further in this case?

MR. KELLAHIN: No, sir.

EXAMINER CATANACH: Case 10198 will be taken under advisement, and we'll take a ten-minute break here.

(A discussion was held off the record.)

MR. STOVALL: I have no further questions of Mr. Roach.

EXAMINER CATANACH: Mr. Roach may be excused. Is there anything further in this case?

MR. KELLAHIN: No, sir.

EXAMINER CATANACH: Case 10198 will be taken under advisement, and we'll take a ten-minute break here.

(The foregoing hearing was adjourned at the approximate hour of 9:50 a.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10198, heard by me on January 10 1991.

David R. Catanach, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

REPORTER'S CERTIFICATE

I, DEBORAH F. LAVINE, RPR, a Certified Court Reporter and Notary Public, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 11th of February, 1991.

DEBORAH F. LAVINE, RPR
Certified Court Reporter
CCR No. 252, Notary Public

My Commission Expires:
August 6th, 1993

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date JANUARY 10, 1991 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
Bill Seltzer	OXY USA	Midland
Paul Haden	Mewbourne Oil	Midland
Al Rector	Blackwood & Nichols	Durango Colo.
James Bruce	Hinkle Law Firm	Albuquerque
William F. Carr	Campbell and Black	Santa Fe
W.P. Bob Kendrick	El Paso Natural Gas	El Paso, Tx
Victor T. Lyon	pro se	Santa Fe
George Ichcault	BIA	ABQ
Daniel Roberts	Santa Fe Energy Resources	Midland
John Thuma	Santa Fe Energy Resources	Midland
George M. Carlton	Richmond	Denver
Ken Young	BIA	Jicarilla
Jeff Kirn	Amer Hunter	Denver
Frank Welker	Chace Oil Co.	Albuquerque, NM.
Carl Beach	Beach Exploration Inc.	Midland, Tx

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date JANUARY 10, 1991 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
Mickey O'Hare	Manlex Resources, Inc	Denver
J. Parker Overton	Mewbourne Oil Co	Midland
David Shatzer	Mewbourne	Midland
Damon Richards	McKay Oil Co	Roswell
Larry Murphy	Santa Fe Energy Resources, Inc	Midland