Cage No.

6847

Application; Transcripts;

Small Exhibits, Etc.



STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING LARRY KEHOE

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May 20, 1981

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87501 15051 827-2434

N.

Tenneco Oil Company Exploration and Production Co. P. O. Box 3249 Englewood, Colorado 80155

Attention: Mr. Carley Watkins

> M. G. Eaton A Well No. 1 Unit B, Section 25, Township 29 North, Range 11 West, San Juan County, New Mexico

Gentlemen:

Reference is made to your application dated January 16, 1981, for authority to commingle Chacra and Mesaverde production in the well-bore of the subject well and to then dually complete to also produce Dakota through a separate string of tubing.

Order No. R-6313 authorized this manner of completion for a well to be located in Unit A of the same section.

If the well in Unit B is considered to be a substitute for the one previously authorized for Unit A, as we presume it is, we will consider approval already given with no further action necessary on the part of this office. Please advise if our presumtion is correct.

Very truly yours

JOE D. RAMEY Division Director

JDR/DN/og

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STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG. SANTA FE, NEW MEXICO 26 March 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Tenneco Oil Company for dual completions and downhole commingling, San Juan County, New Mexico.

CASE 6847

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

APPEARANCES

For the Oil Conservation Division:

Ernest L. Padilla, Esq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501

For the Applicant:

W. Thomas Kellahin, Esq. KELLAHIN & KELLAHIN 500 Don Gaspar Santa Fe, New Mexico 87501

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Direct Examination by Mr. Kellahin

Cross Examination by Mr. Padilla

SALLY W. BOYD, C.S.R. Rt. 1 Box 193-B Santa Fe. New Mexico 87301 Phone (303) 435-7409

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MR. STAMETS: We'll call next Case 6847.

MR. PADILLA: Application of Tenneco Oil Company for dual completions and downhole commingling, San Juan County, New Mexico.

MR. STAMETS: Call for appearances in this case.

MR. KELLAHIN: Tom Kellanin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have two witnesses.

MR. STAMETS: I'd like to have them stand and be sworn, please.

(Witnesses sworn.)

CAROLYN PEAVEY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Would you please tell us your name, by
whom you're employed, and in what capacity?

A. It's Carolyn Diane Peavey. I'm employed by Tenneco Oil Company and I'm a Senior Geological Engineer.

Ms. Peavey, have you previously testified

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before the Oil Conservation Division?

A No, I have not.

Q. Will you describe for the Examiner when and where you obtained your degree?

A I graduated in 1974 from Stephen F.

Austin State University, it's in Nacogdoches, Texas, with

a BS in geology.

Subsequent to graduation where have you been employed as a geologist?

A. I spent four and a half years with Sun
Oil Company and the first year and a half was as a research
geophysicist; the next three years were as a production
geologist, and then I joined Tenneco Oil Company a year and
a half ago as a geological engineer, and as of December of
this year I was a senior geological engineer.

Q. Pursuant to your employment as a geologist with Tenneco, have you made a study of and are you familiar with the geological facts surrounding this particular application?

A. Yes, I am.

 $$\operatorname{MR.}$$ KELLAHIN: We tender Ms. Peavev as an expert geologist.

MR. STAMETS: The witness is considered qualified.

Would you please refer to what we've

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A.

marked as Exhibits One, and I think it might be helpful if we also looked at the same time at Exhibit Number Two.

And, Ms. Peavey, if you'll begin your testimony by looking at Exhibit Number Two and identifying for us, first of all, how the wells you propose to complete as Chacra-Mesaverde downhole commingled wells, how those wells are identified and where they are located.

A Okay. The Mesaverde-Chacra commingled are the locations that are just a single dot. That would be the northwest quarter of Section 19, Township 29 North, 10 West; the northwest quarter of Section 30, Township 29 North, 10 West; southeast quarter of Section 24, 29 North, 11 West; the northwest quarter of Section 25, 29 North, 11 West; and the southeast quarter of Section 25, 29 North, 11 West.

Q. And each of those five wells for which you propose a program for the downhole commingling of the Mesaverde and Chacra are identified specifically on Exhibit Number One, are they not?

N Yes, they are, the first five wells, the second five wells.

Q. All right. What is identified by those wells with the well dot and the circle around the well dot?

Those are wells that we intend to drill

to the Dakota and dual it with the Mesaverde-Chacra com-

mingled.

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Q. Now let's start off with the spacing in the Chacra for this area. What will be the spacing for the Chacra wells?

A The spacing on the Chacra is 160's.

Q. Okay. What is the spacing for each well to be completed in the Dakota formation?

A. Okay, they will be on 320's. The wells -well, the -- it's 320 spacing now. Section 19 will be the
west half, and the spacing in the well, the Dakota well in
Section 30 will be in the north half. Going to Section 24,
29 North, 11 West, it will be the east half. Going to Section 25, it's split, east half/west half.

Q. All right. Now, the five Dakota wells involved, are these original Dakota wells on a proration unit or are these infill Dakota wells?

A. These will be infill wells.

Q. So on each of the five proration units there already exists an original Dakota producer.

A. This is true.

And where would the Dakota producer be located?

A. They are at the time located where the single dots are, where we propose to have the Mesaverde-Chacra commingled wells. They're in the same quarter section.

Q. All right. What is the spacing for the Mesaverde formation?

A. Right now the Mesaverde is in the undesignated Mesaverde and it will be on 160's.

Q To orient the Examiner, where does this area lie in reference to the Blanco Mesaverde Pool?

A. It lies about two and a half miles southeast of the existing Blanco Mesaverde Pool.

Are there any other wells in the immediate area located on Exhibit Number Two, which are operated by another operator and which produce either from the Chacra or Mesaverde formations?

A No, all the wells that produce are on this map.

Q. All right, what about the Getty wells located to the north? What kind of wells are those?

A. Okay. Map 3, or your Exhibit Three, shows the existing Mesaverde completions. There are four of them at this time that I've included in the undesignated Mesaverde.

Would you identify the four wells that
 are completed in the undesignated Mesaverde?

A. Okay. The one in the northeast quarter of Section 13, 29 North, 11 West, is the Mauk B No. 1.

The one in the northwest quarter of Sec-

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tion 18, 29 North, 10 West, is the Hanley A No. 1.

The southwest quarter of Section 18, 29 North, 10 West, is the Hanley B No. 1.

And the Buntz A No. 1 is the one in the northeast quarter of Section 19, 29 North, 10 West.

Q Do any of those wells produce from any other formation other than the Mesaverde?

A They are at this time dualed with the Chacra.

Q Am I correct, I believe you've already said it, but am I correct in understanding that each of the Getty Wells are dedicated to 160-acre spacing and proration unit, dedicated to an undesignated Mesaverde formation?

A. Yes. sir.

Q. Would you now turn to what we've marked as EXhibit Number Four and have you identify that?

A. Okay. Exhibit Number Four is the Hanley
B No. 1. It is the well, Getty's well that is closest to
our acreage in question. That is dualed in the Mesaverde and
the Chacra. This is a type log of the Chacra. They encountered about 8 to 10 feet of pay with average porosity of
? percent, and their TP was 791 Mcf a day. Their shut-in
casing pressure was 1012.

Why have you chosen this particular log as a type log for the Chacra completion in each of the sub-

ject wells?

A. This well is the closest to Tenneco's acreage and I think -- I believe typifies what we will be encountering if we drill the well. We have a cross section, the next exhibit is the cross section of the Chacra.

- Q. That's Exhibit Number Five?
- A. Right.
- Q. Let's look at that.

A This is a southeast/northwest trending cross section. The type log is the well that is situated at A'. It extends southwest of Tenneco's acreage. As you can see, the Chacra is developed. We anticipate about 8 to 10 feet of pay in Tenneco's wells that we drill.

Q. Will you start with A and continue through A' and describe briefly each of the wells you've placed on your cross section?

A. Okay. Starting in the southwest quarter, we have the Delo No. 2 and it has two stringers that are developed in the Chacra. Estimated pay again is about 8 feet.

Moving towards the northeast we have the two stringers that are developed more as one sand with a slight shale indication. Probably pay would be about 10 to 12 feet.

Moving farther northeast to the Valdez

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A No. 1 we lose -- it appears we lose the resistivity in the first stringer, so production is probably only from the second stringer, and I anticipate a pay of about 6 to 8 feet.

Moving farther northeast, we do lose the first stringer and the second stringer is the production zone. Pay is about 6 feet.

And moving up to the Hanley B. No. 1 we have the first stringer again -- or second stringer again as production, and pay is about 8 feet.

Okay. Would you turn to what we've marked as Exhibit Number Six and discuss the characteristics of the Mesaverde formation encountered in this area?

Okay, this is the Mesaverde formation. In this particular well, this is the Hanley B No. 1. Point Lookout and the Menafee are the only two producing members of the Mesaverde.

Point Lookout had 18 feet of net pay and the Menafee had 32 feet of net pay, and the isolated stringers.

This well was perforated; initial potential was 2 barrels of condensate and 2.1 million cubic feet of gas a day. Shut-in tubing pressure was 1290.

And why have you chosen this particular well as a type log for the Mesaverde?

> Again, this is the well that is closest A.

to Tenneco's acreage and gives us a feel for what we may anticipate as far as what is the most production.

Q Go to the cross section marked Exhibit

Number Seven and describe for us generally the -- how the

Mesaverde formation appears through the cross section?

A Starting from the northeast, we have the Hanley B No. 1. As we progress southwest we encounter -- we get up-dip of structure.

As you know, the Menafee is -- was a plutal (sic) depositional environment. Most of the sand developments are not continuous throughout the area. There are isolated sand stringers.

The Cliff House in the Hanley B No. 1 encountered about 18 feet of pay again, and most of the production, I believe, is coming from the Menafee where you have 32 feet of pay.

As you move -- well, what is colored in this map in yellow is what I anticipate as being productive stringers, and what is in blue is what I calculated to be water productive.

As you move to the southwest, you're going up structure. You're encountering more of the stringers in the Menafee, becoming water productive, due to hydrodynamics, and also probably due to the fact that the stringers are not continuous from one well to another.

Q. As a generalization, Ms. Peavey, which of the two zones is generally going to be the better producing formation in each of the subject wells?

A Typically in the San Juan Basin the Point Lookout is; however, taking the Hanley B No. 1, the Menafee, I believe, is the main producing horizon from this, and I -- as you move farther southwest you do not see the Menafee as productive across Tenneco's acreage.

The interval of the Menafee is from about 3550 down to about 4100.

Q. As a geologist would you recommend to your management the drilling and testing of the Mesaverde formation alone in this area?

A. Not for the reserves that we see here, no.

Q. Would you turn to Exhibit Number Eight and identify that?

A. Okay. This is a graph showing the -each of the four wells that are presently completed, Getty's
wells completed in the Mesaverde on Mcf per day basis.

As you can see, they start out at a fairly decent rate per Mc. a day, but within nine months they've dropped of 60 percent. Production in this area, I do not believe, is very significant in the Mesaverde, as you can see by the rapid decline.

Q.	Based	upon your	study of	the go	eology, Ms
Peavey, in you	ar opinion w	ould a pri	udent oper	rator c	omplete
these wells as	s a downhole	commingle	ed well or	r as a	dual com-
pletion?				i f	

A Based on the reserves in the Mesaverde and the Chacra, I believe the only way to do it would be to commingle the two zones.

Do you have any opinion with regards to the spacing of the Mesaverde formation? I realize that some of the -- or all of the Getty wells to the north are spaced on 160 acres for Mesaverde. Is that a reasonable and logical spacing for the Mesaverde in this area?

that we're looking at are not significant with the rapid decline. 160 acres is sufficient to -- for drainage, and again, it lies about two and a half miles southeast of the existing Blanco Mesaverde where they found that the infills should be on 160's.

Q From the information contained on Exhibit

Number Eight, do you have any opinion as to any potential

risk of cross flows because of the pressure differential

between the Mesaverde and the Chacra formations?

A. I believe that the pressures are in agreement with each other. I don't think you will have cross flow. We do have about 200, 250 pounds pressure

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higher in the Mesaverde; however, we don't anticipate encountering the same quality of rock in the Mesaverde, and I anticipate the pressures to be more like the Chacra is.

Q If this area is developed as Tenneco proposes, with the Chacra and the Mesaverde on 160-acre dedication, will the ownership be common between the Mesaverde and the Chacra formations?

A. Yes, they will.

Q If the Mesaverde is developed on 320's, would the ownership be in common?

A. No, they would not.

Q Would you turn to Exhibit Number Nine and Exhibit Number Ten and discuss those two exhibits?

A Okay. This is the gas analysis on the Hanley B No. 1. For the first Exhibit Number Nine is for the Chacra. Exhibit Number Ten is for the Mesaverde. And as you can see, the BTU's are not that different. The Chacra is 1173 and the Mesaverde is 1274.

M. I believe they're compatible.

Q Were Exhibits One turough Ten prepared
by you directly, except for the information from the Getty

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wells, compiled under your direction and supervision?

A Yes, they were.

Q And where did you obtain the gas analysis on the Getty wells?

A From El Paso, who had approval to release them from Getty.

Q In your opinion, Ms. Peavey, will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. I believe it will.

MR. KELLAHIN: That concludes our examination of this witness.

CROSS EXAMINATION

BY MR. STAMETS:

Ms. Peavey, let's just take, for example,
Section 19. You show two wells there on your Exhibit Number
Two, one is just simply a dot and the other is a dot with
a circle around it. I believe that you indicated that ones
with the circles are infill wells in the Dakota?

A. Right.

And would that mean that the other well that is just a single dot is the original Dakota well?

A. No. The single dot is where we propose

the Mesaverde-Chacra commingling; however, it is also the

same core section where we have an existing Dakota well.

that we will encounter will not be -- the development of

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3	ρ.	I see, so the original Dakota well is			
4	not shown on this	particular map?			
5	A.	Right, yes, sir.			
6	Q	And each one of these wells that we've			
7	discussed here will be a new well drilled?				
8	A.	Uh-huh.			
9	Q.	Okay. So the single dots will only be			
10	Mesaverde-Chacra d	ownhole commingles.			
11	A.	Right.			
12	Q	And then the other five wells will be			
13	dualed and commingled.				
14	Α.	Uh-huh.			
15		MR. STAMETS: Will your next witness talk			
16	about an allocatio	on?			
17		MR. KELLAHIN: Yes.			
18		MR. STAMETS: Okay.			
19	Q.	You've indicated in a couple of cases			
20	that we're talking	about pressures, say, 1000 pounds, 1100			
21	pounds, in the Cha	cra, and maybe 1200 pounds in the Mesa-			
22	verde. Do you ant	cicipate that that will be true over this			
23	entire area?				
24	A.	I believe for the most part our Mesaverde			

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the Mesaverde is not as well developed as it is in Getty's wells, so our pressures, I believe, will probably be somewhat lower and more in agreement with the Chacra.

O Do you anticipate any liquid production from either of the two zones, the Chacra or the Mesaverde?

A At the time the four Gatty wells, they are making some condensate. On the average it's 3 to 4 barrels of condensate a day.

0 Do you feel that would be any problem in producing these wells?

MR. STAMETS: Will the next witness ad-

dress that?

MR. KELLAHIN: Our next witness will talk of that.

MR. STAMETS: Any other questions of this witness? She may be excused.

PAUL A. DOYLE

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

I'm em-

Mr. Doyle, have you previously testified

Will you describe for the Examiner when

Would you refer to what we've marked as

My name is Paul Anthony Doyle.

ployed by Tenneco Oil Company, and I'm a Senior Production

No, I have not.

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Engineer.

Q

8	and where you obtained your degree?
9	A. I graduated from Georgia Tech with a
10	Bachelor in Science in civil engineering in 1975.
11	Ω Subsequent to graduation where have you
12	been employed in the oil and gas industry?
13	A. I worked for Texaco for two years in
14	Craig, Colorado, as a production engineer. After that I
15	have worked for Tenneco for three years out of their Denver
16	office, as a production engineer.
17	Q. Pursuant to your duties as a production
18	engineer, have you made a study of the facts surrounding
19	this particular application?
20	A. Yes, I have.
21	MR. KELLAHIN: We tender Mr. Doyle as an
22	expert petrolcum engineer.
23	MR. STAMETS: He is considered qualified.
24	MR. KELLAHIN: Production engineer.
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before the Oil Conservation Division?

A See, on these type wells we plan to drill a 250-foot hole with 12-1/4 inch bit and set surface pipe cementing over this area. Then we plan to drill through the

cementing over this area. Then we plan to drill through the Chacra formation at about approximately to a depth of approximately 3100 feet with mud and set 7-inch casing through this zone. We then plan to drill out below the 7-inch, through the Mesaverde formation to a depth of approximately 4500 feet, with gas, log the well, and set a 4-1/2 inch

liner and cement it in place over the Chacra formation.

Exhibit Number Eleven and describe for us how the proposed

Mesaverde-Chacra commingled wells are going to be drilled

Inasfar as our completion is concerned, we plan to drill the well out to the total depth, perforate, acidize, and frac the Mesaverde formation, and we plan to do this in only one stage because we do not feel that it would be sufficient development to frac in two stages, which we have done in the past, because of such thick net pays.

We then plan to run our tubing back in the hole, clean the well out, let the -- return the frac fluid, and shut the well in for eight days and run an AOF test on the Mesaverde formation.

We then plan to pull -- clear the well, pull the tubing, set our retrievable bridge plug between the Chacra and the Mesaverde, complete the Chacra formation

by perforating, acidizing, and fracing this zone. Then plan to clean -- then we plan to retrieve our retrievable bridge plug, clean up both zones, and run an AOF test on the combined Mesaverde-Chacra well.

While we're talking about how you're going to complete these zones, describe for us how you would propose to come up with a method of allocating the production between the Chacra and the Mesaverde formations?

A. We plan to do this in a similar method as we've done with Farmington -- with Fruitland-Pictured Cliffs, where we will AOF the first well -- the first zone in the well, which is the Mesaverde formation, get that AOF, then complete the well in the Chacra, and then AOF the well in both -- with both the Chacra and Mesaverde zones producing, giving us an AOF of the cumulative zones between them.

With the information from both zones and the information from one zone, by subtracting the first AOF from the second, we'll get an implied AOF in the Chacra formation, and we plan to use this AOF to allocate production between zones.

Q. Tenneco has used that method for determining allocation between commingled zones in other wells?

A. Yes, sir. The example of this is our recent method that we used between the Fruitland and the

Pictured Cliffs formations, which is a similar circumstance, where the Fruitland in that case, as the Mesaverde in this case, was a relatively weak producer, and we felt that it would be necessary just for prudent operating to have the wells commingled to make sure that that would keep -- keep the Fruitland producing, and this is the method we used on these wells, and this is what we propose to do here.

Q Was the method of completion on the Fruitland-Pictured Cliffs commingled production one approved by the Oil Conservation Division?

A. Yes, sir, it was.

Q. Would you turn to Exhibit Number Twelve and identify that schematic for us?

A This is a downhole schematic of our proposed Mesaverde-Chacra commingled wells, showing a 9-5/8th scasing set through 200 to 250 feet; 7-inch casing set through 3100 feet, and a 4-1/2 inch liner set from 2900 feet to 4500 feet, and both zones will be produced up 2-3/8ths tubing, set approximately the top of the Mesaverde formation.

Q Let me address a question to you that was asked of the last witness. What, if any, liquids are produced from either of these zones?

A. We do not anticipate significant liquid production as far as condensate is concerned. There is a

SALLY W. BOYD, C.S.R.

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possibility, if the Mesaverde is a weaker producer, as was mentioned, that there may be some water production from the Mesaverde. We don't anticipate it being significant, but if it should become a problem in either zone, we feel the commingling of zones having a higher gas volume, because both zones will be coming up the same string of tubing, we feel that we'll get better removal of our liquids from the wellbore by commingling the wells.

All right, let's turn to Exhibit Number Thirteen and have you talk about that exhibit, and in addition, at the same time, if you'll look at Exhibit Number Fourteen, which is the schematic. Go through your completion procedure for those wells that will also include dualing the Dakota.

Okay. These wells, again, we'll set 250 feet of surface pipe. Then we'll drill out v th an 8-3/4 inch hole, using mud, drill through the Mesaverde to approximately 4500 feet. We'll then set 7-inch casing and cement the 7-inch casing in place with a two-stage cement job with a DV tool being placed just below the Chacra formation in order to cover that interval with cement.

After this is done we'll drill out below the 7-inch, through the Dakota formation to approximately 6400 feet, we'll run our logs, and we'll set 4-1/2 inch liner across the Dakota formation and cement it in place.

plug back stal depth and then perforate and acidize and frac the Dakota formation in a manner similar to the method in which we complete all our Dakota wells in the San Juan Basin. We will flow this zone to clean up for a couple days. We will not run an AOF test at that time until the well has been completed and the tubing has been --- final tubing string has been landed in the Dakota.

But after we flow some of the water off the formation we'll set a Model F packer with an expendable plug above the Dakota formation, which will then isolate the Dakota formation.

We'll then perforate the Mesaverde formation, perforate, acidize, and frac the Mesaverde formation, clean at up, and flow the well until it is cleaned up. We will then shut it in for eight days, perform an AOF test on that zone.

After that is completed we'll set a retrievable bridge plug between the Chacra and Mesaverde, and we'll complete the Chacra by perforating, acidizing, and fracing the Chacra.

We'll then remove the retrievable bridge plug, flow both zones to clean up, and run an AOF test -- excuse me, at that time we'll run in the hole and land our long string in the MOdel F packer to produce the Dakota

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formation and we'll run in the hole and land our short string to produce the Mesaverde-Chacra up the short string.

Then flow the well to clean up in both zones; we'll then shut the well in and run an AOF test in the Dakota formation and in the commingled Chacra-Mesaverde formations.

Then next --

Q If I understood you correctly, then the method for determining the allocation between the Chacra and the Mesaverde in those wells that also contain a dual with the Dakota will be the same way as you've done with the other five wells that do not contain Dakota production?

A That is correct.

The next exhibit is just a schematic of the bottom hole assembly that we've just described with 9-5/8ths casing set to 250 feet, 7-inch casing set to 4500 feet, and a 4-1/2 inch liner set from 4300 feet to 6400 feet. In the 7-inch casing a DV tool will be placed at 2950 just below the Chacra formation to insure that we get coment both across the Mesaverde and the Chacra formations.

The well -- the Dakota formation will be produced through the Model F packer that will be set just above the Dakota formation and up the 2-3/8ths tubing. The Chacra and Mesaverde formation will be produced commingled through the 2-3/8ths tubing, that second string of 2-3/8ths

MR. STAMETS: While we're on the subject

tubing that we will set just above the Mesaverde formation.

of that string of tubing, your exhibit shows the Mesaverde

MR. STAMETS: Okay.

Yes, sir, that is incorrect.

Diagrammatically incorrect.

tubing to be set above the DV tool at 2950 feet.

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MR. STAMETS: Well, I'll fix my copy. Thank you. 10 Mr. Doyle, do you have an opinion as to 11 whether or not the optimum spacing for the development of 12 these ten wells in the Mesaverde is 160 acres? 13 Just from the fact that the ownership 14 would be different between the wells, it would cause a prob-15 lem if we were not spaced on 160, but as far as --16 Have you made any reserve calculations 17 for each of the three zones which would demonstrate the 18 profitability of any of those zones? 19 Yes, I have. 20 All right. Let's look at Exhibit Number 21 Fifteen, then, and have you explain how you reached those 22 numbers. 23 Okay, the Exhibit Fifteen gives what we 24 estimate to be the reserves to be produced from the three

formations in this particular area.

For the Chacra formation we anticipate 170-million cubic feet. IN the Mesaverde formation we anticipate 160-million cubic feet, and for the Dakota formation we anticipate 1,350-million cubic feet.

Q Would you summarize for us briefly what kind of data you used in order to get to those numbers?

Well, the way we achieved these numbers is we looked at the wells in the surrounding area, both the Chacra and the Mesaverde wells. We looked at the initial rates from these wells, how -- what the initial turn-on rates were for the wells, how much they produced. We looked at the decline curves for these wells to see just what kind of a decline percentage -- percentage decline they experienced every year, and what maybe their stabilized decline rate was at some point in time.

By then, having these initial productions and the decline rates for the Chacra and Mesaverde wells, we ran it through a computer simulator that gives you an estimated lifetime production history of the well, and cums up your ultimate recovery from the wells.

As far as the Dakota formation is concerned, the way we achieved these reserve numbers is there are other Dakota wells in the area that have extensive production histories, cumulative data, and anticipated ultimate cumulative data. The figure that we're using to achieve

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reserves, to estimate reserves in our Dakota infills right now, is by taking the performance of these original wells and multiplying their production, and therefore, obviously, their cumulative production, by a factor of 60 percent, assuming that our infill wells will produce 60 percent of what the original wells have produced. Would you turn to Exhibit Number Sixteen

and explain that exhibit for us?

Okay. In order to analyze the different options we had for recovering reserves from all three of what we felt were the potentially productive zones in this area, the Chacra, Mesaverde, and Dakota, we put together cost estimates for individual wells and even several different types of wells to see just how much these different types of wells would cost.

The first option that we have is a single completion in any one of the three zones and the costs on here are all given in thousands of dollars.

The Mesaverde, single Mesaverde completion in the area we estimated would cost \$263,000.

A single Dakota completion would be \$347,000.

And a single Chacra completion would be \$140,000.

Am I correct in assuming from the exhibit

that it is uneconomic to drill a single completion to test either the Mesaverde or the Chacra formation, based upon the reserve information you compiled?

A Based upon the reserves, the costs of the wells, and the operating costs of the wells, these wells are uneconomic by Tenneco's standards, yes.

Q Now, let's compare the costs of a dually completed Mesaverde and Chacra to a situation, as you propose, where those two zones are commingled.

A. Okay, well, going further on Exhibit

Sixteen here, we estimated the costs of dualing the wells -in making a dual completion without commingling; otherwise,
with two strings of tubing and with a packer isolating the
zones.

The dual Mesaverde-Dakota well we estimated would run \$449,000.

The Mesaverde-Chacra dual well would run \$349,000, and the Dakota-Chacra dual well would run \$401,000.

Now, then we also analyzed the estimated cost of a well that was commingled, a commingled Chacra-Mesaverde well, and the costs we estimated for this was \$327,000.

And then we also have the cost on here for the proposed -- the wells that we are proposing of the type where the Dakota is produced up one string of tubing

and then the Chacra and Mesaverde are commingled and the estimated cost for this type of well is \$461,000.

Q Let's focus for a moment on those five wells in which you do intend to test the Dakota.

Is there an acceptable way of completing a Dakota producer in such a fashion that you could -- I guess what I'm asking is, is it feasible to triple complete the well?

A. Well, I --

Q To have a triple completion with the Dakota, Chacra, and Mesaverde?

A In our opinion it's unfeasible to have a triple completion because of the requirement of having three strings of tubing in the hole and the size of the hole that you would have to drill for this makes the costs excessive to where we would not want -- we would not feasibly do anything like that.

We have approximately 500 wells in the San Juan Basin, Tenneco does, and close to ten percent of those wells are dually completed wells, and of those 500 wells we do not have any triple completions. We just consider it an unfeasible, unacceptable method of completing the wells, because it just creates operating problems and bottom hole difficulties become such plumbers headaches that they are just -- we consider them unfeasible.

Q. All right. If the Division should deny your application to commingle the Mesaverde and Chacra formations, what would your alternative be?

Number Seventeen, the proposed completion costs for a well that is commingled in the Mesaverde and Chacra, is \$327,000. The only -- the alternative to this method of completion is to dually complete the Chacra and Mesaverde. As we said, this has a cost of \$349,000, or an additional cost of \$22,000, and these additional costs stem from the necessity of installing a bottom hole packer to isolate the zones, an additional string of tubing, a dual wellhead, which is more expensive than a single wellhead, and having two separators on the surface, which is obviously more expensive than one separator.

And we've also -- we've run some economics on these two alternative cases, and that is shown in Exhibit Eighteen.

Q. All right, let's look at that.

M. Okay, the two types of wells are shown here, the commingled Mesaverde-Chacra and the dual Mesaverde-Chacra.

The after tax rate of return, the discounted profit, reserves that we expect, and the payout in years for each of these wells is presented.

w Mexico 87501 05) 455-7409

The -- I'd like to point out on here this discounted profit number is for the 100 percent working interest, so for instance, if the well was only 50 percent ownership by Tenneco or another company, that you'd have to divide these numbers in half, but these economics are run with a working interest owner of 100 percent.

Okay, using your different intial expenses to complete the wells, as I said, it's \$22,000 more expensive to complete the dual, and then using also, you have a more expensive operating cost, because, if you have a dual well, because of the fact that you have two separators on surface.

We again ran through a simulated history of these wells, looking at production expenses, and calculated what our rates of return would be on these wells.

The commingted Mesaverde-Chacra well had a rate of return, after tax rate of return of 22.6 percent, which is a number that Tenneco feels is acceptable for an investment at this time.

The dual completion had an after tax rate of return of 14 percent, which is a number that Tenneco feels is an unacceptable rate of return on any project with borrowing money for a capital investment at interest rates of -- in excess of 18 percent. We do not feel that 14 percent rate of return is an acceptable return on our money,

and we would not drill a well of this type.

Another thing that I think is significant on this exhibit is the fact that we feel the commingled well will produce an additional 30-million cubic feet of reserves because of the fact that when one zone gets weak and possibly starts producing liquids, it will — between both zones coming up the tubing, the life of the well will just be longer. With the more efficient flow regime, we'll just be able to keep it on longer.

Q All right, would you describe for us Exhibit Number Nineteen?

A. Okay. Exhibit Number Nineteen is our options, this time looking at the comparison of drilling -- well, our objective is to recover gas from all three zones.

One way in which we can do this is the way we have proposed, the first proposal here, which is dualing the Dakota with commingled Mesaverde-Chacra, for a cost of \$461,000.

Should we want to recover the reserves from all the wells without -- without commingling those two zones, we would have several other alternatives that we could follow, and these are listed in Group Two there.

The first alternative, of course, would be to drill three single completions. Now this would cost \$750,000. Both the Mesaverde and the Chacra under our econ-

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omic standards are uneconomic, so this is not what we -- this is not really a consideration for us.

A more feasible consideration, as far as costs are concerned, would be the next three options, and this is essentially, drill one dual well and one single completion, and I should also mention that these options would be considered far superior and of less cost than drilling a triple completion.

Q. But am I correct in understanding, under all the other alternatives, the total ultimate recovery from both the formations is going to be less than if they were commingled?

A We believe that to be the case, yes.

The second alternative on here is to drill a dual Mesaverde-Dakota well, for a cost of \$449,000, and drill a single Chacra well for \$140,000, for a total cost of \$589,000. This would be \$128,000 more expensive than our initial alternative, but because of the fact that the Chacra well is economically unfeasible, we would not drill that well, and therefor, we would not recover the reserves in that zone.

The third alternative is to drill a dual Mesaverde-Chacra well and a single Dakota well, with the dual Mesaverde-Chacra well costing \$349,000 and the single Dakota, \$347,000, total cost would be \$696,000, which again

is -- which is \$235,000 more expensive than our initial alternative.

But again in case three, we have a dual Mesaverde-Chacra well, which I have just showed on the previous page, only has a rate of return of 14 percent, which we consider unacceptable, so we would not drill a well of that type.

to drill a dual Dakota-Chacra well for \$401,000, and then a single Mesaverde well for \$263,000. That would give you a total cost of \$664,000, which is \$203,000 more than our initial -- than our proposed alternative, but again here we would have a single Mesaverde well, which is far from being anywhere near economically acceptable with what we believe the reserves to be, and we would not drill a well of that type, and therefor, we would not recover any reserve from the Mesaverde in that alternative.

Q Were Exhibits One -- I'm sorry, Exhibits Eleven through Ninctoon prepared by you or compiled under your direction?

A. Yes.

And in your opinion, Mr. Doyle, will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

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Yes.

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24 25 MR. KELLAHIN: We move the introduction of Exhibits One through Nineteen.

MR. STAMETS: These exhibits will be

Any questions of this witness?

MR. PADILLA: I have.

CROSS EXAMINATION

BY MR. PADILLA:

admitted.

Mr. Doyle, on Exhibit Eighteen you were comparing the after tax rate of return. I believe you testified that the 14 percent rate of return would be unacceptable because of your interest costs.

If that is an after tax rate of return would you have already taken into account your interest costs?

Now, if the -- the after tax -- I believe the answer to the question is no. We do not consider, you know, in our economic evaluations we do not consider the, you know, the 18 percent cost of that money. We do discount the money that we have to -- that we spend. All our economics are discounted to present value of 10 percent, but as far as the cost of borrowing the money, we -- we have a present value,

SALLY W. BOYD, C.S.
Rt. 1 Box '''.-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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I would say, of the money, but there is no value pre-tax, you know, there is no cost figured in for the -- for the cost of capital, no, that is not in the economic analysis as we run them.

I don't know if that really answered your question.

Well, I don't know, it just seems to me , Q. thatin computing your tax you would be deducting the interest cest.

> No, we are not. A.

In arriving at a net --Q.

No, in this particular computer simula-A. tion we do not.

Q. Then this really isn't an after tax rate of return, is it?

Okay, well, we -- when we go through this A. computer program, it takes a net lease operating income, or profit, from each year, and then it takes Federal income tax from that, and that is subtracted from our cash flow. That is how that after tax comes out. It's a reduction in our profitability because of Federal taxes. That's where our tax consideration comes in.

MR. PADILLA: Okay. Mr. Kellahin, did anyone testify as to whether the nature of the ownership in each of the commingled -- or proposed commingled zones?

She

MR. KELLAHIN: Yes, Ms. Peavey did.

on 160 acres, and a Chacra 160-acre unit is dedicated, that the interest between the two zones is common.

The only time the interest is different is if the Mesaverde is developed on 320, and then we have a problem. We couldn't downhole commingle because of the difference in ownership.

MR. PADILLA: No further questions.

MR. STAMETS: The witness may be excused.

Anything further in this case?

indicated that if the Mesaverde is continued to be developed

The case will be taken under advisement.

(Hearing concluded.)

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REPORTER'S CERTIFICATE

I, SALLY W. BOYD, C. S. R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Secry W. Boyd C.S.P.

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SALLY W. BOYD, C.S.R.

BRUCE KING GOVERNOR LARRY KEHOE SECRETARY

Mr. Thomas Kellahin

Other

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

DIL CONSERVATION DIVISION

April 17, 1980

Re: CASE NO. 6947

POST OFFICE BOX 2088 STATE LAHD OFFICE BUILDING SANTA FE, NEW MEXICO 87501 1505) 827-2434

Mr. Thomas Kellahin	ORDER NO. R-6313
Kellahin & Kellahin Attorneys at Law Post Office Box 1769 Santa Fe, New Mexico	Applicant:
	Tenneco Oil Company
Dear Sir:	
Enclosed herewith are two copies Division order recently entered i	
Pours very truly, JOE D. RAMEY Director	
JDR/fd	
Copy of order also sent to:	
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STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

> CASE NO. 6847 Order No. R-6313

APPLICATION OF TENNECO OIL COMPANY FOR DUAL COMPLETIONS AND DOWNHOLE COMMINGLING, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 26, 1980, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 15th day of April, 1930, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Tenneco Oil Company, seeks authority to dually complete, in such a manner as to produce gas from the Dakota formation and commingled Chacra and Mesaverde production through parallel strings of tubing, ten proposed wells to be located as follows:

in Township 29 North, Range 10 West: Unit C, Section 19; Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30; in Township 29 North, Range 11 West: Unit G, Section 24; Unit O, Section 24: Unit A, Section 25; Unit D, Section 25; Unit M, Section 25; Unit P, Section 25.

(3) That at the hearing the applicant amended the subject application to eliminate the request for dual completion of the commingled Chacra/Mesaverde zones with the Dakota zone for five of the proposed wells to be located as follows: -2-Case No. 6847 Order No. R-6313

in Township 29 North, Range 10 West: Unit C, Section 19 and Unit D, Section 30; in Township 29 North, Range 11 West: Unit O, Section 24; Unit D, Section 25; and Unit P, Section 25.

- (4) That the Chacra and Mesaverde zones in each of the ten wells proposed to be drilled are expected to be capable of low rates of production.
- (5) That the proposed commingling may result in the recovery of additional hydrocarbons from each of the subject pools, thereby preventing waste, and will not violate correlative rights.
- (6) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that any such well is not shut-in for an extended period.
- (7) That to afford the Division the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Aztec district office of the Division any time any of the subject wells is shut-in for 7 consecutive days.
- (8) That in order to allocate the commingled production to each of the commingled zones in the wells, applicant should consult with the supervisor of the Aztec district office of the Division and determine an allocation formula for each of the production zones.
- (9) That the mechanics of the proposed dual completions are feasible and in accord with good conservation practices.
- (10) That approval of the subject application will prevent waste and protest correlative rights.

IT IS TERREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to commingle Chacks and Mesaverde production within the wellbone of ten proposed wells to be located as follows:

In Township 29 North, Range 10 West: Unit C, Section 19; Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30; in Township 29 North, Range 11 West: Unit G, Section 24; Unit O, Section 24; Unit A, Section 25; Unit

-3-Case No. 6847 Order No. R-6313

- D, Section 25; Unit M, Section 25; and Unit P, Section 25; all in San Juan County, New Mexico.
- (2) That the applicant is further authorized to dually complete in such a manner as to produce gas from the commingled Chacra and Mesaverde zones and gas from the Dakota zone five of said wells located as follows:

in Township 29 North, Range 10 West: Unit N, Section 19; Unit A, Section 30; in Township 29 North, Range 11 West: Unit G, Section 24; Unit A, Section 25; and Unit M, Section 25, each of said wells being equipped with parallel strings of tubing and a packer between the commingled zones and the Dakota.

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 112-A of the Division Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take packer leakage tests upon completion and annually thereafter during the Deliverability Test Period for gas wells in Northwest New Mexico.

- (3) That the applicant shall consult with the Supervisor of the Aztec district office of the Division and determine an allocation formula for the allocation of production to each zone in each of the subject wells.
- (4) That the operator of the subject wells shall immediately notify the Division's Aztec district office any time any of the commingled wells has been shut-in for 7 consecutive days and shall concurrently present, to the Division, a plan for remedial action.
- (5) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

at Santa Fe, New Mexico, on the day and year herein-

STATE OF NEW MEXICO

PIL CONSERVATION DIVISION

JOE D. RAMEY Director

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STATE OF NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS OIL CONSERVATION DIVISION

MARCH 26, 1980

EXHIBITS

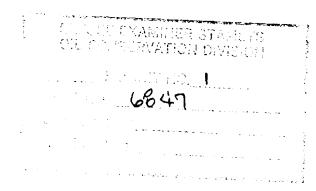
TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM WELL SUMMARY

CHACRA-MESA VERDE-DAKOTA WELLS

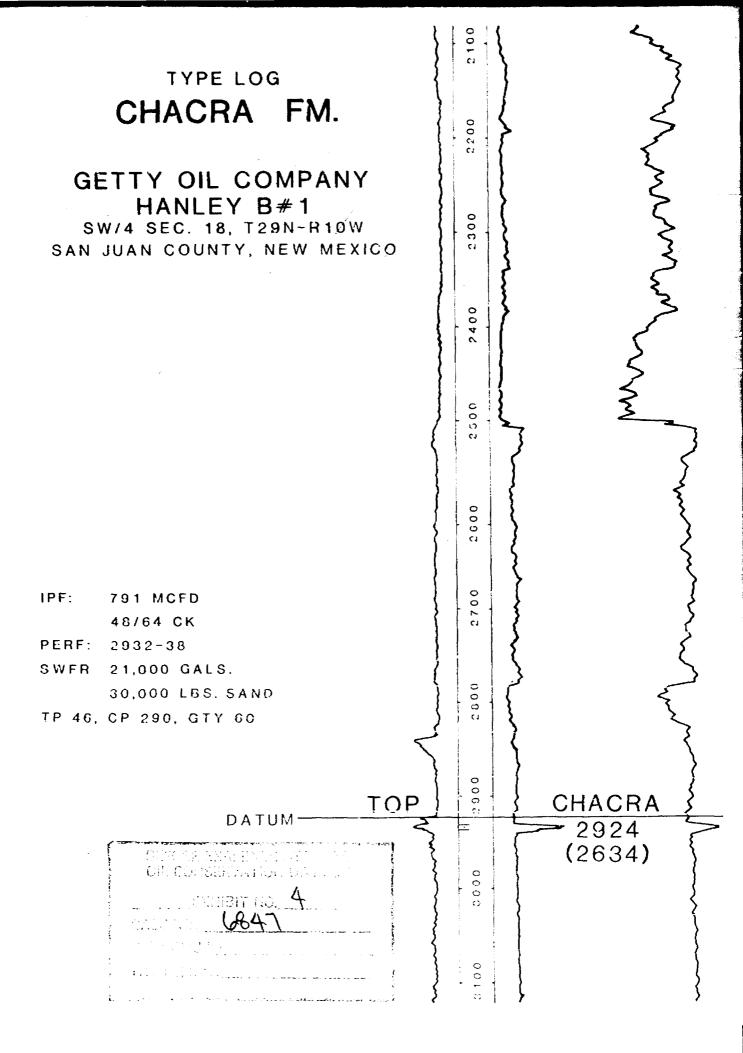
WEL	<u>r</u>	LOCATION
1.	Marquis G. Eaton AlE	NE-25-29-11
2.	Elvin J. Payne AlE	SW-19-29-10
3.	Sullivan Frame Gas AlE	NE-30-29-10
4.	Sullivan Gas AlE	SW-25-29-11
5.	Valdez Gas AlE	NE-24-29-11

CHACRA-MESA VERDE WELLS

WEL	<u>r</u>	LOCATION
1.	Bunce Com 1	NW-29-29-10
2.	Eaton Com B-1	SW-25-29-11
3.	Bruce Sullivan Com B-1	NW-25-29-11
4.	Sullivan Frame Com B-1	NW-30-29-10
5.	Valdez Com B-l	SE-24-29-11



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TENNECO OUL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM DRILLING AND COMPLETION PROCEDURE COMMINGLED MESA VERDE-CHACKA WELLS

DRILLING

- 1. Drill 12-1/4" hole to 250'.
- 2. Set 9-5/8" casing and cement to surface.
- 3. Drill 8-3/4" hole thru Chacra to \simeq 3100'.
- 4. Set 7" csg and cement to surface.
- 5. Drill 6-1/4" hole thru Mesa Verde to \approx 4500'.
- 6. Run open hole logs over Mesa Verde and cased hole logs over Chacra.
- 7. Set 4-1/2" liner from 4500' to 2900'.
- 8. Cement liner in place.

COMPLETION

- 1. Drill out to plug back total depth.
- 2. Perforate Mesa Verde (= 50') with 2 shots per foot.
- 3. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
- 4. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
- 5. Set retrievable bridge plug between Chacra and Mesa Verde.
- 6. Perforate Chacra (= 10') with 2 shots per foot.
- 7. Acidize Chacra with 500 gals 15% HCL and ball sealers.
- 8. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
- 9. Retrieve bridge plug.
- 10. Land tubing above Mesa Verde perforations.
- 11. Flow well to cleanup frac fluid.
- 12. Shut-in well for AOF test.

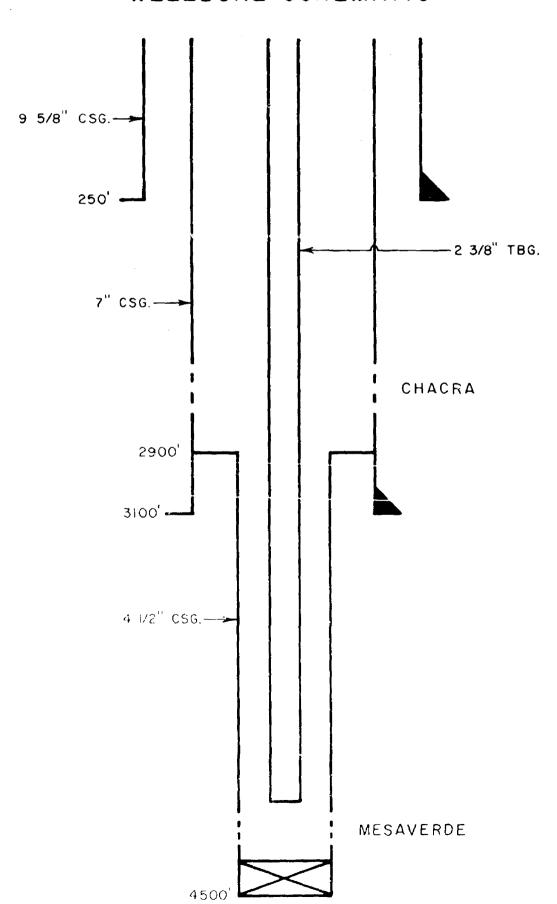
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TENNECO OIL COMPANY BLOOMFIELD AREA

T 29 N - R IO & II W SAN JUAN COUNTY, NEW MEXICO

MESAVERDE - CHACRA COMINGLED WELLBORE SCHEMATIC



TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM DRILLING AND COMPLETION PROCEDURE DAKOTA DUALED WITH COMMINGLED CHACKA-MESA VERDE

DRILLING

- 1. Drill 12-1/4" hole to 250'.
- 2. Set 9-5/8" csg and cement to surface.
- 3. Drill 8-3/4" hole thru Mesa Verde to \approx 4500'.
- 4. Set 7" csq and cement to surlace using 2 stage cement job with DV tool at 2950'
- 5. Drill 6-1/4" hole thru Dakota to \approx 6400'.
- 6. Run open hole logs over Dakota and cased hole log in 4-1/2" casing.
- 7. Set 4-1/2" liner from 6400' to 4300'.
- 8. Cement liner in place.

COMPLETION

:

- 1. Drill out to plug back total depth.
- 2. Perforate Dakota (≈ 50') with 2 shots per foot.
- 3. Acidize Dakota with 1500 gals 15% HCL and ball sealers.
- 4. Frac Dakota with 105,000# sand in 30# cross-linked gelled water.
- 5. Set Model "F" packer with expendable plug above Dakota.
- 6. Perforate Mesa Verde (= 50') with 2 shots per foot.
- 7. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
- 8. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
- 9. Set retrievable bridge plug between Chacra and Mesa Verde.
- 10. Perforate Chacra (~ 10') with 2 shots per foot.
- 11. Acidize Chacra with 500 gal 15% HCL and ball sealers.
- 12. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
- 13. Retrieve bridge plug.
- 14. Run in hole and land Dakota tubing string in Model "F" packer.
- 15. Run in hole and land Mesa Verde-Chacra tubing string above Mesa Verde.
- 16. Flow well to cleanup frac fluid.
- 17. Shut-in well for AOF test.

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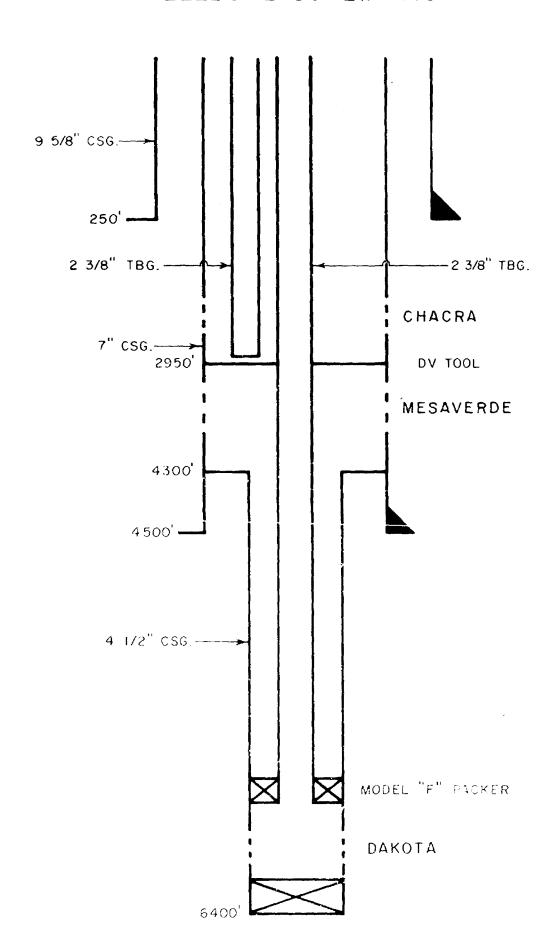
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TENNECO OIL COMPANY BLOOMFIELD AREA

T 29 N - R 10 & 11 W SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH MESAVERDE - CHACRA COMINGLED WELLBORE SCHEMATIC



TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM ESTIMATED GROSS RESERVES

ZONE

RESERVES (MMCF)

Chacra

170

Mesa Verde

160

Dakota

1350

TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM ALTERNATIVE COST SUMMARY

TIPE WELL	101AL COS
	(\$M)
Single Completion	
Mesa Verde	263
Dakota	347
Chacra	140
Duals Without Commingling	
· Dakota-Mesa Verde	449
Mesa Verde-Chacra	349
Dakota-Chacra	401
Complete al al Chausa Mara Mana	
Commingled Charca-Mesa Verde	
Mesa Verde-Chacra	327
Three Zones With Two Commingled	
Dakota Dualed with Chacra & Mesa Verde Commingled	461
11034 VCIGC COMMITTIGICG	301

TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM WELLS WITH MESA VERDE AND CHACRA POTENTIAL COST COMPARISON

I. Proposed Completion-Commingle Zones

Cost: \$327,000

II. Alternative Without Commingling

Alternative	Cost	Cost Over Commingled Alternative (\$M)
1. Dually Complete Chacra & Mesa Verde	349	22

6847

PAD 3/21/80

TENNECO OIL COMPANY ' 1980 BLOOMFIELD AREA DRILLING PROGRAM ECONOMIC SUMMARY ' MESA VERDE-CHACRA WELL

TYPE WELL	AFTER TAX RATE OF RETURN (%)	DISCOUNTED PROFIT @10% (M\$)	RESERVES (MMCF)	PAYOUT (YEARS)
COMMINGLED				
Mesa Verde-Chacra	22.6	80.9	360	3.2
DUAL				
Mesa Verde-Chacra	14.0	28.6	330	3.9

or out of the 1.4 Color (18)

6847

TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM WELLS WITH CHACRA, MESA VERGE, AND DAKOTA POTENTIAL COST COMPARISON

I. Proposed Completion-Dakota Dual With Mesa Verde & Charca Commingled

Cost: \$461,000

II. Alternatives Without Commingling

Alternative	Cost	Cost Over Commingled Alternative (\$M)
1. Drill 3 Single Completions	750	289
2. Drill 1 Dual MV-Dakota	449	-
Drill 1 Single Chacra	140	
Total 2 Wells	589	128
3. Drill 1 Dual MV-Chacra	349	-
Drill 1 Single Dakota	347	-
Total 2 Wells	696	235
4. Drill 1 Dual Dakota-Chacra	401	~
Drill 1 Single Mesa Verde	263	-
Total 2 Wells	664	203

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EMERGY AND MINERALS DEPARTMENT OF CONTINUATION DEVICEOUS

STATE LAND OFFICE BLDG.
SANDI PD, NEW MUMICO
26 March 1980

EXAMINUE HEARING

IN THE MATTER OF:

Application of Tenneco Oil Company For dual completions and downhole commingling, San Juan County, New Mexico. CASE 4847

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

APPEARANCES

For the Oil Conservation Division:

Dimest A. Padilla, Dsq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mettico 87501

For the Applicant:

W. Thomas Kellahin, Esq. INDEALST S REFLATION 500 Don Gaspan Santa Co, New Member 2750l

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fc. New Mexico 87301
Phone (3031 455-7409

71 15 11 X

CAROLYN PEAVEY

Direct Examination by Mr. Rellahin Cross Examination by Mr. Stamets

PAUL A. DOYLE

Direct Examination by Mr. Kellahin Cross Examination by Mr. Padilla

SALLY W. BOYD, C.S.R.

SALLY W. BOYD, C.S.R. Rt. 1 Box 193-B Sante Fe, New Mexico 87501 Phone (505) 455-7409

BXHIBITS

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case.

MR. SUN Chart - Maill would nomb Case 1987.

HA. Pablach: Application of Womnes 011

Company for dual completions and downhole convolugling, San Juan County, New Mexico.

MR. STATUTE: Call for appearances in this

MR. KALMAHIN: Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have two witnesses.

MR. STAMMIS: I'd like to have them stand and be sworn, please.

(Witnesses sworn.)

CAROLYH PEAVEY

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

DIRECT SIGNINATION

BY MR. KELLAHIN:

Q Monthly and placese boll us your name, by whom you're employed, seed it direct appealing?

A lets resint Dinna Caavav. (to replayed by Termeco Oil Company and time a Scalor Geological Regineer.

A Ma Restry, howe you participally restified

before the Oil Conservation Division?

A To, Then not.

0. Will you describe for the Duaminer when and where you obtained your degree?

A J J graduated in 1974 from Stephen F.
Austin State University, it's in Macogdoches, Texas, with
a BS in geology.

6. Subsequent to graduation where have you been employed as a declegist?

If spont four and a half years with Sun Oil Company and the first year and a half was as a research geophysicist; the next three years were as a production geologist, and then I joined Terroco Oil Company a year and a half ago as a geological engineer, and as of December of this year I was a senior geological engineer.

pursuant to your employment as a geologist with Tenneco, have you made a study of and are you familiar with the geological facts surrounding this particular application?

A. Yos, Z and

MR. HULLAUTH: We bender Ms. Peavey as an expert geologist.

jm. Critisms. The administrate accession and qualified.

the digram pleases . The to whole we've

marked as Exhibits One, only chains in alght be helpful if we also looked at the same time at their it thereorem.

had, its. Peavey, if you'll begin your testimony by looking at shribit Number Two and identifying for us, first of all, how the wells you propose to complete as Chacra-Mesaverde Jownhole commingled wells, how those wells are identified and where they are located.

2. Diay. The Mesaverde-Chacra commingled are the locations that are just a single dot. That would be the northwest quarter of Section 19, Township 29 North, 10 West; the northwest quarter of Section 30, Township 29 North, 10 West; southeast quarter of Section 24, 29 North, 11 West; the northwest quarter of Section 25, 29 North, 11 West; and the southeast quarter of Section 25, 29 North, 11 West.

g and each of those five wells for which you propose a program for the drumbole corraingling of the Mesaverde and Chacra are identified specifically on Exhibit Number One, are they not?

A. Yes, they are, the first five wells, the second five wells.

Q All sight. That is release field by those wells with the well man as I side likely account the soft for?

The Charles are really the bound intend to contract the contract of the contra

mingled.

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Q Sow let's stark off with the spacing in the Chacra for this area. What will be the spacing for the Chacra wells?

- in the species on the Chacra in 150's.
- 6. Chay. Unat is the spacing for each well to be completed in the Daketa formation?

well, the - it's 310 spacing now. Erction 19 will be the west half, and the spacing in the well, the Dakota well in Section 30 will be in the north half. Coing to Section 24, 29 North, 11 West, it will be the east half. Going to Section 25, it's split, east half/west half.

O. All wight. Now, the five Dakota wells involved, are these original Dakota wells on a proration unit or are these infill Dakota wells?

- 2. These will be infill wells.
- 6 So on each of the five proration units there already axists an addical Dakota producer.
 - A. Mas is time.
- 3 and the no total the Saleta producer be located?
- A Strong Line at the Control where the strong to Line the Manageria.

 Charge consington without Chargetre in the speciment rection

ŷ.	311 0	•	thus so t	i Fhi	apad	ing f	or the
Mesaverde formati	on?						
3.	Right		h i Masi	obton	is i	n the	unđe-

signated Mesaverde and it will be on 160's.

area lie in reference to the Blanco Mesavorde Pool?

A. It lies about two and a half miles southeast of the existing Dianco Mesaverde Pool.

area located on Exhibit Number Two, which are operated by another operator and which produce either from the Chacka or Mesaverde formations?

A. No, all the wells that produce are on this map.

Q All might, what about the Gotty wells located to the north? What kind of wells are those?

shows the existing Mesaverdo corpletions. There are four of them at this time that Tive included in the undesignated Mesaverdo.

are completed in the understand the stantage?

of Section 23, 20 Members, M. Morty, is the Southbeast granters

The energy to the committees employed for

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tion 13, 19 Worth, it Pene, is the Anney A No. 1.

the southwest quarter of Section 15, 39 North, 10 West, is the Ethiley E No. ..

And the Duntz A No. 1 is the one in the northeast quarter of Section 19, 29 North, 10 Best.

- to any of those wolls produce from any other formation other than the Mesayerde?
- 7... They are at this time dualed with the Chacra.
- Fr: I correct, I believe you've already Ç. said it, but am I correct in understanding that each of the Getty Wells are dedicated to 160-acre spacing and proration unit, dedicated to an undesignated Mesaverde formation?
 - A. Yes. sir.
- Would you now curn to what we've marked as EXhibit Number Four and have you identify that?
- Chay. Exhibit Toplor Four is the Hanley B No. 1. It is the well, detty's well that is closest to our acreage in question. That is dupled in the Mesavorde and the Chaora. This is a type log of the Chaora. They oncountered about 8 to 10 four of pay will average perosity of In parcent, and their 12 was Without a days. That's sheet in casing pressure was will.
- Chip Bass grad Chamba Chib para bandan b**ag**

ject wells?

acreage and I think -- I telleve typifice what we will be encountering if we drill the well. We have a cross section, the next exhibit is the cross section of the Chacra:

- Q That's Exhibit Number Five?
- A. Right.
- 0 Let's look at that.
- cross section. The type log is the well that is situated at A'. It extends southwest of Tenneco's acreage. As you can see, the Chacra is developed. We anticipate about 0 to 10 feet of pay in Tenneco's wells that we drill.
- Will you start with A and continue through A' and describe briefly each of the wells you've placed on your cross section?
- the Chay. Starting in the couthwest quarter, we have the Delo No. 2 and it has two stringers that are developed in the Chaero. Istinated pay again is about feet.

Moving Lowerda the mustblooms we have the two stringers that are developed move or and cradition a stright shale indice (see) 1 (1) dely pay would be about 10 to 12 feet.

and regularish the security of the second

The loss two loss -- it appears we loss the rest stivity in the first stringer, so production is projectly enty from the second stringer, and I satisficate a pay of about 6 to 2 feet.

flowing familiar northeast, we do loss the first stringer and the section of it the production zone. Pay is about a feet.

And moving up to the Hanley B. No. 1 we have the first stringer again -- or satond stringer again as production, and pay is about 3 fast.

marked as Exhibit Number Str and discuss the characteristics of the Mesaverde formation encountered in this area?

Okay, this is the Mesaverde formation. In this particular well, this is the Hanley B No. 1. The Point Lookout and the Henafee are the only two producing members of the Mesaverde.

Point Tookout had IT feet of net pay and the Bunafee had 32 feet of net pay, and the isolated stringers.

was 2 barrals of coolemants and 2.1 dillion ombic feet of yas a day. Chat in addiso press to a 1000.

And the second of the property of the problem.
And the second of the problem.

ing the state of t

to Tenneco's screage and given as a feet for what we may unticipate as far as what is the rost a concention.

- Co to the cross a ction marked Exhibit Number Seven and describe for us generally the -- how the Mesaverde formation appears through the cross section?
- Starting from the northeast, we have the 2. Hanley B No. 1. As we progress southwest we encounter -- we get up-dip of structure.

Is you know, the lenafor is -- was a plutal (sic) depositional environment. Most of the sand developments are not continuous throughout the area. There are isolated sand stringers.

The Cliff House in the Hanley B No. 1 encountered about 10 feet of pay again, and most of the production, I believe, is coming from the Monafee where you have 32 feet of pay

As you note -- wall which is colored in this map in yellow is what I ambicipate as being productive stringers, and what is in blue is what I calculated to be water productive.

is you have to the postiment, you're going op structure. Moutre observation ntotinacoro in Car fo. Ind show indicodynamics, and c strigger and eath each in

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of the two zones is departably define to be the better producing formation in each of the subject wells?

A munically in the San Juan Basin the Point Lookout is however, taking the Hanley P No. 1, the Menafee, I believe, is the main producing horizon from this, and I — as you move farther southwest you do not see the Menafee as productive across Tenneco's acreage.

wanger thomas ing

The interval of the Menafee is from about 3550 down to about 4100.

As a geologist would you recommend to jour management the Arilling and testing of the Mesaverde formation alone in this area?

Not for the reserves that we see here,

Mould you turn to Exhibit Number Eight and identify that?

ach of the four wells that are presently completed, Getty's wells completed in the Mesaverde on Mof per day basis.

As you can see, they start out at a fairly second rate nor Mof a day, but within nice conths they've dropoed of 60 percent. Preduction in this area, I do not believe, is very significant to the Meanwords, as you can see by the copic in time.

Thanky, it your opinion, would be also sporator complete these wells as a download correlative vall or as a dual completion?

and the Chacra, I believe the only way to do it would be to commingle the two zones

the spacing of the Mesagerale Secretical Trealize that some of the -- or all of the Secretic Trealize the north are spaced on 160 acres for Mesagerale. In that a reasonable and Togical spacing for the Mesagerale in this area?

that we're looking at any not significant with the rapid decline. 160 acres is sufficient to -- for drainage, and again, it lies about two and a half miles southeast of the existing Clance Massacree where they found that the infills should be on 160's.

O Promite information contained on Exhibit
Unmber Bight, do you have any opinion as to any potential
mist of creat flows income of the uncommon differential
between the Postmania and the Physics Descriptions?

And the state of t

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higher in the Mesaw Modayerde, and I countering anticipat the pres.

a ea is proposes, with the Minimulated on 160-game dedication, will the conversity be common between the Mesaverde and the Chacra for mations?

- You, they will.
- the Teamenta is Javaloped on 300's, would the ownership by in common?
 - No, they would not.
- Hould you turn to Exhibit Number Nine Q and Exhibit Number For and discuss those two exhibits?

the cas analysis on the Α Chay. This is Hanley B No. first Brhibit Mumber Nine is for For the ંડ Tihibit Number for the Mesaverde. the Chacra. Cen Fish different. as you can see, Chacra is 1173 and the Mostvorfe

simply of the yes analysis gas composition of cach cthet?

Rt. 1 Box 193-8 Sania Fe, New Mexico 87501 Phone (505) 455-7409

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gas analysis on the Centy wells?

to ralease them from Catty.

The your opinion, its. Peavey, will approval of this application to in the hest inherents of conservation, the preventing of waste, and the prolocation of correlative rights?

MM. HENDAMEN: That concludes our examination of this withouse.

electionale, for orample, on your Exhibit Number Section 19. other is a dot with that was indicated that ones with the circles

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the Masaworde-Chaer who have a property it is the two same core section who have a local term of the Delote with

g T look to the out digns baltata well is not shown on this problem as map?

n new medical sense sign

discussed here will be a new well drilled?

Tarinain -

n olay. So the single dots will only be Mesaverde-Chaera downhole corruingles.

a. aight.

g. and then the other five wells will be dualed and corwingled.

L Ub-hub.

MR. STRUMMS: Will your ment witness talk about an allocation?

YD. KRIKTUIH: Nos.

no appropria. One.

that we're talking shout recourse, say, 1999 remain, 1100 pounds, in the Chache, we'readed 1200 remains the Chache, we'readed 1200 remains the satisfication for the result. Do year anti-moster field that will be a time some this satisfication areas.

A control of the filter of the first open control on the respective state.

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the Mesaverde is not as well developed as it is in Getty's wells, so our pressures, I believe, will probably be somewhat lower and more in agreement with the Chacra.

Do you anticipate any liquid production from either of the two zones, the Chacra or the Mesaverde?

A At the time the four Getty wells, they are making some condensate. On the average it's 3 to 4 barrels of condensate a day.

0 Do you feel that would be any problem in producing these wells?

MR. STAMETS: Will the next witness address that?

MR. KELLAHIV: Our next witness will talk

of that.

MR. STAMETS: Any other questions of this witness? She may be excused.

PAUL A. DOYLE

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

DURECT HEAMINATION

PY MR. RELLARITH:

p Would you please state your name, by whom you're amployed, and in white capacity?

l'm em-

My name is Paul Anthony Doyle.

ployed by Tenneco Oil Company, and I'm a Senior Production

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Engineer.

4	Q.	Mr. Doyle, have you previously testified
5	before the Oil Con	nservation Division?
6	A.	No, I have not.
7	Q	Will you describe for the Examiner when
8	and where you obta	ained your degree?
9	A.	I graduated from Georgia Tech with a
10	Bachelor in Science	ce in civil engineering in 1975.
11	Ω	Subsequent to graduation where have you
12	been employed in	the oil and gas industry?
13	A.	I worked for Texaco for two years in
14	Craig, Colorado, a	as a production engineer. After that I
15	have worked for Te	enneco for three years out of their Denver
16	office, as a produ	action engineer.
17	Q.	Pursuant to your duties as a production
18	engineer, have you	n made a study of the facts surrounding
19	this particular ap	oplication?
20	8.	Yes, I have.
21		MR. KELLAHIN: We bender Hr. Doyle as an
22	expert petroleum (engineer.
23		MR. MATERY: The is considered qualified.
24		MR. WINGARTS: Production engineer.
25	0	Would you refer to what the a parked as
}]		

Exhibit Number Eleven and describe for us how the proposed Mesaverde-Chacra commingled wells are going to be drilled and completed?

A. See, on these type wells we plan to drill a 250-foot hole with 12-1/4 inch bit and set surface pipe cementing over this area. Then we plan to drill through the Chacra formation at about approximately to a depth of approximately 3100 feet with mud and set 7-inch casing through this zone. We then plan to drill out below the 7-inch, through the Mesaverde formation to a depth of approximately 4500 feet, with gas, log the well, and set a 4-1/2 inch liner and cement it in place over the Chacra formation.

Inasfar as our completion is concerned, we plan to drill the well out to the total depth, perforate, acidize, and frac the Mesaverde formation, and we plan to do this in only one stage because we do not feel that it would be sufficient development to frac in two stages, which we have done in the past, because of such thick net pays.

We then plan to run our tubing back in the hole, clear the well out, let the -- return the fractuid, and shut the well in for eight days and run an MOF test on the Mesaverde formation.

pull the tubing, set our retrievable bridge plug between the Chacks and the Meraverde, complete the Chacks formation

by perforating, acidizing, and fracing this zone. Then plan to clean -- then we plan to retrieve our retrievable bridge plug, clean up both zones, and run an AOF test on the combined Mesaverde-Chacra well.

While we're talking about how you're going to complete these zones, describe for us how you would propose to come up with a method of allocating the production between the Chacra and the Mesaverde formations?

A We plan to do this in a similar method as we've done with Farmington -- with Fruitland-Pictured Cliffs, where we will AOF the first well -- the first zone in the well, which is the Mesaverde formation, get that AOF, then complete the well in the Chacra, and then AOF the well in both -- with both the Chacra and Mesaverde zones producing, giving us an AOF of the cumulative zones between them.

With the information from both zones and the information from one zone, by subtracting the first AOF from the second, we'll get an implied AOF in the Chacra formation, and we plan to use this AOF to allocate production between zones.

Tenneco has used that rethod for determaning allocation between containgled zones in other wells?

I. Yes, sir. The example of this is our recent method that we used between the revisitend and the

Pictured Cliffs formations, which is a similar circumstance, where the Fruitland in that case, as the Mesaverde in this case, was a relatively weak producer, and we felt that it would be necessary just for prudent operating to have the wells commingled to make sure that that would keep -- keep the Fruitland producing, and this is the method we used on these wells, and this is what we propose to do here.

Q Was the method of completion on the Fruitland-Pictured Cliffs commingled production one approved by the Oil Conservation Division?

A. Yes, sir, it was.

Q Would you turn to Exhibit Number Twelve and identify that schematic for us?

A This is a downhole schematic of our proposed Mesaverde-Chacra commingled wells, showing a 9-5/8th casing set through 200 to 250 feet; 7-inch casing set through 3100 feet, and a 4-1/2 inch liner set from 2900 feet to 4500 feet, and both zones will be produced up 2-3/8ths tubing, set approximately the top of the Mesaverde formation.

asked of the last witness. What, if any, liquids are pro-

A. We do not anticipate significant tiquid production as tax as concentite is concerted. We ere is a

possibility, if the Mesaverde is a weaker producer, as was mentioned, that there may be some water production from the Mesaverde. We don't anticipate it being significant, but if it should become a problem in either zone, we feel the commingling of zones having a higher gas volume, because both zones will be coming up the same string of tubing, we feel that we'll get better removal of our liquids from the wellbore by commingling the wells.

All right, let's turn to Exhibit Number
Thirteen and have you talk about that exhibit, and in addition, at the same time, if you'll look at Exhibit Number
Fourteen, which is the schematic. Go through your completion procedure for those wells that will also include dualing the Dakota.

A Okay. These wells, again, we'll set 250 feet of surface pipe. Then we'll drill out with an 3-3/4 inch hole, using mud, drill through the Mesaverde to approximately 4500 feet. We'll then set 7-inch casing and cement the 7-inch casing in place with a two-stage cement job with a DV tool being placed just below the Chacra formation in order to cover that interval with cement.

After this is done we'll drill out below the 7-inch, through the Dakota formation to approximately 6400 feet, we'll run our logs, and we'll set 4-1/2 inch liner across the Dakota formation and dement it in place.

For our completion we will drill out to plug back total depth and then perforate and acidize and frac the Dakota formation in a manner similar to the method in which we complete all our Dakota wells in the San Juan Basin. We will flow this zone to clean up for a couple days. We will not run an AOF test at that time until the well has been completed and the tubing has been — final tubing string has been landed in the Dakota.

But after we flow some of the water off the formation we'll set a Model F packer with an expendable plug above the Dakota formation, which will then isolate the Dakota formation.

We'll then perforate the Mesaverde formation, perforate, acidize, and frac the Mesaverde formation, clean it up, and flow the well until it is cleaned up. We will then shut it in for eight days, perform an AOF test on that zone.

After that is completed we'll set a retrievable bridge plug between the Chacra and Mesavarde, and we'll complete the Chacra by perforating, acidizing, and fracing the Chacra.

We'll then comove the metricvolle bridge plug, flow both zones to close up. and rea in 40% feat excuse me, at that time we'll rai in the bole and land our long string in the Model & packer to receive the Daketa

SALLY W. BOYD, C.S.R. Rt. 1 Box 193-B

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formation and we'll run in the hole and land our short string to produce the Mesaverde-Chacra up the short string.

Then flow the well to clean up in both zones; we'll then shut the well in and run an AOF test in the Dakota formation and in the commingled Chacra-Mesaverde formations.

Then next --

method for determining the allocation between the Chacra and the Mesaverde in those wells that also contain a dual with the Dakota will be the same way as you've done with the other five wells that do not contain Dakota production?

A That is correct.

The next exhibit is just a schematic of the bottom hole assembly that we've just described with 9-5/8ths casing set to 250 feet, 7-inch casing set to 4500 feet, and a 4-1/2 inch liner set from 4300 feet to 6400 feet. In the 7-inch casing a DV tool will be placed at 2950 just below the Chacra formation to insure that we get cement both across the Mesaverde and the Chacra formations.

The well -- the Dakota formation will be produced through the Model F packer that will be set just above the Dakota formation and up the 2-3/8ths tubing. The Chacka and Messaverde formation will be produced commingled through the 2-3/8ths tubing, that second string of 2-3/8ths

MR. STAMETS: While we're on the subject

tubing that we will set just above the Mesaverde formation.

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3	of that string of t	tubing, your exhibit shows the Mésaverda
4	tubing to be set ab	pove the DV tool at 2950 feet.
5	λ.	Yes, sir, that is incorrect.
6		MR. STAMETS: Okay.
7	A.	Diagrammatically incorrect.
8		MR. STAMETS: Well, I'll fix my copy.
9	A.	Thank you.
10	Ď.	Mr. Doyle, do you have an opinion as to
11	whether or not the	optimum spacing for the development of
12	these ten wells in	the Mesaverde is 160 acres?
13	ħ.	Just from the fact that the ownership
14	would be different	between the wells, it would cause a prob-
15	lem if we were not	spaced on 160, but as far as
16	Q	Have you made any reserve calculations
17	for each of the thi	ree zones which would demonstrate the
18	profitability of an	ny of those wones?
19	Э.	Yes, I have.
20	Q.	All right. Let's look at Exhibit Number
21	Fifteen, then, and	have you explain how you reached those
22	numbers.	
23	ř.	Okay, the Friitti rifteen gives what we
24	estimate to be the	reserves to be produced from the three

formations in this particular exce

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501

For the Chacra formation we anticipate 170-million cubic feet. IN the Mesaverde formation we anticipate 160-million cubic feet, and for the Dakota formation we anticipate 1,350-million cubic feet.

Nould you summarize for us briefly what kind of data you used in order to get to those numbers?

Well, the way we achieved these numbers is we looked at the wells in the surrounding area, both the Chacra and the Mesaverdo wells. We looked at the initial rates from these wells, how -- what the initial turn-on rates were for the wells, how much they produced. We looked at the decline curves for these wells to see just what kind of a decline percentage -- percentage decline they experienced every year, and what maybe their stabilized decline rate was at some point in time.

By then, having these initial productions and the decline rates for the Chacra and Mesaverde wells, we ran it through a computer simulator that gives you an estimated lifetime production history of the well, and cums up your ultimate recovery from the wells.

As far as the Dakota formation is concorned, the way we achieved these reserve anabors is there
are other Dakota welks in the area that have entensive
production histories, cumulative data, and anticipated ultimail cumulative data. The sigure that we're using to achieve

\$347,000.

\$3.40,000.

reserves, to estimate reserves in our Dakota infills right now, is by taking the performance of these original wells and multiplying their production, and therefore, obviously, their cumulative production, by a factor of 60 percent, assuming that our infill wells will produce 60 percent of what the original wells have produced.

Would you turn to Exhibit Number Sixteen and explain that exhibit for us?

Okay. In order to analyze the different options we had for recovering reserves from all three of what we felt were the potentially productive zones in this area, the Chacra, Mesaverde, and Dakota, we put together cost estimates for individual wells and even several different types of wells to see just how much these different types of wells would cost.

The first option that we have is a single completion in any one of the three zones and the costs on here are all given in thousands of dollars.

The Mesaverde, single Mesaverde completion in the area we estimated would cost \$263,000.

à single Dakota completion would be

and a stagle Chasta completion would be

As I consect in assuming (som the exhibit

that it is uneconomic to drill a single completion to test either the Mesaverde or the Chacra formation, based upon the reserve information you compiled?

A Based upon the reserves, the costs of the wells, and the operating costs of the wells, these wells are uneconomic by Tenneco's standards, yes.

Now, let's compare the costs of a dually completed Mesaverde and Chacra to a situation, as you propose, where those two zones are commingled.

Sixteen here, we estimated the costs of dualing the wells -in making a dual completion without commingling; otherwise,
with two strings of tubing and with a packer isolating the
zones.

The dual Mesaverde-Dakota well we estimated would run \$449,000.

The Mesaverde-Charta dual well would run \$349,000, and the Desota-Charta dual well would run \$401,000.

Now, then we also analyzed the estimated cost of a well that was commingled, a commingled Charta-Mesaverde well, and the costs we estimated for this was \$327,000.

And then we also have the cost on here for the proposing of the type where the Dalote (r. exeducid up one string of tribing

and then the Chacra and Mesaverde are commingled and the estimated cost for this type of well is \$461,000.

Q Let's focus for a moment on those five wells in which you do intend to test the Dakota.

Is there an acceptable way of completing a Dakota producer in such a fashion that you could -- I guess what I'm asking is, is it feasible to triple complete the well?

A Well, I --

Q To have a triple completion with the Dakota, Chacra, and Mesaverde?

A In our opinion it's unfeasible to have a triple completion because of the requirement of having three strings of tubing in the hole and the size of the nole that you would have to drill for this makes the costs excessive to where we would not want -- we would not feasibly do anything like that.

We have approximately 500 wells in the San Juan Basin, Tenneco does, and close to ten percent of those wells are dually completed wells, and of those 500 wells we do not have any triple completions. We just consider it an unfeasible, unacceptable method of completing the wells, because it just creates operating problems and bottom have difficulties become such plumbers headaches that they are just to we consider that wifeasible.

(505) 455-7409

All right. If the Division should deny your application to commingle the Mesaverde and Chacra formations, what would your alternative be?

Mumber Seventeen, the proposed completion costs for a well that is commingled in the Mesaverde and Chacra, is \$327,000. The only — the alternative to this method of completion is to dually complete the Chacra and Mesaverde. As we said, this has a cost of \$349,000, or an additional cost of \$22,000, and these additional costs stem from the necessity of installing a bottom hole packer to isolate the zones, an additional string of tubing, a dual wellhead, which is more expensive than a single wellhead, and having two separators on the surface, which is obviously more expensive than one separator.

And we've also --- we've run some economics on these two alternative cases, and that is shown in Exhibit Eighteen.

All right, let's look at that.

A. Okav, the two types of wells are shown here, the commingled Mesaverde-Chacra and the dual Mesaverde-Chacra.

The after has make of telemi, the discounted profit, reserves the we expect, and the myout in years for each of these wells is presented.

this discounted profit number is for the 100 percent working interest, so for instance, if the well was only 50 percent ownership by Tenneco or another company, that you'd have to divide these numbers in half, but these economics are run with a working interest owner of 100 percent.

Okay, using your different intial expenses to complete the wells, as I said, it's \$22,000 more expensive to complete the dual, and then using also, you have a more expensive operating cost, because, if you have a dual well, because of the fact that you have two separators on surface.

We again ran through a simulated history of these wells, looking at production expenses, and calculated what our rates of return would be on these wells.

The commingled Mesaverde-Chacra well had a rate of return, after tax rate of return of 22.6 percent, which is a number that Tenneco feels is acceptable for an investment at this time.

The dual completion had an after tax rate of return of 14 percent, which is a number that Tenneco feels is an unacceptable rate of return on any project with borrowing money for a capital investment at inverse rates of -- in excess of 18 percent. We do not feel that 14 percent rate of return in an anosytable return on our noney,

and we would not drill a well of this type.

Another thing that I think is significant on this exhibit is the fact that we feel the commingled well will produce an additional 30-million cubic feet of reserves because of the fact that when one zone gets weak and possibly starts producing liquids, it will -- between both zones coming up the tubing, the life of the well will just be longer. With the more efficient flow regime, we'll just be able to keep it on longer.

All right, would you describe for us Exhibit Number Nineteen?

Okay. Exhibit Number Nineteen is our options, this time looking at the comparison of drilling -- well, our objective is to recover gas from all three zones.

One way in which we can do this is the way we have proposed, the first proposal here, which is dualing the Dakota with commingled Mesaverde-Chacra, for a cost of \$461,000.

Should we want to recover the reserves

from all the wells without -- without commingling those two
zones, we would have several other alternatives that we
could follow, and these are listed in Group Two there.

The limit alternative, of commet would be to drill Chice single completions. Now this would cost

omic standards are uneconomic, co this is not what we -- this is not really a consideration for us.

A more feasible consideration, as far as costs are concerned, would be the next three options, and this is essentially, drill one dual well and one single completion, and I should also mention that these options would be considered far superior and of less cost than drilling a triple completion.

all the other alternatives, the total ultimate recovery from both the formations is going to be less than if they were commanded?

A. We believe that to be the case, yes.

The second alternative on here is to drill a dual Mesaverde-Dakota well, for a cost of \$449,000, and drill a single Chacka well for \$140,000, for a total cost of \$539,000. This would be \$128,000 more expensive than our initial alternative, but because of the fact that the Chacka well is economically unfeasible, we would not drill that well, and therefor, we would not recover the reserves in that zone.

The Chird alternative is to drill a dual Mesaverdo-Chacra well and a congle Daloia tell, will the Land Standarde-Chacra will costing \$319,700 and the single Daloia, \$347,000, botal cost testic be \$695,900, which again

is -- which is \$235,000 more expensive than our initial alternative.

But again in case three, we have a dual Mesaverde-Chacra well, which I have just thowed on the previous page, only has a rate of return of 14 percent, which we consider unacceptable, so we would not drill a well of that type.

to drill a dual Dakota-Chacra well for \$401,000, and then a single Mesaverde well for \$263,000. That would give you a total cost of \$664,000, which is \$203,000 more than our initial -- than our proposed alternative, but again here we would have a single Mesaverde well, which is far from being anywhere near economically acceptable with what we believe the reserves to be, and we would not drill a well of that type, and therefor, we would not recover any reserve from the Mesaverde in that alternative.

Q. Were Exhibits One -- I'm sorty, Exhibits Eleven through Nineteen prepared by you or compiled under your direction?

A. Yes.

And in your opinion, Mr. Doyle, will approval of this application be in the heat internals of conservet on, the prevention of waste, and the protection of correlative rights?

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۸. Yes.

MR. KELLAHIN: We move the introduction of Exhibits One through Ninetzen.

MR. STAMETS: These exhibits will be

Any questions of this witness? MR. PADILLA: I have.

CROSS DENSITERATION

BY MR. PADILLA:

admitted.

Mr. Doyle, on Exhibit Eighteen you were comparing the after tax rate of return. I believe you testified that the 14 percent rate of return would be unacceptable because of your interest costs.

. If that is an after tax rate of return would you have already taken into account your interest costs?

I don't really understand the question. A. Now, if the -- the after tax -- I believe the answer to the quastier is no. We do not consider, you know, in our economic evaluations we do not consider the, you know, the 18 percent cost of that money. We do discount the noney that we have to -- that we speed. All our economies and Alse counted to present value of 10 percent, but as fee as the cost of homewing the somey, we to be have a proposet value,

I would say, of the Loney, but there is no value pre-tax, you know, there is no cost figured in for the -- for the cost of capital, no, that is not in the economic analysis as we run them.

I don't know if that really answered your question.

Q Well, I don't know, it just seems to me thatin computing your tax you would be deducting the interest cost.

A. Ho, we are not.

Q In arriving at a net --

A No, in this particular computer simulation we do not.

Q Then this really isn't an after tax rate of return, is it?

Okay, well, we -- when we go through this computer program, it takes a net lease operating income, or profit, from each year, and then it takes Federal income tax from that, and that is subtracted from our cash flow. That is how that after tax comes out. It's a reduction in our profitability because of Poderal vaxes. That's where

MR. PADRELA: Okay. Mr. Kellichen, did

MR. KELLAHITH: Yes, Ms. Peavey did. She indicated that if the Mesaverde is continued to be developed on 160 acres, and a Chacra 160-acre unit is dedicated, that the interest between the two zones is common.

The only time the interest is different is if the Mesaverde is developed on 320, and then we have a problem. We couldn't downhole commingle because of the difference in ownership.

MR. PADILLA: No further questions.

MR. STAMETS: The witness may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, C. S. R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

SALLY W. BOYD, C.S.R.

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Oil Conservation Di	vision

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

MARCH 26, 1980

EXHIBITS

TENNECO GIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM WELL SUMMARY

CHACRA-MESA VERDE-DAKOTA WELLS

WELL		LOCATION
1.	Marquis G. Eaton AlE	NE-25-29-11
2.	Elvin J. Payne AlE	SW-19-29-10
3.	Sullivan Frame Gas AlE	NE-30-29-10
4.	Sullivan Gas AlE	SW-25-29-11
5.	Valdez Gas AlE	NE-24-29-11

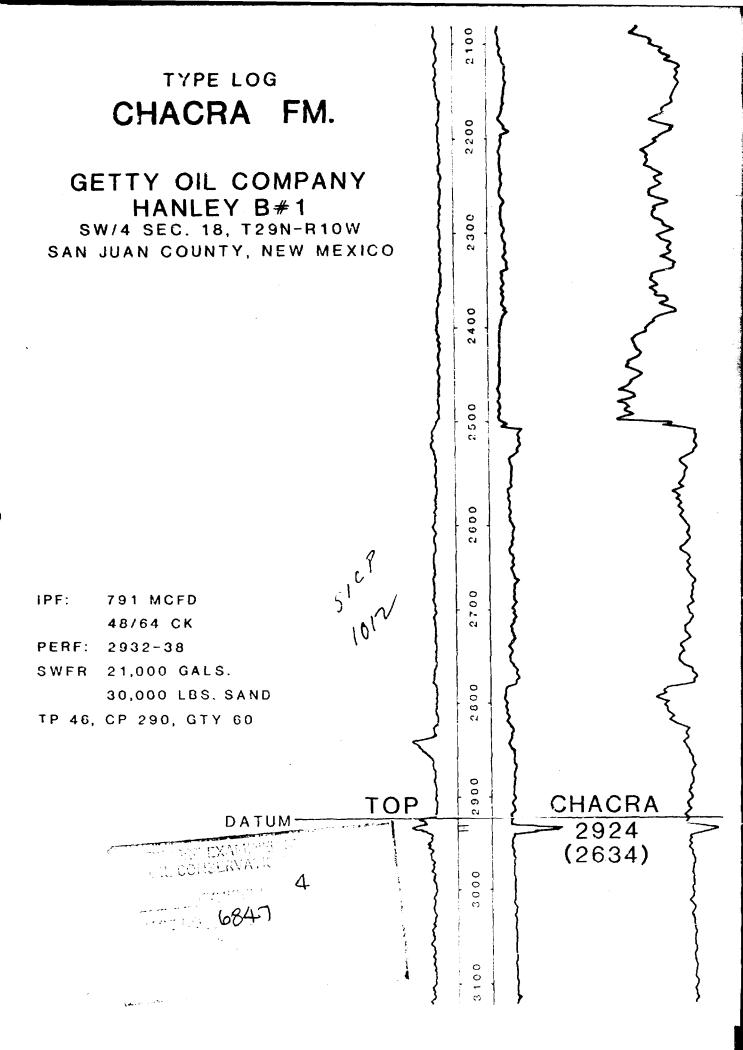
CHACRA-MESA VERDE WELLS

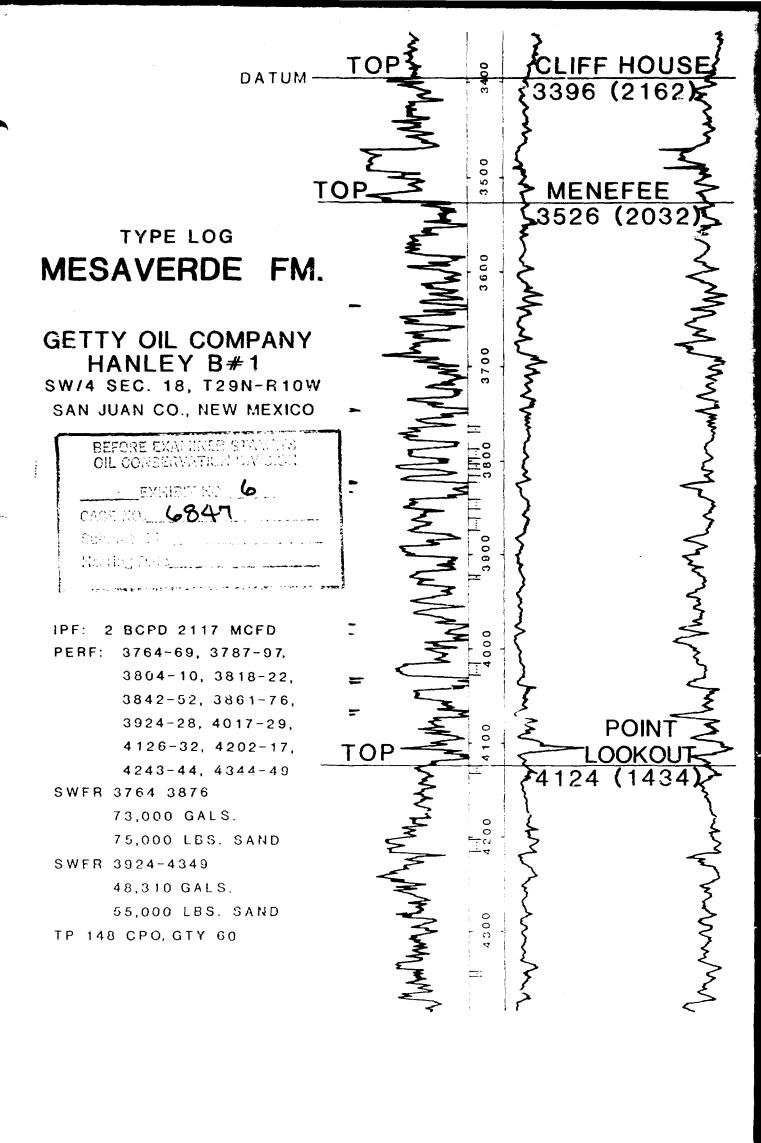
WELL		LOCATION
1.	Bunce Com 1	NW-29-29-10
2.	Eaton Com B-1	SW-25-29-11
3.	Bruce Sullivan Com B-1	NW-25-29-11
4.	Sullivan Frame Com B-1	NW-30-29-10
5.	Valdez Com B-1	SE-24-29-11

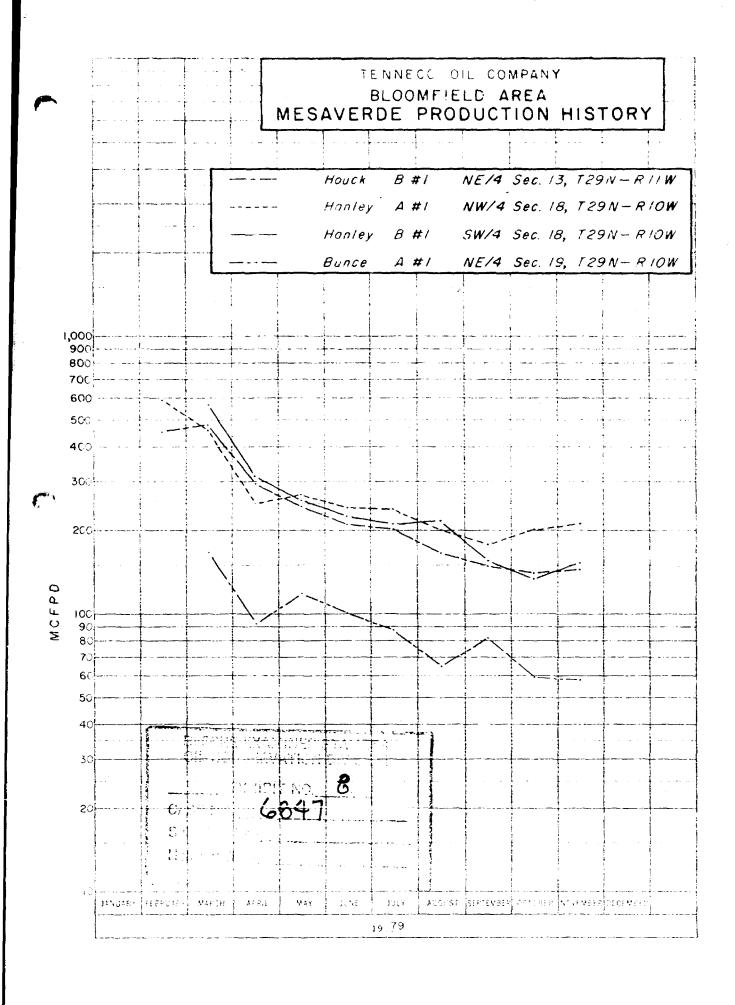
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TOTALS 100.00 3.534

SPECIFIC GRAVITY

MEXAME PLUS

1.004

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SPECIFIC GRAVITY

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MIXTURE MEATING VALUE (STOREL STORY) 1.74

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TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM DRILLING AND COMPLETION PROCEDURE COMMINGLED MESA VERDE-CHACRA WELLS

DRILLING

- 1. Drill 12-1/4" hole to 250'.
- 2. Set 9-5/8" casing and cement to surface.
- 3. Drill 8-3/4" hole thru Chacra to \approx 3100'.
- 4. Set 7" csg and cement to surface.
- 5. Drill 6-1/4" hole thru Mesa Verde to \approx 4500'.
- 6. Run open hole logs over Mesa Verde and cased hole logs over Chacra.
- 7. Set 4-1/2" liner from 4500' to 2900'.
- 8. Cement liner in place.

COMPLETION

- 1. Drill out to plug back total depth.
- 2. Perforate Mesa Verde (= 50') with 2 shots per foot.
- 3. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
- 4. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
- 5. Set retrievable bridge plug between Chacra and Mesa Verde.
- Perforate Chacra (≈ 10') with 2 shots per foot.
- 7. Acidize Chacra with 500 gals 15% HCL and ball sealers.
- 8. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
- 9. Retrieve bridge plug.
- 10. Land tubing above Mesa Verde perforations.
- 11. Flow well to cleanup frac fluid.
- 12. Shut-in well for AOF test.

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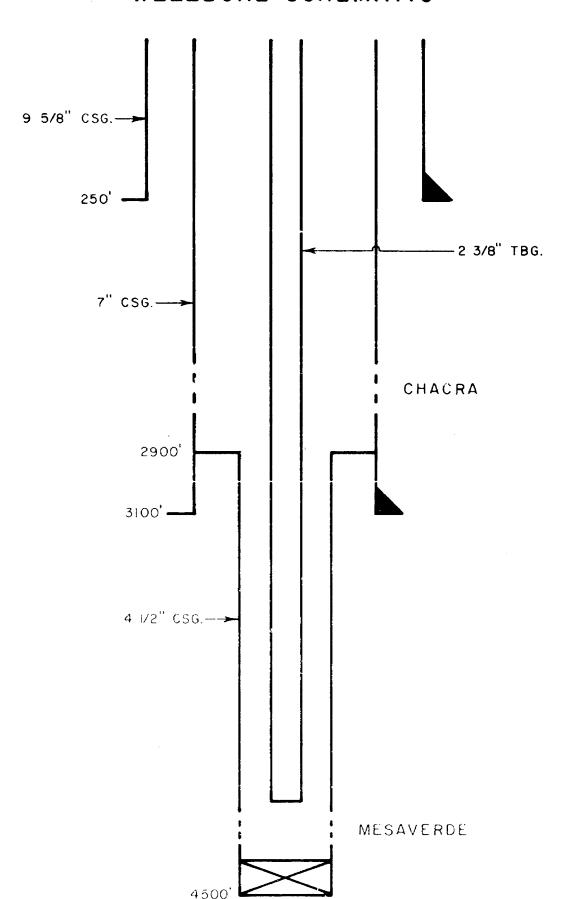
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PAD 3/21/80

TENNECO OIL COMPANY BLOOMFIELD AREA

T 29 N - R 10 & 11 W SAN JUAN COUNTY, NEW MEXICO

MESAVERDE - CHACRA COMINGLED WELLBORE SCHEMATIC



'TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM DRILLING AND COMPLETION PROCEDURE DAKOTA DUALED WITH COMMINGLED CHACRA-MESA VERDE

DRILLING

- 1. Drill 12-1/4" hole to 250'.
- 2. Set 9-5/8" csg and cement to surface.
- 3. Drill 8-3/4" hole thru Mesa Verde to \approx 4500'.
- 4. Set 7" csg and cement to surface using 2 stage cement job with DV tool at 2950'
- 5. Drill 6-1/4" hole thru Dakota to $\approx 6400^\circ$.
- 6. Run open hole logs over Dakota and cased hole log in 4-1/2" casing.
- 7. Set 4-1/2" liner from 6400' to 4300'.
- 8. Cement liner in place.

COMPLETION

:

- 1. Drill out to plug back total depth.
- 2. Perforate Dakota (= 50') with 2 shots per foot.
- 3. Acidize Dakota with 1500 gals 15% HCL and ball sealers.
- 4. Frac Dakota with 105,000# sand in 30# cross-linked gelled water.
- 5. Set Model "F" packer with expendable plug above Dakota.
- 6. Perforate Mesa Verde (= 50') with 2 shots per foot.
- 7. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
- 8. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
- 9. Set retrievable bridge plug between Chacra and Mesa Verde.
- 10. Perforate Chacra (= 10') with 2 shots per foot.
- 11. Acidize Chacra with 500 gal 15% HCL and ball sealers.
- 12. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
- 13. Retrieve bridge plug.
- 14. Run in hole and land Dakota tubing string in Model "F" packer.
- 15. Run in hole and land Mesa Verde-Chacra tubing string above Mesa Verde.
- 16. Plow well to cleanup frac fluid.
- 17. Shut-in well for AOI test.

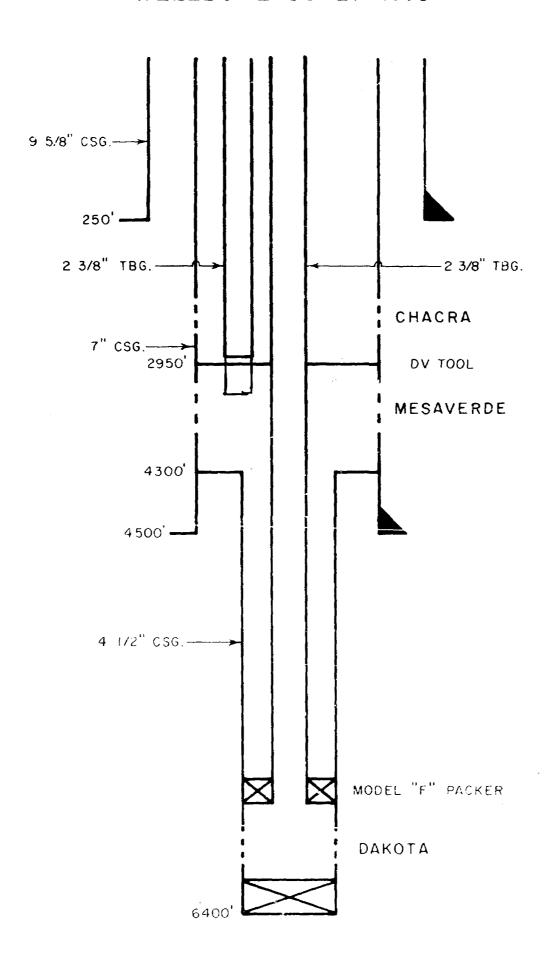
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TENNECO OIL COMPANY BLOOMFIELD AREA

T 29 N - R IO & II W SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH MESAVERDE - CHACRA COMINGLED WELLBORE SCHEMATIC



TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM ESTIMATED GROSS RESERVES

ZONE	RESERVES (MMCF)
Chacra	170
Mesa Verde	160
Dakota	1350

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TENNECO OIL COMPANY 1930 BLOOMFIELD AREA DRILLING PROGRAM ALTERNATIVE COST SUMMARY

TYPE WELL	TOTAL COST (\$M)
	(411)
Single Completion	
Mesa Verde	263
Dakota	347
Chacra	140
Deale With and Compination	750
Duals Without Commingling	
· Dakota-Mesa Verde	449
Mesa Verde-Chacra	349
Dakota-Chacra	401
Commingled Charca-Mesa Verde	
Mesa Verde-Chacra	327
Three Zones With Two Commingled	
Dakota Dualed with Chacra &	

Mesa Verde Commingled

16

TENNECO OIL COMPANY 1980 FLOOMFIELD AREA DRILLING PROGRAM WELLS WITH MESA VERDE AND CHACRA POTENTIAL COST COMPARISON

I. Proposed Completion-Commingle Zones

Cost: \$327,000

II. Alternative Without Commingling

Alternative	Cost	Alternative (\$M)
1. Dually Complete Chacra & Mesa Verde	349	22

-847

PAD 3/21/80

TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM ECONOMIC SUMMARY MESA VERDE-CHACRA WELL

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AFTER TAX
RATE OF RETURN
(%)

DISCOUNTED PROFIT @10% (M\$)

RESERVES (MMCF)

PAYOUT (YEARS)

TYPE WELL.

COMMINGLED
Mesa Verde-Chacra

22.6

80.9

360

3.2

DUAL

Mesa Verde-Chacra

14.0

28.6

330

3.9

TENNECO OIL COMPANY 1980 BLOOMFIELD AREA DRILLING PROGRAM WELLS WITH CHACRA, MESA VERDE, AND DAKOTA POTENTIAL COST COMPARISON

I. Proposed Completion-Dakota Dual With Mesa Verde & Charca Commingled

Cost: \$461,000

II. Alternatives Without Commingling

22 have 14 de 15	0	Cost Over Commingled
Alternative	Cost	Alternative (\$M)
1. Drill 3 Single Completions	750	289
2. Drill 1 Dual MV-Dakota	449	-
Drill 1 Single Chacra	140	-
Total 2 Wells	589	128
3. Drill 1 Dual MV-Chacra	349	-
Drill 1 Single Dakota	_347	-
Total 2 Wells	696	235
4. Drill 1 Dual Dakota-Chacra	401	-
Drill l Single Mesa Verde	263	-
Total 2 Wells	664	203

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PAD 3/21/80

Dockets Nos. 9-80 and 10-80 are tentatively set for April 9 and 23, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 26, 1980

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEX!CO

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

- CASE 6838: Application of Amax Chemical Corporation for the amendment of Order No. R-111-A. Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-111-A to extend the boundaries of the Potash-Oil Area by the inclusion of certain lands in Sections 11, 12, and 13, Township 19 South, Range 30 East, and Sections 7 and 18, Township 19 South, Range 31 East.
- CASE 6839: Application of Kimbell Oil Company for downhole commingling, Rio Arriba County, New Mexico.

 Applicant, in the above-styled cause, seeks approval for the downhole commingling of Otero-Chacra and South Blanco-Pictured Cliffs production in the wellbore of its Salazar Well No. 4-26 to be located in Unit D of Section 26, Township 25 North, Range 6 West.
- CASE 6840: Application of Union Texas Petroleum for downhole commingling, San Juan County, New Mexico.

 Applicant, in the above-styled cause, seeks approval for the downhole commingling of Fruitland and Pictured Cliffs production in the wellbore of its Johnston Federal Well No. 11Y located in Unit N of Section 7, Township 31 North, Range 9 West.
- CASE 6841: Application of CIG Exploration, Inc. for two non-standard gas proration units, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard gas proration units in Township 16 South, Range 28 East, the first being 219.6 acres comprising Lots 1 thru 8 of Section 1 and the second being 219.92 acres comprising Lots 1 thru 8 of Section 2, for the Wolfcamp, Pennsylvanian, and Mississippian formations, each unit to be dedicated to a well to be drilled at a standard location thereon.
- CASE 6842: Application of ARCO Oil and Gas Company for an unorthodox gas well location, simultaneous dedication, and approval of infill drilling. Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its W. C. Roach Well No. 6, 660 feet from the North line and 1980 feet from the West line of Section 21, Township 20 South, Range 37 East, Eumont Gas Pool, to be simultaneously dedicated with its W. C. Roach Well No. 1 in Unit D to the W/2 of said Section 21. Also sought are findings that the proposed well is necessary to effectively and efficiently drain that portion of the proration unit which cannot be so drained by the existing unit well.
- Application of Yates Petroleum Corporation for two compulsory poolings, Eddy County, New Mexico Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Yeso formation underlying two 40-acre proration units, the first being the SE/4 SE/4 and the second being the SW/4 SE/4 of Section 6, Township 19 South, Range 25 East, Penasco Draw Field, each unit to be dedicated to a well to be drilled at a standard location Chereon. Also to be considered will be the cost of drilling and completing said wells and the all ration of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.
- CASE 6844: Application of Arrowhead Oil Corporation for two exceptions to Order No. R-111-A and an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the casing-cementing rules of Order No. R-111-A to complete its Creek Federal Well No. 3 at an unorthodox location 250 feet from the North line and 2350 feet from the East line and its Creek Federal Well No. 4 to be drilled in Unit G, both in Section 23, Township 18 South, Range 30 East, by setting surface casing at a depth of approximately 600 feet and production casing at total depth. The production casing would have cement circulated back to the potash zone in the salt section.
- Application of Marathon Oil Company for an unorthodox gas well location, Eddy County, New Mexico.

 Applicant, in the above-scyled cause, seeks approval for the unorthodox location of a well to be drilled 800 feet from the North line and 200 feet from the East line of Section 30, Township 21

 South, Range 23 East, Indian Basin-Upper Pennsylvanian Gas Pool, all of Section 30 or that portion thereof which may be reasonably presumed productive of gas from said pool to be dedicated to the well.

).

CASE 6846: Application of Doyle Hartman for two compulsory poolings, two non-standard gas proration units, and two unorthodox well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order poolin. all mineral interests in the Eumont Gas Pool underlying two 80-acre non-standard gas proration units, the first being the S/2 NE/4 of Section 13, Township 21 South, Range 36 East, to be dedicated to a well to be drilled at an unorthodox location 1650 teet from the North line and 2310 feet from the East line of said Section 13, and the second being the N/2 NE/4 of said Section 13 to be dedicated to a well to be drilled at an unorthodox location 1330 feet from the Horth line and 2310 feet from the East line of said Section 13. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designtion of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 6834: (Continued and Readvertised)

Application of Conoco Inc. for a dual completion and unorthodox well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its SEMU Burger Well No. 107 at an unorthodox location 2615 feet from the South and East lines of Section 19, Township 20 South, Range 38 East, to produce oil from the Blinebry Oil and Cas and Drinkard Pools.

CASE 6837: (Continued from March 12, 1980, Examiner Hearing)

Application of Curris Little for compulsory pooling, Rio Arriba County, New Mexico.

Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the W/2 of Section 7, Township 25 North, Range 3 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6847: Application of Tenneco Oil Company for dual completions and downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete, in such a manner as to produce gas from the Dakota formation and commingled Chacra and Mesaverde production through parallel strings of tubing, ten proposed wells to be located as follows: in Township 29 North, Range 10 West: Unit C, Section 19; Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30; in Township 29 North, Range il West: Unit G, Section 24; Unit O, Section 24; Unit A, Section 25; Unit D, Section 25; Unit M, Section 25; and Unit P, Section 25.

CASE 6818: (Continued from March 12, 1980, Examiner Hearing)

Application of Tenneco Oil Company for an NCPA determination, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks a new onshore reservoir determination for its State HL 11 Well No. 1 located in Unit N of Section 11, Township 19 South, Range 29 East.

CACE 6849: (This is the same matter as was previously designated Case No. 6813.)

Application of Petroleum Development Corporation to amend Order No. R-6196, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks to amend Order No. R-6196 which authorized re-entry of a well at an unorthodox location in the Lusk-Morrow Gas Pool to be dedicated to the N/2 of Section 13, Township 19 South, Range 31 East. Applicant now seeks approval for a new revised location 750 feet from the North line and 660 feet from the West line of said Section 13,

CASE 6848: Application of Petroleum Development Corporation for pool contraction and creation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the Querecho Plains-Bone Spring Pool to comprise the Upper Bone Spring formation only, from 8390 feet to 8680 feet on the log of its McKay West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, and the creation of the Querecho Plains-Lower Bone Spring Pool to comprise said formation from 8680 feet to the base of the Bone Spring underlying the NW/4 of said Section 34.

CASE 6826: (Continued from March 12, 1980, Examiner Hearing)

Application of Tahoe Oil and Cattle Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Penrose Skelly Pool underlying the SE/4 SE/4 of Section 25. Township 21 South, Range 36 East, to be dedicated to its Bromlee Well No. 1 located thereon. Also to be considered will be the cost of recompleting said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in recompleting said well.

KELLAHIN and KELLAHIN

Attorneys at Law

Jason Kellahin W. Thomas Kellahin

Karen Aubrey

500 Don Gaspar Avenue Post Office Box 1769 Santa Fe, New Mexico 87501

Telephone 982-4285 Area Code 505

March 3, 1980

Mr. Joe Ramey Oil Conservation Division P. O. Box 2088 Santa Fe, New Mexico

Tenneco Oil Company
Application for Dual Completion
and Downhole Commingling,
San Juan County, New Mexico

Pase 6847

Dear Joe:

Please set the enclosed application for hearing on March 26, 1980.

Very truly yours,

encl.

cc: Mr. Millard Carr (Tenneco - Denver) WTK:msf

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF TENNECO OIL COMPANY FOR DUAL COMPLETION AND DOWNHOLE COMMINGLING, SAN JUAN COUNTY, NEW MEXICO.

APPLICATION

(case 68 47

COMES NOW TENNECO OIL COMPANY, by and through its attorneys, KELLAHIN & KELLAHIN, and applies to the New Mexico Oil Conservation Division for approval to drill ten wells in which the Chacra and Mesa Verde production will be commingled and then produced as a dual completion with the Dakota formation, all in San Juan County, New Mexico, and in support thereof would show:

- 1. Applicant is the operator of each of the units and formations involved in this application as shown on the attached surface plat.
- 2. Applicant requests approval to commingle production from the Chacra and Mesaverde formations and to dually complete those commingled zones with the Dakota formation for the following wells:
 - Bunce Com Well No. 1, Unit C, Sec. 19,
 729N, R10W, NMPM; ✓
 - 2. Elvin J. Faynes Gas Unit "A" Well No. 1-E, Unit N, Sec. 19, T29N, R10W, NMPM; ✓
 - 3. Sullivan Frame Gas Unit "A" Well No. 1-E, Unit A, Sec. 30, T29N, R10W, NMPM; ✓
 - 4. Sullivan Frame Com "B" Well No. 1, Unit ∪, Sec. 30, T29N, R10W, NMPM;
 - 5. Valdez Gas Unit "A" Well No. 1-E, Unit G, ★ Sec. 24, T29N, R11W, NMPM;
 - 6. Marquis G. Eaton Gas Unit "A" Well No. 1-E, ★ Unit A, Sec. 25, T29N, R11W, NMPM;
 - 7. Valdez Com B-1 Well No. 1, Unit O, Sec. 24, X T29N, R11W, NMPM;

- 8. Bruce Sullivan Com B Well No. 1, Unit D. Sec. 25, T29N, R11W, NMPM;
- 9. Sullivan Gas Unit "A" Well No. 1-E, Unit M, Sec 25, T29N, R11W, NMPM;
- 10. Eaton Com "B" Wel! No. 1, Unit P, Sec. 25, T29N, R11W, NMPM.

Attached hereto and incorporated by reference are Division Forms C-102 for each well.

- 3. Applicant proposes to dedicate a 320-acre Dakota unit to each well and a 160-acre Chacra-Mesaverde unit to each well as shown on the Form C-102 attached hereto and incorporated by reference.
- 4. Applicant proposes to complete each well as shown on the wellbore schematic attached hereto and incorporated by reference.
- 5. That approval of the application will be in the best interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, Applicant requests that this matter be set for hearing and that after notice and hearing, the Division approve the application as requested.

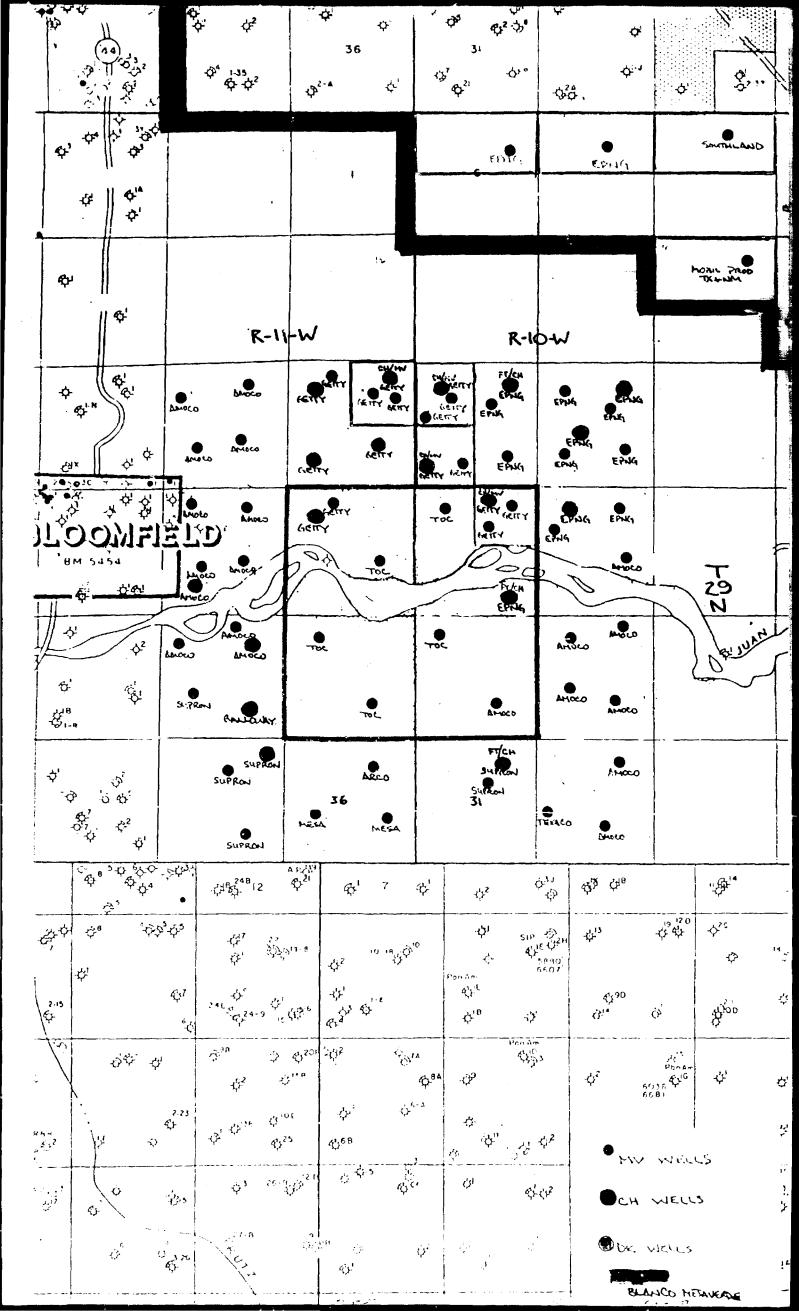
TENNECO OIL COMPANY

V Thomas Kellakin

KELLAHIN & KELLAHIN

P. O. Box 1769

Santa Fe, New Mexico 87501 ATTORNEYS FOR APPLICANT



OIL CONSERVATION DIVISION

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Date Surveyed

STATE OF NEW MEXICO P. O. UOX 2018 EAGY THE MINERALS OCLARIMENT SANTA FE, NEW MEXICO 87501 All distances must be from the outre houndaries of the Section Well No. TENNECO OIL COMPANY BUNCE COM Township County nit Letter Section Ronge 19 29N 10% San Juan ctual Fastage Location of Well: 990 feet from the North 1650 leet from the West Producing Formation Pool round Level Elev. Dedicated Acreage: 5521 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolideted by communitization, unitization, force-pooling. etc? If answer is "yes," type of consolidation Yes ☐ No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. 1650 Name Position Company Date Sec. 19 I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FC, NEW MEXICO 87501

Form C-107 Feviled 10-1-78

All distances must be from the cuter houndaries of the Section Well No. Cherator Legae TENNECO OIL COMPANY ELVIN J. PAYNE GAS UNIT "A" Unit Letter Section Township N 19 29N 10W San Juan Actual Footage Location of Well: 530 2080 leet from the West line and feet from the line Ground Level Elev. Producing Formation Dedicated Acreage: 5476 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc? Il answer is "yes," type of consolidation . Yes No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. 0 Position Compeny Date Sec. 19 I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or SAN JUAN RI under my supervision, and that the same is true and correct to the best of my knowledge and bellef. VER 13 MAUL NAIZ Date Survey September 7 20801 Fred B& Kef Centilicated in

STATE OF NEW MEXICO HERGY AND MINEHALS DEPARTMENT

OIL CONSERVATION DIVISION

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P. O. HOX 2088 SANTA PE, NEW MEXICO 87501

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OIL CONSERVATION DIVISION

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STATE OF NEW MEXICO SERVING WENT WENT THE STATE OF THE ST

SANTA FE, NEW MEXICO 87501

form C-107 kevised 10-1-78

Lease Well No. perator COMPANY SULLIVAN FRAME COM "B" TENNECO OIL Section j 10w San Juan 29N 30 D ctual Foolage Location of Well; 800 1100 North feet from the West feet from the Pool Dedicated Acreage: round Level Elev. Producing Formation 5466 Acres 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc? If answer is "yes;" type of consolidation _ Yes No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)_ No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained hereIn is true and complete to the best of my knowledge and belief. 8001 Name Position Company Date Sec. 30 I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me ar under my supervision, and that the same is true and correct to the best of my knowledge and belief. Date Surveyed November ATELST Fred

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STATE OF NEW MEXICO TRIAMINATION CONTRACTOR

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FL, NEW MEXICO 87501

Form C-107 Revised 10-1-72

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OIL CONSERVATION DIVISION

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SANTA FE, NEW MEXICO 87501

P. O. GOX 2088

Form C-107 Revised 10-1-1

All distances must be from the cuter houndaries of the Becation Leone Well No. Operator TENNECO OIL COMPANY MARQUIS G. EATON GAS UNIT "A" Township Unit Letter Section Range 25 29N 11W San Juan Actual Footage Location of Well: 990 990 North leet from the East feet from the line Ground Level Elev. Producing Formation Dedicated Acreage: 545? Dakota Basin Dakota 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc? If answer is "yes," type of consolidation _ Yes No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)_ No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. 9901 Name Position Company Date Sec. 25 I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me a my supervision, and that the samtrue and correct to the best of m dge and hadiet. ALGISTERED LAND eyed 0 September Realitiered Professions Fred B. Kerr Certificate No. ובבבבב

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TERNECO OIL Penthouse 720 South Colorado Boulevard Denver, Colorado 80222

WELL LOCATION PLAT AND DESCRIPTION

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OIL CONSERVATION DIVISION

P. O. BOX 2088 SANTA FE, NEW MEXICO 87501

STATE OF NEW MEXICO

HERGY AND MINERALS DEPARTMENT

form C-107 keyised 10-1-2

All distances must be from the cutes boundaries of the Section Well No. Sperator BRUCE SULLIVAN COM B TENNECO OIL COMPANY Township Runge Jell Letter Section אנו San Juan 25 29N D Actual Fastage Location of 790 teet from the West North 790 Dedicated Acreage: Producing Formation Ground Level Elev. 5457 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc? If answer is "yes," type of consolidation _ Yes No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, elimination such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. 790 Position Company Sec. 25 I hereby certify that the well location wn on this plot was plotted from field notes of actual surveys made by me or under my supervision, and that the same true and correct to the bost of my knowledge and belief. Date Surve Regist Certillo

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OIL CONSERVATION DIVISION

STATE OF HEW MEXICO HERGY MA MINUFALS DEPARTMENT

P. O. HON 2008 SANTA FE, NEW MEXICO 87501

Torn C-107 Revised 10-1-18

All distances must be from the cuter boundaries of the Section

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OIL CONSERVATION DIVISION

P. O. BOX 2086

SANTA FE, NEW MEXICO 87501

form C-107 kenised 10-1-72

All distances must be from the cuter how-darks of the Section. Well No. e10101 TENNECO OIL COMPANY EATON COM "B" Township : Letter 29N San Juan tual Fastage Location of Well; 1070 South feet from the line Dedicated Acreage: ound Level Elev. Producing Formation 5562 1. Outline the acreage dedicated to the subject welly by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc? Yes Yes If answer is "yes," type of consolidation ☐ No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Name Position Company Date Sec. 25 I hereby certify that the well location shown on this plot was plotted from field notes of actual surveys made by me or under my supervision, and that the same we and correct to the best of my knowledge and belief. <u> 790'</u> and/or Fr

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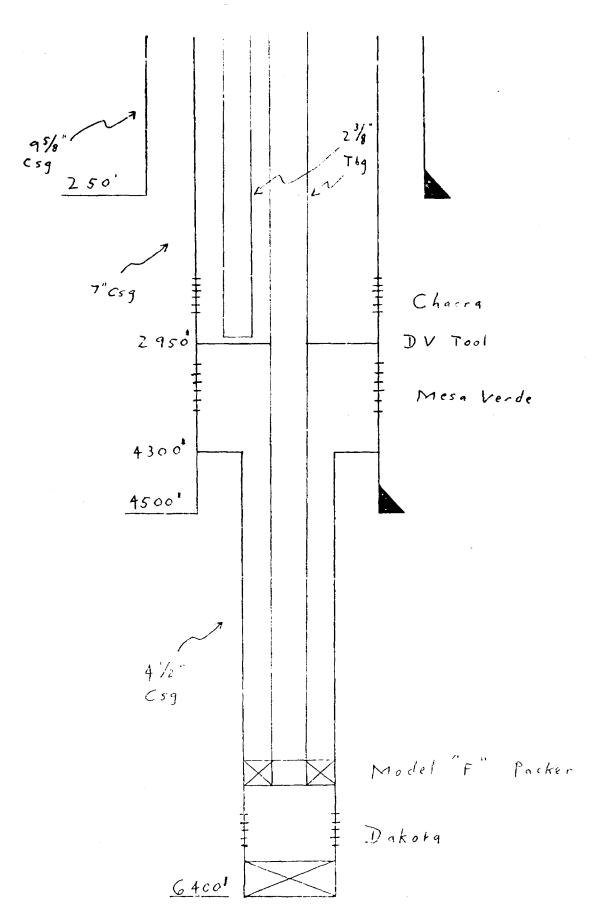
TENNECO OIL COMPANY

BLOOMFIELD AREA

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SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH MESA VERDE-CHACRA COMMON



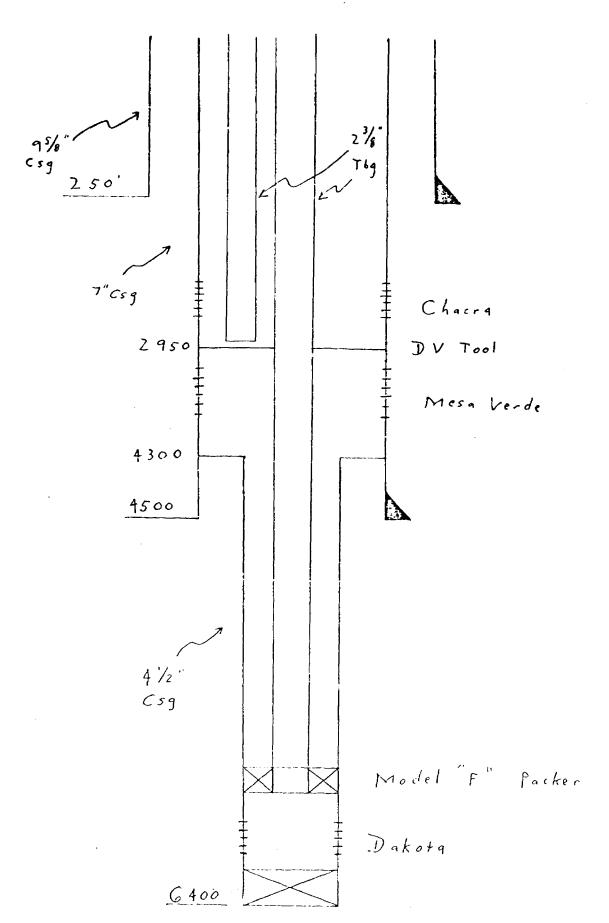
TENNECO OIL COMPANY

BLOOMFIELD AREA

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DAKOTA DUAL WITH MESA VERDE-CHACRA COMPELE



STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALSCAL CO

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SANTA FE

OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF TENNECO OIL COMPANY FOR DUAL COMPLETION AND DOWNHOLE COMMINGLING, SAN JUAN COUNTY, NEW MEXICO.

APPLICATION

Case 6847

COMES NOW TENNECO OIL COMPANY, by and through its attorneys, KELLAHIN & KELLAHIN, and applies to the New Mexico Oil Conservation Division for approval to drill ten wells in which the Chacra and Mesa Verde production will be commingled and then produced as a dual completion with the Dakota formation, all in San Juan County, New Mexico, and in support thereof would show:

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 - 2. Elvin J. Faynes Gas Unit "A" Well No. 1-E, Unit N, Sec. 19, T29N, R10W, NMPM;
 - 3. Sullivan Frame Gas Unit "A" Well No. 1-E, Unit A, Sec. 30, T29N, R10W, NMPM;
 - 4. Sullivan Frame Com "B" Well No. 1, Unit D, Sec. 30, T29N, R10W, NMPM;
 - 5. Valdez Gas Unit "A" Well No. 1-E, Unit G, Sec. 24, T29N, R11W, NMPM;
 - 6. Marquis G. Eaton Gas Unit "A" Well No. 1-E, Unit A, Sec. 25, T29N, R11W, NMPM;
 - 7. Valdez Com B-1 Well No. 1, Unit 0, Sec. 24, T29N, R11W, NMPM;

Bruce Sullivan Com B Well No. 1, Unit D,

Sec. 25, T29N, R11W, NMPM;

Sullivan Gas Unit "A" Well No. 1-E,

Unit M, Sec 25, T29N, R11W, NMPM;

10. Eaton Com "B" Well No. 1, Unit P,

Sec. 25, T29N, R11W, MAPM.

Attached hereto and incorporated by reference are Division Forms C-102 for each well.

- Applicant proposes to dedicate a 320-acre Dakota unit to each well and a 160-acre Chacra-Mesaverde unit to each well as shown on the Form C-102 attached hereto and incorporated by reference.
- Applicant proposes to complete each well as shown on the wellbore schematic attached hereto and incorporated by reference.
- That approval of the application will be in the best interest of conservation, the prevention of waste and the protection of correlative rights.

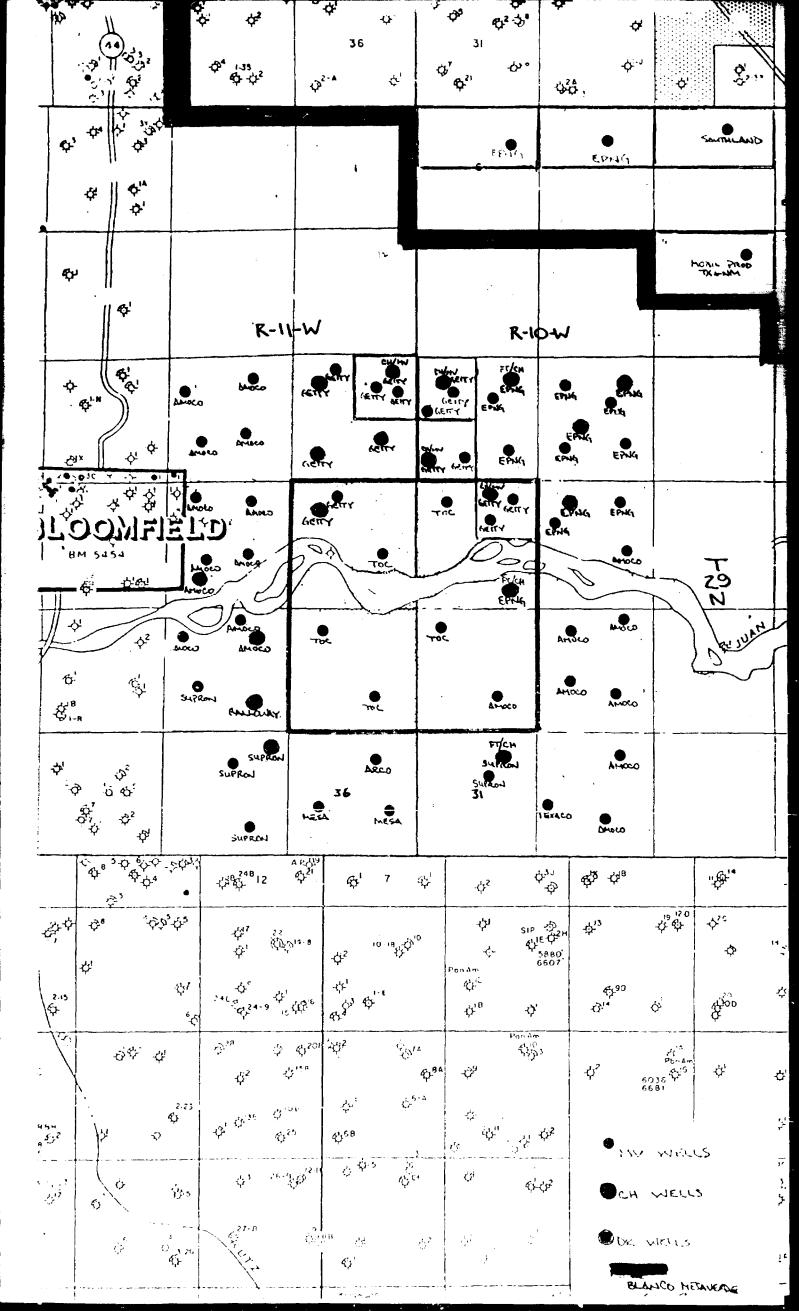
WHEREFORE, Applicant requests that this matter be set for hearing and that after notice and hearing, the Division approve the application as requested.

> Thomas Kellahin KELLAHIN & KELLAHIN

TENNICO OIL COMPANY

P. O. Box 1769

Santa Fe, New Mexico 87501 ATTORNEYS FOR APPLICANT



STATE OF HEW MEXICO IERGY AND MINERALS DEFARTMENT

1320 1660

DIL CONSERVATION DIVISION

P. O. HOX 2018

SANTA FE, HEW MEXICO 87501

Farm C-102

peratar Well No. TENNECO OIL COMPANY BUNCE COM Township nil Letter Section County 19 29N _San Juan ctual Footage Lucation of Well; 990 1650 feet from the North leet from the West round Level Clev. Producing Formation Pool Dedicated Acreage: 5521 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidaied by communitization, unitization, force-pooling. etc? Yes No If answer is "yes," type of consolidation _ If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. 16501 Position Company Date Sec. 19 I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same Is true and correct to the best of my knowledge and belief. Date Surveyed

≼an and

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STATE OF NEW MEXICO LIVERGY AND MINURALS DEPARTMENT

OIL CONSERVATION DIVISION

P, O. UOX 2088

SANTA PE, NEW MEXICO 67501

FORM C+102

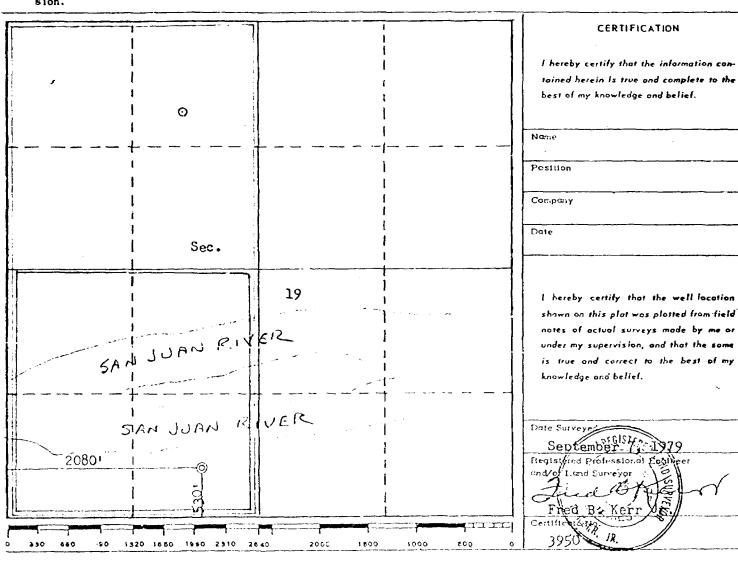
All distances must be from the cuter houndaries of the Section Operator Well No. TENNECO OIL COMPANY ELVIN J. PAYNE GAS UNIT "A" Unit Letter Section Township 19 29N 10W San Juan 530 2080 South West leet from the line Ground Level Elev. Producing Formation Dedicated Acreage: 5476

- 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

Yes No If answer is "yes;" type of consolidation

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



STATE OF NEW MEXICO

Yes No

OIL CONSERVATION DIVISION

Re Acia.

P. O. BOX 2088 Form C . 102 kertsed 10-1-18 HERGY ALS MINERALS DEPARTMENT SANTA FE, NEW MEXICO 87501 اماماءالا Legse Well No. TENNECO OIL COMPANY SULLIVAN FRAME GAS UNIT "A" 1-E Juit Letter Township 29N San Juan Actual Fastage Location of Well: 990 test from the North 790 line and Bround Level Elev. Producing Formation Dedicated Acreage: 5502 Basin Dakota Dakota 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

If answer is "yes," type of consolidation _

1320 1650 1980 2310 2640

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commis-CERTIFICATION 1066 I hereby certify that the information comtained herein Is true and complete to the best of my knowledge and belief. 7901 0 Position Company Date Sec. 30 I hereby certify that the well location shown on this plat was platted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief. Septemb ember 1

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO JERGY AND MINERALS DEPARTMENT

P. O. BOX 2048 SANTA FÉ, NEW MEXICO 87501

form C-107 herised 10-1-78

perator Lease Well No SULLIVAN FRAME COM "B" TENNECO OIL COMPANY Township Range COUNTY 29N 30 San Juan D ctual Fastage Location of Well: 800 1100 leet from the North feet from the West line round Level Elev. Producing Formation Pool Dedicated Acreage: 5466 Acres 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both es to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling etc? If answer is "yes," type of consolidation Yes No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)_ No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and bellef. 1008 Name Position Company Date Sec. 30 I hereby certify that the well location shown on this plat was platted from field notes of octual surveys made by me ar under my supervision, and that the same Is true and correct to the best of my krowledge and belief. November 271 = 1973 Registere and/or L Fred Azerr

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STATE OF NEW MEXICO iergy of molesals of partment

P. O. BOX 2088 SANTA FE, NEW MEXICO 87501

form C-107 kertied 10-1-72

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TENNECO OIL COMPANY			VAL	DEZ GAS UN	production of the second of		1-E		
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		L							Acres
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If answer this form No allows	is "rif nec	No If ans o," list the o essary.)	itization, for wer is "ye wners and	orce-poolines;" type of tract descr	cansali	dation which have a s have been	consolidat	en consolid	munitization, unitization, approved by the Commis-
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STATE OF HEW MEXICO

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P. O. HOX 2088 LIBERGY AND MINERALS DEPARTMENT SANTA FE, NEW MEXICO 87501 All distances must be from the cutor humdwites of the Section Operator Lease Well No. MARQUIS G. EATON GAS UNIT "A" TENNECO OIL COMPANY Township Section Unit Letter 25 29N 11M San Juan Actual Footage Location of Well: 990 North East icet from the leet from the line Dedicated Acreage: Ground Level Elev. Producing Formation 5457 Dakota Basin Dakota 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to wor interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been condated by communitization, unitization, force-pooling. etc? Il answer is "yes," type of consolidation _ If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side this form if necessary.). No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Com sion. CERTIFICATION I hereby certify that the information 066 tained herein is true and complete t best of my knowledge and belief. 9901 Position Company Date Sec. 25 I hereby certify that the shown on this plat was platted from under my supervision, and that the true and correct to knowledge and toliel. ALGISTERED LAND Surreyed

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September

ered Prolessions and Surveya

Fred B. Kerr Certificate No. 3950

TERRECO OIL Penthouse 720 South Colorado Boulevard Denver, Colorado 80222

WELL LOCATION PLAT AND DESCRIPTION

tell Name	VALDEZ COM B-1	
.ocation: 1850 FSL 1850 FEL Se	ection 24 , T 29N , R	11W
1/4-1/4-1/4 Section SE NW SE	County San Juan	State New Mexico
ease No.: Federal	State ^{NM} 481 482 483 484 5	30Fee
MV 320 Spacing Unit Chacra 160 Acres:	Description <u>Mesaverde: E</u>	/2Chacra:SE/4
.ocation meets State rules	Yes Field Rules	Yes
Deepest Objective Mesaverde	Est. 10 4500	Est. G.L. Elev. 5450
Plat Scale: 1" = 1000 ft.	R11W	
2640	5260 '	
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<u>L</u>		
Preferred direction for relocati		
If relocation of more than <u>O</u>		ese contact Carol Peavey
in the G.	.E. Section.	n.,
Prepared by Doug Brandon	Typhroneg ph K H CTOLI	Date October 24, 1979
cc: Kell File		•
Land Properties		
Administrative Drilling		

IR 70 31418 ARIJAIM CHA YDRIN			TA FE, I	, BOX 2048 NEW MEXICO I			form C-107 Kentsed 10-1-78
		All distances o	wet to from I	the cuter fraundailes e	of the Section.		
Operator			T L	Pase			Well No.
TENNECO OIL	COMPANY		i i i	BRUCE SULLIV	AN COM B	* . **	<u> </u>
Unit Letter	Section	Township		Range	County		
D	25	2911	general control of the second	<u> 11W</u>	San Ju	an	
Actual Footuge Loca	ation of Well:						
790	feet from the	North	line and		lest from the W	est	line
Ground Level Elev.	Producing Fa	i matian	P	ool		De	ilcated Acreage; Acres
2. If more the interest and 3. If more that dated by comparing the second of the secon	an one lease is id royalty). In one lease of communitization, No If a "no," list the f necessary.)	different ewner unitization, for answer is "yes owners and tr	the well, or ship is decree-pooling type of control all in	dicated to the well cete? consolidation ctions which have	dentify the own I, have the inte	rests of all	of (both as to working owners been consoli- I. (Use reverse side of itization, unitization, proved by the Commis-
790°				 		I hereby certi	ERTIFICATION by that the information com- is true and complete to the cowledge and belief.
		Sec.			P	Contion Company	
	1		25	1		shown on this notes of octu- under my sup-	rify that the well location plat was plotted from field of surveys made by me er ervision, and that the same correct to the best of my dibelief.

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STATE OF HEW MEXICO

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OIL CONSERVATION DIVISION

P. O. UOX 2088

Form C-107

. 1 see | U-1-26 HERGY AND MINERALS DEPARTMENT SANTA FE, NEW MEXICO 87501 All distances must be from the cuter hourdaries of the bectlen Well No. perator Legae TENNECO OIL COMPANY SULLIVAN GAS UNIT "A" Init Letter Section Townshit; M 25 29N 11W San Juan ictual Footage Location of Well: feet from the South 990 West line and leet from the line Producing Formation Fround Level Elev. Pool Dedicated Acreage: 5583 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling.etc? If answer is "yes," type of consolidation. Yes Yes ☐ No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)_ No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. 0 Position Company Date Sec. 25 I hereby certify that the well location wn on this plat was plotted from field es of actual surveys made by me or under my supervision, and that the same is tive and correct to the best of my knowledge and belief. 9901 Date Surveyed i y September 11. Register end/or

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STATE OF NEW MEXICO HGY AND MINERALS DEFARTMENT

SANTA FE, NEW MEXICO 87501

P. O. BOX 2048

form (-107 heatsed 10-1-78

All distances must be from the cuter hewiteries of the Section. Well No. TENHECO OIL COMPANY EATION COM. "P" Township Il Letter | San Juan 29N 111 ival Footage Location of Well; 790 1040 South feet hop the Fast less from the line Dedicated Acreage: ound Level Elev. Producing Formation 5562 Actes 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling etc? If answer is "yes," type of consolidation Yer No If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)_ No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission. CERTIFICATION I hereby certify that the information contained hereIn Is true and complete to the best of my knowledge and belief. Company Date Sec. 25 I hereby certify that the well lacation shown on this plat was platted from field nates of actual surveys made by me or under my supervision, and that the same Is true and correct to the best of my knowledge and belief. 7901 Date Surveyed Nove 1320 1680 1986 2310 2640 2000 1600 1000 800

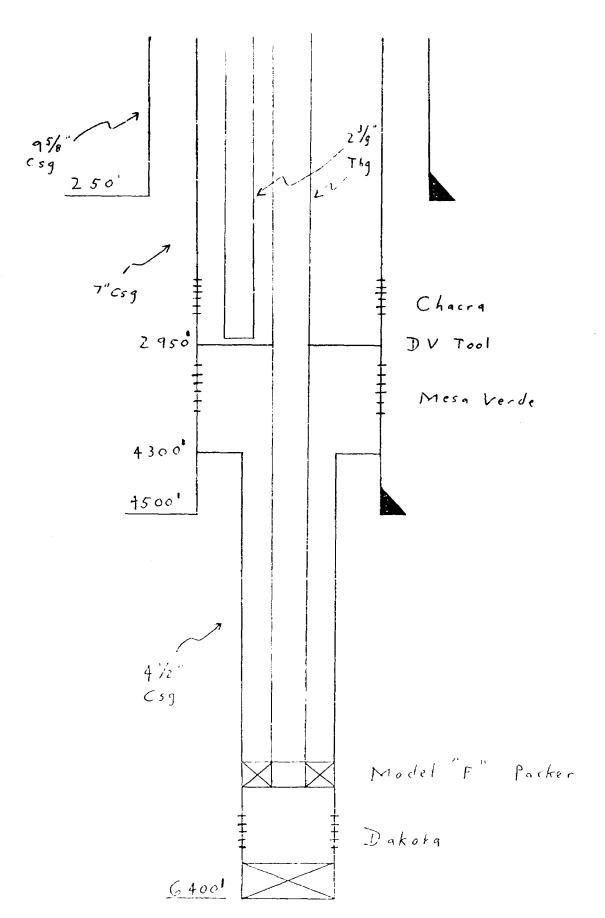
TENNECO OIL COMPANY

BLOOMFIELD AREA

RIOGII W. TZ9N

SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH MESA VERDE-CHACRA COMME



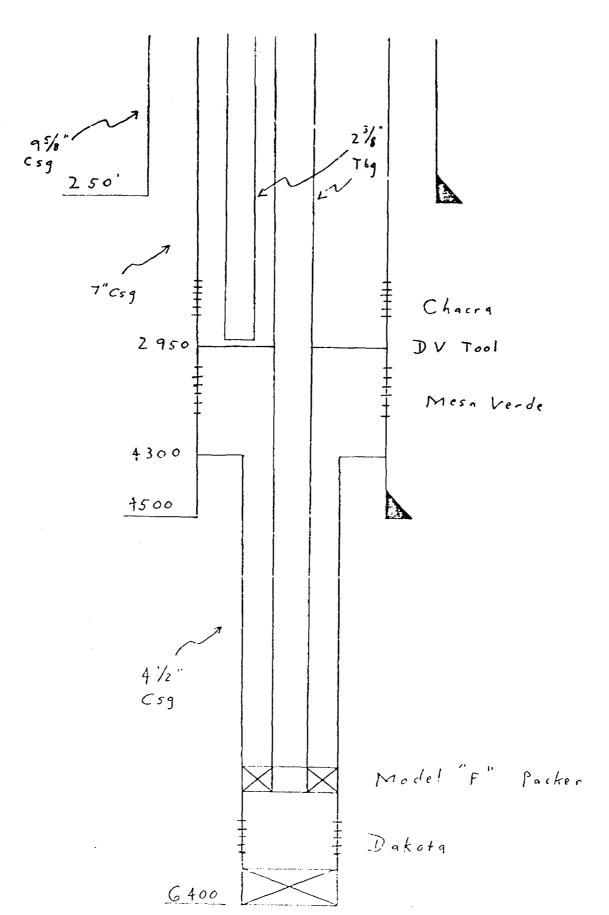
TENNECO OIL COMPANY

BLOOMFIELD AREA

RIO+II W, TZ9N

SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH MESA VERDE-CHACRA COMME



dr/

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

	CASE NO. 6847
	Order No. R- <u>3/3</u>
APPLICATION A DUAL	ON OF TENNECO OIL COMPANY COMPLETIONS AND DOWNHOLE COMMINGLING, SAN J
COUNTY, N	EW MEXICO.
BY THE DI	ORDER OF THE DIVISION VISION:
Th	is cause came on for hearing at 9 o'clock a.m. on
March	, 19 80 , at Santa Fe, New Mexico, before
}	Richard L. Stamets
МО	W, on this day of, 1980 , the
: !	Director, having considered the testimony, the record,
and the r	ecommendations of the Examiner, and being fully advised
in the pr	emises,
FI	NDS:
(1	That due public notice having been given as required
law, the	Division has jurisdiction of this cause and the subject
matter th	
:) That the applicant, Tenneco Oil Company dually
ota forma W e kkx Xx xx	hority to/complete, its in such a manner as to produce gas tion and commingled Chacra and Mesaverde production throuxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

in Township 29 North, Range 10 West: Unit C, Section 19; Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30; in Township 29 North, Range 11 West: Unit G, Section 24; Unit O, Section 24; Unit A, Section 25; Unit D, Section 25; Unit M, Section 25; and Unit 2, Section 25.

(3) That at the hearing the applicant amended the subject application to eliminate the request for dual completion of the commingled Chacra Mesowrke zones with the Da Kota some for his proposed wells to be located as rellies: in Township 29 North, Runge 10 West: Unit 8, Section 19 J and Unit Reserved Do, Section 30; in Township 29 North Range 11 West: in Unit D. Section 24; Unit D, Section 25; and Unit P. Section 25.

be drilled an expected to be cupuble of low reter of production.

- of additional hydrocarbons from each of the subject pools, thereby preventing waste, and will not violate correlative rights.
- (6) (2) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that the well is not shut-in for an extended period.
- (0) That in order to allocate the commingled production to each of the commingled zones in the wells, applicant should consult with the supervisor of the specific district office of the Division and determine an allocation formula for each of the production zones.

(9) (3)	That the mechanics of the proposed <u>dual</u> completion	\$
	ble and in accord with good conservation practices.	
(10)(42)	That approval of the subject application will prevent	-
waste and	protect correlative rights.	į

FEST AVAILABLE COPY

IT IS THEREFORE ORDERED:

(1) That the applicant,	Tennera 3	occordence, is
hereby authorized to commingle		
Meraverde	production with	in the wellbore of
the Ten proposed wells to be	qه Located i a t	hit of

in Township 29 North, Range 10 West: Unit C, Section 19;
Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30;
in Township 29 North, Range 11 West: Unit G, Section 24;
Unit O, Section 24; Unit A, Section 25; Uhit D, Section 25;
Unit M, Section 25; and Unit P, Section 25; all in San Than
County New Mexico

(2) That the applicant AVAILABLE CONTINER authorized to dually complete in such a manner as to produce gus from the commingle Chacra and Mesowater somes and gos from the Dakot tone the five of said wells tested located as follows:

in Township 29 North, Range 10 West. Unit N.
Settoin 19: Unit P., Section 30; in Township 29 North Range 11 West. Unit G. Section 24:

Unit P. Section 25; and Unit G. Section 25;

each of soid wells being exupped with parallel string a tubing and a packer between the commingled somes and the Dakota.

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 112-A of the Division Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take

The Let pea 200 c tests upon completion and annually thereafter during the Color Deliverability

Test Period for the 200 color of Northwest New Muricy . Peol.

	(3) 427 That the applicant shall consult with the Supervisor						
	of the Artec district office of the Division and						
	determine an allocation formula for the allocation of production						
	to each zone in each of the subject wells.						
	(ALTERNATE)						
	(2) That percent of the commingled						
	production shall be allocated to the						
	zone and percent of the commingled						
	production shall be allocated to the						
	zone.						
	(That the operator of the subject well shall immediately						
į	notify the Division's Havec district office any time, the						
commingled,	well has been shut-in for 7 consecutive days and shall concurrently						
v	present, to the Division, a plan for remedial action.						

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

DOCKET MAILED

Date 3/14/46

CASE 6847: TENNECO OIL COMPANY FOR DUAL COMPLETIONS AND DOWNHOLE COMMINGLING, SAN JUAN COUNTY, NEW MEXICO