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RICHARD PRENTICE

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Direct Examination by Mr. Hall

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Cross Examination by Mr. Catanach

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## E X H I B I T S

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ARCO Exhibit One, Plat

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ARCO Exhibit Two, Schematic

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ARCO Exhibit Three, C-116's

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ARCO Exhibit Four, Production Data

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ARCO Exhibit Five, BHP Data

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ARCO Exhibit Six, Computation

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ARCO Exhibit Seven, Notice

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MR. CATANACH: We'll call next Case 9084.

MR. TAYLOR: The application of ARCO Oil and Gas Company for downhole commingling, Lea County, New Mexico.

MR. CATANACH: Are there appearances in this case?

MR. HALL; Mr. Examiner, my name is Scott Hall from the Campbell & Black Law Firm of Santa Fe, appearing on behalf of the applicant, ARCO Oil & Gas.

We have one witness this afternoon.

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

Will the witness please stand and be sworn in?

(Witness sworn.)

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

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DIRECT EXAMINATION

BY MR. HALL:

Q For the record, please state your name and your place of residence?

A My name is Richard Prentice from Midland, Texas.

Q By whom are you employed and in what capacity?

A I am employed by ARCO Oil and Gas Company as a Senior Operations Engineer.

Q Have you previously testified before the Division and made your qualifications a matter of record?

A Yes, I have.

MR. HALL: Mr. Examiner, are the witness' credentials acceptable?

MR. CATANACH: He is considered qualified.

Q Are you familiar with the application filed in this case?

A Yes, I am.

Q And are you familiar with the subject well?

A Yes, I am.

Q What is it that ARCO seeks by the appli-

1 cation?

2 A ARCO is seeking permission to downhole  
3 commingle the Justis Blinbry and Justis Montoya zones in  
4 the State Y No. 3.

5 Q Okay, I'd like you to refer to what's  
6 been marked as Exhibit One, and explain to the Examiner what  
7 that's intended to reflect.

8 A Exhibit One is a two-page exhibit. The  
9 first page of Exhibit One is the original plat showing the  
10 well location when the well was originally completed.

11 The well is shown as 330 from the north  
12 line and 1650 from the east line of Section 25, Township 25  
13 South, Range 37 East.

14 Q Okay, how many acres are dedicated to the  
15 well?

16 A 40 acres are dedicated to this particular  
17 well.

18 Q Does the exhibit also show offset wells  
19 and leases?

20 A Page Two of Exhibit One shows the offset  
21 operators. As you can see, Texaco operates the A. B. Coates  
22 "C" Lease to the north.

23 Union of Texas operates the Buffington  
24 "B" Lease to the northeast.

25 Texaco operates the Hobbs "A" Lease to

1 the east.

2 And Amoco operates the State "AJ" Lease  
3 to the southeast.

4 Union of Texas operates the Carlson Fed-  
5 eral to the south.

6 Union Texas -- Amerada operates the Wim-  
7 berly to the west.

8 Q What is ARCO's ownership in the 40 acres  
9 dedicated to the well?

10 A ARCO owns 100 percent of the tract.

11 Q And this is State land, is it not?

12 A This is State land, yes.

13 Q Have you received the approval of the  
14 State Land Office?

15 A Yes.

16 Q Okay. Again, what pools are you propos-  
17 ing to commingle?

18 A We are proposing to commingle the Justis  
19 Blinebry and the Justis Montoya.

20 Q And what is the ownership in each of  
21 those pools?

22 A They are common.

23 Q Okay. Would you turn now to Exhibit Two  
24 and identify that and explain what it's intended to reflect?

25 A The Exhibit Two is another two-page exhi-

1 bit. I'm sorry, a three-page exhibit.

2 Shown on the exhibit is a wellbore sche-  
3 matic showing how the well is currently completed.

4 Page Two and Page Three of the exhibit  
5 give a summary of the wellbore history, what was done to the  
6 zones in the well.

7 Q Okay, why don't you go over that history  
8 for the Examiner, if you would?

9 A The Montoya was completed in December,  
10 1958 when the well was dualled as a Montoya-Ellenburger Well.

11 The Montoya was perforated from 6821 to  
12 6883 and acidized with 1000 gallons.

13 In December of 1967 the zone was acidized  
14 with 5000 gallons.

15 In March of 1973 the zone was acidized  
16 with 1000 gallons.

17 The Blinebry was perforated, first per-  
18 forated in February of 1962 from 5346 to 53; acidized with  
19 250 gallons of mud acid; was fraced with 12,000 gallons and  
20 15,000 pounds.

21 At the same time a zone, a Blinebry zone  
22 from 5281 to 90 was -- was perforated, acidized with 250  
23 gallons; fraced with 12,000 gallons and 15,000 pounds of  
24 sand.

25 In March of 1973 the Blinebry was per-

1 forated from 5118 to 5530; acidized with 1000 gallons;  
2 fraced with 40,000 gallons and 40,000 pounds of sand.

3 Q Were there any other Blinebry perfora-  
4 tions in this well?

5 A Not that I'm aware of.

6 Q Okay. What's the status of the Montoya  
7 production?

8 A The Montaya is presently shut in due to  
9 mechanical problems.

10 Q All right, why don't you turn now to Ex-  
11 hibit Three and identify that, please?

12 A Exhibit Three is the latest Form C-116  
13 that was filed with the Commission on both the Blinebry and  
14 Montoya, and shows the GOR's recorded for the State Y No. 3.

15 Q And they're shown at the bottom of the  
16 first page, is that correct?

17 A Yes, the State Y-3 in the Blinebry has a  
18 gas/oil ratio of 33,000 cubic feet feet per barrel.

19 On Page Two in the Montoya the gas/oil  
20 ratio is 1187.

21 Q All right, how old are these C-116's?

22 A These were filed in May of 1986.

23 Q Are these the most recent filings avail-  
24 able?

25 A To my knowledge, yes.

1 Q Okay. Why don't you turn now to what's  
2 been marked as Exhibit Four and identify that, please, sir?

3 A Exhibit Four is another two-page exhibit  
4 that shows the production history of the Blinebry and of the  
5 Montoya.

6 The first page shows the production his-  
7 tory of the Blinebry. The well in late 1986 was making a  
8 barrel a day or less of oil, less than a barrel a day of  
9 water, and approximately 25-30 MCF a day gas.

10 On -- on Page Two is the Montoya produc-  
11 tion. Prior to the well being shut in the well was making  
12 approximately 10 barrels a day of oil, 10 MCF a day of gas,  
13 and approximately 180 to 200 barrels of water a day.

14 Q So are both the zones you're proposing to  
15 commingle capable of only marginal production?

16 A Yes, they are.

17 Q Are the zones flowing?

18 A No, they are on artificial lift.

19 Q All right. Let's turn now to Exhibit  
20 Five and if you'd identify that, please, sir.

21 A Exhibit Five is an exhibit showing the  
22 bottom hole pressure that we ran last fall on both wells, I  
23 mean on the State Y-3 and the State Y-9.

24 The Blinebry in the State Y-3 has a bot-  
25 tom hole pressure of 254 pounds. We ran a bottom hole pres-

1 sure in the No. 9 because it was an offsetting well and it  
2 would get the Montoya bottom hole pressure. In the No. 9  
3 the bottom hole pressure is 475 pounds.

4 Q What does this tell you insofar as  
5 differential pressures across the face of both zones which  
6 you can expect to encounter?

7 A The differential pressure is  
8 approximately 225 pounds and we would intend to keep the  
9 wells pumped down and not encounter any problems with dif-  
10 ferential pressure.

11 Q Do you expect there'll be any migration  
12 between the zones?

13 A I don't think so if we can keep them pum-  
14 ped down.

15 Q Okay. Would you refer back to Exhibit  
16 Four again, have you taken that production data and calcu-  
17 lated an average rate of production from each zone?

18 That's all right, yeah, let's refer to  
19 Exhibit Six on that one.

20 A Exhibit Six is a commingling computation  
21 and it shows the rate of production based on the last C-116  
22 that we submitted for both wells. At that point in time the  
23 Blinebry was making two barrels a day and the Montoya was  
24 making 16 barrels a day.

25 As you can see, in the Blinebry the pro-

1 duction was 2 barrels a day of oil, 16 -- and 16 for the  
2 Montoya.

3 Gas was 66 from the Blinebry, 19 from  
4 Montoya.

5 Water was 1 from the Blinebry, 118 from  
6 the Montoya.

7 Q Are you prepared to make a recommendation  
8 as to the allocation of production to each of the commingled  
9 zones?

10 A We would recommend the commingling allo-  
11 cation be based on these figures, although if we are granted  
12 permission to commingle, our procedure would involve stimu-  
13 lating the Blinebry with acid and we'll be willing to wait  
14 till the Blinebry tests come in to recalculate our alloca-  
15 tion figures, if that's what is deemed necessary.

16 Q From what you know about the chemical  
17 characteristics of the oil produced from both the zones are  
18 they compatible?

19 A Yes, as far as we know, the zones are al-  
20 ready commingled at the battery and they are commingled down  
21 hole, I believe, in the State Y No. 7.

22 Q Okay, did you seek an administrative ap-  
23 proval to commingle in this case?

24 A We sought administrative approval to com-  
25 mingle the State Y No. 3 but because of the high water pro-

1 duction it was referred to a hearing.

2 Q Do you know of any other development in  
3 the area that's planned?

4 A Yes. The Justis area is under an active  
5 -- is actually under a waterflood study to flood the Justis  
6 Blinebry and the Justis Tubb-Drinkard. We expect this flood  
7 to be in operation, perhaps, within the next 18 to 24  
8 months.

9 Q All right, Mr. Prentice, in your opinion  
10 will the granting of this application be in the -- result in  
11 the increased recovery of hydrocarbons?

12 A Yes, it will.

13 Q Will the value of the commingled produc-  
14 tion exceed the sum of the values of the production from  
15 each of the individual zones?

16 A Yes.

17 Q Will economic savings result from the  
18 proposed downhole commingling?

19 A Yes.

20 Q And what will happen if the application  
21 is denied?

22 A If the application is denied for this  
23 well, the economics do not support continuing operation in  
24 either zone as a single zone. We'd have to abandon the  
25 well.

1           Q           All right. In your opinion will the  
2 granting of the application be in the best interest of con-  
3 servation, the prevention of waste, and protection of cor-  
4 relative rights?

5           A           Yes.

6           Q           If you'll refer now to Exhibit Seven,  
7 does this indicate that you provided notice to all offset  
8 operators?

9           A           Yes. Exhibit Seven is our notice to our  
10 offset operators and they are listed on the second page of  
11 that exhibit. The notice was sent out November of 1986.

12                           MR. HALL: At this time we'd  
13 move admission of Exhibits One through Seven and that con-  
14 cludes our direct of the witness.

15                           MR. CATANACH: Exhibits One  
16 through Seven will be admitted into evidence.

17

18                           CROSS EXAMINATION

19 BY MR. CATANACH:

20           Q           Mr. Prentice, you stated that you were  
21 having mechanical problems with the Montoya.

22           A           Yes.

23           Q           What were those mechanical problems?

24           A           The Montoya is pumped with a coal (sic)  
25 pump and we have spent -- from April to August of this year  
we've spent approximately \$15,000 with tubing failures, pump

1 failures, downhole problems.

2 Q When was the last time the Montoya was  
3 produced?

4 A It was shut in in October of 1986.

5 Q Has that Montoya water production stabi-  
6 lized or is that increasing or do you have some production  
7 history on that?

8 A Looking back on Exhibit Two -- I mean,  
9 I'm sorry, Exhibit Four, Page Two, it shows the water pro-  
10 duction up there. The water is the top line. From the last  
11 half of 1985 through mid-'86 it looks like it was making ap-  
12 proximately 70 barrels a day.

13 It did -- it did come up in mid-1986, ap-  
14 proaching 200, prior to shut-in.

15 Q Will the -- will the amount of water pro-  
16 duced from the Montoya zone, will that have any adverse af-  
17 fect on the well itself?

18 A I believe if we keep it pumped down --  
19 are you asking whether the waterflood can have an adverse  
20 affect on the Montoya?

21 Q Well, no, on the wellbore as a whole.

22 A Wellbore as a whole? I think if we can  
23 keep the well pumped down, that 100 to 150 barrels a day is  
24 not an exorbitant amount to handle. If we keep the wellbore  
25 pumped down and keep it treated I don't think it will be a

1 problem.

2 Q And you do intend to keep it pumped off  
3 in --

4 A Yes, we -- ARCO's policy in all the wells  
5 it operates is keep it pumped down as low to the seating  
6 nipple as possible.

7 Q What type of pump do you intend to uti-  
8 lize in this thing?

9 A I suspect we'll utilize a rod pump in-  
10 side, probably, 2-1/2 inch tubing.

11 Q Do you have any idea about the reserves  
12 that may be lost if you're not allowed to commingle?

13 A If we're not allowed to commingle, prob-  
14 ably reserves on the order of 3-to-5000 barrels will be lost  
15 of primary reserves.

16 If we are forced to plug the well, then  
17 the well becomes less than desirable to use in a proposed  
18 waterflood, and the reserves of that are unknown at this  
19 point per well.

20 Q Do you anticipate your Blinebry produc-  
21 tion to come up after you acidize as suggested?

22 A We would acidize with the hope of in-  
23 creasing production. How much is unknown; maybe a couple of  
24 barrels.

25 Q So you don't think it would have a great



1 impact on the allocation?

2           A           At this point, no, I don't think it will  
3 have a tremendous impact.

4                           MR. CATANACH: I have no  
5 further questions of the witness.

6                           MR. HALL: We have nothing  
7 further in the case.

8                           MR. CATANACH: There being  
9 nothing further in Case 9084, it will be taken under  
10 advisement.

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12                                   (Hearing concluded.)

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C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9084, heard by me on February 18, 1987.  
David R. Catron, Examiner  
Oil Conservation Division

