

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
10 November 1982

EXAMINER HEARING

IN THE MATTER OF:

Application of Getty Oil Company for down- CASE  
hole commingling, Rio Arriba County, New 7723  
Mexico.

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

W. Perry Pearce, Esq.  
Legal Counsel to the Division  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

For the Applicant:

William F. Carr, Esq.  
CAMPBELL, BYRD, & BLACK P. A.  
Jefferson Place  
Santa Fe, New Mexico 87501

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

2

I N D E X

A. W. LANDERS

Direct Examination by Mr. Carr

3

Cross Examination by Mr. Nutter

14

E X H I B I T S

Applicant Exhibit One, Plat

5

Applicant Exhibit Two, Completion Report

6

Applicant Exhibit Three, Documents

7

Applicant Exhibit Four, Tabulation

9

Applicant Exhibit Five, Pressure Data

10

Applicant Exhibit Six, Water Analyses

12

1  
2 MR. NUTTER: We'll call next Case  
3 Number 7723.

4 MR. PEARCE: That is on the applica-  
5 tion of Getty Oil Company for downhole commingling, Rio Arriba  
6 County, New Mexico.

7 MR. CARR: May it please the Examiner,  
8 my name is William F. Carr, with the law firm Campbell, Byrd,  
9 and Black, P. A., of Santa Fe, appearing on behalf of Getty  
10 Oil Company.

11 I have one witness who needs to be  
12 sworn.

13  
14 (Witness sworn.)

15  
16 A. W. LANDERS  
17 being called as a witness and being duly sworn upon his oath,  
18 testified as follows, to-wit:

19  
20 DIRECT EXAMINATION

21 BY MR. CARR:

22 Q Will you state your full name and place of  
23 residence?

24 A My name is A. W. Landers. I'm employed by  
25 Getty Oil Company in Denver, Colorado, as a Senior Petroleum

1  
2 Engineer.

3 Q Mr. Landers, have you previously testified  
4 before this Commission or one of its examiners?

5 A I have not.

6 Q Would you review for Mr. Nutter your educa-  
7 tional background and your work experience?

8 A I graduated from the University of Texas,  
9 January, 1958, with a BS degree in petroleum engineering.

10 I've been employed by Getty Oil Company  
11 almost 25 years, and worked in various locations throughout  
12 the U.S.

13 Q Are you familiar with the wells that are the  
14 subject of this application?

15 A I am.

16 Q Are you familiar with the general area?

17 A Yes.

18 MR. CARR: Are the witness' qualifi-  
19 cations acceptable?

20 MR. NUTTER: They are.

21 Q Mr. Landers, will you briefly state what  
22 Getty seeks with this application?

23 A Getty wishes to commingle the Mesaverge gas  
24 with a Gallup-Dakota commingled zone in the bottom of the  
25 two wells, the Roberts 3A and 6A.

1  
2 Q Mr. Landers, have you prepared certain ex-  
3 hibits for introduction in this case?

4 A Yes, I have.

5 Q Will you please refer to what has been marked  
6 for identification as Getty Exhibit Number One, identify  
7 this, and explain what it is and what it shows?

8 A Exhibit Number One is a plat of a portion of  
9 Rio Arriba County, New Mexico, showing the -- our Roberts and  
10 leases, which -- and also the Ojito Gallup-Dakota  
11 Field, which is covered, which is applicable to these two  
12 wells that we're applying for.

13 Q What is the shaded area indicating?

14 A The yellow area?

15 Q Yes, sir.

16 A This is all Getty acreage, 100 percent Fed-  
17 eral acreage, by the way.

18 Q What do the wells marked in green show?

19 A The wells marked in green have been approved  
20 by a previous order for commingling in the Gallup-Dakota and  
21 Mesaverde horizons.

22 MR. CARR: Mr. Nutter, that is Oil  
23 Conservation Division Order No. R-5500, which approves the  
24 commingling in the wells indicated in green.

25 Q Mr. Landers, what are the wells shaded in

1  
2 red or orange?

3 A. The two red wells are the wells which we  
4 wish to commingle under this application, in all three hori-  
5 zons.

6 Q Will you now refer to what has been marked  
7 for identification as Exhibit Number Two and review this for  
8 Mr. Nutter?

9 A Exhibit Number Two is the completion reports  
10 for each horizon in each of the two wells.

11 Do you wish me to go through the completion  
12 history?

13 Q It would be helpful.

14 A All right. The Roberts No. 3-A was perfor-  
15 ated from 5254 to 5870, selectively, in the Mesaverde and  
16 frac'd with 71,500 gallons of frac gel with 132 pounds of  
17 20/40 sand.

18 The Gallup was then perforated from 6894 to  
19 7146, selectively, and then frac'd with 79,000 gallons of  
20 frac fluid and 153,000 pounds of 20/40 sand.

21 The Dakota was then perforated from 7756  
22 to 7930 and frac'd with 83,820 gallons of frac fluid and  
23 114,050 pounds of 20/40 sand.

24 Well No. 6-A was the perforated from 5250  
25 to 5861 in the Mesaverde and then frac'd with 90,000 pounds

1  
2 or gallons of potassium chloride gel and 74,000 pounds 20/40  
3 sand.

4 The Gallup was perforated from 6865 to 7164  
5 and frac'd with 4950 gallons potassium chloride water and  
6 171,000 gallons of gelled water and 180,000 pounds 20/40 sand.

7 And the Dakota in this well was then perfor-  
8 ated from 7740 to 7906 and frac'd with 96,000 gallons of  
9 potassium chloride water and 117,000 pounds of 20/40 sand.

10 And this is reflected on the completion re-  
11 ports filed with the Commission.

12 Q Will you now refer to what has been marked  
13 Getty Exhibit Number Three and review this?

14 A Exhibit Number Three are two -- are four  
15 exhibits attached to that particular exhibit, all as Exhibit  
16 Three, and they indicate the existing completions and per-  
17 forations as shown and then a proposed commingling applica-  
18 tion, or a proposed completion, I'm sorry, that we wish to  
19 file for.

20 The wells are Well No. 3-A, we have two  
21 strings of 2-1/16 inch tubing run in the well. We find that  
22 the Gallup-Dakota will not flow. We have attempted to -- to  
23 run a plunger in these wells to lift the Gallup-Dakota and  
24 it will not produce.

25 We propose to change the 2-1/16th twin

1  
2 strings to one string, replacing the packer with a hydraulic  
3 hold-down and produce the fluid, produce the gas up the annular  
4 space to a low pressure system and then pump by conventional  
5 pumping equipment all the liquids off the bottom.

6 That will be the Gallup-Dakota as well as  
7 the condensate produced from the Mesaverde.

8 Q Now what is the second page of this exhibit?

9 A The second page is a -- indicates the per-  
10 forations on the induction electric log. We cut these out  
11 just to make them fit the page so it wouldn't be too long.

12 Q It just shows the perforations currently in  
13 the 3-A Well.

14 A Yes, as described on this sketch on page  
15 one.

16 Q Will you now refer to page number three of  
17 this exhibit?

18 A Page number three is the Roberts No. 6-A,  
19 which currently has two strings of 2-3/8ths inch tubing and  
20 we are unable to produce the Gallup-Dakota from this well,  
21 also. We have attempted to use a plunger lift without suc-  
22 cess. We would just prefer to run one string of 2-3/8ths  
23 inch tubing and run conventional rods in the well, release  
24 the packer. For the lease and this method of oper-  
25 ation we run into difficulty with gas volume operations with



1  
2 the producing blow-up packer. We're trying to avoid these  
3 gas lagging problems and the gas pound and rod difficulty  
4 which we have associated with this kind of operation.

5 Q And then the last page of this exhibit again  
6 shows the perforations in the 6-A Well.

7 A That's correct. The exact footages are shown  
8 on this diagrammatic sketch.

9 Q Do you have gas/oil ratio tests on each of these  
10 zones?

11 A We have such a short history where we found  
12 the gas/oil ratio tests were not -- were not accurate. We  
13 have tried to produce these wells and we haven't got a suf-  
14 ficient test that would really give us an accurate informa-  
15 tion. We haven't produced the Gallup-Dakota. We swabbed  
16 the well; it would not flow; just for brief periods, just  
17 enough to get us a test, and that's about all we have.

18 Q Will you refer to Exhibit Number Four and  
19 explain to Mr. Nutter what this shows?

20 A Exhibit Number Four indicates our first two  
21 Mesaverde zones with the gas production and the condensate  
22 production from each well by month, and we also have the --  
23 the GOR's calculated from this, which is not too applicable  
24 to the Mesaverde, since it is a gas zone producing conden-  
25 sate, and then we have our GOR from the yearly production,

1  
2 which we have given an average, as well as having cumulative  
3 gas and oil on each zone.

4 Now, at the lower half of the page we have  
5 all of the Gallup-Dakota and this is an oil versus gas pro-  
6 duction history by each well.

7 You'll notice in both cases that the 3-A and  
8 6-A have only produced parts of two months and these were  
9 only from swab information, the wells would only flow for  
10 short periods and die.

11 Q What is the source of the data on this ex-  
12 hibit?

13 A This is data that's filed with the Oil and  
14 Gas Commission.

15 Q Do you have bottom hole pressure data on  
16 the zones in each of the subject wells?

17 A Yes, we do.

18 Q Would you refer to Exhibit Number Five and  
19 review that?

20 A In Well No. 3-A we ran - - these original  
21 pressures, by the way, on the well before it began production,  
22 or tried to produce it, we ran -- it was shut in approximately  
23 six weeks. We ran the original pressure on the Mesaverde  
24 for No. 3-A was 1195 pounds and the pressures on the Gallup-  
25 Dakota were 2342 pounds.

1  
2 The pressures run on the Well No. 6-A in the Mesa-  
3 verde were 1583 pounds pressure, and the Gallup-Dakota were  
4 2557 pounds, pounds per square inch.

5 Q What conclusions can you reach concerning  
6 the pressure differentials and the effect they might have  
7 on migration of the hydrocarbons between zones in each of  
8 these wells?

9 A If this application is approved we don't  
10 believe that the Mesaverde could enter the Gallup-Dakota  
11 horizons, due to the higher pressure in the formation, and  
12 that the fluids, the fluid levels as shown on these -- also  
13 on this Exhibit Five, that the fluids would not rise up to  
14 reach the Mesaverde formation; therefor, we don't believe  
15 that either formation would -- any of the formations would  
16 be damaged in any manner, or any zones.

17 Q Do you have a recommendation to make to the  
18 Examiner as to the allocation of production between the two  
19 zone -- to each of the zones?

20 A Yes, I do.

21 Q And are these recommendations the same for  
22 each of the wells involved in this application?

23 A Yes, they are. We took an average of sur-  
24 rounding wells to determine an accurate, I mean a more accurate  
25 figure based on what we would consider being average, and we

1  
2 recommend that 88 percent of the Gallup-Dakota -- I mean 88  
3 percent of the oil be allocated to the Gallup-Dakota and 12  
4 percent be allocated to the Mesaverde.

5 And of the gas we recommend that 87 percent  
6 of the gas be Mesaverde and 13 percent be Gallup-Dakota.

7 Q Would the fluids produced from these wells  
8 be compatible?

9 A Yes, they would. Historically these wells --  
10 these fluids are quite similar.

11 Q Would you refer to Exhibit Number Six and  
12 review this for Mr. Nutter?

13 A These are water analyses taken from each of  
14 the horizons in the wells under question. We have examined  
15 these and find no significant difficulties, even though the  
16 Gallup-Dakota is slightly more salty. We do not see any  
17 problem with the water as far as mixing or precipitates or  
18 anything. There are no sulphurs present and would readily  
19 mix if we was to dispose of them in some manner.

20 Q So there would be no problem with compati-  
21 bility?

22 A That's correct.

23 Q Are the reservoir characteristics of the  
24 pools involved in this case such that underground waste would  
25 not be caused by the proposing commingling?

1  
2 A That's right, we have no problem.

3 Q In your opinion will granting this applica-  
4 tion result in the increased recovery of hydrocarbons?

5 A Certainly would allow us to produce the  
6 formations in an efficient manner.

7 Q In your opinion will granting this applica-  
8 tion be in the best interest of conservation, the prevention  
9 of waste and the protection of correlative rights?

10 A Yes, it would.

11 Q Were Exhibits One through Six either prepared  
12 by you or can you testify to their accuracy of your own know-  
13 ledge?

14 A They were prepared by me and the maps were  
15 prepared by our drafting department at my direction.

16 Q And have you reviewed them?

17 A Yes, I have.

18 Q Are they accurate?

19 A Yes, they are.

20 MR. CARR: At this time, Mr. Nutter,  
21 we would offer into evidence Getty Exhibits One through Six.

22 MR. NUTTER: Exhibits One through  
23 Six will be admitted in evidence.

24 MR. CARR: That concludes our direct  
25 examination of this witness.

## CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Landers, you mentioned your allocation formula that you were suggesting. Now, the gas would be 87 percent to the Mesaverde and 13 percent to the Gallup-Dakota?

A That's correct.

Q And what was -- how was the allocation of oil again?

A 88 percent to the Gallup-Dakota and 12 percent to the Mesaverde.

Q Now what is that actually based on, Mr. --

A It's based on all of the producing wells surrounding this; the ones that have any histories.

Q Well, most of those are commingled, though, aren't they?

A No, they aren't.

Q Well now, your Exhibit Number One showed a whole bunch of commingled wells.

A That's right. We applied for this application -- made application for these wells but we did not do that work, commingling. We found that the -- like the Dakota might be near its economic limits so we went ahead and plugged the Dakota and came back up and produced the

1  
2 Mesaverde on some of those. We've got them -- they're indi-  
3 vidually -- there is no commingled wells there now.

4 Q I see, although they were authorized by that  
5 order number that you mentioned earlier --

6 A That's correct.

7 Q 5500 or something?

8 A Yes, sir.

9 Q Okay. Now, are these producing, production  
10 figures that are shown on Exhibit Four the basis for that  
11 allocation formula?

12 A Well, this -- I took the latest history of  
13 daily production that I could get from which I have not -- we  
14 took an average from -- a daily average -- well, my foreman  
15 actually gave me and figured those, that production history.

16 I have an updated figure that was given to  
17 me just before this hearing and I wrote it down on here, how-  
18 ever, these two particular wells are not producing at all.

19 Q They're not producing from the Gallup-Dakota  
20 at all, then.

21 A Not producing from the Mesaverde, either one.  
22 We did not wish to draw the pressure down unusually low in  
23 case we should have some difficulty.

24 Q I see.

25 A We wanted to keep them, maintain them at

1  
2 as low a pressure as --

3 Q So try to keep it up and then draw them  
4 down simultaneously.

5 A Right. If this application is approved, then  
6 we would go ahead and not draw one formation down sufficiently  
7 low that we could have problems.

8 Q So these pressures that you gave us are  
9 pretty reflective of the existing pressures in the wells.

10 A Yes. For instance, in our No. 6-A we've  
11 only produced 339 barrels of oil out of that well. And Well  
12 No. 3-A we've only produced, we've produced 406 barrels of  
13 oil.

14 Q From the Gallup.

15 A From the Gallup-Dakota, so we haven't really  
16 we've used them mostly to swab fluids and we have no pro-  
17 duction history, actually.

18 Q Now I noticed on your completion reports --

19 A Yes, sir.

20 Q -- Mr. Landers, now this No. 3-A, it made  
21 3-million on the calculated 24-hour rate from the Mesaverde  
22 with 40 barrels of condensate but the Gallup-Dakota only made  
23 210 Mcf on a 24-hour rate with 200 barrels of oil and 288  
24 barrels of water. Is that water going to continue to be  
25 produced from that zone?



1  
2 A We have never been able to clean these wells  
3 up sufficiently to really produce them. We expect that the  
4 wells will average out about 10 barrels per zone, in other  
5 words approximately 20 barrels per day, based on past history  
6 in the surrounding wells. These wells, actually, we have not --  
7 we swabbed the wells trying to recover all the load fluids  
8 and the wells wouldn't flow so we used the flow test to file  
9 with the Commission, and of course, it's only a 3-hour test  
10 and then they were calculated 24 hours.

11 Q So these wells haven't cleaned up when these  
12 tests were made.

13 A That's correct. We anticipate, like I say,  
14 we anticipate about 20 barrels per day per well, which is  
15 about the average for the wells there. The Mesaverde and  
16 Gallup-Dakota produce about ten barrels per day each.

17 Q You don't think this 336 barrels of water  
18 from 6-A in the Mesaverde would be typical, then?

19 A No, I do not. Well, this 3-hour, you know,  
20 our 3-hour tests that are used in most cases to prevent  
21 waste also, they're calculated and they're not really real  
22 good.

23 MR. NUTTER: Are there any other  
24 questions of Mr. Landers? He may be excused.

25 Do you have anything further, Mr.

1  
2 Carr?

3 MR. CARR: Nothing further, Mr. Nutter.

4 MR. NUTTER: Does anyone have anything they  
5 wish to offer in Case Number 7723?

6 We'll take the case under advisement.

7  
8 (Hearing concluded.)  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

## C E R T I F I C A T E

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 CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7723 heard by me on 11/10 1982.

[Signature], Examiner  
Oil Conservation Division.