

1 STATE OF NEW MEXICO  
2 ENERGY AND MINERALS DEPARTMENT  
3 OIL CONSERVATION DIVISION  
4 STATE LAND OFFICE BLDG.  
5 SANTA FE, NEW MEXICO

6 8 August 1984

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Amoco Production Com- CASE  
10 pany for downhole commingling, Rio 8295  
11 Arriba County, New Mexico.

12 BEFORE: Richard L. Stamets, Examiner  
13

14 TRANSCRIPT OF HEARING  
15

16 A P P E A R A N C E S  
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19  
20 For the Oil Conservation Division: W. Perry Pearce  
21 Attorney at Law  
22 Oil Conservation Commission  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

23 For the Applicant: Gary L. Paulson  
24 Attorney at Law  
Amoco Production Company  
17th and Broadway  
25 Denver, Colorado 80202

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A P P E A R A N C E S

For Amoco Production Co.: William F. Carr  
Attorney at Law  
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P. O. Box 2208  
  
Santa Fe, New Mexico 87501

I N D E X

CHARLES BOYCE

|                                   |    |
|-----------------------------------|----|
| Direct Examination by Mr. Paulson | 4  |
| Cross Examination by Mr. Stamets  | 13 |

E X H I B I T S

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3 MR. STAMETS: We'll go ahead  
4 and call Case 8295.

5 MR. PEARCE: That case is on  
6 the application of Amoco Production Company for downhole  
7 commingling, Rio Arriba County, New Mexico.

8 Okay, I'd ask for appearances  
9 in this matter.

10 MR. PAULSON: Gary Paulson, ap-  
11 pearing in association with Mr. Bill Carr of the firm of  
12 Campbell, Byrd and Black. Entry of appearance should be in  
13 your file.

14 MR. PEARCE: Are there other  
15 appearances in this matter?

16 Do you propose one witness, Mr.  
17 Paulson?

18 MR. PAULSON: Yes, Mr. Pearce,  
19 we have one witness and four exhibits.

20 (Witness sworn.)

21 CHARLES BOYCE,  
22 being called as a witness and being duly sworn upon his  
23 oath, testified as follows, to-wit:

24 DIRECT EXAMINATION

25 BY MR. PAULSON:

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Q Would you state your name for the record,  
please?

A My name is Charles Boyce, B-O-Y-C-E.

Q And by whom are you employed?

A Amoco Production Company.

Q In what capacity?

A Senior Petroleum Engineering Associate in  
the Denver Region Office.

Q And have you previously testified before  
this Commission in an expert capacity as a petroleum en-  
gineer?

A Yes.

Q And are you familiar with the application  
that's been filed by Amoco in this cause?

A Yes.

Q And have you prepared exhibits in antici-  
pation of testifying here today?

A Yes.

Q And were those exhibits prepared by you  
or under your supervision and control?

A Yes.

MR. PAULSON: Mr. Examiner, are  
the witness' qualifications accepted?

MR. STAMETS: Yes.

Q Mr. Boyce, would you indicate for the  
Examiner what is being sought by this application?

A We are seeking approval to commingle the

1  
2 Gallup and Dakota oil producing zones in our Jicarilla  
3 Apache "A" 118 No. 8 Well, which is located in the southeast  
4 southeast quarter of Section 35, 16 North, 3 West, in Rio  
5 Arriba County, and further, for blanket approval of future  
6 completions in those horizons in our 4-section Jicarilla  
7 Apache "A" 118 Lease, which comprise Sections 25, 26, 35 and  
8 36 in Township 26 North, Range 3 West.

8 Q Prior to the filing of this application,  
9 Mr. Boyce, did you discuss the matter with the Aztec Dis-  
10 trict staff?

11 A We did. The location of the well, I  
12 might refer to Exhibit Number One, basically, to make it a  
13 little more clear, in the southeast southeast of Section 35,  
14 is less than a mile from the nearest existing Gallup-Dakota  
15 completion in Section 2 just to the south.

16 This well, the Union Texas McCroden "C"  
17 1, and other wells to the southwest, actually have resulted  
18 in the extension of the Ojito Gallup-Dakota Pool, which has  
19 been established for several years, and under the rules of  
20 that pool the Gallup-Dakota can be commingled.

21 The District Office indicated that with  
22 that in mind our "A" 118 Well could actually be approved ad-  
23 ministratively under normal procedures, since it is within a  
24 mile of an existing pool; however, we are requesting blanket  
25 approval for this 4-section lease.

26 We have three additional wells authorized  
27 to drill at this time; we anticipate several more, and to

1  
2 allow the proper planning for the drilling and completion of  
3 those wells, and to minimize the reporting necessary and the  
4 Commission and District staff's time, we wish to come to a  
5 hearing and request that blanket approval.

6 MR. STAMETS: Let's stop a  
7 minute and go off the record, Sally.

8 (Thereupon a discussion was had off the record.)

9 MR. STAMETS: Back on the re-  
cord.

10 Q Mr. Boyce, would you refer to Exhibit One  
11 and identify that exhibit, please, and explain its signifi-  
12 cance to this application?

13 A Exhibit One basically shows the 4-section  
14 lease which Amoco controls 100 percent of the working inter-  
15 est on, in which we ask blanket approval of Gallup-Dakota  
16 commingling on our existing well and on subsequent wells we  
drill.

17 Q Now, the dotted line on Exhibit One re-  
18 lates to what?

19 A Those are the limits of our 4-section  
20 Jicarilla Apache A-118 lease.

21 Q That's the area for which you seek blank-  
22 et approval, is that right?

23 A That's correct, yes.

24 Q Is the ownership common in each of these  
25 zones that would be commingled if this application were  
granted?

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A Yes, both the working interest ownership and the royalty ownership is identical in both horizons.

Q And that 4-section area that's identified in Exhibit One, in fact, constitutes one lease, is that correct?

A That's correct.

Q Okay. Anything else with Exhibit One?

A No, that's basically it.

Q Turn --

A It does show the only wells in that area that are completed in or, as with our well, plan to be completed in the Gallup-Dakota. It's basically step-out development from Ojito.

Q And the Ojito Gallup-Dakota Pool is in which direction from this exhibit?

A To the southwest.

Q Okay, so the Union Texas McCrodden No. 4 in Section 3 and the Union Texas McCrodden C-1 in Section 2 are within a mile of the Ojito Gallup-Dakota Pool?

A To my understanding, yes.

Q Okay. Referring then to Exhibit Number Two, would you please identify that exhibit and explain its significance to the application?

A Exhibit Number Two is a schematic depiction of the wellbore of the Jicarilla Apache "A" 118. It shows the casing program used in drilling and completing the well, the existing perforations in the Gallup and Dakota

1  
2 horizons.

3                   The tubing shown is as we will complete  
4 it. Currently we have just completed testing the two zones  
5 and we haven't proceeded to final completion yet, pending  
6 approval. This will be the -- the downhole configuration of  
7 this well and the future wells we drill on these -- on this  
8 lease will be essentially the same.

9                   We did run 7-inch casing on this particu-  
10 lar well. It was a step-out from existing production. We  
11 weren't certain what zones we might find commercially pro-  
12 ductive or how many. We did run the larger casing in anti-  
13 cipation of possible dual completion, depending on the hori-  
14 zons.

15                   With only the Gallup and Dakota commer-  
16 cially productive based on our test here, future wells we  
17 drill will be equipped with smaller casing to minimize the  
18 cost, knowing that we can commingle downhole.

19                   Q           And other than the fact that subsequent  
20 wells drilled within this 4-section area might have perhaps  
21 4-1/2 inch casing, you would anticipate the mechanical setup  
22 to be very similar?

23                   A           That's correct.

24                   Q           Anything else on Exhibit Two?

25                   A           With the exception of the first and  
26 second stage cementing data shown, which did insure isola-  
27 tion of these two zones from each other during completion,  
28 and from other horizons, once they are commingled.



1  
2 Q Would you discuss the typical completions  
3 within the 4-section area, and specifically with reference  
4 to Well "A" 118?

5 A Basically, perforating and sand/water  
6 fracturing the Dakota formation, testing by swabbing and/or  
7 flowing for a sufficient period of time to establish a pro-  
8 duction trend, then setting a temporary bridge plug between  
9 the Dakota and Gallup, proceeding to perforate and  
10 sand/water fracture the Gallup horizons, testing those for a  
11 sufficient time to establish a reasonable production trend,  
12 so that we can properly allocate the production between the  
13 two horizons once they're commingled.

14 Once that testing has been completed, the  
15 retrievable bridge plug would be removed and one string of  
16 tubing run for commingled production.

17 Q Okay. Refer you then to Exhibit Three,  
18 which is a two part exhibit. Would you identify the first  
19 page of that exhibit, please, and explain its significance  
20 to this application?

21 A That is Exhibit Three-A. It shows the,  
22 essentially, three week test period during which we evalu-  
23 ated the performance of the Gallup formation. It shows the,  
24 basically, the hours produced, barrels of oil per day, bar-  
25 rels of water per day, and Mcf of gas per day.

Appeared to be reasonably stabilized, so  
we have a very good idea of what the initial production of  
that horizon will be.

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Q And Three-B?

A Three-B is a similar test of the Dakota horizon. The oil, water, and gas production shown reasonably well stabilized. The water production will probably reduce some. We're probably still recovering some frac water, but I imagine the Dakota will ultimately bring some water along with oil and gas.

Q And your request in this application is that an allocation as between the formations not be made in the order but that the District Supervisor determine allocations based upon this and subsequent tests, is that correct?

A That's my recommendation, yes.

Q Referring then to Exhibit Four, would you identify that exhibit for us, please?

A Exhibit Four shows fluid characteristics and pressure measurements of the Jicarilla Tribal 118 "A" No. 1. That's in the top row.

For the Gallup and Dakota it indicates the measured oil gravity during the short term test. They are basically identical.

The gas/oil ratios probably are very typical, low for the Gallup, 1150 cubic feet per barrel; less than 10,000 for the Dakota, indicating that both are predominantly oil producing horizons.

The bottom hole pressures, shown in the last column, were measured at the time the wells had been

1 produced for a brief period to clean up frac fluids and af-  
2 ter stabilization. They do show pressure which are typical  
3 for these two horizons in the area.  
4

5 The pressure in the Dakota is less than  
6 twice what it is in the Gallup. That is not significant  
7 other than the fact that in administrative approval of com-  
8 minglings one of the requirements is that the lower pres-  
9 sured zone be no less than half the pressure of the higher  
10 pressured zone.

11 The closer they are, an indication of  
12 less crossflow during long shut-in periods of the wells.

13 Q Based upon your examination of the data,  
14 Mr. Boyce, do you have an opinion as to whether pressure  
15 differentials between the two zones would cause crossflow?

16 A During normal production of commingled  
17 oil production, we would assume the well would be on produc-  
18 tion essentially full time. For reasonably short periods of  
19 shut-in and considering the formation characteristics and  
20 the fluid characteristics, I see no reason why any crossflow  
21 which could result in damage would  
22 occur.

23 Q Are the fluids produced from the two  
24 zones compatible?

25 A They are, yes.

Q And are the reservoir characteristics of  
each zone such that underground waste would not be caused by  
commingling?

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A It would not.

Q And this is, in fact, being done in adjacent sections?

A In adjacent sections and in many, actually hundreds of wells within this general area of the basin.

Q Okay. Are these zones within the 4-section area identified generally productive at low rates?

A That's correct. The rates shown on Exhibits Three-A and Three-B are indicative of fairly high initial production. The Gallup indicated a possible 50-barrel per day initial rate after two to three weeks of testing. The Dakota, more near 50 barrels per day. I would expect after commingling and some short term stabilization, the well would produce less than 50 barrels a day initially, and decline thereafter.

Q And is it your opinion that after such decline further production of the well on an economic basis would require that the zones be commingled?

A That's right. Basically these two horizons, at the depth we're looking at and the cost of drilling, cannot be economically developed singly, or at the expense of one being shut in, which -- which would create waste.

Q Is it then your opinion that the granting of the application would be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

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2           A           Yes, it would be.

3                       MR. PAULSON:   That's all the  
4 testimony we have, Mr. Examiner. We would offer Exhibits  
5 One through Four and tender Mr. Boyce for cross examination.

6                       MR. STAMETS: The exhibits will  
7 be admitted.

8                               CROSS EXAMINATION

9 BY MR. STAMETS:

10           Q           Mr. Boyce, do you think it would be ap-  
11 propriate to expand the Ojito Gallup-Dakota to include this  
12 4-section area?

13           A           I believe it would, yes.

14           Q           That would do what Amoco thinks needs to  
15 be done in this area?

16           A           Essentially it would -- it would solve  
17 half of the problem. It would -- it would approve the --  
18 well, basically, it would solve that, yes, within that pool  
19 an administrative approval wouldn't be required, so it would  
20 solve that, that request, yes.

21                       MR. STAMETS: Any other ques-  
22 tions of the witness? He may be excused.

23                               Anything further in this case?

24                               The case will be taken under  
25 advisement.

(Hearing concluded.)

## 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 correct and true record of the proceedings in the Examiner hearing of Case No. 8295 heard by me on 8-8-84.  
Richard D. [Signature]  
Oil Conservation Division