

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

4 December 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Merrion Oil and Gas      CASE  
Corporation for pool creation, as-      8772  
signment of discovery allowable,  
and a special depth bracket allowable,  
McKinley County, New Mexico.

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:      Jeff Taylor  
                                 Attorney at Law  
                                 Legal Counsel to the Division  
                                 Energy and Minerals Dept.  
                                 Santa Fe, New Mexico 87501

For the Applicant:      Tommy Roberts  
                                 Attorney at Law  
                                 Farmington, New Mexico

## I N D E X

## T. GREGORY MERRION

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MR. CATANACH: Call next Case  
Number 8772.

MR. TAYLOR: Application of  
Merrion Oil and Gas Corporation for pool creation, assign-  
ment of discovery allowable, and a special depth bracket al-  
lowable, McKinley County, New Mexico.

MR. ROBERTS: I'm Tommy Rob-  
erts, Attorney at Law from Farmington, New Mexico, on behalf  
of Merrion Oil and Gas Corporation.

I have one witness to be sworn.

(Witness sworn.)

T. GREGORY MERRION,  
being called as a witness and being duly sworn upon his  
oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. ROBERTS:

Q Please state your name and where you  
live.

A T. Gregory Merrion. I live in Farming-  
ton, New Mexico.

I've been employed with Merrion Oil and

1 Gas for the past five months.

2 Q Briefly describe your responsibilities  
3 associated with your employment.

4 A Production and reservoir engineering for  
5 all the properties that Merrion Oil and Gas operates.

6 Q Briefly describe your work experience  
7 prior to being employed by Merrion Oil and Gas Corporation.

8 A I worked as a (not understood) for four  
9 and a half years and then as a production engineer for Mobil  
10 Oil Corporation for four and a half months.

11 Q What is your post highschool educational  
12 background?

13 A I received a degree in petroleum  
14 engineering from the Colorado School of Mines.

15 Q Are you familiar with the operations of  
16 Merrion in the area which is the subject of this applica-  
17 tion?

18 A Yes.

19 Q Mr. Merrion, would you briefly describe  
20 the purpose of this application?

21 A The purpose of this is to creage a new  
22 pool and establish and oil discovery allowable and a special  
23 depth bracket allowable for that new pool.

24 Q Please turn to what has been marked as  
25 Exhibit Number One and identify the exhibit.

1           A           Exhibit Number One is a New Mexico Oil  
2 Conservation Division's Well Completion Report for the Arena  
3 Blanca Well No. 1. The Arena Blanca Well No. 1 is located  
4 in Unit I, 2360 feet from the south line and 1200 feet from  
5 the east line of Section 36, Township 20 North, Range 5  
6 West, McKinley County, New Mexico.

7           Q           What type of well is the Arena Blanca,  
8 and in what formation is it completed?

9           A           The well is the Entrada Formation.

10          Q           What was the date of completion of this  
11 well, and would you identify the producing interval in the  
12 well.

13          A           The Entrada formation is the only produc-  
14 ing interval.

15          Q           Turn to Exhibit Number Two, please, and  
16 identify that exhibit and explain its significance to this  
17 case.

18          A           Exhibit Number Two is an Entrada Pool lo-  
19 cation map. It's intended to show the offsetting Entrada  
20 Pools in the area of the proposed Arena Blanca Pool.

21          Q           What conclusions, if any, do you draw  
22 from the information that's represented on this exhibit?

23          A           The nearest Entrada oil pool is the Ojo  
24 Encino, located over three miles away.

25          Q           Turn to what has been marked as Exhibit

1 Three, please, and identify that exhibit.

2 A Exhibit Number Three is a structure map  
3 of the Entrada Pool in Section 36, Township 20 North, Range  
4 5 West.

5 Q What are the sources of information for  
6 the construction of this map?

7 A The map was constructed from three inter-  
8 secting seismic lines in addition to well control from the  
9 Arena Blanca No. 1 and the State 36 "A" 1, and 36 "A" 2.

10 Q Please refer to the map and briefly des-  
11 cribe the information depicted on the map.

12 A The movable oil column is shown in brown.  
13 Merrion Oil and Gas's lease is shown -- is outlined in yel-  
14 low and the proposed pool boundary is outlined in blue.

15 The Arena Blanca No. 1 is the discovery  
16 well and is shown in Unit I on the map.

17 Q What area do you propose to comprise the  
18 horizontal limits of the proposed pool?

19 A The horizontal pool boundary shall in-  
20 clude Units G, H, I, and J of Section 36, Township 20 North,  
21 Range 5 West, McKinley County, New Mexico.

22 Q What conclusions, if any, do you draw  
23 from the information represented in Exhibit Number Three  
24 with respect to the purpose of this application?

25 A Exhibit Number Three shows the Entrada

1 Oil Reservoir is located within the proposed pool boundary.

2 Q Okay, Mr. Merrion, would you please turn  
3 to what has been marked as Exhibit Number Four and identify  
4 that exhibit and explain its significance to this applica-  
5 tion?

6 A Exhibit Number Four is a log cross sec-  
7 tion of the three Entrada wells that have been drilled in  
8 Section 36.

9 The top of the Entrada is the first sand  
10 encountered below the characteristic high resistivity streak  
11 that identifies the Todilto formation. The Entrada is shown  
12 in yellow on the exhibit.

13 Q What conclusions can you draw or do you  
14 draw from the information represented on this exhibit with  
15 respect to the purpose of the application?

16 A The exhibit indicates how the Entrada top  
17 is chosen from logs and show the Arena Blanca No. 1 is per-  
18 fed in the Entrada oil column.

19 Q What depths or geologic formation to you  
20 propose to comprise the vertical limits of the proposed  
21 pool?

22 A The vertical limits shall be the Entrada  
23 formation.

24 Q What is the amount of the oil discovery  
25 allowable you are requesting to be assigned to the Arena

1 Blanca No. 1 Well area and what is the basis of that re-  
2 quest?

3 A Merrion Oil and Gas Corporation is ap-  
4 plying for a discovery allowable of 27,505 barrels of oil.  
5 The amount was determined by multiplying the depth of ground  
6 level to the top perfs, 5101 feet by five barrels of oil in  
7 accordance with the rules and regulations of the New Mexico  
8 Oil Conservation Commission.

9 Q In your opinion does the Entrada forma-  
10 tion as encountered in the Arena Blanca No. 1 Well consti-  
11 tute a new common source of supply?

12 A Yes.

13 Q Briefly summarize the data that supports  
14 that opinion.

15 A Seismic and well control data define a  
16 distinct new pool. In addition, the nearest Entrada reser-  
17 voir is over three miles away.

18 Q What name do you propose to be assigned  
19 for this new, common source of supply?

20 A The Arena Blanca Entrada Oil Pool.

21 Q Does Merrion wish to apply for a special  
22 depth bracket allowable for each well drilled in the pro-  
23 posed new pool?

24 A Yes.

25 Q Why is the special depth bracket allow-



1     able necessary?

2                   A             The discovery pool, as in the case of  
3     offsetting Entrada Pools, is capable of oil rates much high-  
4     er than the regular depth bracket allowable.

5                   Q             Mr. Merrion, in your opinion what would  
6     be the probably consequences of being limited to the regular  
7     depth bracket allowable?

8                   A             Since oil cut decreases rapidly, produc-  
9     ing the available reserves at the regular depth bracket al-  
10    lowable would require production equipment be up-sized fre-  
11    quently. Each equipment size change is very expensive and  
12    results in down time.

13                                If production equipment were sized to  
14    handle available production initially, the oil production  
15    would exceed the regular depth bracket allowable. The well  
16    would have to be shut in a portion of each month, creating  
17    an operational problem since the high 4-point oil will set  
18    up in the tubing flow lines and production equipment if it  
19    stops moving.

20                                Neither method of operation is prudent  
21    since the increased operating expenses result in a premature  
22    economic limit and therefore a reduction in the recoverable  
23    oil.

24                   Q             Mr. Merrion, would you refer to what has  
25    been marked as Exhibit Number Five and identify that exhibit

1 and explain its significance to this application?

2 A Exhibit Number Five is a decline curve  
3 showing the predicted performance of the Arena Blanca No. 1-  
4 W. Actual production is shown through November. The pre-  
5 dicted performance is patterned after a similar Eagle Mesa  
6 Entrada Well.

7 Production is expected to increase when a  
8 commercial pump is run early in 1986 and then again when  
9 planned gas injection from an offset well affects the Arena  
10 Blanca No. 1. The oil is shown in yellow. The total fluid  
11 rate is shown in blue, and the regular depth bracket allow-  
12 able is marked in pink.

13 Q Mr. Merrion, what conclusions can you  
14 draw from this data with respect to the purpose of the ap-  
15 plication?

16 A The curve shows that the subject well is  
17 expected to produce for several years at a rate much greater  
18 than the regulation depth bracket allowable.

19 Q In your opinion is the Arena Blanca No. 1  
20 Well similar to other Entrada wells located in other Entrada  
21 pools in the area?

22 A Yes, it is similar to wells in the Eagle  
23 Mesa Entrada Pool.

24 Q In what respect is it similar to the  
25 Eagle Mesa Entrada Pool wells?

1           A           Both Entrada reservoirs are (not clear)  
2 sand deposits.    The permeability, zone thickness, oil  
3 gravity, and porosity are similar in the Arena Blanca and  
4 the Eagle Mesa Fields. Both reservoirs produce under a  
5 strong water drive.

6           Q           Did any of the Entrada pools in this area  
7 receive a special depth bracket allowable?

8           A           Yes. All offsetting Entrada pools, in-  
9 cluding the Eagle Mesa, have received special allowables.

10          Q           What special depth bracket allowable was  
11 established for these pools?

12          A           750 barrels of oil per day per well.

13          Q           And what special depth bracket allowable  
14 does Merrion request for its proposed pool?

15          A           750 barrels of oil per day per well.

16          Q           Mr. Merrion, in your opinion will the  
17 granting of this application result in the prevention of  
18 waste and the protection of correlative rights and be in the  
19 best interest of conservation?

20          A           Yes.

21          Q           Were Exhibits One through Five either  
22 prepared by you or at your direction and under your supervi-  
23 sion?

24          A           Yes.

25                           MR. ROBERTS: Mr. Examiner, I

1 move the admission of Exhibits One through Five into the re-  
2 cord and I have no further questions of this witness on  
3 direct examination.

4 MR. CATANACH: Exhibits One  
5 through Five will be admitted as evidence.

6  
7 CROSS EXAMINATION

8 BY MR. CATANACH:

9 Q Mr. Merrion, referring to Exhibit Number  
10 Two, have there been any wells drilled in between the Ojo  
11 Encino Pool and the Arena Blanca Pool?

12 A Yes, there have. If you'll refer to Ex-  
13 hibit Number Four and Exhibit Number Three.

14 On Exhibit Number Three are marked two  
15 wells that were drilled by Fallon Exploration (sic). They  
16 are the State 36 A-2 and the State 35 A-1. Both of those  
17 wells penetrated the Entrada Reservoir and both of them were  
18 dry holes.

19 And if you'll look on Exhibit Number  
20 Four, you can see why they were dry holes. The wells, the  
21 Entrada sandstone consists a bunch of dunes and basically  
22 the 36 A-1 and the 36 A-2 both missed the dune.

23 The Arena Blanca No. 1 penetrated the  
24 dune.

25 So those two dry holes helped to further

1 define the Arena Blanca Pool that we are proposing to be  
2 created. It definitely doesn't extend in those two direc-  
3 tions.

4 Q Mr. Merrion, are you proposing or do you  
5 plan to propose any special pool rules for this new pool as  
6 far as spacing or well location?

7 A At this time we do not propose any  
8 special rules.

9  
10 QUESTIONS BY MR. CHAVEZ:

11

12 Q Mr. Merrion, what type of a drive exists  
13 in the pool?

14 A It produces under a water drive.

15 Q Is that to be interpreted from the non-hor-  
16 izontal line you show on Exhibit Four as the oil column?

17 A Yes. The oil/water contact is in fact  
18 tilted.

19 Q Now you testified that the oil had a low  
20 pore point. What is the pore point of the oil?

21 A Approximately 60 degrees.

22 Q Is that estimated or measured?

23 A They -- it has been measured and I'm un-  
24 sure of the exact and therefore what I've given you is  
25 close.

1 Q Will the high rate of production expected  
2 by the commercial pump installation tend to cause any prob-  
3 lems with water coning around the perforations?

4 A It won't cause any problems. We are  
5 looking to our offset Entrada Field for the best way to pro-  
6 duce our field. Those fields have been produced at high  
7 rates, 4-to-6,000 barrels of fluid a day with submersible  
8 pump, and they have not shown that the effects are damaging  
9 to the reservoir.

10 Q On your Exhibit Number Five is the yellow  
11 line depicting oil production, projected oil production, is  
12 that based on past performance of the other Entrada Pools?

13 A Yes, it is; however, the effects of the  
14 proposed offset gas injection well is something that Merrion  
15 Oil and Gas proposes that needs to be done because the oil  
16 is a 32 degree API oil and it's essentially a dead oil and  
17 it's very viscous and we feel like gas injection will help  
18 reduce that viscosity and improve our recovery from the  
19 field and we intend to do that.

20 That's the only thing that's different.  
21 The general curve is based on the performance of Eagle Mesa  
22 Entrada wells.

23 MR. CHAVEZ: That's all the  
24 questions that I have.  
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RECROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Merrion, do you have the vertical depths of the Entrada formation from your logs?

A Yes. I can give you the top of the Entrada in the Arena Blanca No. 1; however, the well was not drilled through the bottom of the Entrada, so I can't give you that.

Do you want the top?

Q Yes.

A As a matter of fact, it's on the back of Exhibit Number One, 5503.

Q Do you have any idea of the thickness of the Entrada formation in that well?

A Well, the total depth is 5614 and the top is 5503, so that's 111 feet and it's for sure greater than that.

Q That's fine.

A Possibly around 200 feet.

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

Are there any other questions of the witness?

MR. ROBERTS: No.

1 MR. CATANACH: If not, he may  
2 be excused.

3 Is there anything further in  
4 Case 8772?

5 If not, this case will be taken  
6 under advisement.

7

8 (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 that 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 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 report of the proceedings in  
the Examiner hearing of Case No. 8772,  
heard by me on Dec. 4, 1985.

Daniel R. Catamount, Examiner  
Oil Conservation Division