

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

2 December 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Pogo Producing Company      CASE  
for an unorthodox gas well location,      9254  
Lea County, New Mexico.

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor  
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For the Applicant: James G. Bruce  
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## I N D E X

PAUL E. BAUERNFEIND

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1  
2 MR. STOGNER: We will call next  
3 Case Number 9254.

4 MR. TAYLOR: The application of  
5 Pogo Producing Company for an unorthodox gas well location,  
6 Lea County, New Mexico.

7 MR. STOGNER: Call for  
8 appearances.

9 MR. BRUCE: Mr. Examiner, my  
10 name is Jim Bruce from the Hinkle Law Firm in Santa Fe,  
11 representing the applicant.

12 I have one witness to be sworn.

13 MR. STOGNER: Are there any  
14 other appearances in this matter?

15 Will the witness please stand  
16 and be sworn?

17  
18 (Witness sworn.)

19  
20 PAUL E. BAUERNFEIND,  
21 being called as a witness and being duly sworn upon his  
22 oath, testified as follows, to-wit:

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DIRECT EXAMINATION

BY MR. BRUCE:

Q Would you please state your name and city of residence, please?

A My name is Paul Bauernfeind. I'm from Midland, Texas.

MR. STOGNER: Do you want to spell that last name?

A Yes. It's B-A-U-E-R-N-F-E-I-N-D.

MR. STOGNER: How do you pronounce that again?

A Bauernfeind.

Q Would you please state your occupation and name your employer?

A I'm currently a geologist with Pogo Producing Company.

Q And have you previously testified before the OCD as a geologist?

A Yes,

Q And are you familiar with the geology in Case Number 9254?

A Yes.

MR. BRUCE: Mr. Examiner, is the witness considered qualified?

1 MR. STOGNER: Mr. Bauernfeind  
2 is so qualified.

3 Q Briefly, Mr. Bauernfeind, what does Pogo  
4 seek by its application?

5 A Pogo Producing Company is seeking appro-  
6 val for an unorthodox gas well location, 1980 feet from the  
7 north line and 990 feet from the east line, Section 13,  
8 Township 22 South, Range 32 East, Lea County, New Mexico, in  
9 order to test the Wolfcamp, Strawn, and Atoka formations in  
10 the Bootleg Ridge Morrow Gas Pool, with the north half of  
11 Section 13 being dedicated to said well.

12 Q Would you please look at Exhibit A and  
13 describe its contents for the Examiner?

14 A Exhibit A is a land plat showing the lo-  
15 cation of the proposed WBR Federal No. 1 Well and its unor-  
16 thodox location. It's colored in red on the map. It will  
17 be colored in red on all subsequent maps, also.

18 The nearest orthodox location is also de-  
19 picted on the land plat and also subsequent maps, and is lo-  
20 cated 1980 feet from the north line and 1980 feet from the  
21 east line, and it's located just to the west of the unortho-  
22 dox location.

23 Pogo's leasehold in the area is colored  
24 in yellow and all current oil and gas wells that offset Sec-  
25 tion 13 are also depicted.

1 Q And are the offset leaseholders also  
2 identified?

3 A Yes, they are.

4 Q Would you please move on to the structure  
5 map marked Exhibit B and describe its contents?

6 A Exhibit B is a structure map on top of  
7 the Morrow Clastics marker. Scale of the map and all  
8 subsequent maps is one inch equals 2000 feet. The contour  
9 interval of the structure map is one inch is 100 feet.

10 Once again Pogo's leasehold in the imme-  
11 diate area is colored in yellow. The WBR location is  
12 colored in red and --

13 Q Excuse me, the WBR, is that the name of  
14 the proposed well?

15 A Yes. Right.

16 Q All right.

17 A Generally, structurally the regional --  
18 you have regional dip from north down to the south. The  
19 closest producer to the main objective that we're looking  
20 for is the Pogo No. 1 NBR, or No. 2 NBR, which is located to  
21 the east in Section 18.

22 There is a structural nose which trends  
23 generally north/south through Section 13 and this structural  
24 nose, these structural noses depicted on the map were Pre-  
25 Pennsylvanian as far as when they were generated by deforma-

1 tion, and so they were Pre -- they were already present  
2 whenever the Morrow Clastics that we're looking for in this  
3 well were deposited.

4                   The -- we could gain approximately 125  
5 feet in the unorthodox location from the closest producer  
6 and we could gain 175 feet in the orthodox location. That  
7 could be detrimental because of the fact that the sands ap-  
8 pear to be controlled by the particular noses in the area,  
9 and as you get on the crest of these noses the sands tend to  
10 thin and become very tight and low permeability.

11               Q           Thank you. Would you please move on to  
12 Exhibit C, the cross section, and discuss it?

13               A           All right. Exhibit C is a stratigraphic  
14 cross section A-A'. It's depicted on the maps. It tra-  
15 verses from Section 17, 22 South, 32 East, from the Cleary  
16 No. 1-17 Well to the east, to the NBR -- or Pogo No. 1 EBR  
17 Federal in Section 17 of 22 South, 33 East.

18                   The NBR pay sand package is depicted on  
19 the cross section, NBR No. 1 Well and No. 2 Well, you can  
20 see that the thickness of the pay sand package is thicker in  
21 those two wells, and you go to the west to the Santa Fe  
22 Bootleg Ridge 19 State No. 1 Well in Section 19 -- the NBR  
23 State No. 1 and NBR State No. 2 Wells in Section 18 to the  
24 east of the proposed location, both of the wells have a  
25 thick sand package in the NBR pay sand package. Going to-

1 wards the west to the Santa Fe No. Bootleg Ridge 19 State in  
2 Section 19 of 22, 32, the pay sand package itself thins up,  
3 and also to the east in the Pogo No. 1 EBR Federal in Sec-  
4 tion 17 the pay sand package thins up also, generally in the  
5 gross interval.

6 The red depicts the porosity in the  
7 sands. The yellow as basically colored on the cross section  
8 is the gross thickness of the sands.

9 You can see the erratic nature of the  
10 sands. They're pretty much correlative in the NBR No. 1 and  
11 2 within that sand package, and as you go east and west you  
12 can see that different sands to tend to die out.

13 The secondary objectives are a turbidite  
14 sand located above the main sand package at approximately  
15 14,500-to-600 feet in the NBR State No. 2 and an Atoka sand  
16 present in the No. 1 NBR State in the -- right below the  
17 Atoka Bank.

18 MR. STOGNER: And what depth is  
19 that?

20 A That depth is between 13,900 to 14,000  
21 feet. It would be 13,925.

22 MR. STOGNER: And that was in  
23 which well?

24 A NBR State No. 1.

25 MR. STOGNER: Thank you.



1           A           That's the only well that that sand is  
2 present in in the immediate area.

3           Q           Would you please discuss now the Isopach  
4 marked as Exhibit D?

5           A           Exhibit D is an Isopach map of the gen-  
6 eral trend of the entire NBR pay sand package. The contour  
7 interval is 10 feet. The contours represent a net sand  
8 thickness of greater than 8 percent porosity, which is what  
9 we perceive as the probably productive limit of the sands in  
10 the area.

11                   It also shows by each well on the map the  
12 gross thickness of the sands as well as the net thickness  
13 and also the number of sands within the packet itself.

14                   These Morrow age sands are probably asso-  
15 ciated with distributary channels which were deposited from  
16 the north towards the south, having a source bend from the  
17 north. As was seen on the cross section, the type of depo-  
18 sition we're talking about here, the stacked sand pays, is  
19 quite erratic in nature. The map is only to depict a gen-  
20 eral trend of these sands.

21                   The width of this general trend is estab-  
22 lished by the EBR Federal No. 1 in Section 17 over to the  
23 Santa Fe well in Section 19 in an east to west direction,  
24 and we feel that in the unorthodox location we will be near  
25 the edge of that channel. In the orthodox location there's

1 a good possibility that we would be out of the channel, main  
2 channel trend.

3 As you can see when you lay the channel  
4 trend up against a structure map, that nose tends to control  
5 the deposition of that sand, channel trends, and as you get  
6 up onto the structure, as is witnessed in the well in  
7 Section 25 to the south, the Gulf No. 1-A Covington Federal,  
8 it had 5 feet of net sand with N-3 sands. They perforated  
9 and tested that well and it was very, very low permeability.

10 The Santa Fe Energy Bootleg Ridge State  
11 Well in Section 19, DST'd the NBR pay sand package. The DST  
12 indicated that it was building to reservoir pressures at the  
13 end of the second shut-in period, and the analysis of pres-  
14 sure build-up indicated that it was a low permeability and  
15 very high damage.

16 Let's see, the cumulative production to  
17 point out the significance of being in the middle of this  
18 channel trend, the NBR State No. 2 Well has made approxi-  
19 mately 1.88 BCF of gas and 123,000 barrels of condensate to  
20 10-1-87. These wells were completed back in '80 and '81, in  
21 that general range.

22 The NBR No. 1 Well has a cumulative pro-  
23 duction out of the pay sand package of 1.3 BCF of gas and  
24 102,000 barrels of condensate.

25 At the eastern edge of the channel the

1 EBR No. 1 has 9 feet of sand and 3 sands net, 405-million  
2 cubic feet of gas and 2099 barrels of condensate and as I  
3 previously mentioned, that Santa Fe well to the south DST'd  
4 tight.

5 Q Mr. Bauernfeind, was notice of Pogo's  
6 application sent to offset operators, lessees, or unleased  
7 mineral interest owners, and I refer you to Exhibit E?

8 A Yes, it was. A letter dated October  
9 27th, 1987, notifying offset interest owners of Pogo's  
10 application and requesting waivers was sent by certified  
11 mail.

12 Exhibit E is a listing of said interest  
13 owners who were notified. Only one party, Dabros  
14 Properties, Incorporated, has not returned a waiver.

15 Q And is Exhibit F a copy of all certified  
16 return receipts?

17 A Yes, it is.

18 Q Were Exhibits A through F prepared by you  
19 or compiled from company records?

20 A Yes, they were.

21 Q In your opinion is the granting of this  
22 application in the interests of conservation, the prevention  
23 of waste, and the protection of correlative rights?

24 A Yes, it is.

25 MR. BRUCE: Mr. Examiner, I

1 move the admission of Exhibits A through F.

2 MR. STOGNER: Exhibits A  
3 through F will be admitted into evidence.

4 MR. BRUCE: I have nothing  
5 further at this time from this witness.

6  
7 CROSS EXAMINATION

8 BY MR. STOGNER:

9 Q Mr. Bauernfeind.

10 A Yes.

11 Q When I look at Exhibit Number -- I guess  
12 it's Exhibit Letter D and A --

13 A All right.

14 Q -- and I refer to the southwest quarter  
15 of the southeast quarter.

16 A D and A, okay.

17 Q That's that little 40-acre --

18 A Yes, sir. Uh-huh.

19 Q Is that a separate lease --

20 A Yes.

21 Q -- owned by Pogo now?

22 A Yes, sir, it is. We just acquired that  
23 on a KGS sale recently, within the last six months, I  
24 believe. I'm not exactly sure of the exact date. It's  
25 within the last six months. I believe it was August.

1 Q On your Exhibit D you show that  
2 belonging to Ray Smith, is that -- is that correct, or is  
3 that the Ray Smith well?

4 A That's the Ray Smith well.

5 Q Uh-huh.

6 A Down there in the corner. It's an old,  
7 dry hole, shallow (unclear).

8 Q Why do you ask for a north half dedica-  
9 tion (unclear) and not an east half dedication and that  
10 would make this a standard location?

11 A Well, we feel that, number one, we feel  
12 that we're trying to protect correlative rights, obviously,  
13 and the prevention of waste.

14 The interpretation we have here as far as  
15 the width of this channel trend, is highly interpretive at  
16 this time. We feel also that the Santa Fe well down there  
17 in the south part, in Section 19, should have made a well.  
18 They went ahead and plugged it but we have an interest in  
19 that well. We were opposed to plugging it and we did not  
20 have -- we just didn't feel strongly enough about it, evi-  
21 dently, to take it over but we felt that that -- they  
22 drilled through that sand with 10-pound weight mud and about  
23 20/25 water loss in the Morrow, which will basically lock  
24 you up, but we feel that that well is productive.

25 The other thing is that we feel at one

1 point we want to put two wells in the east half because our  
2 present interpretation is that the west half is nonproduc-  
3 tive at this time and we just -- and that's basically the  
4 reason.

5 Q Now, in your application you ask for the  
6 -- to test the Woldcamp, Strawn, Atoka, and Morrow, but --

7 A Uh-huh

8 Q -- the informatio you give me is -- most  
9 of it refers back to the Morrow, is that correct?

10 A Yes, sir, that's our main objective. The  
11 other, the Strawn and Wolfcamp are very remote possibilities  
12 in this area. There are some wells that do produce in the  
13 area but they're marginal, and the Atoka is only one well in  
14 this immediate area. This well is the NBR No. 1, which is  
15 not the direct offset. It's the only one that has potential  
16 for any Atoka in it. So they're very secondary objectives.

17 Q Section 13 is a Federal lease, is that  
18 correct?

19 A Yes, sir.

20 Q Other than that little portion of the --  
21 of the southwest quarter southeast quarter?

22 A I believe that's right. That's a KGS  
23 lease, so I don't know what all that means but --

24 MR. BRUCE: I think they're  
25 both Federal leases, Mr. Examiner.

1 A Yes, it's all Federal, looks to me like.

2 Q Have you made application with the BLM to  
3 drill this well?

4 A Yes.

5 Q Have they approved it or --

6 A I believe so, yes. Let me check on that.  
7 We've made application. I'm not sure if they've approved it  
8 but I think they have because we sent out AFE's to our  
9 partners, so I assume they approved it.

10 MR. STOGNER: I have no further  
11 questions of this witness.

12 Are there any other questions  
13 of Mr. Bauernfeind?

14 MR. BRUCE: No, sir.

15 MR. STOGNER: If not, he may be  
16 excused.

17 Mr. Bruce, do you have anything  
18 further in this case?

19 MR. BRUCE: No, Mr. Examiner.

20 MR. STOGNER: Does anybody else  
21 have anything further in Case Number 9254?

22 There being none, this hearing  
23 will be taken under advisement.

24

25 (Hearing concluded.)

## 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 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. 9254,  
heard by me on 2 December 1987.

Michael C. Rogers, Examiner  
Oil Conservation Division



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

6 18 November 1987

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Pogo Producing Company CASE  
10 for an unorthodox gas well location, 9254  
11 Lea County, New Mexico.

12 BEFORE: David R. Catanach, Examiner

13  
14  
15 TRANSCRIPT OF HEARING

16  
17 A P P E A R A N C E S

18  
19 For the Division:

Jeff Taylor  
Attorney at Law  
Legal Counsel to the Division  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

20  
21 For the Applicant:  
22  
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24  
25

MR. CATANACH: Call next Case  
Number 9254.

MR. TAYLOR: The application of  
Pogo Producing Company for an unorthodox gas well location,  
Lea County, New Mexico.

The applicant has requested  
that this case be continued.

MR. CATANACH: Case 9254 will  
be continued to December 2nd.

(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 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. 9254,  
heard by me on November 18, 1987.  
David R. Cotanach, Examiner  
Oil Conservation Division