

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
12 OCTOBER 1983

EXAMINER HEARING

IN THE MATTER OF:

Application of Bird Oil Corpor-  
ation for salt water disposal,  
McKinley County, New Mexico.

CASE  
7972

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

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I N D E X

JOHN ALEXANDER

|                                   |    |
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E X H I B I T S

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1  
2 MR. STAMETS: We'll call Case  
3 7972.

4 MR. PEARCE: That case is on  
5 the application of Bird Oil Corporation for salt water dis-  
6 posal, McKinley County, New Mexico.

7 MR. PADILLA: Mr. Examiner,  
8 Ernest L. Padilla on behalf of the applicant in this case.

9 I have one witness to be sworn.

10 MR. PEARCE: Are there other  
11 appearances in this matter?

12 (Witness sworn.)

13 JOHN ALEXANDER,  
14 being called as a witness and being duly sworn upon his  
15 oath, testified as follows, to-wit:

16 DIRECT EXAMINATION

17 BY MR. PADILLA:

18 Q Mr. Alexander, for the record would you  
19 please state your name and by whom you're employed or what  
20 your connection with the applicant is?

21 A My name is John Alexander. I'm an inde-  
22 pendent consultant from Farmington, representing Bird Oil  
23 Corporation from Denver, Colorado.

24 Q Mr. Alexander, have you previously testi-  
25 fied before the New Mexico Oil Conservation Division and had  
your credentials accepted as a matter of record?

1  
2 A Yes, I have.

3 Q Are you familiar with the purpose of the  
4 application of Bird Oil Company?

5 A I am.

6 MR. PADILLA: Mr. Examiner, are  
7 the witness' qualifications acceptable?

8 MR. STAMETS: Mr. Alexander,  
9 you've been qualified as an engineer or geologist?

10 A Engineer.

11 MR. STAMETS: Thank you.

12 Yes, he is considered quali-  
fied.

13 Q Mr. Alexander, would you please refer to  
14 what we have marked as Exhibits One-A through One-J, and  
15 tell us generally what they are and what they contain?

16 A This is an application by Bird Oil  
17 Corporation, Denver, Colorado, for a permit to dispose of  
18 salt water into the -- or excuse me, produced water, into  
the Point Lookout section of the Mesaverde formation.

19 Q Have you previously made application for  
20 administrative approval of this application?

21 A We have. The exhibit that's in front of  
22 us is a copy of the C-108 form for Application for Authori-  
23 zation to Inject. It was made initially for administrative  
approval.

24 Q And you intend to inject produced water  
25 back into the same formation, is that why we are at hearing

1  
2 here today?

3 A Yes, sir, that's correct.

4 Q Mr. Alexander, referring to what has been  
5 marked as Exhibit Number One-B, can you tell us what that is  
6 and what it contains?

7 A Exhibit One-B is a schematic of the  
8 wellbore arrangement to be used after the well is converted  
9 to injection.

10 It also contains the cement data and  
11 other associated information concerned with conversion of  
12 the well to injection.

13 One thing I might want to point out to  
14 the Examiner, that is perhaps unusual here, is the use of  
15 dual packers, and it's to isolate a set of perforations  
16 there that are shown from 2004 to 2010 foot.

17 That dual packer arrangement was used to  
18 isolate those perforations in an attempt to restrict  
19 injection into them. The operator did not want to cement  
20 squeeze those as we would have been required in order to use  
21 one packer.

22 So, primarily to save money, he decided  
23 to use a dual packer arrangement there to isolate those  
24 perfs.

25 Now, for the purpose of this application,  
though, we will be including that set of perfs in the  
application to inject, but the purpose of the dual packers  
here is to actually restrict water entrance into the upper

1  
2 set of perforations.

3 Q Mr. Alexander, is this also an economic  
4 consideration doing a dual packer arrangement in this well?

5 A That's exactly correct. That's the  
6 reason it was done. We, Bird, is attempting to lower his  
7 economic exposure in this well because of the marginal na-  
8 ture of the entire operation, and so he opted, or elected,  
9 to use the less expensive dual packers versus cement  
squeeze.

10 Q At what depth would you encounter the  
11 production interval in this well?

12 A The productive interval in this well is  
13 primarily from the Point -- excuse me, from the Menefee sec-  
14 tion of the -- of the Mesaverde.

15 Q The Menefee, in relation to the disposal  
16 interval is where?

17 A The Menefee immediately overlies the dis-  
18 posed injection interval, which is the Point Lookout section  
of the Mesaverde.

19 Q Can you tell us briefly what the cement  
20 on this well is like?

21 A Surely. The 4-1/2 inch production casing  
22 in this well was cemented from top to bottom. Cement was  
23 circulated to surface and this was confirmed not only with  
circulation but also with the cement bond log.

24 Q What is the -- well, let's go on to what  
25 we have marked as Exhibit One-C and tell us what that is.

1  
2 A Exhibit One-C is a map indicating all the  
3 wells within two miles of the proposed injection well.

4 On that exhibit there the dark colored  
5 circle there, and also shown as No. 1 on the schematic, is  
6 the proposed injection well. As I said, all wells within a  
7 two mile radius of the well is shown there.

8 Also, the circle drawn there is a one-  
9 half mile radius from that well and identified there as the  
10 area of review for the purposes of this application.

11 Q What wells within the area of review are  
12 controlled by Bird?

13 A Two wells, actually, within the area of  
14 review are controlled by Bird. They're shown as numbers  
15 four and five there. Actual well numbers are the Bird  
16 Federal 12-11 and the Bird Federal 12 No. 13. These are two  
17 producing wells that are operated by Bird in that area.

18 Q How about the number three well?

19 A Okay, the number three well there is  
20 operated by Woosley Oil Company, known as the FPC No. 1.

21 He also operates a well there designated  
22 as number six, which is known as the Ptasynski No. 1.

23 Q Okay. Have you notified Mr. Woosley, or  
24 Woosley Oil Company --

25 A Yes.

Q -- regarding your proposed application?

A Yes, he has been notified.

Q What were the results of that notifica-

1  
2 tion?

3 A Mr. Woosley has no objection.

4 Q Does Mr. Woosely at a later time intend  
5 to probably join you or --

6 A Okay. At the present time the well there  
7 that's designated as the number six well here, will be even-  
8 tually brought into this disposal system.

9 Q Going on to what we have marked as Exhi-  
10 bit One-D, can you tell us what that is?

11 A Exhibit One-D is a tabulation of the  
12 wells in the area of review, giving a brief summary of when  
13 they were drilled, how they were cased, and the subsequent  
14 perforations that are there.

15 Also it gives the cement plugs on the  
16 Bird Federal 12 No. 1 Well, which was plugged and abandoned.

17 Q Can you now tell us what Exhibit One-E  
18 depicts?

19 A Okay. Exhibit One-E is a schematic of a  
20 wellbore, the Bird Federal 12 No. 1 Well, which was plugged  
21 and abandoned prior to running production casing, merely  
22 showing where the plugs are set in relation to the surface  
23 casing.

24 Q Okay, go on to Exhibit Number One-F and  
25 tell us what that is.

A Number One-F is -- contains several  
things.

What's shown as point number seven, re-

1  
2 ferring to point number seven on the C-108 application,  
3 giving the basic operating arrangement that we will have on  
4 the 12 No. 5 Well if it is converted to injection.

5 Then point number eight describes the  
6 Mesaverde interval.

7 Point number nine just states that I have  
8 attached another attachment here, which is the proposed  
9 stimulation design for the well.

10 Point ten refers to the fact that the  
11 logs are on file with the OCD.

12 Point eleven there is a conversation I  
13 had with the State Engineer's Office showing only four water  
14 holes in the area that are all hand-dug and contain their  
15 water -- get their water strictly from wash runoff. There  
16 are no sources of underground drinking water in the area.

17 Number twelve is a statement that we have  
18 examined the existing hydrologic data and fault information  
19 in the area and find no connection between the proposed in-  
20 jection interval and drinking water source.

21 And point number thirteen there refers to  
22 the proof of notice which is required for the administrative  
23 approval of this application.

24 Q Going back to what -- the point number  
25 seven data that you have inserted there, I see that you have  
-- are asking to inject at a pressure of approximately 1000  
psi.

How does that relate with the policy of

the Division to limit the pressure, surface pressure, at .2 psi per foot --

A Okay.

Q -- of depth?

A Currently the State has a standard arrangement they use by which, if no other evidence is presented, .2 psi per foot is used as a surface -- maximum surface injection pressure.

What we have proposed here, and is outlined in attachment One-G, or, yes, One-G, is a step rate test to be run on this well in order to determine what the parting pressure will be, and we'll then operate underneath that -- that parting pressure.

The 1000 psi mentioned here is merely an estimation of what that might be.

Q Based upon the .2 psi per foot criterion, how would that affect your -- could you operate under that standard?

A We don't really feel that we can, since our injection interval is approximately 2100 foot, that's in the neighborhood of 420 psi, and right now we don't -- we don't feel like it's going to be sufficient to inject the amount of water that we're going to try to dispose of here.

We also feel that that's probably quite a bit under the parting pressure of that formation.

Q Will you go on now to explain what Exhibit One-G contains?

1  
2 A Exhibit One-G is a procedure for conver-  
3 sion to injection of the subject well, or Federal 12 No. 5.  
4 It merely follows the procedure that we will use.

5 Things of interest there will be point  
6 number seven, where we will be perforating the Point Lookout  
7 interval. The proposed number of shots are given there. We  
8 will be acidizing that with 15 percent hydrochloric acid and  
9 then after the stimulation is completed we'll be running the  
10 dual packer arrangement set as outlined there in step number  
11 ten.

12 We also set out there the procedure for  
13 running, there in step thirteen, the procedure for running  
14 the step rate test in order to determine what that parting  
15 pressure will be.

16 Q Go on now to what we have marked Exhibits  
17 One-H and One-I and tell us what those contain.

18 A Okay. One-H is the affidavit of publica-  
19 tion, which was published in Gallup concerning this, the Gal-  
20 lup Independent newspaper back on the 18th of August. This  
21 is an affidavit stating that we did publish the notice and  
22 the notice is cited there on the left.

23 One-I is an addition to the application  
24 which was inadvertently left out initially, stating that we  
25 have notified Woosley that the application had been submit-  
ted for administrative approval.

Q What is Exhibit One-J?

A Okay. One-J is the actual notarized

1  
2 affidavit that I had notified Woosley Oil Company of the  
3 application.

4 Q Mr. Alexander, can you tell us something  
5 about the economic considerations of this venture, and I  
6 want you to elaborate on potential watering out of hydrocar-  
7 bons by injecting into the producing interval.

8 A Sure. The problem here is that Bird Oil  
9 Corporation has two producing wells, neither one of which  
10 are really adequate to be tested because of the large amount  
11 of water being produced.

12 Immediately after completion of the Bird  
13 Federal 12-11 and 12-13 limited swab testing was conducted.  
14 Oil cuts were very low, 5 to 12 percent, with large amounts  
15 of water.

16 Because we could not continue this  
17 testing we decided, Bird Oil Company decided to find a  
18 method of disposing of the water, and injection into the 12  
19 No. 5 Well, which was determined to be uneconomical, was the  
20 method that they decided.

21 Because of the marginal nature of the  
22 other two wells, the decision was made to limit his economic  
23 exposure to this entire project; to do it as economically as  
24 feasible. Because of this the decision was made not to  
25 squeeze the perforations in the 12-5 injection well but also  
to utilize that well for injection into the Point Lookout  
section of the -- of the Mesaverde.

Wells in the area produce oil primarily

1 from the Menefee section of the Mesaverde in this area. The  
2 Point Lookout zone is known to be a prolific water producer,  
3 and because of that, it is not felt that injection back into  
4 that interval will in any way damage the oil or gas that's  
5 contained in the Menefee section of the -- of the Mesaverde.  
6

7 Q How will -- without approval would Bird  
8 be inclined to get involved in this project?

9 A Bird has a number of other wells to be  
10 drilled in the area. If we are not allowed to dispose of  
11 water in this method, he will be forced to abandon those  
12 other wells. We have no other way of getting rid of the  
13 water.

14 We considered hauling it, and several  
15 other things, you can imagine how expensive that is, when  
16 you're only -- the production from these wells during  
17 testing was on the order of five to six barrels of oil a day  
18 on most of the wells, on both of the wells, and because of  
19 that he cannot support any extensive effort, and this pro-  
20 ject is going to involve expenditure of approximately  
21 \$60,000 as it is now, and we felt that this is the only way  
22 that we get rid of sufficient of that water in order to test  
23 these wells.

24 Q Do you have anything further to add to  
25 your testimony, Mr. Alexander?

A No, I don't.

MR. PADILLA: Mr. Examiner, we  
offer Exhibits One-A through One-J and pass the witness.

1  
2 MR. STAMETS: The exhibits will  
3 be admitted.

4  
5 CROSS EXAMINATION

6 BY MR. STAMETS:

7 Q Mr. Alexander, I don't see here any  
8 demonstraton that the surface owner has been notified of  
9 this application.

10 A The surface owner was notified of the ap-  
11 plication. BLM is the surface owner here.

12 Now I have with me a copy of the applica-  
13 tion that I made to them for disposal of the water at this  
14 location.

15 I don't know if I sent you a copy of it  
16 or not, but it was submitted and approved by BLM.

17 Q Did you send them a copy of the 108 and  
18 attachments?

19 A I sent them a copy of the schematic here,  
20 Mr. Examiner, but I did not send them a full copy of the  
21 application.

22 MR. STAMETS: Let's go off the  
23 record just a second.

24 (There followed a discussion off  
25 the record.)

MR. STAMETS: Back on the re-

cord.

1  
2 Q Now, why do we want to isolate those per-  
3 forations from 2004 to 2010?

4 A They wanted to isolate those perforations  
5 in order to limit injection into that interval.

6 Q Why do they want to limit injection into  
7 that interval?

8 A It's producing in the offsetting wells,  
9 and Bird and Woosley were both afraid that a large amount of  
10 injecting into that interval could cause them some problems.

11 Q And how much would it cost to squeeze  
12 those perforations?

13 A I estimated about \$6000.

14 Q And what's an extra packer cost?

15 A And the extra packer arrangement that  
16 we've got only costs about \$700.

17 Q And how are you going to know that that  
18 packer is working?

19 A We're not.

20 Q And did you test the productive interval  
21 at 2004 to 2010?

22 A We did, and it was uneconomical. I think  
23 it made -- the report was a trace of oil. It didn't even --  
24 didn't even show an oil cut out of it.

25 Q On page One-B of the application, you  
come down to the Woosley FBC No. 1 and you indicate there  
that 4-1/2 inch casing was set and cemented across the pay  
zone. How much cement was used there?

1  
2 A I'm afraid I can't answer that. I did  
3 not have his cementing record there on that. I know that in  
4 talking to Mr. Woosley, he did not -- the cement did not  
5 come to the surface on that well, and I honestly do not know  
6 the total amount of cement used on that well.

7 Q Did you consult the Division records on  
8 that matter?

9 A No, sir, I didn't.

10 Q Well, before you leave today, let me sug-  
11 gest that you do check our records --

12 A Okay.

13 Q -- and put that information on this exhi-  
14 bit.

15 A Okay.

16 Q And submit it.

17 The wells in the area that are producing,  
18 now you indicated Bird had two wells, what rates of oil and  
19 water are they producing?

20 A The well there that's shown as the No. 4,  
21 which is the Bird Federal 12 Well No. 11, was -- actually  
22 had a pumping unit installed on it and was tested for a  
23 period of about one week. It produced approximately 140  
24 barrels of fluid per day and averaged 6 percent oil cut, or  
25 in that neighborhood somewhere.

Q Okay, how about the 13 Well?

A Bird Federal 12-13 was actually only  
swabbed one day. It was casing swabbed and in eight hours

1  
2 it made 480 barrels of fluid at about 6 percent oil cut, and  
3 so because of the high rate there, it was actually only  
4 tested one day.

5 Q Have the wells in this area been on pro-  
6 duction a sufficient length of time in order to determine  
7 that they're going to continue with the oil production or  
8 water out?

9 A Not really. As you can look at the Exhi-  
10 bit One-D there, at the first of each one of those wells is  
11 the spud date and you can see that most of these wells were  
12 drilled during the latter part of '82 or actually in April  
13 or May of -- excuse me, March or April of '83.

14 So they really have not been on produc-  
15 tion, you know, for a sufficient period of time to determine  
16 exactly what they're going to be doing down there.

17 Q And while we're right there looking at  
18 Exhibit One-E, I see a 25 sack plug set at 2117 to 2200. Is  
19 that plug across the Menefee, across the Point Lookout?  
20 Where is that in relation to the injection interval?

21 A That plug is across the -- across the  
22 Point Lookout section of the Mesaverde.

23 Q Is that plug high enough to keep fluids  
24 in the Point Lookout?

25 A The top of that plug is actually below  
the correlative point where we would be injecting into the  
Point Lookout in the offsetting well. It's probably, as I  
recall, about 8 to 10 foot, if the 2117 is correct, 8 to 10

1  
2 foot below the uppermost perforation that we'll be making in  
3 that well.

4 MR. STAMETS: Any other ques-  
5 tions of the witness?

6 Mr. Pearce pointed out that you  
7 intend to use unlined tubing. Standard practice for injec-  
8 tion wells is lined tubing. Is there any reason why you  
9 chose not to use lined tubing in this well?

10 A Strictly economic.

11 Q Well, you don't have any special condi-  
12 tions of noncorrosive water or plan to treat the water in  
13 any special way?

14 A We really don't. The water that we'll be  
15 using there is not highly corrosive. Total dissolved solids  
16 ran in the neighborhood of 26-to-30,000 tds. Chlorides are  
17 not, you know, astronomically high, and so we really don't  
18 think the water is that corrosive.

19 Also, as I said, the primary considera-  
20 tion there, though, is strictly economical on Bird's part.

21 Q What's the difference in cost between re-  
22 gular tubing and lined tubing?

23 A Well, I don't know if I can answer that  
24 right off. The main point here is he already has the  
25 tubing in the well, you know, existing tubing. If it would  
require purchasing new tubing, I'm sure that it could be

1  
2 done, but he just didn't want to -- didn't want to purchase  
3 any additional tubing at all.

4 Q Is that brand new tubing?

5 A It was new when it was originally run in  
6 the well, yes, sir.

7 MR. STAMETS: Are there any  
8 other questions of the witness?

9 QUESTIONS BY MR. QUINTANA:

10 Q When did they plan to run a step rate  
11 test on that well?

12 A A step rate test will be run in  
13 conjunction with the conversion procedures set out here on  
14 Exhibit One-G. See, actually step thirteen there, which is  
15 near the end of that, is how the step rate test will be con-  
16 ducted. It will be run at that time.

17 Q The procedures that I usually follow when  
18 I'm the one that does that, is that do you see any problem  
19 with us setting the standard .2 psi pressure limit and then  
20 when you get that step rate test done in conjunction with  
21 the District Office send me a copy of that and in turn what  
22 I'll do is I'll write you a letter that will go in the file  
23 and --

24 A I don't see any problem with that.

25 MR. STAMETS: Any other  
questions of the witness? He may be excused.

Anything further in the case?

1  
2 MR. PADILLA: If I didn't offer  
3 this, I offer it now, Mr. Examiner. I don't know whether I  
4 did or not.

5 MR. STAMETS: I believe that's  
6 already in the record, Mr. Padilla.

7 If there is nothing further,  
8 the case will be taken under advisement.

9 (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 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. 7972  
heard by me on 10-12, 1983.

Richard L. Slamm Examiner  
Oil Conservation Division