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I N D E X

May 16, 1991
Examiner Hearing

CASE NO. 10307

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A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL, ESQ.
 General Counsel
 Oil Conservation Commission
 State Land Office Building
 310 Old Santa Fe Trail
 Santa Fe, New Mexico 87501

FOR THE APPLICANT: CAMPBELL & BLACK, P.A.
 Attorneys at Law
 BY: WILLIAM F. CARR, ESQ.
 110 North Guadalupe
 Santa Fe, New Mexico 87501

* * *

1 EXAMINER CATANACH: At this time we'll call
2 Case 10307.

3 MR. STOVALL: Application of Bird Creek Resources,
4 Inc., for salt water disposal, Eddy County, New Mexico.

5 EXAMINER CATANACH: Are there appearances in this
6 case?

7 MR. CARR: May it please the examiner, my name is
8 William F. Carr with the law firm of Campbell & Black,
9 P.A., of Santa Fe. I represent Bird Creek Resources, and I
10 have one witness.

11 EXAMINER CATANACH: Are there any other appearances?

12 Will the witness please stand and be sworn in?

13 (Whereupon the witness was duly sworn.)

14 BRAD D. BURKS,
15 the Witness herein, having been first duly sworn, was
16 examined and testified as follows:

17 DIRECT EXAMINATION

18 BY MR. CARR:

19 Q. Will you state your full name for the record,
20 please?

21 A. My name is Brad D. Burks.

22 Q. Where do you reside?

23 A. I reside in Tulsa, Oklahoma.

24 Q. By whom are you employed and in what capacity?

25 A. I am operations manager for an engineering

1 consulting firm called BK Energy, also of Tulsa. We
2 provide engineering and geological services for the
3 applicant, Bird Creek Resources, when it deals with
4 southeastern New Mexico property.

5 Q. Have you previously testified before the
6 New Mexico Oil Conservation Division?

7 A. Yes, I have.

8 Q. And at that time were you qualified as an expert
9 witness in petroleum engineering?

10 A. Yes, sir.

11 Q. Are you familiar with the application filed in
12 this case and the subject well?

13 A. Yes, I am.

14 MR. CARR: Are the witness' qualifications acceptable?

15 EXAMINER CATANACH: They are.

16 Q. (By Mr. Carr) Mr. Burks, would you briefly
17 state what Bird Creek seeks with this application?

18 A. Bird Creek seeks approval to drill and complete
19 a well for the sole purpose of disposing produced water
20 into the Cherry Canyon member of the Delaware formation in
21 the East Loving-Delaware Pool.

22 Q. Can you refer to what has been marked as Bird
23 Creek Exhibit No. 1? Identify that for the examiner.

24 A. Exhibit No. 1 is the C-108 application filed
25 with the commission in the month of April requesting

1 administrative approval.

2 Q. And then why was this matter set for hearing?

3 A. This matter was set for hearing due to a couple
4 of letters from concerned citizens in the area.

5 Q. Does the application that was filed on April the
6 12th contain all the attachments that are required by OCD
7 Form C-108?

8 A. Yes, it does.

9 Q. And you've indicated this is a new well that
10 will be drilled for disposal purposes?

11 A. That is correct.

12 Q. Into what formation do you propose to inject?

13 A. We will inject Delaware-produced water back into
14 the Delaware, specifically the Cherry Canyon sand member.
15 The Delaware is subdivided into three members, the Bell
16 Canyon being the upper third, Cherry Canyon the middle
17 third, Brushy Canyon the lower third.

18 Production from the East Loving-Delaware Pool
19 comes from the Brushy Canyon, the lower Delaware, and we
20 will be reinjecting the water into the middle Delaware.

21 Q. Would you refer to the plat that is contained in
22 Exhibit No. 1? Identify that and review it for
23 Mr. Catanach.

24 A. On Exhibit 1, page 4 and page 5 are plats.
25 Page 4 is the general area. That is a lease ownership map

1 showing the leaseholders and the name of the wells. The --
2 on page 4 the black arrow -- or it could be a red arrow on
3 one copy -- denotes the proposed location of our salt water
4 disposal well, which is roughly in the middle of the
5 East Loving-Delaware field.

6 Page 5 -- let me stay on page 4. Page 4 shows
7 two radii depicted. One is the half-mile radius which we
8 have called our area of review around the proposed
9 injection well. There's also a two-mile radius. Data was
10 also gathered from wells within that two-mile radius.

11 Q. Are there any Cherry Canyon wells within the
12 one-half-mile radius circle?

13 A. There is one producing Cherry Canyon well. That
14 would be Pogo's NEL No. 2. The location of that is Unit
15 Letter I of Section 9. It's in the northwest quadrant of
16 the two-mile area.

17 Q. Let's go to page No. 5, and I'd ask you to
18 review that.

19 A. Page No. 5 is just a blown-up version of what --
20 the half-mile radius or area of review depicted on page 4.

21 Page 5 again shows an arrow depicting our
22 proposed location to drill this disposal well and all known
23 producing wells around it. There are no plugged or
24 abandoned wells within this area of review.

25 Q. Does Exhibit 1 contain a tabulation of various

1 data on all of the wells within the area of review which
2 penetrate the injection zone?

3 A. Yes, it does.

4 Q. And on what pages do you find that tabulation?

5 A. That would be pages 18, 19 and 20, the last
6 three pages of Exhibit 1.

7 That is a tabulation of data within the area of
8 review, the half-mile area of review. Roughly looking at
9 the headings on page 18, the first of the three pages, I've
10 shown the operator's name, the well name and location, what
11 type of well it is -- as in is it an oil producer or gas
12 producer or shut in -- the TD of that well to demonstrate
13 that they have gone through the Cherry Canyon, completion
14 data and the mechanical construction of the well.

15 Q. Are there any plugged and abandoned wells within
16 the area of review?

17 A. No, there are not.

18 Q. Could you refer to the schematic drawing of the
19 proposed injection well and review that for Mr. Catanach?

20 A. If you'll refer to page 8, is the well bore
21 schematic of our proposed well. We will drill through
22 fresh-water sands and into salt beds at 400 feet and set
23 our surface casing cement to surface. We will then drill a
24 hole to a depth of 4,500 feet and set seven-inch casing
25 with cement to surface.

1 Also depicted on this well bore schematic is the
2 type of tubing utilized. It will be fiberglass tubing.
3 Since it is fiberglass, there will be no reason to line
4 that.

5 Q. In Exhibit 1 do you have the specifications for
6 the particular tubing you propose to use?

7 A. Yes, I do. Page 9 and 10 are data sheets on the
8 proposed fiberglass tubing showing the maximum pressure
9 rating of 1,500 pounds, and of course fiberglass being
10 corrosion resistant, we would not have any problems with
11 getting disposal water into the annular space of this well.

12 A pressure gauge -- the annular space will have
13 a pressure gauge on it. We will also be loading with
14 treated fluid so that we can monitor the annulus.

15 Q. And this monitoring mechanism will comply with
16 the federal Underground Injection Control Program
17 regulations; is that right?

18 A. Yes, it will.

19 Q. You indicate on the schematic drawing that you
20 are going to be injecting from -- in an interval from
21 approximately 4,000 feet to 4,450 feet; is that right?

22 A. That's correct.

23 Q. Do you plan to have that entire zone open, or
24 will you be utilizing just a portion of that zone?

25 A. We will at first be utilizing a portion of that

1 zone, say, roughly 4,400 to 4,450. We stated 4,000 just so
2 that if that first zone does not take water, we can add
3 additional zones up to 4,000 feet until we were able to
4 establish the injection rate of 200 barrels of water per
5 day.

6 Q. Mr. Burks, you indicated that the water you will
7 be injecting in this well is from the Brushy Canyon portion
8 of the Delaware. What is currently being done with that
9 water?

10 A. That water is currently being picked up by
11 transportation companies and hauled to a disposal facility
12 approximately eight miles to the east.

13 Q. What volumes are you proposing to inject in this
14 disposal well?

15 A. Approximately 2,000 barrels of water per day
16 would be our maximum.

17 Q. And is this going to be an open or a closed
18 system?

19 A. It will be a closed system in the sense of the
20 type of tanks utilized. All tanks or vessels handling the
21 water will be closed-top tanks.

22 The system would be open in the sense that there
23 would be a tap at the facility that would allow us to bring
24 in produced water from outlying areas which -- that we have
25 not established a line to them yet.

1 I would state -- for example, let's say we drill
2 a well, we're testing it, cannot justify laying a disposal
3 line to it. Then we would like to have that opportunity to
4 pick up that water with a transport truck and haul it to
5 this facility.

6 Q. This tap situation at the facility is what you
7 meant when you indicated in the form C-108 that this would
8 be an open system?

9 A. Yes.

10 Q. And you do not intend to place this water in
11 containers that are open to the atmosphere in any way?

12 A. No, we do not.

13 Q. Are you going to be injecting by gravity or
14 under pressure?

15 A. We feel we will be injecting under pressure
16 based on area experience.

17 Q. Would a pressure limitation of two-tenths pounds
18 per foot of depth to the top of the injection interval be
19 adequate for your purposes?

20 A. It would be adequate for now. We feel that the
21 two-tenths should take care of our purposes.

22 Q. In your C-108 did you request an 800-pound
23 pressure limitation?

24 A. I requested 800 pounds based on a top
25 perforation of 4,000 feet.

1 Q. That might be inadequate, however, if you start
2 your injection in a lower portion of the Cherry Canyon than
3 the 4,000 foot interval?

4 A. It might be. That's why I'd like to go with the
5 two-tenths per pound.

6 Q. Per foot of depth?

7 A. Per foot of depth.

8 Q. And you'd recommend that the order contain that
9 provision?

10 A. Yes.

11 Q. Now, what do you recommend happen if in fact you
12 have to go above the two-tenths-pound-per-foot-of-depth
13 pressure limitation?

14 A. If we feel that the two-tenths is constrictive,
15 we would run a step rate test in compliance with commission
16 rules and then request a higher injection pressure N rate.

17 Q. Do you request that the order that results from
18 this hearing provide for such an administrative procedure?

19 A. Yes.

20 Q. Could you refer to the water analyses of the
21 injection fluid contained in Exhibit 1?

22 A. In Exhibit 1, pages 12 and 13.

23 You did say, "injection fluid"?

24 Q. Yes, sir.

25 A. Pages 12 and 13 are two separate analyses of

1 produced water from the Brushy Canyon field. The
2 East Loving-Delaware field is again Brushy Canyon
3 production at approximately 6,000 feet of depth.

4 Looking at the two analyses, one can assume that
5 the Brushy Canyon is characterized by high chloride, high
6 co-dissolved solids as far as the production water.

7 Q. Do you anticipate any compatibility problems
8 when you place this fluid in the Cherry Canyon portion of
9 the Delaware?

10 A. I do not. The Cherry Canyon and the Brushy
11 Canyon sands of the Delaware exhibit very similar water
12 analyses characterized by again high salinities and high
13 total dissolved solids. We do not believe that any
14 compatibility problems will arise.

15 Q. Are there fresh-water zones in the area?

16 A. Yes, there are. There is a fresh-water zone
17 contained within alluvial deposits from approximately
18 surface -- from the surface to 250 foot of depth.

19 Q. And are there fresh-water wells in the area?

20 A. Yes, there are. There are approximately seven
21 fresh-water wells within a one-mile area of this injection
22 well.

23 Q. And from what interval are they producing?

24 A. Roughly at a depth of 100 feet.

25 Pages 14 and 15 of Exhibit 1 are water analyses

1 on seven wells. There are eight analyses but seven wells.

2 I might correct myself. One of those wells,
3 Sample No. 4, is actually a sample from the Pecos River,
4 which is roughly three-quarters to a mile away. We felt we
5 should go ahead and get a sample of that.

6 Q. Does your proposed method of completing the
7 subject well assure that these fresh-water zones will not
8 be contaminated by any injection fluids?

9 A. Yes, it will. Our surface casing will have its
10 cement brought to surface, and likewise the seven-inch
11 string will also have cement to surface. That should
12 adequately protect the fresh-water sands around 100 feet.

13 Q. And will Bird Creek file a log on the proposed
14 injection well once that is obtained?

15 A. Yes. A log will be run after drilling the well
16 and will be filed with the commission.

17 Q. Would you identify what has been marked as Bird
18 Creek Exhibit No. 2?

19 A. Bird Creek Exhibit No. 2 is a copy of the return
20 receipts demonstrating that BK Energy or Bird Creek
21 Resources notified all offset producers within -- or all
22 offset leaseholders within the area of review, notified
23 them of this application, and furnished them a copy of the
24 application.

25 Q. You have as a last page of this exhibit a

1 returned envelope from R.C. Bennett.

2 A. Yes, sir.

3 Q. This mailing was refused?

4 A. Page 4 of Exhibit No. 2 was -- is a copy of the
5 envelope that was refused by R.C. Bennett. He may have
6 refused it because there was postage due of eight cents.

7 I don't think he has a problem. He has already
8 laid a water line from his well to our nearest battery so
9 that he can utilize our disposal system.

10 Q. Is a list of the offset operators set forth on
11 page 17 of Exhibit No. 1?

12 A. Yes, a list of operators is on page 17. We
13 received all cards back or all return receipts back from
14 these operators.

15 Bird Creek Resources is the surface owner, so
16 there was no need to have a mailing to an individual.

17 Q. Are you aware of any similar applications that
18 have been granted for injection in the same general area?

19 A. Two applications have been granted in the past
20 two years. The most recent would be BTA Producers received
21 approval for an injection well into the Cherry Canyon.
22 That well is located in approximately a half mile to a mile
23 northeast of this proposed location.

24 An earlier well drilled to the Cherry Canyon for
25 the purpose of injecting produced waters is Parker and

1 Parsley. Their well is approximately two miles south.
2 They also inject Brushy Canyon water into the Cherry
3 Canyon.

4 Q. Have you examined the available geologic and
5 engineering data on this area?

6 A. Yes, I have.

7 Q. As a result of that examination, have you
8 discovered any evidence of open faults or any other
9 hydrologic connection between the disposal zone and any
10 underground source of drinking water?

11 A. No.

12 Q. In your opinion, will granting this application
13 prevent waste, protect correlative rights and otherwise be
14 in the best interests of conservation?

15 A. It will provide for better economics in the
16 production of the East Loving-Delaware field for Bird Creek
17 and other operators willing to participate in the disposal
18 of water into this system.

19 Q. Were Exhibits 1 and 2 prepared by you?

20 A. Yes, they were.

21 MR. CARR: At this time, Mr. Catanach, I would move
22 the admission of Bird Creek's Exhibits 1 and 2.

23 EXAMINER CATANACH: Exhibits 1 and 2 will be admitted
24 into evidence.

25 (Whereupon Applicant's Exhibits 1 and 2 were admitted

1 into evidence.)

2 MR. CARR: That concludes my examination of Mr. Burks.

3 EXAMINATION

4 BY EXAMINER CATANACH:

5 Q. Mr. Burks, are you satisfied that the Cherry
6 Canyon and Bell Canyon -- I'm sorry -- Cherry Canyon and
7 Brushy Canyon are separated by some permeability barrier so
8 that you're not affecting any kind of oil production in the
9 Brushy Canyon?

10 A. Yes, I am. We're talking roughly 2,000 feet of
11 difference here. We have a number of shale markers near
12 the top of the Brushy Canyon, which allows you to pick the
13 top of the Brushy Canyon. We feel that those shales would
14 be adequate seals for any water working its way towards the
15 Brushy Canyon.

16 We do not feel a threat, though, since we will
17 be staying under the .2-p.s.i.-per-foot pressure
18 limitation. I feel that all water would stay in the Cherry
19 Canyon.

20 Q. Are you familiar with the potential for oil or
21 gas production from the Cherry Canyon in this area?

22 A. The nearest Cherry Canyon well, as I stated
23 earlier, was a Pogo well. It was a one-well field. Pogo
24 attempted to drill offsets to it and could not find the
25 same sands, apparently very limited in its extent. It's

1 depth is approximately at 3,200 feet, so we are basically
2 near the base of the Cherry Canyon, and they are in the top
3 of the Cherry Canyon.

4 Open-hole logs from the wells that I have
5 studied through the Cherry Canyon indicate water
6 resistivity or formation resistivity of approximately one
7 ohm meter, which indicates water saturations of 95 to 100
8 percent. We feel, based on logs and based on lack of
9 shows, that these zones are not capable of producing any
10 oil from the Cherry Canyon.

11 EXAMINER CATANACH: That's all I have.

12 EXAMINATION

13 BY MR. STOVALL:

14 Q. You referred earlier to this matter of coming
15 for hearing because of letters which the division received;
16 is that correct?

17 A. That's correct.

18 Q. The division file shows a letter from a Billy
19 and Pauline McDaniel --

20 A. Uh-huh.

21 Q. -- Loving, New Mexico, and a Charles Brown. Are
22 these the letters you referred to?

23 A. Yes.

24 Q. Did you or Bird Creek receive copies of these?

25 A. No, we did not. Our -- Mr. Carr received a copy

1 from the commission and notified us of their content.

2 Q. Do you have any idea where their -- they refer
3 to being concerned land owners or ranchers and neighboring
4 citizens. Do you have any idea where they are?

5 A. Yes, they are. I contacted Mr. Brown shortly
6 after Mr. Carr notified me of the letter. Mr. Brown
7 notified me that by the time I had contacted him he had
8 realized that he misread the location wrong in the
9 newspaper article.

10 The newspaper article stated the correction
11 correctly -- the location correctly. He misread that. He
12 lives in 26 south, 24 east. This application is for a well
13 in 23 south, 28 east. Yet he said he was still concerned
14 because he knew of people in the area -- he works in the
15 potash mines, and there are potash mines in the immediate
16 area or within ten miles.

17 And I assumed then that that's the -- where the
18 second individual, Billy McDaniel -- I feel that that's how
19 he became aware of our application, was through Mr. Brown.

20 It's apparent from those two letters that
21 Mr. Brown's wife, Joanne Brown, typed the one that Charles
22 Brown signed and also apparently typed the one that
23 Mr. McDaniel signed. There were basically word for word,
24 even with the same typos in the letters.

25 Q. I would concur that they appear to be identical

1 letters.

2 A. Yes.

3 Q. Grammatical usage and typing appears to be the
4 same.

5 A. That is correct.

6 I visited with a neighbor of Mr. Brown to verify
7 his location of residence, and it was verified that he does
8 live out near a place called Washington Ranch out near
9 McKittrick Canyon, which is 30 miles from this proposed
10 site.

11 Q. Am I correct in learning that you did not give
12 notice to either of these parties? Is that correct?

13 MR. CARR: I think, Mr. Stovall, I did send a
14 certified letter to Mr. Brown, telling him that the hearing
15 was being held today; and we expected him, if he had an
16 argument, to show up and present it.

17 And I did not know about Billy or Pauline
18 McDaniel until yesterday afternoon, and we did not contact
19 them.

20 MR. STOVALL: Do you know where they are?

21 THE WITNESS: They live in the area.

22 MR. CARR: Of the proposed well somewhere. They have
23 a trailer in that area somewhere.

24 Q. (By Mr. Stovall) You don't know exactly? I
25 gather they are not within the notice requirement area

1 under the rules; is that correct?

2 A. No, they are not.

3 Q. And just one last question. What facility are
4 you currently using to dispose of your water?

5 A. Most of our produced water goes to -- or goes
6 through B&E Trucking, which is one of the facilities out in
7 the middle of the salt lakes. I can't recall the name of
8 that facility right now. It is approximately ten
9 miles -- that facility is approximately ten miles north and
10 east of Loving, again out in the middle of one of the
11 larger salt lakes that the potash mines surround.

12 MR. STOVALL: I have no further questions.

13 EXAMINER CATANACH: Witness may be excused.

14 Anything further in this case?

15 MR. CARR: Nothing further.

16 EXAMINER CATANACH: There being nothing further,
17 Case 10307 will be taken under advisement.

18

19 (The foregoing hearing was concluded at the
20 approximate hour of 11:25 a.m.)

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I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 10307
heard by me on May 16 1991

David R. Catanach, Examiner
Oil Conservation Division

