

NEW MEXICO OIL CONSERVATION DIVISION

EXAMINER HEARINGSANTA FE, NEW MEXICOHearing Date MARCH 18, 1999 Time 8:15 A.M.

NAME	REPRESENTING	LOCATION
W. Kellahin	Kellahin + Kellahin	Santa Fe
Perry L. Hughes	Shahana Oil	Carlsbad
Paul Cooter	Eastman Johnson	Albuquerque
Larry Simmons	interest owner	San Juan city
James Bruce	—	Santa Fe
Bill Hawke	Amoco	Denver
William A. Jones	Gamphill, Jones, Boyd + Smith	Santa Fe
Vu Dinh	UASTAK	HOUSTON
Mike Larimer	Phillips	Farmington
Scott Prother	Phillips Pet. Co.	FARMINGTON
DALE R. RICH	interest owner	ABQ NM
DALE R. ELLIOTT	YVONNE H. ELLIOTT	ABQ
Matt Eagleston	Wiser Oil	Dallas

NEW MEXICO OIL CONSERVATION DIVISION

EXAMINER HEARINGSANTA FE, NEW MEXICOHearing Date MARCH 18, 1999 Time 8:15 A.M.

NAME	REPRESENTING	LOCATION
Charles Duc	Matador	DALLAS
Mona Ables	Matador	Dallas

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY)
THE OIL CONSERVATION DIVISION FOR THE)
PURPOSE OF CONSIDERING:)
APPLICATION OF SHAHARA OIL, L.L.C., TO)
AMEND DIVISION ORDER NO. R-11,027,)
EDDY COUNTY, NEW MEXICO)

CASE NO. 11,973

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

March 18th, 1999

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, March 18th, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

OIL CONSERVATION DIVISION
99 APR - 1 AM 8:52

I N D E X

March 18th, 1999
Examiner Hearing
CASE NO. 11,973

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* * *

A P P E A R A N C E S

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FOR THE APPLICANT:

EASTHAM, JOHNSON, MONNHEIMER and JONTZ, P.C.
 500 Marquette, NW, Suite 1200
 P.O. Box 1276
 Albuquerque, New Mexico 87103-1276
 By: PAUL A. COOTER

* * *

1 WHEREUPON, the following proceedings were had at
2 8:20 a.m.:

3 EXAMINER CATANACH: At this time we'll call Case
4 11,973.

5 MR. CARROLL: Application of Shahara Oil, L.L.C.,
6 to amend Division Order Number R-11,027, Eddy County, New
7 Mexico.

8 EXAMINER CATANACH: Call for appearances in this
9 case.

10 MR. COOTER: Paul Cooter, appearing on behalf of
11 Shahara Oil. I have one witness, Perry Hughes.

12 EXAMINER CATANACH: Additional appearances in
13 this case?

14 Will the witness please stand to be sworn in?

15 (Thereupon, the witness was sworn.)

16 MR. COOTER: Gentlemen, I have placed before you,
17 each one of you, a packet of Exhibits Numbers 8 through 15.
18 I numbered them that way for convenience, since Exhibits 1
19 through 7 were offered and received at the prior hearing,
20 that way to avoid any possible confusion.

21 I've also placed in front of you two affidavits
22 of mailing. One is dated February 3, and attached to that
23 is a copy of my letter to those listed offset operators, as
24 well as Mr. Hughes' letter of December 14 to you, Mr.
25 Catanach, which, as I understand, is accepted a the

1 Application in this case.

2 Attached to the second affidavit, which is dated
3 February 10th, is my letter to those same operators, with a
4 copy of the February 9 letter, advising of the setting of
5 this hearing today.

6 I also have, but I did not hand to you, but I
7 would be happy to do so if you would like it for the
8 record, the return receipts from all of those operators on
9 both letters. Do you want --

10 EXAMINER CATANACH: Yes, that would be fine, Mr.
11 Cooter.

12 MR. COOTER: I would ask the Commission at this
13 time to receive my affidavits.

14 EXAMINER CATANACH: The affidavit will be
15 admitted as evidence.

16 MR. COOTER: May I make a very brief statement
17 before we begin the testimony?

18 EXAMINER CATANACH: Yes, sir.

19 MR. COOTER: As you know, Mr. Catanach, Order
20 Number R-11,027, dated August 3, 1998, was entered in this
21 case after hearing, which authorized Shahara Oil, the
22 Applicant, to commence a waterflood project in Eddy County
23 on tertiary recovery with injection of micro-organisms into
24 the water for better sweep efficiency.

25 As part of that order, particularly invite your

1 attention to page 7 of that order, paragraph 5, the list of
2 five wells that the Applicant was required to re-enter and
3 replugin before injection operations commenced.

4 In response to that, Mr. Hughes with Shahara Oil
5 wrote his December 14 letter considering each of those five
6 wells and what was proposed to be done with reference to
7 that, and that's why we're here today.

8 If I might ask, as we did before, could Mr.
9 Hughes sit at this table with me so we can share exhibits?
10 We'll speak up loudly, and I don't think there will be any
11 problem with hearing us.

12 EXAMINER CATANACH: That's fine, Mr. Cooter.

13 MR. COOTER: Thank you.

14 PERRY L. HUGHES,

15 the witness herein, after having been first duly sworn upon
16 his oath, was examined and testified as follows:

17 DIRECT EXAMINATION

18 BY MR. COOTER:

19 Q. Would you state your name for the record, please,
20 sir?

21 A. Perry L. Hughes.

22 Q. Are you the same Perry Hughes who testified
23 previously in this case?

24 A. I am.

25 MR. COOTER: If the Examiner please, we would not

1 go through the qualifications of Mr. Hughes again. They
2 appear of record in this case.

3 EXAMINER CATANACH: (Nods)

4 Q. (By Mr. Cooter) Let's start with Exhibit Number
5 8, Mr. Hughes. Would you identify that exhibit and explain
6 what it is?

7 A. Exhibit Number 8 shows the Beeson "F" federal
8 lease, located in Sections 29 and 31, 17 South, 30 East,
9 Eddy County, New Mexico, in the Loco Hills-Queen-Grayburg-
10 San Andres Pool. It indicates the proposed injection wells
11 as authorized in Order 11,027 in blue, the proposed
12 producing wells in green, and identifies the five problem
13 wells as noted in Order 11,027.

14 Q. Those are numbered 1 through 5?

15 A. The problem wells are numbered 1 through 5, and
16 that is how we would propose to address those today.

17 Q. Are the marked producing wells all authorized?

18 A. That is correct, they're all authorized. There
19 were five unorthodox locations that were identified. Those
20 were -- have all been approved by the district through the
21 approval of the applicable C-104s.

22 Q. Now, let's go next to Exhibit Number 9. Identify
23 and explain that, if you would.

24 A. Exhibit Number 9 is an expanded picture of
25 Section 31 only and indicates the three problem wells -- as

1 noted in orange, 1, 2 and 3 -- that affect the portion of
2 the Beeson "F" lease located in Section 31.

3 Q. Now, while that's in front of us, go next to
4 Exhibit Number 10, identify and explain that.

5 A. Exhibit Number 10 is the schematic diagram of the
6 plugging operations of Problem Well Number 1, which is the
7 Yates A Number 9 well, located in Section 6, 18 South, 30
8 East, and indicates the method in which Yates ultimately
9 plugged the A 9 well in October of 1987.

10 Q. Attached to Exhibit Number 10 are some additional
11 pages, or -- I think there are two pages. Explain those,
12 if you would.

13 A. The two pages are identical in that they
14 represent the sundry notices and report on the well as
15 Yates plugged the Yates A Number 9, and the first page
16 after the schematic indicates the report is received at the
17 OCD office, the second page is how it was received,
18 indicating receipt at the BLM office.

19 Q. Is the information shown on those two reports --
20 and they're the same document, the two, just filed at
21 different places?

22 A. That is correct, the information is identical.

23 Q. And is that correctly set forth on your schematic
24 to which those are attached?

25 A. That is indicated on the schematic as Exhibit 10.

1 Q. Is this wellbore of the Yates A Number 9 well on
2 the Beeson "F" Unit or adjacent -- or on land in which
3 Shahara Oil or its co-interest owners have any interest?

4 A. No, it is located on Yates Petroleum lease, not
5 on the Beeson "F" lease, and Shahara and its co-interest
6 owners do not have an interest in the lands on which Yates
7 A 9 is located.

8 Q. If there is a problem or was a problem in the
9 plugging of this particular well, how does Shahara Oil
10 propose to minimize any problems?

11 A. Shahara Oil proposes to limit injection in the
12 five wells located in the southwest quarter of Section 31
13 to a maximum of 350 barrels of water per day, per well, for
14 a period of six months. This would be the fill-up period.
15 This would total a maximum of 318,500 barrels of water.

16 Subsequently, we propose to limit total injection
17 to total withdrawals of oil and water in the southwest
18 quarter of Section 31, calculated on an annual basis.

19 Q. Keeping the Exhibit 9 in front of us, let's turn
20 next, if you would, to Exhibit Number 11. I ask you to
21 identify and explain it.

22 A. Exhibit Number 11 is a schematic diagram of the
23 plug-and-abandonment operations as conducted by Yates
24 Petroleum on the Brigham Number 2, located in Unit I of
25 Section 31, 17-30. This well was plugged in October of

1 1987.

2 Q. Attached to the schematic, which is Exhibit 11,
3 are three pages, I believe, of -- three separate pages.
4 What are they?

5 A. These are copies of sundry notices and reports on
6 wells provided by Yates Petroleum of their -- which
7 documents their operations in attempting to plug and
8 abandon subject well Brigham Number 2.

9 Q. Is the information set forth on those
10 attachments, the three pages, correctly set forth on the
11 schematic?

12 A. Yes, it is.

13 Q. Once again, is this wellbore on the Beeson "F"
14 unit or on lands in which Shahara Oil or its co-interest
15 owners have an interest?

16 A. It is located on Yates Petroleum lands, not on
17 any lands that Shahara or their co-interest owners have an
18 interest.

19 Q. How does Shahara Oil propose to minimize any
20 problems with the insufficient plugging, if there is, in
21 that Brigham Number 2 well?

22 A. Originally -- and this pertains to the northeast
23 quarter of Section 31 -- originally Wells Numbers Beeson
24 "F" 5 and 6 were proposed as injectors. We propose to make
25 Beeson "F" 5 and 6 injectors to re-enter and complete

1 Beeson "F" 14 as an injector. By completing Numbers 5 and
2 6 as producers, we provide offtake points between injectors
3 and producers.

4 Q. Maybe I misheard you, but the Exhibit 9 -- or 8,
5 I guess, over there, the first exhibit, those Wells Numbers
6 5 and 6 in the northeast quarter of 31 appear as injectors?

7 A. That is correct.

8 Q. And now you propose to use those two wells as
9 producers?

10 A. That is correct.

11 Q. With your injection well being the 14 well in the
12 southwest quarter of the northeast quarter?

13 A. That is correct.

14 Q. That is the second of the two problem wells
15 referred to in the prior order. Let's turn your attention,
16 if I may, or direct your attention to the third, which is
17 the Aston and Fair State Number 1 B well in Section 32.
18 That's marked as Well Number 3 on Exhibit 9?

19 A. That is correct. And that well -- With the
20 completion of F Number 6 as a producer, that Number 3 well
21 becomes, or is, at a distance greater than one-half mile
22 from the closest proposed injection well, which is the
23 Number 11 well. Therefore, it is outside the area of
24 consideration and the half-mile radius in the area of
25 review. Therefore, we would propose to do nothing with

1 that wellbore.

2 Q. Let me direct your attention next to Exhibit
3 Number 12. Keep that one -- no, I guess -- Yeah, set that
4 aside. Go next to Exhibit Number 12 and identify that, if
5 you would.

6 A. Exhibit Number 12 is a blow-up of Section 29. It
7 shows the 120 acres of the Beeson "F" federal lease that is
8 located in Section 29, the proposed injection wells being
9 Numbers 8 and 9, the proposed producing wells being 23 and
10 25, and Numbers 4 and 5 problem wells as identified in our
11 Order 11,027.

12 Q. Keeping that in front of you, turn next, if you
13 would, to Exhibit Number 13. Identify and explain that.

14 A. Exhibit Number 13 is the information available on
15 the drilling which refers to the drilling and plugging of
16 the Woolley 12 D, identified as Problem Well Number 4, in
17 the northwest of the northwest of Section 33.

18 Q. There are certain attachments to your schematic,
19 Exhibit 13. What are they?

20 A. They are the sundry notices and reports on the
21 well, as filed with the BLM and the Geologic Survey, as to
22 the plugging of the Woolley 12 D.

23 In addition, the log, as filed with the
24 Department of the Interior, Geologic Survey, shows the
25 information as filed by the operator, Woolley, on the well,

1 and is four pages, which gives the complete lithology as
2 well as the history of the plugging of the well, and
3 indicates that there was no oil or water encountered
4 anywhere in the wellbore during the drilling/plugging
5 operations.

6 Q. This well was a dry hole when it was drilled?

7 A. This well was a dry hole and was plugged, drilled
8 as a dry and abandoned well in July of 1952.

9 Q. Is this wellbore on the Beeson "F" acreage or on
10 acreage in which Shahara Oil or its co-interest owners have
11 any interest?

12 A. No, it is not.

13 Q. Please detail the plugging effort that was made
14 on this well, if you would.

15 A. The well was plugged after drilling 7-7/8-inch
16 hole to a TD of 3256 feet, encountering no oil or water in
17 the wellbore. A 10-sack cement plug was set at 3100 feet.
18 The hole was filled with heavy mud to the base of the salt
19 at 1205 feet. 8 5/8 casing had been set in this well at
20 506 feet with 50 sacks of cement. The 8-5/8-inch casing
21 was cut and pulled from 245 feet, with a 10-sack cement
22 plug set in and out of the 8 5/8 casing stub. A five-sack
23 cement plug was set at the surface.

24 No log exists on this well, that we've been able
25 to find, either through BLM, OCD or any other reference-

1 library records.

2 Q. Let's look at Exhibit Number 14 next. Identify
3 it.

4 A. Exhibit 14 is a picture that shows why the
5 Woolley 12 D was nonproductive and indicates that several
6 other wells in the vicinity of the 12 D were either dry
7 holes or, at best, marginal producers.

8 The cumulative production for wells in the area
9 of 12 D are shown as thousands of barrels of oil, slash
10 mark, thousands of barrels of water that have been -- that
11 is the cumulative production from those wellbores.

12 There is a line of demarcation which exists
13 between our proposed Injector Well Number 8, and subject
14 well, Problem Well Number 4, the Woolley 12 D. It
15 indicates in red the area of no or limited hydrocarbon
16 production and no apparent reservoir rock existing in the
17 area.

18 The area is shaded in green, and with the
19 cumulative production highlighted in darker green,
20 indicates the area around our Beeson "F" lease and the
21 proposed Injector Number 8 well, and indicates significant
22 production to the -- in the area of the Beeson "F" lease.

23 We propose to do nothing with the Problem Well
24 Number 4, being located about 2000 feet from the proposed
25 Injection Well Number 8, as there appears to be no

1 reservoir rock or hydrocarbons existing to the southeast of
2 proposed Injection Well Number 8, and there are no active
3 offtake points and have been no active offtake points in
4 the area of 12 D which would create any type of pressure
5 sink.

6 We would expect that all injection would go to
7 the north and west of proposed injection well F 8.

8 Q. Mr. Hughes, there is a well to the north and west
9 of the Woolley 12 D well. Identify that, please.

10 A. That is the Woolley 1 J well in the southeast of
11 the southeast of Section 29. Some records indicate it to
12 be the Woolley 1 J, other records indicate it to be the
13 Woolley 1 T.

14 Cumulative production from that well was less
15 than 8000 barrels of oil and no water. A log exists on
16 that well which indicates very poor reservoir rock in that
17 wellbore.

18 And that wellbore has been plugged and abandoned
19 several years ago and was discussed and approved as a part
20 of our C-108 submission.

21 Q. That Woolley 1 J or 1 T well, whichever it is, in
22 the southeast southeast of 29, is not one of the problem
23 wells with which we're concerned today?

24 A. It is not.

25 Q. In your opinion, Mr. Hughes, is there a

1 probability that water injected into the F 8 well might
2 migrate to the Woolley Number 12 D wellbore?

3 A. In my opinion, there is no possibility that water
4 would migrate from the F 8 to the Woolley 12 D.

5 Q. Turn next to Exhibit Number 15, please, and would
6 you identify and explain that?

7 A. Exhibit 15 is the schematic of the plug-and-
8 abandon operations as conducted by Woolley on the Arnold 9
9 D, located in Section 29 to the north of the Beeson "F"
10 lease. This well was drilled, plugged and abandoned in
11 December of 1949.

12 Q. The schematic indicates that's in Unit K, but
13 actually it's in Unit J, is it not?

14 A. That is correct.

15 Q. And that is correctly set forth in the Order R-
16 11,037, as being in Unit J?

17 A. That is correct.

18 Q. Does -- That's outside the Beeson "F" Unit that's
19 the subject matter of this hearing?

20 A. It is.

21 Q. Does Shahara Oil or any of its co-interest owners
22 have any interest in that acreage, where that Arnold Number
23 9 D wellbore is located?

24 A. We do not.

25 Q. How does Shahara Oil propose to minimize any

1 problem, if there was a problem, or deficiency in the
2 plugging of that well?

3 A. Shahara Oil proposes to drill a producing well as
4 designated Beeson F Number 28 on Exhibit 12, located
5 between proposed Injection Well F 9 and the Woolley 9 D
6 well, Problem Well Number 5.

7 Q. That's shown on Exhibit 12?

8 A. That is correct.

9 Q. And again, that is the difference between the
10 information shown on Exhibit 12 and that originally shown
11 on Exhibit 8?

12 A. That is correct.

13 Q. Mr. Hughes, were the maps which have been marked
14 as Exhibits 8, 9, 12 and 13 [sic], as well as the
15 schematics identified as Exhibits 10, 11, 13 and 15,
16 prepared by you?

17 A. Yes, they were.

18 Q. Do they accurately and correctly reflect the
19 information shown thereon, which you have testified about
20 today?

21 A. They do.

22 MR. COOTER: Mr. Examiner, we would tender
23 Exhibits 8 through 15.

24 EXAMINER CATANACH: Exhibits 8 through 15 will be
25 admitted as evidence.

1 MR. COOTER: That concludes my direct examination
2 of Mr. Hughes.

3 EXAMINATION

4 BY EXAMINER CATANACH:

5 Q. Okay, Mr. Hughes, let me just make sure, on the
6 Number 1 well that you talked about, the Yates A Number 9,
7 your proposal for the southwest quarter of Section 31 is to
8 limit injection to 350 barrels of water per day per
9 injection well?

10 A. For a six-month period.

11 Q. Okay. And then thereafter you're going to limit
12 that injection rate to the withdrawal rate ---

13 A. That is --

14 Q. -- from the wells, from the producing wells in
15 that quarter section?

16 A. That is correct, the four producing wells in that
17 quarter section.

18 Q. Do you know if that Number 9 was a producing well
19 at one time, the Yates A Number 9?

20 A. I believe it was a producer.

21 Q. In this same pool?

22 A. In the same pool. I'm not sure my records are
23 complete. I do not show any cumulative production on my
24 work master production maps.

25 MR. COOTER: Would it be shown on the attachment

1 to the exhibit, on the plugging reports?

2 THE WITNESS: No.

3 MR. COOTER: No, okay. That was Exhibit 10?
4 Okay.

5 EXAMINER CATANACH: Maybe after the hearing you
6 can find that out and give me that information --

7 THE WITNESS: Okay.

8 EXAMINER CATANACH: That would be fine.

9 Q. (By Examiner Catanach) Mr. Hughes, what can you
10 tell me about the fresh water in this area?

11 A. As far as I know, there is no fresh water in
12 here. We discussed a little bit about that in the prior
13 hearing, and I pointed out that one of the indications that
14 I use for fresh water in the area is the presence or
15 absence of windmills, and there are no windmills in this
16 area at all.

17 Q. Did you do any further investigation, maybe
18 contacting the State Engineer about any knowledge they
19 might have?

20 A. I have not.

21 Q. Where is this area in relation to -- Is this near
22 Loco Hills?

23 A. It's about two miles southwest of Loco Hills.

24 Q. Southwest, okay. We recently heard an
25 application for a waterflood. I think it was just -- it

1 was north and east of Loco Hills. And they did identify
2 some freshwater sands at various depths. That's why I was
3 curious about whether there was anything down here.

4 But to your knowledge, there's no windmills?

5 A. No.

6 Q. That doesn't necessarily mean that there's no
7 fresh water?

8 A. That's true. That, of course, is moving back
9 toward the -- going back to the northeast of Loco Hills is
10 moving toward the cap and where we know that there is
11 Ogallala fresh water. I don't know how far to the
12 northeast of Loco Hills you're talking, but it's probably
13 eight miles or so, or ten miles to the northeast of Loco
14 Hills where you get on the caprock, and certainly there is
15 fresh water there.

16 Q. Do you believe that that -- what you're proposing
17 in the southwest quarter of Section 31 will keep water out
18 of that Yates wellbore?

19 A. I don't think that there's any likelihood that
20 we're going to be pushing water in the direction of Number
21 9. The three wells that are located along the boundary and
22 south of the Beeson "F" lease, the Yates wells designated
23 as 1, 2 and 3, are all either plugged and abandoned or
24 temporarily abandoned. There are no offtake points in the
25 direction of the Yates A 9 well.

1 Q. So you're saying you don't think that you're
2 going to have water moving in that direction?

3 A. I don't think I will have water moving in that
4 direction, because there will be no pressure sink, no
5 pressure depletion in the direction of the A 9 well. All
6 of the offtake, the withdrawals, will be in the southwest
7 quarter of Section 31.

8 Q. What pressure are you going to be injecting at in
9 the southwest quarter?

10 A. We're injecting about a mile to the northwest --
11 northeast of the Beeson "F" on the Grayburg-Jackson-Premier
12 sand unit, injecting produced water. Those injection
13 pressures are about 1200 to 1400 pounds. I would
14 anticipate that those pressures, our injection pressures,
15 will be at or below those 1400 pounds.

16 Q. What are you authorized at in these new injection
17 wells?

18 A. We are not authorized, we have to run -- we'll
19 have to run step rates.

20 Q. Did we give you a limit on the pressure in that
21 order?

22 MR. COOTER: I don't think so.

23 THE WITNESS: Not to exceed .2, normal.

24 Q. (By Examiner Catanach) And we're talking about
25 injecting at what depths?

1 A. 3000 feet, 3200 at a maximum.

2 Q. Mr. Hughes, who's going to monitor that injection
3 and production? Is that going to be the responsibility of
4 your company, Shahara?

5 A. It would be the responsibility of the operator,
6 and reported on C-115s on a monthly basis. And I would
7 suggest that we then provide a report at the end of each
8 calendar year to set out the total injection and
9 withdrawals for that southwest quarter.

10 Q. With regards to the Number 2 Brigham, the Brigham
11 Well Number 2, you're going to change the injection and
12 production pattern in that quarter section?

13 A. That is correct. The Numbers 5 and 6 were
14 originally set up as injectors. We'll make those
15 producers, and we'll re-enter and make the 14 F well an
16 injector.

17 Q. Do you know what the -- There is a well
18 identified as a Number 4 well in that quarter section, the
19 southeast quarter. Do you know what the status of that
20 well is?

21 A. That well was plugged and abandoned in 1984,
22 after having produced about 244,000 barrels of oil and
23 419,000 barrels of water.

24 Q. The Brigham Number 2 appears to be fairly well
25 plugged above 460 feet. Is that a fair statement?

1 MR. COOTER: That's Exhibit 11.

2 THE WITNESS: I would say that the Brigham 2 was
3 plugged well from 460 up. Problem was encountered at --
4 the 7-inch casing was parted at 855 feet. They were unable
5 to get back into it.

6 The calculated top of cement, the original cement
7 job on the 7-inch, was at 1148 feet. I think your
8 statement is true.

9 Q. (By Examiner Catanach) Is it your opinion that
10 any freshwater zones that might exist in this area -- Well,
11 first of all, they're probably likely shallower than 460
12 feet. I don't think I've seen anything deeper than that.
13 But this wellbore appears to be plugged satisfactorily, so
14 as to protect any freshwater zones?

15 A. That would be my evaluation.

16 Q. Now, there is a salt section in this area, right?

17 A. Yes, there is.

18 Q. What depth does that occur, Mr. Hughes?

19 A. I don't have the record on the Number 2 well. I
20 was looking at the lithology record of the Number 4 problem
21 well, the Woolley 12 D. That indicates salt from 725 to
22 1205.

23 The lithology record on the Arnold 9 D well,
24 Problem Well 5, shows salt from 672 to 1092.

25 Q. Okay.

1 A. I believe that any freshwater sands that exist in
2 the area would occur above 450 feet, 460 feet for certain.

3 Q. The way that you've got it configured in that
4 quarter section, you may, in fact, have some water heading
5 towards that wellbore?

6 A. From the 14?

7 Q. Yes.

8 A. Certainly the Producing Well Number 5 is a lot
9 closer to the 14 than our problem well.

10 Q. Okay, the Number 3 well is more than half a mile,
11 is that your --

12 A. It is more than a half a mile now from the
13 closest proposed injector, which is the Number 11.

14 Q. What's your opinion on whether or not water will
15 ultimately reach that wellbore?

16 A. Well, we have an offtake almost in line, which
17 will be the proposed Producer Number 6. I would be very
18 surprise if any injected water moved in that direction,
19 that far.

20 Q. We don't have a schematic of that Number 3, do
21 we? You didn't present one?

22 A. We did not use it as an exhibit. I'm sure I have
23 a --

24 MR. COOTER: That's the original C-108. Let me
25 see if I can find it.

1 THE WITNESS: I have a copy of the schematic.
2 And while we have no information at all on the plugging
3 itself, we do know what they proposed, but we have no
4 record of a report of what they actually did. But we do
5 have that information on the Number 3 and would be glad to
6 make it available to you. It would have been presented
7 originally --

8 EXAMINER CATANACH: Yeah.

9 THE WITNESS: -- but we didn't make it a part of
10 the exhibit.

11 Q. (By Examiner Catanach) Does that have surface
12 casing set on that one?

13 A. Yes, it had 8-1/4-inch 25 -- 28-pound casing, set
14 with 50 sacks at 503 feet.

15 Q. Okay, I'll take a look at that. I have that
16 information probably in this file here.

17 Okay, moving on to the Number 4, this is the well
18 that you believe that doesn't have good-quality reservoir
19 rock?

20 A. Not only in that wellbore, but in the entire
21 area, as indicated on Exhibit 14 by the red area and the
22 fact that none of the wells in that area either produced
23 any hydrocarbons or water, or, if they produced, very
24 minimal amounts.

25 Q. Was there a log on that Number 12 well that you

1 were able to --

2 A. I have not been able to find a log anywhere. And
3 I have contacted the present operator, which is GP II, and
4 they have gone through all their historic records and files
5 that they received as -- after their purchase of the
6 property, and they have nothing, and I've been able to find
7 nothing in any of the log libraries or OCD or BLM records.
8 We don't even know if one was run.

9 Q. So in constructing Exhibit Number 14, your map,
10 what did you look at to determine where that line should
11 be? Is it just -- did you base it --

12 A. Primarily cumulative productions.

13 Q. You didn't actually look at some of the logs and
14 determine that there was a reduced permeability or
15 anything?

16 A. We looked at the log, specifically, the 1 J,
17 which is in the southeast of the southeast of 29. We do
18 have that log. It indicated poor rock quality.

19 That well was drilled and completed as a producer
20 in the upper part of the Grayburg, making one-half barrel
21 of oil per day. A few years later, they came in and
22 deepened it to what would include all of the Grayburg
23 section, and it made six barrels a day, and the cumulative
24 production is 7887 barrels of oil.

25 The log on it shows poor rock quality in the

1 entire Grayburg section.

2 Q. That's --

3 A. We have -- and you know, and we characterize --
4 We compared that log with the log on our Number 8 well,
5 which has good rock quality and good cumulative production
6 of 133,000 barrels of oil.

7 I have not -- I do not have a log on the Number 6
8 well over in the center of Section 28. We do have a log on
9 the 2 E well, just to the south of 28, because that's our
10 well. Rock quality is poor in it, as witnessed by the
11 14,000 barrels of cumulative production.

12 I have not examined any other logs down in
13 Section 32. I don't know if they exist or not.

14 Q. So your opinion is that the reservoir will be
15 unable to transmit any produced water down to that
16 wellbore?

17 A. I don't think that there's any rock for the water
18 to pass through.

19 I think another thing that kind of witnesses that
20 is that southwest of the southwest of 28, there was never
21 even a well drilled in it. Obviously, other operators felt
22 that there was nothing there to drill for.

23 And likewise in the northeast of the northeast of
24 32. I think it's an area of nonreservoir.

25 Q. Okay. Let's move on to the last well, Number 5.

1 Okay, your proposal for that well is to drill the Number 28
2 well, which would lie directly in between the 9 and that
3 problem well?

4 A. That's correct.

5 Q. And what's that other injection well to the east
6 of the 9? Is that the Number 8?

7 A. That is the Number 8.

8 Q. That will still be used as an injection well, and
9 the 25 well --

10 A. -- is a producer.

11 Q. -- is a producer. And that will be completed,
12 then, produced in between that Number 8 well and the
13 problem well?

14 A. That's correct.

15 Q. So you believe that given those two takeoff
16 points, you're not going to have any water moving towards
17 the Number 5 well?

18 A. That is correct. And plugging of the Problem
19 Well Number 5, the Woolley 9 D, is -- while it's not the
20 way that we certainly would plug wells now, it was accepted
21 plugging method in December of 1949.

22 Q. Well, is it your opinion, Mr. Hughes, that the
23 wood plug and the rock bridge at 1300 feet are adequate to
24 prevent any fluid migration in that wellbore?

25 A. With a cement cap on top. As I said, it's

1 probably not the way we would do it now, but it was
2 accepted method in 1949. I don't believe there will be any
3 migration with our offtake points in between the injectors
4 and the subject well.

5 Q. We do still have surface casing in this well at
6 468 feet -- well, they removed 276 feet of casing from that
7 wellbore?

8 A. They set a rock bridge and cement on top of the
9 rock bridge, at the point where the 8 5/8 was cut off, 276
10 feet.

11 Q. Have you guys recently drilled any wells in this
12 area?

13 A. The 18, 19, 20, 21, 22, 23, 24 and 25 were all
14 drilled in late 1997 or early 1998.

15 Q. And those wells that you just described, those
16 are on the Beeson "F" lease?

17 A. Those are all on the Beeson "F" lease, and those
18 will all be producers under this waterflood program,
19 waterflood and tertiary-recovery program.

20 Q. While drilling those wells, did you encounter any
21 kind of water-flow situation in any zones?

22 A. We encountered no water flow in any well that I
23 just named, in any of the Beeson "F" area. We had no water
24 flows, either shallow or deep. Not in the surface area,
25 not in the salt section, nor in the area of the Queen,

1 Grayburg and upper San Andres. We encountered no water
2 flows in our program at all.

3 Q. Has this area been subject to waterflood
4 operations previously?

5 A. The Section 31 has, the Section 29 has not, our
6 area. Now, I'm speaking of the Beeson "F" lease. I don't
7 think there's been any water injected into Section 29 at
8 all. But certainly Section 31 has had various waterflood
9 operations in that area, including the Beeson "F". The
10 Beeson "F" injection was into the Loco Hills portion of the
11 Grayburg only.

12 We have proposed to expand it to the entire
13 Grayburg section.

14 Q. So if there was any water out of zone in that
15 area, you would have expected to see it in your drilling
16 program?

17 A. I certainly would have. I mean, we have in other
18 parts of the -- not necessarily the Loco Hills Pool, but
19 certainly the Grayburg-Jackson Pool to the east, we've seen
20 waterfloods. But we didn't.

21 EXAMINER CATANACH: Okay, I think that's all I
22 have of this witness.

23 Is there anything further you'd like to present
24 in this case?

25 MR. COOTER: We have nothing further, Mr.

1 Catanach, other than to conclude with the prayer that part
2 of the prior order be considered satisfied in light of
3 testimony offered today, a supplemental order issued so we
4 can proceed with the waterflood.

5 EXAMINER CATANACH: Okay, there being nothing
6 further in this case, Case 11,973 will be taken under
7 advisement.

8 MR. COOTER: Thank you, sir.

9 EXAMINER CATANACH: Thank you.

10 (Thereupon, these proceedings were concluded at
11 9:21 a.m.)

12 * * *

13
14
15
16 I do hereby certify that the
17 a copy of the proceedings in
18 the case of March 18 11,973
19 heard by me on March 18
20 David R. Catant
21 Oil Conservation Division

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
 COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL March 20th, 1999.

 STEVEN T. BRENNER
 CCR No. 7

My commission expires: October 14, 2002