

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
7 16 December 1987

8 EXAMINER HEARING

9 IN THE MATTER OF:

10 Application of Sun Exploration and CASE
11 Production Company for amendment of 9275
12 Division Order No. R-6483, Lea County,
13 New Mexico.

14 BEFORE: David R. Catanach, Examiner

15
16 TRANSCRIPT OF HEARING

17
18
19 A P P E A R A N C E S

20
21 For the Division: Jeff Taylor
22 Attorney at Law
23 Legal Counsel to the Division
24 State Land Office Bldg.
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For the Applicant: Karen Aubrey
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I N D E X

ROBERT BRIAN SIDLOWE

Direct Examination by Ms. Aubrey	4
Cross Examination by Mr. Catanach	9

JACK WOFFORD HOOD

Direct Examination by Ms. Aubrey	10
Cross Examination by Mr. Catanach	14
Redirect Examination by Ms. Aubrey	14
Recross Examination by Mr. Catanach	17

E X H I B I T S

Sun Exhibit One, Structure Map	5
Sun Exhibit Two, Type Log	8
Sun Exhibit Three, Map	11
Sun Exhibit Three-A, Map	17
Sun Exhibit Four, Data	11
Sun Exhibit Five, Calculations	11
Sun Exhibit Six, Green Cards	14
Sun Exhibit Seven, Order	6

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MR. CATANACH: Call next Case
9275.

MR. TAYLOR: The application of
Sun Exploration and Production Company for amendment of Div-
ision Order No. R-6483, Lea County, New Mexico.

MR. CATANACH: Are there ap-
pearances in this case?

MS. AUBREY: Karen Aubrey with
the Santa Fe firm of Kellahin, Kellahin & Aubrey, represen-
ting the applicant.

I have two witnesses to be
sworn.

MR. CATANACH: Are there any
other appearances?

Will the witnesses please stand
and be sworn in?

(Witnesses sworn.)

ROBERT BRIAN SIDLOWE,
being called as a witness and being duly sworn upon his
oath, testified as follows, to-wit:

1 DIRECT EXAMINATON

2 BY MS. AUBREY:

3 Q Would you state your name for the record,
4 please?

5 A Robert Brian Sidlowe.

6 Q And, Mr. Sidlowe, have you testified
7 previously before the New Mexico Oil Conservation
8 Commission?

9 A No.

10 Q Would you describe for the Examiner your
11 educational and professional experience?12 A I graduated from Penn State University in
13 1978 with a Bachelor of Science degree in geology.14 I started to work for Sun Oil Company in
15 February of 1980 and since have been studying in the Permian
16 Basin area since December of '84 to this point.17 Q Mr. Sidlowe, you're presently employed by
18 Sun Exploration and Production Company?

19 A Yes, sir.

20 Q Are you familiar with the application
21 that Sun Exploration and Production has filed in this case?

22 A Yes, ma'am.

23 Q And are you familiar with the area invol-
24 ved in this case?

25 A Yes, ma'am.

1 MS. AUBREY: Mr. Examiner, I
2 tender Mr. Sidlowe as an expert petroleum geologist.

3 MR. CATANACH: He is so quali-
4 fied.

5 Q Let me have you turn to your first exhi-
6 bit, Mr. Sidlowe. With reference to that exhibit would you
7 describe for the Examiner what Sun Exploration and Produc-
8 tion Company seeks today?

9 A This is a structure map on top of the
10 Yates formation, showing Sun acreage colored in yellow. We
11 are currently going for an allowable consideration for the
12 Jalmat Pool in a recently drilled well on the State A Ac-
13 count 273, which is located in the southeast quarter of Sec-
14 tion 11.

15 Q That shows on the structure map as 73?

16 A Right.

17 Q That is -- and that is the well which Sun
18 has recently drilled and completed, is that correct?

19 A Right. The structure map is on top of
20 the Yates on a 50' contour interval. Dip is to the south-
21 west. There's various wells on the section and we currently
22 have four Jalmat producing wells. Those wells are currently
23 No. 14 in the northeast quarter; No. 42 in the northwest
24 quarter; and No. 62 and 36 in the southwest quarter.

25 Q Mr. Sidlowe, Sun seeks the simultaneous

1 dedication of Section 11 to the No. 73 Well, is that
2 correct?

3 A That's correct.

4 Q Is that acreage now simultaneously dedi-
5 cated to the other Jalmat wells which Sun operates in Sec-
6 tion 11?

7 A That's correct.

8 MS. AUBREY: Mr. Examiner, we've
9 marked a copy of Order R-6483 as Exhibit Number Seven for
10 your reference. That is the order which simultaneously de-
11 dicated Section 11 to the four existing Jalmat producing
12 wells.

13 MR. CATANACH: Okay.

14 Q Mr. Sidlowe, can you describe for the Ex-
15 aminer how it was that Sun chose the location of the No. 73
16 Well?

17 A Yes. The 73 location was originally
18 drilled in the -- for the Arrowhead Pool. We were on strike
19 with -- with the producers to the northwest and southeast
20 and had reason to believe that we could have a good Arrow-
21 head completion in this location.

22 We came up hole. We perfed the Grayburg
23 sands. They were depleted and we were not successful. We
24 continued to come up hole through the Queen into the Seven
25 Rivers, and we are currently trying to make a Jalmat comple-

1 tion as we were unsuccessful in the Arrowhead Pool.

2 Q Do you know the approximate depth of the
3 Arrowhead Pool in this area?

4 A The Grayburg comes in at approximately
5 3800 feet.

6 Q And the approximate depth of the Jalmat
7 in this area?

8 A Approximately 2800 feet.

9 Q Is the location of the No. 73 Well a
10 standard location for an Arrowhead oil well?

11 A Yes, ma'am.

12 Q Can you briefly give the Examiner a sta-
13 tus report on the well at this time?

14 A Okay. Currently we are completed in the
15 upper 200 feet of the Yates formation. It's under evalua-
16 tion for -- for fracture treatment.

17 We were unsuccessful in various comple-
18 tion attempts from the Grayburg on up to this point.

19 Q Mr. Sidlowe, is structure significant in
20 the Jalmat Pool?

21 A Structure is significant as far as oil,
22 water, and gas/oil contacts are concerned; however, in this
23 -- in this section we believe we're in a favorable
24 structural position to -- to make a Jalmat completion.

25 Q And you conclude from your structure map

1 that the acreage surrounding the No. 73 Well should be pro-
2 ductive.

3 A Yes, ma'am.

4 Q Do you have any other comments you want
5 to make about your structure map?

6 A Not at this time. I believe it's
7 covered.

8 Q Let me had you look now at Exhibit Number
9 Two, which is the type log of the No. 73 Well.

10 A Right. This is a type log from the top
11 of the Yates, which is what the structure map was mapped on,
12 down to the top of the Queen. I have the base of the Jalmat
13 Pool marked 100 feet above that point.

14 The Yates and Seven Rivers formation is
15 described as an interbedded tidal flat sandstone with dolo-
16 mitized lagoonal mudstones, and production is from these in-
17 termittent and stratigraphic thin sandstones that come into
18 play here.

19 The sands do show some -- quite a bit of
20 thickening and thinning throughout the section and the thin-
21 ner sands do show some -- quite a high degree of discontin-
22 uity.

23 That's basically what I'm going to say
24 about this -- this exhibit here.

25 Q Do you have any estimate of the number of

1 different sands that you'd expect to encounter?

2 A Shown on this type log there's at least
3 25.

4 Q And does your type log show the
5 perforations in the well there?

6 A The type log currently shows the
7 perforations that are currently open from approximately 2880
8 to 3065. In the Seven Rivers formation we did perf what we
9 called the D Sands and they are currently squeezed off.

10 Q And those are the perforations that are
11 shown with the slash through them --

12 A Right.

13 Q -- on your type log?

14 A Right, correct.

15 Q Mr. Sidlowe, were Exhibits One and Two
16 either prepared by you or prepared under your supervision
17 and direction?

18 A Yes.

19 MS. AUBREY: Mr. Examiner, I
20 have no more questions of Mr. Sidlowe.

21

22 CROSS EXAMINATION

23 BY MR. CATANACH:

24 Q Mr. Sidlowe, what's the total depth of
25 the well?

1 A It's just below 3900. I don't have the
2 exact figure, sir.

3 Q Okay, it was tested in the Grayburg and
4 the Queen?

5 A Yes, sir.

6 Q And no significant results? Was -- was
7 casing set before you tested the well in these?

8 A Yes. Yes, sir.

9 MR. CATANACH: I think that's
10 all I have of the witness at this time.

11 He may be excused.

12

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

16

17 DIRECT EXAMINATION

18 BY MS. AUBREY:

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

21 A My name is Jack Wofford Hood.

22 Q And, Mr. Hood, what is your occupation?

23 A I am a reservoir engineer with Sun
24 Exploration and Production Company.

25 Q Have you testified previously before the

1 New Mexico Oil Conservation Division?

2 A No, ma'am.

3 Q Would you review your professional and
4 educational qualifications for the Examiner?

5 A In December, 1980 I graduated from the
6 University of Texas at Austin with a degree in chemical
7 engineering.

8 I was employed immediately upon
9 graduation by Sun Production Company in the position of
10 Production Engineer, which I worked at for two years
11 exactly, at which time I began a new assignment as a
12 reservoir engineer working the southeast Lea County, New
13 Mexico area for five years.

14 Q Are you familiar with Sun's application
15 in this case?

16 A Yes, ma'am.

17 MS. AUBREY: Mr. Examiner, I
18 tender Mr. Hood as an expert reservoir engineer.

19 MR. CATANACH: He is so
20 qualified.

21 Q Mr. Hood, would you look at Sun's
22 Exhibits Number Three, Four, and Five. I think it will be
23 easier for you to look at these together.

24 A Right.

25 MS. AUBREY: Exhibit Number

1 Four, Mr. Catanach, is a multi-page exhibit.

2 Q And take these in any order you want, Mr.
3 Hood, and would you discuss with the -- for the Examiner
4 your conclusions with regard to production and drainage from
5 the No. 73 Well?

6 A These three exhibits are basically a
7 graphical interpretation of the drainage area based upon the
8 estimated ultimate recovery for these 7 selected wells in a
9 volumetric sense.

10 My calculations were illustrated on
11 Exhibit Five where I have an average porosity, and average
12 water saturation, and a reservoir temperature for the wells
13 in this vicinity. I have taken an initial bottom hole
14 pressure of 1300 pounds where I found from well records that
15 date back to the time these wells were initially completed,
16 my abandonment bottom hole pressure at 100 pounds. Using
17 that data I'm able to calculate a volume factor for the
18 initial reservoir conditions and the reservoir conditions at
19 abandonment.

20 The difference between these is the
21 amount of recoverable gas on a per acre foot basis.

22 Using my ultimate recovery and my net pay
23 in each particular well, I am able to calculate a drainage
24 area. Exhibit Number Three shows the drainage area for each
25 individual well in an areal sense, and Exhibit Number Four

1 is my P/z diagrams for each of the seven wells which illus-
2 trate my estimation of the ultimate recovery from each well.

3 Q Let me refer you to Exhibit Number Three,
4 the No. 36 Well in the southwest quarter of Section 11. Do
5 you know the date of completion of that well?

6 A I believe that well was completed in No-
7 vember of 1946.

8 Q And is that still producing?

9 A Yes, ma'am.

10 Q And the No. 14 Well, which is in the
11 northeast quarter of the section. Is that a well which is
12 currently producing?

13 A Yes, ma'am, it is.

14 Q And is that operated by Sun?

15 A Yes, ma'am.

16 Q Does Sun operate all the Jalmat producers
17 in in Section 11?

18 A Yes, ma'am.

19 Q Mr. Hood, based on your calculations, can
20 you offer the opinion that the No. 73 Well, if it is produc-
21 tive of gas, will be producing gas that would not be pro-
22 duced in the Jalmat?

23 A Yes, ma'am, I do.

24 Q Mr. Hood, based upon your review of the
25 data and your -- the exhibits which you've prepared, can you

1 come to the conclusion that granting Sun Exploration's ap-
2 plication for simultaneous dedication and for approval of
3 the unorthodox well location shown on Exhibit Three will
4 protect correlative rights, promote conservation and prevent
5 waste?

6 A Yes, ma'am, it shall.

7 Q With reference to Exhibits Three, Four,
8 and Five, were those prepared by you or under your supervi-
9 sion and direction?

10 A Yes, ma'am.

11 MS. AUBREY: Mr. Examiner, I
12 offer Exhibits One through Five. I ask you to take official
13 notice of Exhibit Number Seven, and Exhibit Number Six,
14 which Mr. Taylor has, is the original green cards from the
15 certified mail notice to all the offset operators.

16 I'd like to offer those exhi-
17 bits and I have no more questions of this witness.

18 MR. CATANACH: Okay, Exhibits
19 One through Seven will be admitted into evidence.

20
21 CROSS EXAMINATION

22 BY MR. CATANACH:

23 Q Mr. Hood, did you by any chance calculate
24 a drainage area for the No. 73 Well?

25 A For the No. 73 Well?

1 Q Right.

2 A Oh, yes, I did. I calculated that based
3 upon what I estimate the bottom hole pressure to be at that
4 particular location. The bottom hole pressure, I estimate
5 is 450 pounds.

6 My drainage area, I believe, is approxi-
7 mately 20 acres.

8 20 acres. You said you estimated that
9 bottom hole pressure?

10 A Yes, sir.

11 Q You don't have any exact measurements,
12 therefor?

13 A I do not have an exact bottom hole pres-
14 sure for that well.

15 Q Have you also calculated what amount of
16 additional reserves will be recovered by your No. 73 Well?

17 A The amount of reserves that I believe
18 would be incremental recovery in this area would be 435-mil-
19 lion cubic feet of gas.

20 Q Mr. Hood, what do the figures represent
21 under your well locations in that section?

22 A The figures there are an illustration of
23 the current production rates for each individual well and
24 its cumulative recovery to date. The legend at the bottom
25 of the page shows the barrels of oil per day, barrels of

1 water per day, and MCF per day to be the numbers that read
2 right to -- left to right on the top, and the cumulatives in
3 thousands of barrels of oil, thousands of barrels of water,
4 and millions of cubic feet of gas from left to right on the
5 bottom.

6 Q Are your wells, the wells that are
7 producing at this point, are they capable of producing the
8 allowable or are they -- do you know?

9 A I believe that the wells as they exist
10 now are not capable of producing our entire allowable.

11 Q The circle around the well in Section 12,
12 that also designated its drainage area?

13 A Oh, yes, sir, it does. The No. 7 Well.

14 Q Mr. Hood, --

15 A Yes, sir.

16 Q -- to your knowledge you haven't had any
17 objectio to this location from any of your offset operators?

18 A No, sir, I sure haven't.

19 Q And those would be ARCO and Marathon, is
20 that correct?

21 A Correct.

22 MR. CATANACH: That's all the
23 questions I have of this witness.

24 MS. AUBREY: I have a couple
25 more, Mr. Catanach.

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REDIRECT EXAMINATION

BY MS. AUBREY:

Q Mr. Hood, why is it that you don't have a bottom hole pressure for this well?

A Upon this well's completion we -- Sun did not run a bottom hole pressure test on this well yet.

Typically we run bottom hole pressure on a well after the completion has been entirely completed. In other words, since they're intending on fracture stimulating this well, they did not get a dip-in bottom hole pressure on it.

Q And, Mr. Hood, I've asked you to draw an approximate drainage circle on Exhibit Number Three, which represents the 20 acres which you testified you believe this well will drain.

MS. AUBREY: Mr. Examiner, I'd like to mark this as Exhibit Three-A and tender that also as an exhibit.

Also, Mr. Examiner, for the record Steve Burke with Chevron called my office yesterday afternoon to indicate that Gulf, now Chevron, has no objection to Sun's application.

MR. CATANACH: Thank you.

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RE CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Hood, I don't remember if you stated, how did you obtain that estimated bottom hole pressure?

A I obtained that estimated bottom hole pressure by surrounding wells from their yearly shut-in wellhead pressure. I took the most current shut-in wellhead pressures I had in the area and estimated what I would have in this particular location from that.

Q Mr. Hood, you used 1300 pounds in your calculations for -- for all your other wells?

A Yes, that's for the existing wells.

Q Why wouldn't your bottom hole pressure in your No. 73 be closer to that number?

A Well, there is some degree of pressure depletion in this area from the existing wells. There is a significant amount of the pay that is continuous to other producing wells adjacent to Well No. 73, so based upon that and plus my observation of the completion of the Well No. 73 to date, I don't have an indication that the bottom hole pressure is -- is anywhere near 1300 pounds.

Q That's all I have of the witness. He may be excused.

1 MS. AUBREY: That concludes our
2 presentation, Mr. Examiner.

3 MR. CATANACH: If there is no-
4 thing further -- oh, we didn't admit Exhibit Number Three-A,
5 which I'll admit at this time.

6 There being nothing further in
7 Case 9275, it will be taken under advisement.

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(Hearing concluded.)

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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9075, heard by me on December 16 1987,

David R. Catanach, Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date DECEMBER 16, 1987 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
Karen Aubrey	Kellahin & Baker + Rebre	Santa Fe
HUGH INGRAM	CONOCO INC.	HOBBS
Jim Bruce	Hinkle Law Firm	SF
Steven Burleson	Lewis Burleson, Inc.	midland
W. T. Kellohim	Kellohim Kellohim Aubrey	Santa Fe
John McCarty	CONOCO, INC.	Hobbs
BOB SIDOWE	SUN EXPLORATION & PRODUCTION	Midland, TX
JACK W. HOODS	SUN EXPL & PROD CO.	MIDLAND TX
Bob Huber	Byrnes	Santa Fe
Chas. C. Gray	SUN E & P Co.	Dallas, TX.
Paul M. Burchell	El Paso Natural Gas	El Paso, TX
Harold Dues	OCD	SF
V. Baldon	OCD	SF

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date DECEMBER 16, 1987 Time: 8:15 A.M.

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