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I N D E X

JOHN L. UPCHURCH

Direct Examination by Mr. Kellahin 3

E X H I B I T S

Phillips Exhibit One, Plat 3

Phillips Exhibit Two, Listing 5

Phillips Exhibit Three, Plat 5

Phillips Exhibit Four, Calculation 6

Phillips Exhibit Five, Waiver 6

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MR. STOGNER: Call next Case Number 8417.

MR. TAYLOR: The application of Phillips Oil Company for an unorthodox well location, Eddy County, New Mexico.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant.

Mr. Examiner, I'd request the record to reflect that Mr. Upchurch has been previously sworn and qualified as an expert reservoir engineer.

MR. STOGNER: Are there any other appearances in 8417?

The record will so show that Mr. Upchurch has previously been sworn.

JOHN L. UPCHURCH,
being called as a witness and being previously sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Upchurch, let me direct your attention to Exhibit Number One in this case and ask you what Phillips Oil Company seeks to accomplish with this application?

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A Exhibit Number One is a plat of our Burch C -- a portion of our Burch C and Burch BB Federal leases with Well No. 45, a proposed unorthodox location, highlighted.

Q This is a similar unorthodox oil well location request as the last one insofar as it affects the Grayburg Jackson Pool?

A That's correct.

Q All right. Describe for us the footage location for the subject well.

A This Well No. 45, the proposed location, is 330 feet from the north line and 2580 feet from the west line of Section 23, 17 South, 29 East.

Q What's the reason behind requesting this location, Mr. Upchurch?

A There are several reasons behind it. The first is what I've highlighted or shown here on Exhibit Number One, that the offset operator, Marbob Energy, had within the last fifteen months drilled four wells directly offsetting the Burch BB and Burch C leases on their M.A and M.B Federal. Three of those four wells potentialled for in excess of 67 barrels of oil per day.

Phillips desires this location in order to protect itself from offset drainage by the Marbob wells.

Q Your location will be a distance that's equal to the offsetting locations that Marbob has from this

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north line of Section 23?

A That's correct.

Q Let's go to Exhibit Number Two, Mr. Upchurch, and have you describe that.

A Exhibit Number Two is a listing of the three wells that Marbob recently drilled on their acreage, the M.A No. 30, the M.B No. 35 and No. 36.

The M.A No. 35, the well in the southwest quarter of the southwest quarter of Section 14 is not included because it was just potentialed in October, 1984, and I had no data available for me.

What this table shows is the date of first production of these three wells, their initial potential, their current production, and a cumulative production to September 1st, 1984.

Q All right, sir, let's go to Exhibit Three and have you identify that.

A Exhibit Number Three is again a plat of the Burch BB and C leases and it shows the cumulative production to date from Wells No. Burch C-17 and Burch BB No. 20.

It also has a circle inscribed around each of those wells showing that well's drainage radius.

Q Is there a reason that causes you to prefer the unorthodox location as opposed to the closest standard location?

A If we move to the closest -- the closest

1
2 standard location would be too close to the Well No. 17. We
3 feel we may be getting into drained acreage there, and also
4 Well No. 17 is a planned injection conversion and we don't
5 want to get too close to that and have our well water out
6 before it recovers all its oil.

6 Q In your opinion is the proposed unortho-
7 dox location the optimum location from which to drill a well
8 that will produce oil from this pool that will not otherwise
9 be recovered?

10 A Yes, it is.

11 Q If you'll turn to Exhibit Number Four and
12 identify that?

13 A Exhibit Number Four is a calculation,
14 drainage radius calculation. I went into the logs of the
15 two listed wells, calculated up their hydrocarbon porosity
16 feet; from that calculated up a barrels of oil per acre fig-
17 ure; divided that into the production using a 25 percent re-
18 covery factor, and then converted that acre figure to a
19 drainage radius.

19 Q And that's a calculation as you did in
20 the previous case that is a standard engineering calculation
21 --

21 A Yes.

22 Q -- to determine drainage radiuses.

23 A Yes, that's correct.

24 Q Let's go to Exhibit Number Five and have
25 you identify that exhibit.

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A Exhibit Number Five is a copy of the waiver signed by Marbob Energy Corporation. We sent them a request for waiver concerning an unorthodox location in Unit letter C of Section -- Section 23, pending archaeological approval of said location, and they have signed it and returned it to us.

Q With the exception of the waiver of objection letter from Marbob, were Exhibits One through Four prepared by you or compiled under your direction and supervision?

A Yes, they were.

Q And in your opinion, Mr. Upchurch, will approval of this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, it will.

MR. KELLAHIN: We move the introduction of Exhibits One through Five.

MR. STOGNER: Exhibits One through Five will be admitted into evidence.

I have no questions of Mr. Upchurch.

Are there any other -- are there any questions of this witness?

If not, he may be excused.

Is there anything further in Case Number 8417, Mr. Kellahin?

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MR. KELLAHIN: No, sir.

MR. STOGNER: Anybody else have anything further in Case Number 8417?

If not, this case will be taken under advisement.

(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. 8417.9 heard by me on November 28, 1984.

Michael E. Stovner, Examiner
Oil Conservation Division

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I N D E X

JOHN L. UPCHURCH

Direct Examination by Mr. Kellahin 3

E X H I B I T S

Phillips Exhibit One, Plat 4

Phillips Exhibit Two, Calculations 8

Phillips Exhibit Three, Log 8

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MR. STOGNER: Call next Case --
I'm sorry.

The hearing will come to order.
We'll call next Case Number
8416.

MR. TAYLOR: The application of
Phillips Oil Company for an unorthodox oil well location,
Eddy County, New Mexico.

MR. KELLAHIN: If the Examiner
please, I'm Tom Kellahin of Kellahin and Kellahin, Santa Fe,
New Mexico, appearing on behalf of the applicant and I have
one witness to be sworn.

MR. STOGNER: Are there any
other appearances in Case Number 8416?

If not, will the witness please
stand to be sworn?

(Witness sworn.)

JOHN L. UPCHURCH,
being called as a witness and being duly sworn upon his
oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Upchurch, for the record would you

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please state your name and occupation?

A My name is John Upchurch. I'm a reservoir engineer for Phillips Oil Company and I handle Lea and Eddy County, New Mexico.

Q Mr. Upchurch, have you previously testified before the Oil Conservation Division as a reservoir engineer?

A Yes, I have.

Q And with regards to this application by Phillips Oil Company have you made a reservoir study of the proposed unorthodox oil well location and the surrounding wells?

A Yes, I have.

MR. KELLAHIN: Mr. Examiner, we tender Mr. Upchurch as an expert reservoir engineer.

MR. STOGNER: Mr. Upchurch is so qualified.

Q Mr. Upchurch, would you direct your attention to what we've marked as Exhibit Number One and first of all explain to us what oil pool we're in?

A These wells that are listed on Exhibit Number One all produce out of the Grayburg Jackson Pool.

Q When we look at the northeast quarter of Section 24 in Township 17 South, 29 East, of Eddy County, are we looking at a quarter section, the wells for which in this pool are all operated by Phillips Petroleum Company?

A They're all operated by Phillips Oil Com-

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pany.

Q All right, sir.

A That's correct.

Q Exhibit Number One shows a yellow dot on what is labeled Well 29?

A Yes, that's correct.

Q Is that the proposed unorthodox oil well location?

A Yes, it is.

Q What is the footage location for that well?

A The well is 1300 feet from the north line and 1500 feet from the east line.

Q It will be located in which quarter quarter section, Mr. Upchurch?

A Unit letter B.

Q All right. And will that well location be more than 10 feet off the quarter quarter section line?

A Yes, it will. It's 20 feet away from that quarter quarter section line.

Q Would you describe for us what is contained on Exhibit Number One and the reasons behind your recommendation for approval of this unorthodox oil well location?

A There are several things included on the exhibit. I'll start with the circles surrounding the five wells in the northeast quarter of the section and the num-

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bers written underneath the wells.

The numbers, as 387NBO underneath Well No. 2 refers to the cumulative production as of September 1st for those well.

The circles represent the acreage drained by those particular wells. A calculation of that is given on the following page.

Also --

Q All right, the circles scribed around each of those wells represents what?

A The drainage radius for each well.

Q All right, sir, what else is shown on your exhibit?

A Also there's arrows on several of the wells in the section. Those wells are wells that Phillips plans to convert to injection.

Q With regards to the northeast quarter of Section 24, in each of those 40-acre tracts, is the royalty, overriding royalty, and working interest ownership the same?

A Yes, it is.

Q Why have you chose this particular location and not the closest standard location in each of the 40-acre tracts?

A We felt this location would be the best location to recover otherwise unrecoverable oil from underneath this acreage.

There's four standard locations relative-

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2 ly close to the proposed unorthodox location.

3 The first one would be 990 feet from the
4 north and east line in Unit letter A. We considered that
5 location unacceptable because it was too close to the Well
6 No. 3, which has already produced in excess of 192,000 bar-
7rels of oil.

8 There's a standard location in Unit let-
9 ter B, which would be 990 feet from the north line and 1650
10 feet from the east line. We didn't want to go to that loca-
11 tion because we recently worked over Well No. 10 and it tes-
12 ted for 56 barrels of oil a day. We feel that that drainage
13 radius will increase and we wouldn't recover as much oil if
14 we went there.

15 There's another location 660 -- 1650 feet
16 from the north and east lines in Unit letter G. We consi-
17 dered that location unacceptable because it was too close to
18 the proposed injection well.

19 And there's a fourth standard location in
20 Unit letter H, which would be 1650 feet from the north line
21 and 990 feet from the east line. We considered that loca-
22 tion unacceptable because it's in the -- inside the radius
23 of drainage of Well No. 2.

24 Q Mr. Upchurch, then do you have an opinion
25 as to whether the proposed unorthodox location is the opti-
mum location from which to drill this infill well?

A Yes, I feel that it is.

Q Let's to the drainage calculations that

1
2 you've made and the second page, I think we've marked it as
3 Exhibit Number Two.

4 All right, sir, would you describe that
5 for us?

6 A Okay. What I've done on this exhibit is
7 I went into the logs and looked at the porosity logs for the
8 -- all the offset wells to the proposed location and calcu-
9 lated up the porosity feet available for production in each
10 one of those wells and I multiplied that times the -- what I
11 felt to be the initial water -- initial oil saturation for
12 this area. That gave me my hydrocarbon porosity feet
13 figures.

14 I then, using standard reservoir calcula-
15 tions, calculated up the barrels of oil available in each
16 acre for each one of those wells. That's what's in the
17 third column here.

18 I then looked up the cumulative produc-
19 tion for each of those wells, divided the cumulative produc-
20 tion by the barrels of oil per acre. I figured in a 25 per-
21 cent recovery factor, and that gave me my drainage area and
22 then from the drainage area I converted that to a drainage
23 radius.

24 Q All right, sir. Mr. Upchurch, this well
25 in fact has already been drilled, has it not?

A Yes, it has.

Q Let's go to Exhibit Number Three, which
is the log for this well?

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A That's correct.

Q All right. Would you show us on the log those two areas that represent productive sections in this well?

A There's two -- two zones that were encountered in the drilling of this well. One of them is at 2672 or 70 to 74, I have it highlighted in red. That zone was not present in any of the offset wells.

And there's another zone from approximately 3047 down to 3070 that was present in the other wells but did not have the porosity that we see in this well.

If we had not drilled a well in this location the oil that's present in these two zones would have been unrecoverable.

Q Were Exhibits One, Two, and Three prepared by you or compiled under your direction and supervision?

A Yes, they were.

MR. KELLAHIN: That concludes our examination of Mr. Upchurch, Mr. Examiner.

We move the introduction of Exhibits One, Two, and Three.

MR. STOGNER: Exhibits One, Two and Three will be admitted into evidence.

I have no questions of Mr. Upchurch.

Are there any other -- are

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there any questions of this witness?

If not, he may be excused.

Mr. Kellahin, do you have any-
thing further in Case Number 8416?

MR. KELLAHIN: No, sir.

MR. STOGNER: Does anybody else
have anything further in Case Number 8416?

Being none, this case will be
taken under advisement.

(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. 8416-3 heard by me on November 28, 1984.

Michael E. Stynes, Examiner
Oil Conservation Division