

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
JUNE 7, 1961

EXAMINER HEARING

IN THE MATTER OF:

CASE 2303

Application of Redfern & Herd, Inc. for
an unorthodox gas well location, San
Juan County, New Mexico.

TRANSCRIPT OF HEARING

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IN THE MATTER OF:

CASE 2303 Application of Redfern & Hard, Inc. for an
unorthodox gas well location, San Juan
County, New Mexico. Applicant, in the
above-styled cause, seeks permission to lo-
cate its Airport Well No. 1 at an unorthodox
gas well location in the Basin-Dakota Gas
Pool at a point 200 feet from the North line
and 500 feet from the East line of Section
8, Township 29 North, Range 13 West, San
Juan County, New Mexico.

BEFORE:

Daniel S. Nutter, Examiner

T R A N S C R I P T O F P R O C E E D I N G S

MR. NUTTER: We will take now Case 2303.

MR. MORRIS: Case 2303. Application of Redfern & Herd,
Inc. for an unorthodox gas well location, San Juan County, New
Mexico.

MR. NUTTER: Is there any other appearance to be made
in this Case 2303?

MR. BRIGGS: William C. Briggs, Rodey, Dickason, Sloan,
Akin & Robb, Albuquerque, appearing on behalf of the Protestant,
Fred Muhs. M-u-h-s. I believe there's a letter in there from Mr.
Muhs.

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MR. VERITY: George L. Verity, for the applicant.

(Witness sworn)

MR. VERITY: By way of an opening statement, I would like to say to the Commission that this is an application for an unorthodox well location which has been necessitated by reason of the location of the airport within the Town of Farmington.

THOMAS A. DUGAN,
called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. VERITY:

Q Would you please state your name?

A Thomas A. Dugan.

Q Mr. Dugan, what is your occupation?

A I'm a consulting petroleum engineer.

Q Just briefly, what is your educational background?

A I graduated from the University of Oklahoma in 1950 with a B. S. in petroleum engineering, and worked four and a half years for Phillips, three years for Pacific Northwest Pipeline Corporation, and one year for Val R. Reese, and have been in the consulting business since then.

Q Are you familiar with the area of the Basin-Dakota Gas Pool in San Juan County?

A Yes, I am.

Q And specifically with Section 8, Township 29 North, Range

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13 West, and surrounding territory?

A Yes.

Q Have you made a study of the Dakota formation underlying Section 8, 29, 13?

A Yes.

Q Are you familiar with the topography of the surface in the north half of Section 8?

A Yes.

(Whereupon, Applicant's Exhibits Nos. 1, and 2 were marked for identification).

Q I hand you what the Reporter has marked Exhibit No. 1. Will you please tell us what it is?

A That's a plat of the north half of Section 8, Township 29 North, Range 13 West, which Redfern & Herd propose to dedicate to their Airport No. 1. It shows the topography and the airport installation and other buildings that is on the half Section.

Q Practically the entire north half of Section 8 is involved in the airport?

A Yes, it is.

Q Do you know whether or not the north half of Section 8 is within the town limits, excepting the small part, at the extreme northeast quarter?

A It's all in the city limits except that, the northeast of the northeast quarter.



Q I hand you now Exhibit No. 2. Will you tell us what it is?

A It's a map showing the Dakota wells in the vicinity of Farmington and the vicinity of the proposed unorthodox location.

Q Does it indicate the portion of the north half of Section 8, which lies outside the city limits of the Town of Farmington?

A Yes.

Q The hatching on the map being within the city limits?

A Yes, sir.

Q Turning again, now, to Exhibit 1, if we may, what is the nature of the topography in the north half of Section 8, and if you will please point out to the Examiner how it is delineated upon Exhibit 1?

A Well, the airport is on a mesa that is relatively flat. The end of the runway, running northeast-southwest, ends right at the edge of the mesa, and we have the top edge of the mesa line drawn along perpendicular with that northeast-southwest runway, which denotes the edge of the mesa, and it drops off quite rapidly to the line that we have labeled "toe of slope," and this is about a forty-five degree slope, very rough and rocky.

Q The northeast runway indicates here that it's extended out over the edge of that mesa. They built it up there, did they, for a ways?

A Yes. If you've driven up that glade road, you'll notice



where they have slightly, it might not be as much as it indicates on this map, but they have extended it out there a small amount.

Q From a safety standpoint, is it practicable and feasible to drill upon top of the mesa of this airport location?

A A rig on the airport proper would certainly interfere with the traffic patterns and Civil Aeronautics authorities frown on it. In fact, they won't allow it.

Q Has the Town of Farmington objected to any well being drilled upon the mesa?

A Yes, they have.

Q Your Exhibit 1 shows the top edge of the mesa, and also the toe of the slope?

A Yes. That is a very steep slope, roughly forty-five degrees.

Q Now, turning to Exhibit 2, does it indicate whether or not all of the north half of Section 8 is underlain with Dakota formation?

A Well, the map itself doesn't indicate that it is. However, you can see that it is surrounded by Dakota -- producing Dakota wells, and one would anticipate the presence of the Dakota and be able to complete a commercial well in that area.

Q Are all the gas wells that you have delineated on Exhibit 2 Dakota wells?

A Yes.

Q You have not shown any other gas wells?

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A No, sir.

Q Do you think that the entire area around the north half of Section 8 will also be productive?

A Yes, sir, very similar to 8.

Q If the Commission grants permission to drill the unorthodox location, which we have here requested, and at the location indicated, will any structural or geological advantage be gained by that move over an orthodox location?

A There's no geological advantage in our proposed unorthodox location.

Q With regard to the area to the north in Section 5, immediately adjacent to the north, will the correlative rights of the parties in that area be disturbed or in any way diminished by virtue of location at this requested place?

A Not in my opinion.

Q If this well is located here, do you think that the lease owners in Section 5 will be able to recover all of their fair share of the liquids and gas underlying their leases?

A They have many locations in Section 5 that can be drilled to good advantage.

Q Would their production be diminished by this location?

A Not in my opinion.

MR. VERITY: We offer Exhibits 1 and 2.

MR. NUTTER: Applicant's Exhibits 1 and 2 will be entered in evidence.



(Whereupon, Applicant's Exhibits Nos. 1 and 2 were received in evidence.)

MR. NUTTER: Do you have any further questions?

MR. VERITY: That's all I have.

MR. NUTTER: Does anyone have any questions of Mr. Dugan?

MR. MORRIS: Yes.

MR. NUTTER: Mr. Morris.

CROSS-EXAMINATION

BY MR. MORRIS:

Q Have you been on the drilling site here, Mr. Dugan?

A Yes.

Q Is this area below the slope and above the arroyo, is it fairly level, the area that the dwelling is on?

A Yes, fairly level.

Q Would it be possible to locate a well on that level area to the southeast of the dwelling?

A Well, --

Q It would be unorthodox there, but I note that Redfern owns the acreage in Section 9 adjoining, and you would be crowding your own acreage that way?

A Yes. You notice this line that's labeled "Building setback line." It's a line designated by the CAA to prevent any obstructions along the runway, and our rig, if we moved over there -- we considered it, but our rig would be sticking up above the end of the runway about, oh, between fifteen and twenty feet, and the

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derrickman wanted flight pay.

Q Would the Aeronautics or the Aviation Authorities, would they object to your having the rig over there in that area?

A Yes, they would. This building set-back line, they wanted us to stay outside of that.

Q I didn't know whether your building set-back line, how far the line continued on down the slope there.

A Well, there is --

MR. VERITY: It fans --

A It fans on out past this.

MR. VERITY: It gets closer to the well when you go on out so that when you come even with the runway it fans out a little bit. It's closer to the rig out there than if you extended it straight.

Q (By Mr. Morris) Mr. Dugan, is there anywhere on this proration unit, anywhere in the whole north half of Section 8 here that you could drill at a standard location and still satisfy the Aeronautics Authority?

A We studied it over quite thoroughly, and that's our best prospective location. In fact, that is almost our only prospective location.

Q You say "almost." Are there others?

A The only thing we could move maybe back towards that pond slightly, and we'd have to tear that pond out, which I haven't discussed with the surface owner, but it's possible that it could

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be done. We wouldn't gain much in the way of footage, though.

Q Set your derrick up over the pond?

A We'd have to fill it in, and we'd gain just a small amount, maybe an extra fifty or one hundred feet.

Q So, you are crowding the acreage to the north --

A Yes.

Q -- by some five hundred and ninety feet, and you are crowding the acreage to the east by some two hundred ninety feet at your presently proposed location?

A Yes, sir.

MR. MORRIS: Thank you.

MR. NUTTER: Any further questions of Mr. Dugan?

BY MR. BRIGGS:

Q Is this Pruitt No. 1 here, that is a Redfern well, is it?

A Yes, sir.

Q When was that completed?

A Last week; about eight days ago.

Q Has it come into production?

A Well, it's shut-in for test right now.

Q What are the results of the test to date?

A Well, I took a Peto tube gauge on it, two and a half million at the time of completion.

Q Is there anything in the geology or in the information learned from that well which would bear on the location here that you are seeking?



A None whatsoever.

Q Now, it would be possible, I suppose, would it not, to drill a directional hole there from that location so that your bottom of the hole would be not two hundred feet, but at least an orthodox distance from the north section there?

A Yes, it's possible, but it would increase our cost considerably.

Q Does Redfern have any interest in this Section 5 to the north of the proposed location?

A Not to my knowledge. He has a tentative agreement with Pruitt, I believe, but nothing that is of a concrete nature right now.

Q They have no legal agreement, no agreement which has actually been signed with Pruitt?

A No, sir.

Q So you would have, so far as Section 5, you have your Pruitt No. 1. What is the distance from the West line of Section 4 of that Pruitt No. 1 Well?

A It was twelve hundred feet, or approximately. I might look it up.

Q Well, just if you are fairly sure of that.

A Approximately twelve hundred feet, yes. 1170 from the West.

Q So you would then have a well, Pruitt well, say 1200 feet from the one boundary of Section 5, and you would have the



other 200 feet. In view of those two, don't you think that that would have an adverse effect on the recovery of potential wells in Section 5?

A No, I don't. The spacing is 320 acres, and the wells will theoretically drain 320 acres, so, of course, we'll probably be draining across the proration boundary, as has been discussed here before, but there's still 320 acres dedicated to each well, and with wells in Section 5 having as much drainage from outside of their proration boundaries as we will possibly have here.

Q But there will be drainage by reason of the proposed location, if it's granted, from the south, at least the southeast quarter on 5; is that correct?

A Yes.

Q And there would be drainage from your existing Pruitt Well from the east half of Section 5?

A Possibly.

Q Do you have any acreage -- does Redfern have any acreage in Section 6, to your knowledge?

A Yes, I think they do.

Q Do you know what that consists of?

A No, sir, I don't. I'm not even sure that they do, but I believe they have some acreage in that vicinity.

Q If they drilled another well over here on 6, they would then have wells on three sides of Section 5?

A Yes.

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Q And if they drilled over there, would your opinion be the same, that there would be no effect on the recovery from Section 5?

A There would still be 320 acres dedicated to each well, and the ultimate recovery from 5 would be the same or essentially the same.

Q Your feeling is that the density or location of wells there would have no effect at all on the recovery from a Dakota well, or two Dakota wells in Section 5?

A There's still 320 acres dedicated to each well, and it's a common reservoir, and this well in 6, we have no idea where it's going to be. We have no idea where the wells in 5 will be, and the over-all drainage picture will be affected very little by the spacing, by the location of the wells on such large proration units.

Q You have made no study, then, on the particular geology or the particular possibility of the strata in the north half of Section 8 there, varying from the general Dakota formation in that area?

A No, sir. We anticipate the same approximate strata as we found in the Pruitt.

Q And aside from the airport feature, you would feel that any location or a standard location in the north half of Section 8 would be appropriate, and you would have drilled there?

A Definitely. We would have preferred, of course, to be back away from the line, but it's just impossible.

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Q At the present time you have no agreement with either Pruitt or Muhs or anyone else in Section 5, with respect to drilling?

A Drilling in 5?

Q Yes.

A No, we don't.

Q And, in your opinion, there is drainage from the Pruitt 1, and will be from this location, from 5?

A To some extent.

MR. BRIGGS: That's all the questions I have.

BY MR. NUTTER:

Q Mr. Dugan, you said it would cost more to directionally drill the well so that the bottom of it would be on a standard location. How much more would it cost?

A The direct costs are approximately fifteen thousand dollars, and then, of course, your hazard, the possibility of hazards are greatly increased in that type of operation.

Q But not counting any hazards, the direct cost of such directional drilling, to move the bottom of the hole 590 feet, would be fifteen thousand dollars?

A Approximately fifteen thousand.

Q What kind of a rig do you plan to drill this well with?

A We haven't let the contract, but it will be a rotary rig, triple derrick, and probably be **Spray Rig No. 3.** 7

Q How tall is that rig?



A The rig is 135 feet, and the substructure is 10 feet.
Setting --

Q It would be 145 feet?

A Yes.

Q Is there much difference in the elevation of the location, that Mr. Morris was talking about, southeast of the buildings, and the elevation of your location here being 5375?

A Very little difference in elevation. They have noted where the toe of the slope crosses the Section line. It's 5370. It's fairly flat in that glade.

Q Who owns the minerals under the airport? Does the City of Farmington?

A Yes, the majority of them, I think.

Q Has the City of Farmington actually made a downright refusal to permit you to drill in the northwest quarter of this Section?

A Yes, sir.

Q You did discuss the possibility of drilling a well in another location on this airport property?

A Yes, sir.

MR. VERITY: As a matter of fact, it's prohibited in the lease they gave. Clear back that far they refused to allow.

Q Is this property outside the fence owned by someone else?

A Yes.

Q And the royalty interests here have been communitized, or

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just what is the situation there?

MR. VERITY: Excuse me. Which fence do you refer to?

Q Well, I take it that the fence property line is not the airport property; is that correct? You are drilling off of the airport?

A Yes, sir, that is correct.

Q Is this fee land up in the triangular area or what?

A Yes, sir. I don't know if the royalties have been communitized or not.

Q So, in effect, the City of Farmington is contributing maybe eighty or ninety percent of the minerals to the unit, but they won't contribute a location?

A Yes, but there's very good reasons why they won't.

Q Mr. Dugan, have you ever, or do you know what arrangements were made with the City of Lovington when wells were drilled on the Lovington airport?

A No, I don't.

Q Is this well in the southeast quarter of Section 8 currently drilling, Mr. Dugan?

A No, sir.

Q What acreage does Redfern & Herd own here in this area?

A Well, they own all of the north half of 8, and the majority of the south half of 8.

Q Would it be possible to drill two wells in the south half of the Section and dedicate the east half of the Section to one,

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and the West half of the Section to the other well, and be off the airport property?

A There are problems involved which we did not prefer to do it that way, yes.

Q And you figured that the problems involved in this were less than the problems involved in that?

A Yes, sir.

Q If this location is approved, is Redfern & Herd willing to take a survey to insure that the bottom of the hole is located on their property?

A If, in drilling the well, we encounter any crooked hole or the well deviates more than three degrees from the vertical, we'll be glad to run a directional survey.

Q At what depth do you expect to encounter the Dakota?

A Approximately 6100.

Q It wouldn't take a great deal of deviation from the vertical to bottom 200 feet to the north, would it?

A Well, I was -- I haven't calculated exactly what it would take, but I feel three degrees would be under that. I'd be glad to figure it out.

MR. VERITY: We would have no objection to a bottom hole survey.

MR. NUTTER: Any other questions of Mr. Dugan?

MR. VERITY: I have one or two.

REDIRECT EXAMINATION

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BY MR. VERITY:

Q The Dakota is a gas formation?

A Yes.

Q This is a gas well being drilled into a gas reservoir?

A Prospective gas reservoir.

Q Gas is a highly volatile substance, is it not?

A Yes.

Q And it flows through the formation readily, by virtue of this fact?

A Well, that's not quite true, but more or less.

Q What is the basis for your conclusion that the two wells may be located in Section 5 will recover their economic proportion of the gas?

A The net effective pay in this area is relatively constant, and the wells will probably have a similar IPS and similar deliverabilities and similar allowables, and so the gas that is dedicated to each well is relatively the same, and their deliverabilities relatively the same, so we won't be able to take more than our proportionate share or more gas than we have dedicated to this one well.

Q And they, by the same token, will be able to take 320 acres of dedication --

A Yes.

Q -- so that the net effect of this is, if this is granted, it's not going to adversely affect the recoveries of the leases in

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Section 5?

A I don't think it will.

MR. VERITY: That's all.

MR. BRIGGS: May I ask one more question?

MR. NUTTER: Yes, Mr. Briggs.

BY MR. BRIGGS:

Q What about the well in the southeast quarter there? Has that been drilled?

A No, sir.

Q It's just a location?

A Yes, sir.

MR. BRIGGS: I see. That's all.

BY MR. NUTTER:

Q What kind of problems are involved with drilling in the south half there?

A There are several leases or several tracts of land that are unleased. Then the Methodist Mission is situated on the south half, and there's quite a bit of buildings and more population in that area, and, of course --

Q You plan to drill one well there, though?

A Yes. But two is just compounding the problem; one is hard enough. It's in the city limits, too; that's quite an obstacle.

Q But the other is on the airport, and that is an obstacle?

A Right.

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Q Except for a triangular piece of property?

A Yes.

Q But it would be physically possible to do as I mentioned, and dedicate a well to the west half and a well to the east half of the Section, and be off the airport property?

A Yes, it's physically possible.

MR. NUTTER: Any further questions? Mr. Dugan may be excused.

(Witness excused)

MR. NUTTER: Do you have anything further, Mr. Verity?

MR. VERITY: No, I have nothing further.

MR. NUTTER: Does anyone have anything further in Case 2303?

MR. BRIGGS: Nothing further.

MR. NUTTER: We will take this Case under advisement.



STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in machine shorthand and reduced to typewritten transcript under my personal supervision, and that the same is a true and correct record, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this, the 13th day of June, 1961, in
the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Darnley
NOTARY PUBLIC

My Commission expires:

June 19, 1963

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2303, heard by me on 6/7, 1961.

James, Examiner
New Mexico Oil Conservation Commission

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