CASE 8997: Appli. of DORCHESTER EXPLORATION FOR POOL CREATION AND SPECIAL POOL RULES, EDDY COUNTY.

CASE No.

5097

Application,

Transcripts,

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Wednesday, October 31, 1973

IN THE MATTER OF:

Application of Dorchester Exploration Company for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new gas pool for Wolfcamp production for its well located in Unit F of Section 35, Township 19 South, Range 28 East, and the promulgation of special rules therefor including a provision for 320-acre spacing and standard 320-acre well locations.

Case No. 5097

BEFORE: RICHARD L. STAMETS,
Examiner

TRANSCRIPT OF EXAMINER HEARING

MR. STAMETS: Call next Case 5097.

MR. DERRYBERRY: Case 5097, Application of Dorchester Exploration Company for pool creation and special pool rules, Eddy County, New Mexico.

MR. STAMETS: We call for appearances in Case 5097.

MR. KELLAHIN: Tom Kellahin, Kellahin & Fox, Santa Fe, New Mexico, appearing on behalf of the Applicant Dorchester Exploration Company, and I have two witnesses to be sworn.

MR. LOSEE: A. J. Losee, Losee & Carson, Artesia, New Mexico, appearing on behalf of Penroc Oil Corporation and I have one witness to be sworn.

DUANE HAMILTON,

a witness, having been first duly sworn according to law, upon his oath testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you please state your name, by whom you are employed, and in what capacity?

A My name is Duane Hamilton, I'm self employed as an independent geologist.

Q Have you previously testified before this Commission and had your qualifications as an expert geologist accepted and made a matter of record?

A Yes.

Q What is your relationship with Dorchester Exploration Company, Mr. Hamilton?

A I have no actual relationship with them other than as a consultant in this particular case.

Q And you have been retained as a consultant with regards to the application of Dorchester?

A That's correct. I also own a percentage of this well we are talking about.

MR. KELLAHIN: Are the witness's qualifications acceptable, Mr. Examiner?

MR. STAMETS: They are.

Q (By Mr. Kellahin) Mr. Hamilton, will you please refer to what has been marked as Exhibit Number 1 and state briefly what Dorchester Exploration Company is seeking by this application?

A Exhibit Number 1 is an ownership and production map, it's color coded to show the production in the various intervals that produce in the West Winchester field and nearby.

We are seeking the creation of a new gas pool for Wolfcamp production for a well located in Unit F of Section 35, Township 19 South, Range 28 East, and the promulgation of special rules therefor including a provision for 320-acre spacing and standard 320-acre

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well locations.

Q Let me ask you this question before I let it slip by, Mr. Hamilton, the Applicant requested spacing of 320 acres. Is that request now for temporary rule for a period of one year based on that spacing interval?

A Yes.

Q All right. Let's go through Exhibit 1 here and would you identify for us the particular well in question?

A The particular well in question is located in Section 35 of 19 South, 28 East, Eddy County, and 1930 from the North and West lines.

Q I want you to refer, now, to what has been marked as Applicant's Exhibit Number 2 and identify that, please?

A All right. That is a structure map on top of the Wolfcamp limestone with Wolfcamp porosity thicknesses Isopached on there and colored in yellow. There is also a cross section, and the wells on the cross section are circled and colored blue. This is a Northwest-Southeast cross section which shows the Wolfcamp configuration stratigraphy in the Winchester area.

Q Now, would you take Exhibit 2 and refer to your cross section which has been marked as Exhibit 3 and run through for us the different wells that you have picked for us on your cross section?

A If you will look at the map -- all right. If you will

look at the Wolfcamp structure map, you will see that there are small numbers above each one of these small blue circles which matches a number on the cross section here (indicating), 1 through 6 Northwest on the Northwest end, East on the right-hand end. And, what we attempted to show, primarily, is that there is a separation between this older Winchester Wolfcamp old field and our well in Section 35, Northwest Quarter of Section 35.

As you can see from the cross section, and here, this well, of course, made oil and gas, and it's colored yellow; this other mound, which is back Northwest, is also colored yellow, the producing mound. The limestone in the mound is present between -- however, it's tight -- they drill stem tested that zone full interval and recovered, on a two-hour drill stem test, five barrels of slightly oil and gas-cut mud, initial shut-in pressure was 692 pounds in 60 minutes, the flow pressure was 230 pounds. Final shut-in pressure was 600 pounds in 180 minutes.

That compares with a test in our well in the Northwest of 35, we took a drill stem test from 9,040 to 9,180 over the same interval, we had gas to surface in five minutes at a rate estimated at 11 million cubic feet of gas per day. We recovered 558 feet of distillate, 324 feet of salt water, which was drilling

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water. Our initial shut-in pressure was 4500 pounds, our initial flow pressures ranged from 2412 to 3538 pounds. Our intermediate shut-in pressure was 4500 pounds. Our final flow pressure ranged from 2182 pounds to 4212 pounds, and our four-hour shut-in pressure was 4500 pounds.

This is a well immediately to the Northwest of the tight hole I just mentioned previously. The well Southeast of that tested the same stratigraphic interval in the Wolfcamp. They had gas to the surface in a minute at a million cubic feet of gas a day. They had to bypass their tool, they had a packer failure, then this thing flowed four million cubic feet of gas a day along with 30 barrels of oil, 45 gravity oil. Their initial shut-in was 4800 pounds, flow pressure 1100 to 1500, and final shut-in pressure 4500 pounds, which you've got good reservoir on the South side of this tight well, good reservoir back to the Northwest. One of them is apparently an oil reservoir, the other is a gas reservoir; and, of course, the tight well in between which separates them.

MR. STAMETS: I'd like to check out something at this stage. Mr. Hamilton, the well that you show as Number 5 on your cross section, was this what is called the West Winchester Wolfcamp?

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THE WITNESS: Right.

MR. STAMETS: Is this reservoir essentially depleted at this time?

THE WITNESS: That's correct.

MR. STAMETS: Now, you also have Well Number 3 on here and Well Number 2 --

THE WITNESS: Right.

MR. STAMETS: And these are in the new reservoir?

THE WITNESS: I think so.

MR. STAMETS: And they are not complete?

THE WITNESS: That's correct.

MR. STAMETS: But what are the current capacities of these wells?

THE WITNESS: I don't know what the capacity of that well is. We took a calculated open flow on it last month of something in the neighborhood of seven and a half million cubic feet of gas per day.

MR. STAMETS: That's enough.

Q (By Mr. Kellahin) Would you summarize briefly for us, Mr. Hamilton, the factors you feel essential for your opinion that you have in fact a new pool as opposed to a continuance of the old Winchester oil pool on the right?

A All right. If you draw a straight line section between these two producing intervals in the Wolfcamp, these

two fields, you have sitting directly between the two a well that's tight with no permeability in the rock, and the section that's producing to the Southeast and to the Northwest. Also, we have virgin reservoir pressures in our well to the Northwest of Section 35. This thing is depleted to the Southeast.

Q Now, I want to direct your testimony to the ability or the inability of a well in your pool there to drain a given amount of acreage. You've indicated in the application that you've requested 320-acre spacing. Will or will not a well in that pool drain that given amount of acreage?

A Well, in my experience in what I see in the rock and what I see on tests, I would have to think that it would. It's a fossiliferous limestone with excellent permeability. I think in that type of rock, the likelihood is that it will drain 320-acre spacing, probably drain more than that for that matter.

Q Are there any other geological factors you would like to point out that would establish that a given well would drain 320 acres?

A No, I don't think so, not at this time. Nothing I can think of materially other than the permeability and the fossiliferous nature of the rock.

Q Is there any reason that you are seeking temporary

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one-year special rules for the 320-acre spacing as opposed to permanent 320-acre spacing?

A Yes, we have some pressure data that indicates, really, that this thing might, of course, drain a larger area than we are talking about. We also don't know what the complications are going to be at this stage of the game. We may want to drill it on 320, we may want to drill it on something less. But indications now are that we might want to go with a larger spacing and need the larger spacing in order to justify a well in here.

Q And with temporary rules of one year and a hearing after the end of the year, you would have an opportunity to come back and redetermine whether this pool should be developed on something less or, if in fact the economics of the situation are such that it's being properly developed on 320-acre spacing?

A That's correct.

Q If this is developed on 160-acre spacing, however, you would be precluded then from ever increasing the spacing?

A That's right. You can't undrill them.

Q Do you have anything else you would like to add to your testimony?

A I don't think so.

MR. KELLAHIN: We offer Exhibits 1, 2, and 3.

MR. STAMETS: Without objection, they will be admitted.

MR. KELLAHIN: We submit the witness.

CROSS-EXAMINATION

BY MR. LOSEE:

Q Mr. Hamilton, do you have any reason to believe that this area which you have denoted, I guess, West Winchester area, will be as large as you have it shown portrayed on your Exhibit 2 in relation to the Robinson area from which the discovery well was?

A Some. For instance, the well, the JCW Number 1 Well, in the Northwest Quarter of Section 2 of 20 South, 28 East, had five feet of porosity in the Wolfcamp which tested gas. The Hillun Number 2 or, excuse me, the Hillun Number 1 DWU in the Southeast Quarter of Section 34, 19 South, 28 East, had 10 feet of porosity which produced on drill stem test and has been tested through perforations. And then, of course, the Penroc Well which is presently drilling in the Southwest Quarter of Section 35, 19 South, 28 East, flowed in the neighborhood, if I recall correctly, of five million cubic feet of gas with a bottomhole pressure similar to ours on drill stem test.

All of this would indicate that you are in the same -- all these wells that I have talked about -- are

in the same reservoir, tied in in some fashion, and what we've done is just take a geometric shape as best we can in this particular thing.

Q But I do notice that the other half of your proposed pool is North of any control points.

A That's correct.

Q Wouldn't it be true that with a larger spacing unit in a small pool such as you've portrayed, at least for the original Robinson Well, you would be more likely to not drain the entire pool than if you had smaller spacing?

A I think not. I think that their well, indications are that their well has drained that pool down there.

Q How do you make that determination?

A Well, I don't have anything other than hearsay to offer for that. I've gone over and looked at their information on this thing, their bottomhole pressures, and so forth, and they have very little pressure left and they are producing very little.

Q How much bottomhole pressure?

A I have no idea. This has been six or seven months ago that I did this, and I don't remember. Seems to me something in the neighborhood of 1,000 pounds.

Q Didn't their well have a lot of condensate that was produced in its early life?

A I think it had oil rather than condensate

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Q Are you as likely to, in that kind of reservoir, move that fluid to the wellbore on larger spacing as you are in smaller?

A You are getting into something I can't answer. We have an engineer that can answer that question for you.

MR. LOSEE: I think that's all.

CROSS-EXAMINATION

BY MR. STAMETS:

Q Mr. Hamilton, we do apparently have another pool in this area already, the Winchester Wolfcamp, which is classified as an oil pool, and it could be that there would be some difficulty in establishing this new pool until the limits of the original pool are defined. If that's necessary, do you think that the Applicant would have any objection to some small delay in the issuance of this order to permit that to be accomplished?

A Yes.

MR. KELLAHIN: What would be a small delay?

MR. STAMETS: Probably be more than small. I would anticipate like six weeks before it could be done.

A You are not talking about while all the control is drilled up to --

Q (By Mr. Stamets) No, I don't anticipate this problem, but it could come up. What do you propose as the pool limits for this proposed pool, horizontal pool limits?

A Well, I suppose all we would have to do is just take the thing as is and draw the lines around the section involved, which would be the East Half of 34 --

Q Perhaps I should rephrase that. If 320-acre spacing is granted even on a temporary basis, which half section will be dedicated to the Number 3 Well here?

A That would be the North Half of Section 35.

Q Now, a pool being created to take in the North Half of this section would be appropriate at this time?

A Right.

Q What is the name of this Number 3 Well?

A It's the D. W. Dorchester Exploration Number 2 DWU Federal.

MR. STAMETS: There will be a witness that will testify as to the ability of this well to produce at certain rates without waste?

MR. KELLAHIN: Yes.

MR. STAMETS: Any further questions of this witness?

MR. KELLAHIN: I have one more question.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q I'd like to refer you back to Exhibit Number 1 and, Mr. Hamilton, have you locate for me, there is a Penroc something or other here in 35. What is that?

A That's a Penroc Number 2-A Dero Federal, which is a stake location in the Northwest of the Southeast Quarter of Section 35, Township 19 South, Range 28 East.

Q Would you want that particular stake location, and any other wells, to be drilled to be subject to the 320-acre spacing?

A Sure would.

Q Do you have any knowledge about that particular stake location? I note this is Federal acreage, is it not?

A Well, I assume that that location has been approved by the USGS at this time, and this application, of course, would have to take precedence over that to keep it from being drilled.

MR. KELLAHIN: I have no further questions.

MR. STAMETS: I do have one additional question at this stage.

RECROSS-EXAMINATION

BY MR. STAMETS:

Q The only pool that we have created is an oil pool and the standard spacing on that oil pool is 40 acres. So, if it would be determined through later testimony that 160 acres might be more appropriate for this gas well, that would be somewhat better than 40, would it not?

A Four times.

MR. STAMETS: Thank you.

MR. LOSEE: Mr. Hamilton, one of your answers raised a question.

RECROSS-EXAMINATION

BY MR. LOSEE:

Q You say you would like a 320-acre spacing applied to this location. If the order is not issued for six weeks, and the well is drilling at that time, would you propose that the Commission make their order retroactive?

MR. KELLAHIN: I think I might object to that question. I don't know that Mr. Hamilton would be in a position where he could give a responsive answer to that question.

MR. LOSEE: Well, he offered a legal opinion as what he would like to have happen on it, and I just assumed this would follow from the conclusion. I think at the present time the ultimate decision would, of course, have to be the Commission's.

(Whereupon, a discussion was held off the record.)

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

MR. STAMETS: The witness may be excused.

JOHN GOULD,

a witness, having been first duly sworn according to law, upon his oath testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you please state your name, by whom you are employed, and in what capacity?

A My name is John Gould, I'm a consultant petroleum engineer from Midland, Texas, and I've been hired in a consultant capacity by Dorchester.

Q Mr. Gould, have you previously testified before this Commission?

A No, I have not.

Q What is your educational background, Mr. Gould?

A I have a petroleum engineering degree, Bachelor of Science Degree from the University of Texas.

Q When did you obtain that degree?

A September 1948.

Q Since that date, what has been your experience as an engineer?

A I was employed by Honolulu Oil Corporation, Sundown, Texas, in an engineering capacity for seven years. At that time I resigned and went on my own, became self employed as a consulting engineer. I went to Abilene for four years, from 1955 to 1959, and then moved from there to Midland, remaining there as a consultant from then until the present time.

Q Have you had experience in Eddy County, New Mexico?

A I have been retained by Dorchester on all three of their wells in the Winchester field to supervise the

drilling and the completion of the wells.

Q Are you familiar with Wolfcamp production, then, in this area?

A Yes, sir.

MR. KELLAHIN: We request that the witness be accepted as an expert witness.

MR. STAMETS: He is qualified.

Q (By Mr. Kellahin) Where are we going to start here?

A I'd like to just explain briefly what's being done in the completion of this DWU Federal Number 2. I think it's necessary for me to.

Q All right, sir, let's begin with that point. What have you done with regards to this well?

A This well was drilled during the summer and was completed in the month of August 1973, and I am just being very brief about this, on August 16, 1973, the casing having been set in this well, and we ran a packer and tubing in the hole and spotted 150 gallons of acid over the Wolfcamp Zone. On the 17th, we perforated the Wolfcamp from 9,063 to 9,128 with 18 shots and broke down those perforations with 150 gallons of acid in the hole.

The well flowed to the pits and we cleaned up and after four hours was producing on a quarter-inch choke at a pressure of 2650 pounds surface pressure. On the

following day, we flowed it again to the pits to clean up, at which time it was stabilized to a quarter-inch choke at 2200 psi for a rate of approximately 3 million cubic feet per day. The well was then shut in until the 30th of August, at which time we ran a four-point test.

Q Let's refer to that four-point test, now, Mr. Gould. I believe it's been marked as Exhibit Number 4.

A Right.

Q Here is that test. Now, would you elicit for us the pertinent information on that exhibit?

A At my direction, El Paso Natural Gas ran this four-point test, and the results of the test, the well calculated openflow of 7,592,000 cubic feet per day. During that period, we also made 68 barrels of condensate with a gravity of 58 1/2 degrees api at 63 Fahrenheit.

Q What was the gravity of that?

A 58.5. From August 30th until September 24th, this well was shut in to tie into a transmission line to connect the surface equipment, and on September 24th, we ran a bottomhole pressure survey.

Q Let's refer to that bottomhole pressure survey, and I believe I may have marked that as Exhibit 6 instead of 5. This is the one for September 24, 1973?

A That's right. It's the single-page exhibit. At my

direction, Bennett Wire Line Surveys ran a bottomhole pressure survey in this well on the 24th of September, and, if you will, Mr. Examiner, refer to this Exhibit Number 5, you will see that we had a surface shut-in pressure of 3321 pounds and a shut-in bottomhole pressure of 4425 pounds. From zero, from the surface to 3,000 feet, the well had a -- the fluid in the well had a gradient of 3,000 pounds per hundred foot and from 3,000 feet to the test pressure of 9100 feet, the gradient in the well was -- it varied somewhat -- but it averaged 1700 pounds per hundred feet.

Q What's the significance, now, Mr. Gould, of this gradient?

A To me, this gradient shut-in bottomhole pressure and the gradient of the fluid that's in the tubing in the wellbore indicates that this Wolfcamp formation is a gas reservoir since this is a gas column throughout. There is some variation in the gradient, but it is gas.

Q If this was an oil reservoir, what would you anticipate in the way of a gradient?

A That gradient would be 3200 pounds, in the neighborhood of 3200 pounds for 100 feet.

Q So you feel that an average of about 17 gradient is significant indication to you that we have a gas reservoir?

A Yes.
Q All right. Please continue.
A This well, from the date of this test until October 4th, was shut in while they were tying in the transmission lines, El Paso Natural Gas tied in the transmission lines, to connect this well, and from October 4th until October 16th, which is 12 days, this well produced 28 million cubic feet of gas and 3,590 -- these are not exact figures, Mr. Examiner, they are taken from our field information, but they are relatively close.
Q What are those figures again?
A 28 million cubic feet of gas and 3590 barrels of condensate. In this regard, Mr. Examiner, you can see that at least at the present time this well has the productive capacity to produce at a rate between two and three million cubic feet of gas per day.
Q Would you please refer to what has been marked as Exhibit Number 6 and identify it, please?
A This well was shut in on the 16th of October, but prior to that time, I authorized a Bennett Wire Line Survey to run a bottomhole pressure to the bottom of the hole for purposes of getting a pressure buildup test, which he did, and the results of that test are shown on Exhibit Number 6; and, if you will look at those test figures, you will see we had a flowing pressure of 3650

pounds and that when we shut the well in, within 10 minutes the bottomhole pressure had built up to 3945 pounds.

Subsequently, in five hours, it built up to a bottomhole pressure of 3967 pounds and stabilized there for the 24-hour period that the bottom was in the hole. You can see that that very rapid increase in bottomhole pressure from 3650 to 3945 in 10 minutes would indicate very good permeability in this well, and we submit that based on this examination that this well is capable of draining 320 acres or more. I believe that's all I have to submit.

Q By all indications, then, Mr. Gould, from your investigation of this case with regard to the engineering aspects, it is then your opinion that this particular reservoir is capable of being economically and fully developed on 320-acre spacing?

A Yes, it is.

Q Were Exhibits 4, 5, and 6 prepared by you or under your direction and supervision?

A Under my direction.

MR. KELLAHIN: We move the introduction of Exhibits 4, 5, and 6.

MR. STAMETS: Without objection, they will be admitted.

MR. KELLAHIN: We have no further questions on direct examination.

MR. STAMETS: Mr. Losee, do you have some questions?

CROSS-EXAMINATION

BY MR. LOSEE:

Q Based on your 12-day production record, and my mathematics, your well made about 2.3 million cubic feet of gas per day and about 391 barrels of condensate. Do you accept my mathematics?

A Yes, I will.

Q So based on those figures, or based on those mathematics, it's not an economic reason that you ask that the spacing be enlarged to 320?

A Based on those production figures, no, it is not.

MR. LOSEE: I think that's all.

THE WITNESS: I would like to add something, if I may, Mr. Examiner. I do feel that the evidence that we have here concerning our production tests and from the gravity of the fluid that we produced during this producing interval, plus the fact that our bottomhole pressure test indicated that there was nothing in the wellbore except gas, we feel it's sufficient evidence that we feel like the Commission should grant this well a separate designation from the Winchester Oil Reservoir to the South Southeast.

CROSS-EXAMINATION

BY MR. STAMETS:

Q Mr. Gould, referring to Exhibit 4, do I interpret this properly that this is 6,074 cubic feet per barrel?

A Yes.

Q And that is a zero gor?

A Yes.

Q What is the nature of the condensate, the liquid? I got the gravity here, what does it look like?

A It's a clear liquid.

Q It's definitely condensate and not oil?

A Yes, in my opinion, it's definitely condensate.

Q Referring to Exhibit Number 5, at about 3,000 feet there is a little note here, and it says "FL Top," I assume that is the top of the fluid in the hole?

A That was Mr. Bennett's designation of fluid top. I don't think it has any significance. It could be a fluid and still be gaseous; a gaseous fluid is what it is. In other words, he doesn't say it's a liquid, he says it's a fluid, and I think by distinction it could be a fluid and still be gaseous.

Q How do you account for this rather abrupt change in the gradient, then, from the 3,000 pounds to 1,600 pounds at that particular time?

A Well, that well had been shut in for approximately 24

days. I'm not sure the exact number of days, but approximately 24 days. And, admittedly, all the evidence indicates we have a very rich gas with a high amount of condensate, and I believe that during that period of time there was such gravity segregation from what we would refer to as dry gas, the gas from zero to 3,000, and richer gas that was from 3,000 feet to 9,100.

Q At what rate do you think that the gas can be produced from this reservoir without waste or without leaving an excessive amount of these liquid hydrocarbons behind?

A Due to the high degree of permeability in this well, I think that there should not necessarily be any restriction. I believe, based on calculated openflow, that it would be perfectly safe to produce the well at half that calculated openflow without any danger of leaving hydrocarbons behind.

Q And you indicated that you only expect to produce two to three million cubic feet per day?

A Yes.

Q Is that the pipeline capacity or what is that?

A No, it isn't. At this time, of course, we have an allowable, this well was designated by the Commission as an oil well and we are only limited to 500 MCF per day, I believe, and there wasn't any necessity of producing at any higher rate, although I don't think it

would have hurt; but we were attempting to test our equipment and test the ability of the well to produce.

Q Do you anticipate that this will be about the flow rate when it's completed?

A Yes, I do.

MR. STAMETS: Are there other questions of the witness?

MR. KELLAHIN: Yes, I have a couple.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Losee mentioned the economics. We have not really stressed that, Mr. Gould. Wouldn't one factor of economics be a drawdown? Did you experience any drawdown during any one of these tests?

A Well, yes, we have experienced some drawdown in this well from our shut-in bottomhole pressure originally, 4500, and when we ran the test on September 24th, the bottomhole pressure, I beg your pardon, when we ran our pressure buildup test in October, we had a stabilized pressure of 3967.

MR. STAMETS: How much gas had been produced?

THE WITNESS: Approximately 28 million cubic feet.

MR. STAMETS: How much liquid?

THE WITNESS: 3590 barrels.

Q (By Mr. Kellahin) These liquids, now, they are not

being produced in the wellbore, they are something that's breaking out of the gas, are they?

A It's condensation that's taking place as pressure is drawn down.

MR. STAMETS: Any additional questions of this witness?

MR. KELLAHIN: No, sir.

MR. STAMETS: He may be excused. Do you have anything further?

MR. KELLAHIN: Nothing further.

JOHN CASTLE,

a witness, having been first duly sworn according to law, upon his oath testified as follows:

DIRECT EXAMINATION

BY MR. LOSEE:

Q State your name, your residence, and your occupation, please?

A John Castle, geologist and president of Penroc Oil Corporation, Midland, Texas.

Q Have you previously testified before the Commission and had your qualifications as an expert accepted?

A Yes.

MR. LOSEE: Is Mr. Castle qualified?

MR. STAMETS: He is.

Q (By Mr. Losee) Please refer to what's been marked as

Exhibit 1 and briefly explain what is portrayed by this exhibit.

A Exhibit 1 is a location plat color coded to show the deep wells and what they have been completed from, what formation. The small red circles inside some of the larger circles are Wolfcamp completions, the only two which we have been talking about, and the small yellow circles are completed from the Wolfcamp formation, and the other symbols are self explanatory, I believe, except for the large red circles and the green circles and the blue lines, which I will get back to later. I meant the yellow was Morrow is what I meant.

Q Let me get Penroc's position clear with respect to its appearance at this hearing. Do you object to the creation of a new gas pool?

A No, Penroc is in agreement with Dorchester with most everything they have testified to except that we don't believe that it could be drained on 320-acre spacing, and most everything else to which they have testified, we agree. We believe there is separation from the Robinson Brothers Wells to the Dorchester Well, also from the Robinson Brothers Wells to our well, and 1980 from the West, 660 from the South, the one in the small green circle here on the location plat.

Q At this point in time, you have staked a location, the

Penroc Dero Federal Comm A Number 2, and can you tell us what status that is in?

A That well has been staked and approved. To this date, we've sent approximately $5,000, and it would have already been drilling a month ago had we had a rig available. We should have a rig on it within 10 days.

Q Please refer to what has been marked as Exhibit 2 and explain it.

A Exhibit 2 is bottomhole pressure information. The first page is a summary of the following pages which is the test. I will briefly go through this.

Beginning with Robinson Brothers Number 1 State A, which we have talked about earlier, it had a test 1/14/66, which was a drill stem test. The initial shut-in pressure was 4500 pounds, final shut-in pressure was 4250. On 2/11/66, bottomhole pressure test showed 4292. On February 15, 1966, another test of 4364. February 7, 1966, a bottomhole pressure test of 3509, and then there was no other test available to us until 4/12/71, and at that time the bottomhole pressure tested 1800 pounds.

Next on this summary sheet is Dorchester DWU Federal Number 2, which is located in the North Half of Section 35. On 8/6/73, she had a drill stem test which showed a pressure of 4500 pounds, and sometime in October I was told by Mr. Bob Winkler with Dorchester

that they had a test which showed a pressure drop of approximately 500 pounds or down to around 4,042 pounds. Then I noticed from Mr. Gould's exhibit that on October 16 there was a test that showed the bottomhole pressure to be 3967. Well, to me, this is an indication that the Robinson Brothers and the Dorchester Well are separated because the 1800 pounds bottomhole pressure in the Robinson Well compared to 3967 in the Dorchester Well, I believe they are separate.

In the Penroc, the last well to the left, the Penroc Well located in the North Half of Section 2, we had a drill stem test on 3/23/73 which showed initial and final shut-in pressure of 4450. We believe that also shows that we are separated from the Robinson Brothers Wells and also from the Dorchester Well, since the Dorchester Well bottomhole pressure was 3967 and ours was 4450. We believe that's quite a difference, so we believe there is a separation between those two even.

Q I believe you said it was in Section 2, and the exhibit shows it in Section 35.

A You are correct, it is in the South Half of Section 35.

Q Please refer to what has been marked as Exhibit 3, which is your fluid gravity data on the wells.

A Exhibit 3 shows the gravity of the condensate from the three wells which I have just discussed. The gravity

in the Robinson Brothers Well was 48.6, gravity of the Dorchester, I have 58.0. Penroc is 58.1. I think the gravity shows that we are both separated from the Robinson Brothers Well.

Q Refer to what has been marked Exhibit 6, being the log of the Dero Federal Number 1, and also the Robinson Brothers State A Number 1, and explain it.

A Again, we agree with Dorchester, this shows the comparison between the Wolfcamp section of Penroc Dero Federal Number 1 located 660 South and East of Section 35, and the Robinson Brothers Well located 660 South and West of 36, and, in the proreport, you can see the difference in the porosity between the two wells.

Q How far away are they?

A 1320 feet apart.

Q Please refer to what has been marked Exhibit 5.

A Exhibit 5 -- I might back up here to Exhibit 4 and refer back to Exhibit 1, and that will explain the large circles, it shows the two wells, you identify them on Plat 1 from the circle there.

Exhibit 5, now, it shows the green lines on Exhibit 1, and it shows the relationship of the porosity from the Penroc Well in the South Half of Section 35 as compared to the Hillum Well in the North Half of Section 2.

MR. STAMETS: Okay, now, let's just hold on here a second. Let's see, on 4 you show the Robinson Brothers Well and then your well in the Southeast and Southeast of 35?

THE WITNESS: Right.

MR. STAMETS: Okay, I'm with you.

Q (By Mr. Losee) Now, we are talking about the Penroc in the Southwest Quarter of Section 35 and the Hillun Well in the Northwest Quarter of Section 2.

A Now, there has been no electric logs run on the Penroc Well such as it is drilling presently. But, what I have used there to show porosity is a drilling time log.

Q And there is the well that you had the drill stem test or that you referred to earlier?

A Yes, and the drill stem test is marked on this sample log, on this drilling time log. We tested -- you can see the interval there -- from 9,064 to 9,204, open two hours, gas surfaced in five minutes at the rate of 6.2 million and I've already testified about the pressures. But I have also marked in yellow on this exhibit the porosity from the drilling time in the Penroc Well as compared to the porosity on the electric log in the Hillun Well to the South. And, you can see the Penroc has considerably more porosity than the Hillun Well did. It's 1320 feet apart again.

If you will notice, also, at the bottom of the log on the sample log, on the drilling time log, Penroc encountered quite a bit other porosity and the well blew out at 9355. In fact, it has been blowing out for about a week under control until yesterday. And you can notice from these exhibits which we were going through, no other well in the area has had porosity this low in the section and for that reason we don't believe you can drain more than 160 acres because any other well didn't have this zone. This is a fossiliferous limestone of which I can tell no difference from the upper zone.

It's about 300 feet below the top of the Wolfcamp, and if it were to be put on 320-acre spacing, there would be other porosity zones similar to this which would give up lots of fluid and gas that would be left in the ground and I might also mention that to get this well under control, we were blowing out 11 pounds mud and we had to get the mud up to 11.4 to control it, and at 11 pounds mud, the bottomhole pressure would be approximately 5375 pounds. No other tests have shown that much pressure in the area either, through this area, through this zone; and to control it, we raised the mud to 11.4.

Q Please refer to what has been marked as Exhibit 6 and explain what is shown by these two logs.

A Exhibit Number 6 shows the Wolfcamp section in the Hillun JCW State Comm Number 2 located in the South Half of Section 2 as compared to whip stock of the same hole which was moved approximately 400 feet Northeast. The log on the left is the original hole, you can see very little porosity in it. The whip stock hole is the log on the right and you can see in 400 feet distance the considerable amount of difference in the porosity and also the original well wasn't good enough to test and we did have a test which did give up some test in the slant hole. So, what we are saying is that the porosity development is what separates these little pockets of production and it can change within 400 feet even.

Q And on a larger spacing, you are likely to leave some of those porosity pockets?

A You are likely to leave quite a bit.

Q Please refer to what has been marked as Exhibit 7.

A Exhibit 7 is a comparison between the Dorchester Well in the North Half of Section 35 and the Penroc Well in the Southwest Quarter of Section 35. Again, we are using the drilling type logs only and this is what I mentioned a few minutes ago. Again, the porosity is colored in yellow and you can see the porosity colored on the logs on the Dorchester Well to the left and the Penroc Well to the right.

We tested the same interval of which they perforated and have been testing from, and you will notice their well below or the log below where we show the porosity and they don't have any.

Q Please refer to what has been marked as Exhibit 8 and explain what is portrayed by this exhibit.

A Exhibit 8 is the cumulative production figures of the Robinson Brothers Well located in the Southwest Corner of Section 36, which has been producing since early 1966. It has produced a total of 87,461 barrels of oil and 673,092,000 cubic feet of gas. It is presently, as of August, which is the last figures we had, producing approximately 19 to 20 million cubic feet of gas a month, still commercial in my estimation.

Q Mr. Castle, do you have an opinion as to whether one well will drain all of the pockets, porosity pockets, in the Wolfcamp over 320 acres in this area?

A I don't believe it can. I think the field should be combined. I think it should be a gas field, but I think it should be developed on 160-acre spacing because I don't believe you can drain any more than that.

Q Were Exhibits 1 through 8 prepared by you or under your direction?

A Yes.

MR. LOSEE: I move their introduction.

MR. STAMETS: Without objection, they will be admitted.

MR. LOSEE: That's all I have on direct of Mr. Castle at this time.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q Let me ask you a question about this Exhibit 6, Mr. Castle. Do you have one there?

A Yes.

Q Explain to me why this appears to look thicker than this over here (indicating)? Is that because this well was drilled on a slant? Would that cause that to look this way?

A It wouldn't cause it to look that much thicker. It would cause it to look a few inches thicker.

Q Would it be a factor that this Hillun Production, what is this, JCW State Number 2 --

A Well, they are both the same well. Why don't you just refer to one as the one on the right and the other as the one on the left?

Q All right. Would the fact that this is on the edge of the reservoir have any bearing on your statements with regard to this being pockets of gas?

A On the edge of which reservoir?

Q Well, let's see. There is what we are talking about

here (indicating), on the edge of the reservoir. All right.

A I don't believe those are connected either, if you are talking about whether it's on the edge of the reservoir from which the Robinson Brothers Well produces from. That well has got less than 1800 pounds bottomhole pressure on it by now, I'm sure, and this well had 2496 pounds on the 60-minute shut-in pressure.

Q On this Robinson Well, Mr. Castle, do you know what it is currently producing? That is on Exhibit 8.

A This is 1973 monthly production through August and cumulative production from completion through August.

Q You said you were in the process of developing this Penroc Doro Federal A-2?

A The location has been built, the roads have been built, the location has been approved, and we hope to have a rig on it drilling within 10 days.

Q You've actually got a pad built on this location?

A Actually, yes, and spent more than $5,000 on it already.

MR. KELLAHIN: I can't think of any other questions at this point.

MR. STAMETS: Are there any other questions of this witness?

(No response.)

MR. STAMETS: He may be excused. Is there anything

further in this case, statements?

(No response.)

MR. STAMETS: We do have a letter here from Robinson Brothers.

MR. CARR: Robinson Brothers does not object to the field being reclassified as a gas field. However, they do object to the field being developed on 320 acres. They feel that the field, it would request that it be reclassified as a gas field, and developed on 160-acres spacing.

MR. STAMETS: If there is nothing further, we will take the case under advisement.

* * * * *

dearnley, meier & associates
209 SIMMS BLDG.• P.O. BOX 1092•PHONE 243-6691•ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST•ALBUQUERQUE, NEW MEXICO 87108

C E R T I F I C A T E

I, JOHN DE LA ROSA, a Court Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5097 heard by me on Oct 31 '73.

Richard L. Stamets

New Mexico Oil Conservation Commission

dearnley, meier & associates
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I N D E X

I N D E X (Continued)

E X H I B I T S

	OFFERED	ADMITTED
Applicant's Exhibit 1	9	10
Applicant's Exhibit 2	9	10
Applicant's Exhibit 3	9	10
Applicant's Exhibit 4	21	21
Applicant's Exhibit 5	21	21
Applicant's Exhibit 6	21	21
Penroc's Exhibit 1	34	35
Penroc's Exhibit 2	34	35
Penroc's Exhibit 3	34	35
Penroc's Exhibit 4	34	35
Penroc's Exhibit 5	34	35
Penroc's Exhibit 6	34	35
Penroc's Exhibit 7	34	35
Penroc's Exhibit 8	34	35

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OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

I. R. TRUJILLO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

November 16, 1973

Mr. Tom Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. ~~5097~~
ORDER NO. ~~R-4664~~
Applicant:

~~Dorchester Exploration~~

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC
Artesia OCC ~~x~~
Aztec OCC ~~x~~

Other ~~Mr. A. J. Losee~~

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 5087
Order No. R-4664

APPLICATION OF DORCHESTER EXPLORATION
COMPANY FOR POOL CREATION AND SPECIAL
POOL RULES, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 31, 1973, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 16th day of November, 1973, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Dorchester Exploration Company, seeks the creation of a new gas pool for Wolfcamp production for its DMI Federal Well No. 2 located in Unit F of Section 35, Township 19 South, Range 28 East, Eddy County, New Mexico.

(3) That the applicant further seeks the promulgation of special rules for said proposed gas pool including a provision for 320-acre spacing and standard 320-acre well locations.

(4) That applicant's DMI Federal Well No. 2 in said Section 35 is a gas well and has discovered a separate common source of supply in the Wolfcamp formation.

(5) That a new pool for the production of gas from the Wolfcamp formation should be created and designated the Winchester-Wolfcamp Gas Pool with vertical limits comprising the Wolfcamp formation and horizontal limits comprising the W/2 of said Section 35.

(6) That the evidence presented indicates that said pool should be developed on standard 320-acre gas spacing and proration units and that the application for special pool rules should be denied.

IT IS THEREFORE ORDERED:

(1) That a new pool for the production of gas from [illegible]

formation is hereby created and designated the Winchester-Wolfcamp Gas Pool with vertical limits including the Wolfcamp formation and horizontal limits as set out below:

<u>TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM</u>
Section 35: NE/4

(2) That the application for special pool rules for said Winchester-Wolfcamp Gas Pool is hereby <u>denied</u>.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, JR., Member & Secretary

S E A L

nl

101 S. Florida

Telephone BR 4-1384

ROBINSON BROS.
OIL PRODUCERS
P. O. Drawer 430
BORGER, TEXAS 79007

October 30, 1973

Re: Case No. 5097
Docket No. 31-73

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention Mr. A. L. Porter, Jr.
Secretary-Director

Gentlemen:

Robinson Brothers completed the discovery well in the Winchester Wolfcamp Field in early 1966 and continues to operate one of only two wells in the field.

Robinson Brothers does not object to the field being reclassified as a gas field, however we do object to the field being developed on 320 acre units.

We believe the field is producing from porosity traps within the Wolfcamp lime which are not connected and therefore cannot be drained by drilling on 320 acre spacing units.

Robinson Brothers request that the Winchester Wolfcamp Field be reclassified a gas field to be developed on 160 acre units.

Very truly yours,

ROBINSON BROTHERS

C. M. Anderson

C. M. Anderson
Manager

CMA:m

Docket No. 31-73

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 31, 1973

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 5076: (Continued from the October 17, 1973, Examiner Hearing)

Application of David Fasken for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a well at an unorthodox location 1980 feet from the North line and 660 feet from the West line of Section 7, Township 18 South, Range 26 East, West Atoka-Morrow Gas Pool, Eddy County, New Mexico, the N/2 of said Section 7 to be dedicated to the well.

CASE 5086: Application of Skelly Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Myers Langlie-Mattix Unit Area comprising 9924 acres, more or less, of Federal, State, and Fee lands in Townships 23 and 24 South, Ranges 36 and 37 East, Lea County, New Mexico.

CASE 5087: Application of Skelly Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Myers Langlie-Mattix Unit Area, Langlie-Mattix Pool, Lea County, New Mexico, by the injection of water into the Queen formation through 84 injection wells in said unit area.

CASE 5088: Application of Amini Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Pennsylvanian formation underlying the S/2 of Section 32, Township 20 South, Range 33 East, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, to be dedicated to a well to be drilled at a standard location in Unit N of said Section 32. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5089: (This case will be dismissed)

Application of Coquina Oil Corporation for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its proposed Cities Service State Well No. 3, at an unorthodox location 1325 feet from the South line and 660 feet from the East line of Section 27, Township 14 South, Range 34 East, High Plains-Pennsylvanian Pool, Lea County, New Mexico.

CASE 5090: Application of Atlantic Richfield Company for lease commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Commission Rule 309-A to permit the commingling of unitized and non-unitized production within applicant's Seven Rivers-Queen Unit Area, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 5091: Application of Superior Oil Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 2, Township 18 South, Range 25 East, West Atoka-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well presently being drilled at a point 2080 feet from the South line and 660 feet from the East line of said Section 2. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5092: Application of Gulf Oil Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the base of the Wolfcamp formation to the base of the Morrow formation underlying the E/2 of Section 9, Township 16 South, Range 35 East, Townsend-Morrow Gas Pool, Lea County, New Mexico, to be dedicated to its Hulda Townsend Well No. 2 located in Unit I of said Section 9. Also to be considered will be the present value of said well and the cost of deepening and completing same and the allocation of such values and costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a charge for risk involved in deepening said well.

CASE 5093: Application of Morris R. Antweil for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the N/2 of Section 17, Township 22 South, Range 27 East, South Carlsbad Field, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location in Unit B of said Section 17. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5094: Application of Cities Service Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Azotea Mesa Unit Area comprising 5686 acres, more or less, of Federal and State lands in Township 23 South, Range 24 East, Eddy County, New Mexico.

CASE 5095: Application of Cities Service Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Loafer Draw Unit Area comprising 5844 acres, more or less, of Federal, Fee, and State lands in Township 21 South, Ranges 21 and 22 East, Eddy County, New Mexico.

CASE 5096: Application of H. L. Brown, Jr. for a non-standard gas proration unit and unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard gas proration unit comprising the SE/4 of Section 15 and the E/2 NE/4, SW/4 NE/4, and NE/4 SE/4 of Section 22, all in Township 17 South, Range 29 East, Grayburg-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well to be drilled at an unorthodox gas well location 330 feet from the South and East lines of said Section 15.

CASE 5097: Application of Dorchester Exploration Company for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new gas pool for Wolfcamp production for its well located in Unit F of Section 35, Township 19 South, Range 28 East, and the promulgation of special rules therefor including a provision for 320-acre spacing and standard 320-acre well locations.

CASE 5073: (Continued and Readvertised)

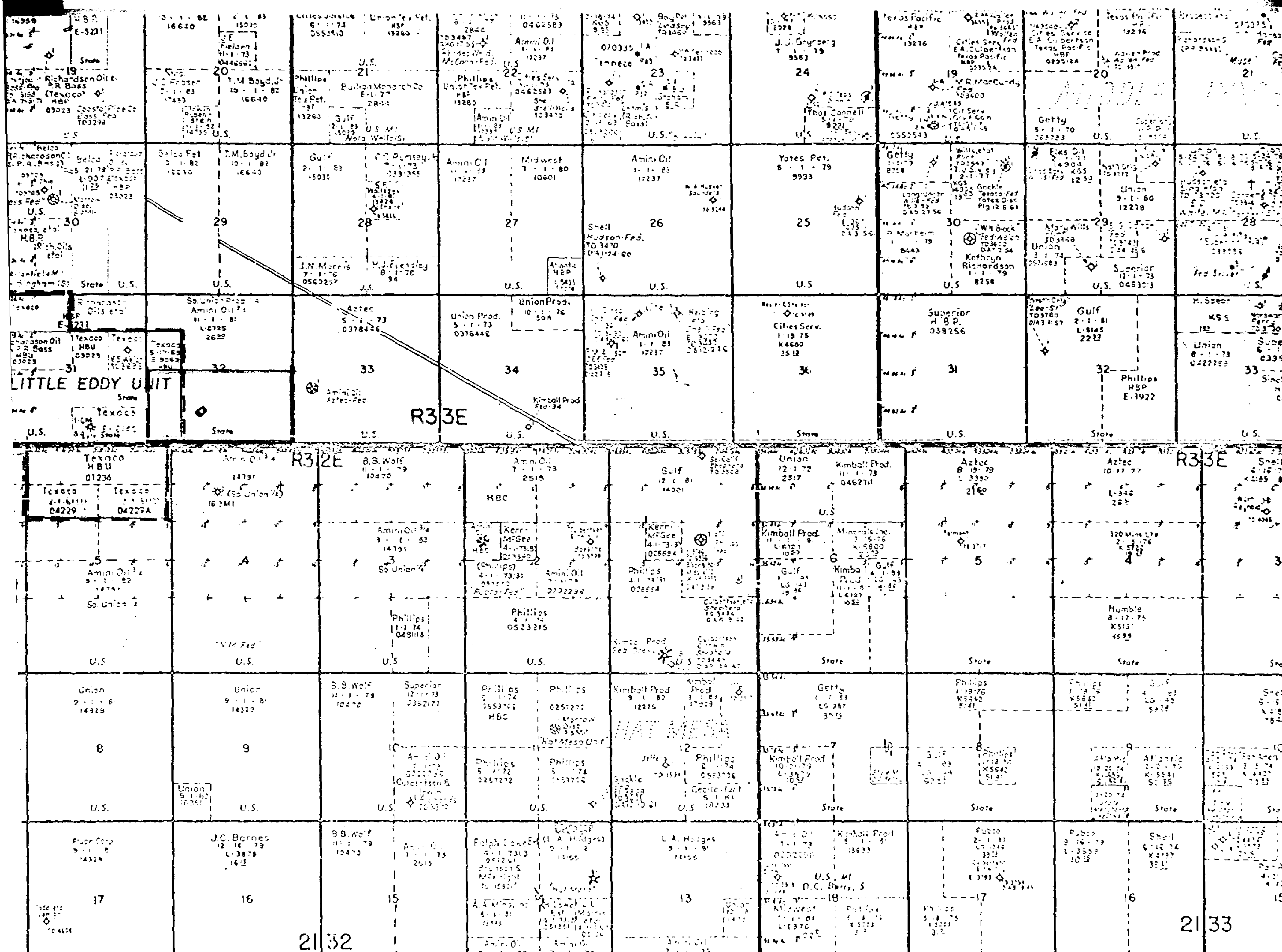
Application of Belco Petroleum Corporation for a non-standard gas proration unit and unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard gas proration unit comprising the E/2 SW/4 and SE/4 of Section 30 and the N/2 NE/4 of Section 31, all in Township 20 South, Range 33 East, South Salt Lake Field, Lea County, New Mexico, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South line and 1300 feet from the East line of said Section 30.

LITTLE EDDY UNIT

R33E

R32E

T 21 32


LITTLE EDDY UNIT
R33E
R32E
R33E
21 32
21 33

DWU Federal No. 2

Aug 16, 1973 Ran pkr + tbg in hole + spotted 150 gals 15% HCl acid over Wolfcamp zone.

Aug 17, 1973 Perforated W.C. zone from 9063 to 9128 w 18 shots down tbg.
Broke down perfs with 150 gals 15% HCl
Well flowed to pit to clean up.
After 4 hrs t.p. 2650 psi on ¼" choke rate

Aug 18, 1973 Flowed well to pit to clean up stabilized at 2250 psi on ¼" choke rate of approx. 3. MMCFPD

Aug 30, 1973 Four point test exhibit 1
CAOF 7,592 MCFPD
prod approx 412 MCF of gas
+ 68 bbls 56.5° cond.
Gas-Liquid ratio 6.074 MCF/bbl
approx 160 bbls/million

Sep 24, 1973 BHP survey
shut in 21 days
BHP at 9120' 4625 psi

Sep 24 Surf pres 3321
Gradient from 0 - 3000' 3 psi/100'
from 3000 - 9100 17 psi/100'

Gas column throughout

Oct 4, 1973 thru Oct 16
well producing into transmission line & produced approximately 28,000,000 cu ft of gas + 3590 bbls condensate

Oct 16, 1973 thru Oct 17
Ran 24 hr BHP buildup test
Bottom hole flowing pressure 3650 psi.
10 mins after shut-in BHP 3945 psi 99% of stabilized pressure
In 3 hrs well had stabilized & remained for 24 hrs

Therefore indications are that permeability is very good and well will drain effectively 320 acres or more.

WINCHESTER WOLFCAMP FIELD
Eddy County, New Mexico
October, 1973

BOTTOM-HOLE PRESSURE DATA

Well	Date	Datum	Depth	BHP
Robinson Bros., State "A" #1				
C SW/4 SW/4, Sec. 36-19S-28E				
	1/14/66		DST 9152 - 9214'	SIP 4500 - 4250#
	2/11/66	9150'	Perfs 9112 - 9188'	4292#
	2/15/66	9150'	"	4364#
	3/ 7/66	9150'	"	3508#
	4/12/71	9000'	Perfs 9064 - 9188'	1800#
Dorchester Expl., DWU-Fed. #2				
C SE/4 NW/4, Sec. 35-19S-28E				
	8/ 6/73		SPDST 9040 - 9180'	4500#
	October, 1973 *		Perfs 9063 - 9128'	4042#
Penroc Oil Corp., Dero-Federal "A" Comm. #1				
C SE/4 SW/4, Sec. 35-19S-28E				
	10/23/73		DST 9064 - 9204	SIP 4450 - 4450#

*Verbal discussion between John Castle, Penroc Oil Corporation, and Bob Winkler, Dorchester Exploration Company. Mr. Winkler said the DWU-Federal #2 had produced 28,000,000 CFG with a pressure drop of 458# from 4500# to 4042#.

from Shows separation Dorchester

EXAMINER

9097

W. T. Haller
H. L. Haller
W. M. Eaton
R. W. Harrington
J. N. Richards
D. F. Jones

SERVICE
INC.

INDIVIDUAL WELL DATA SHEET

Company J. C. Williamson & Robinson Bros. Lease State "A" Well No. 1

Field Wildcat County Eddy State New Mexico

Test Date 2-11-66 Time 9:58 AM Status of Well Shut In

Top of Pay ' Total Depth 9700 PB Producing Formation Wolfcamp Reef Guib. L50

Tubing 2 " Depth 9020 OE ' B.H.C. 9112-9132 Packer 8700 Pressure Datum MPP

Casing 5 1/2 " Depth 9700 ' Perf. 9168-9188 Liner Packer

Depth Feet	Δ Depth	Pressure Lbs. Sq. In.	Δ Pressure	*Gradient Lbs./Ft.
Surface		2038		
	4000		896	.223
4000		2934		
	4000		1062	.265
8000		3996		
	1150		296	.257
9150 Datum		4292		

Tubing Press.	3039 DWG
Top of Fluid	995
Top of Water	None
Hrs.- Shut In	25.5
Temp. @ 9150'	= 153°F
Elevation	3295 DF 3283 GR
Last Test Date	Initial Test
Press. Last Test	
B.H.P. Change	
Gain - Loss/Day	
RPG	2137
Calibration No.	211
Run By	D. F. Jones
Calculated By	R. W. Harrington

* Pressure and Gradients are calculated in decimals. Pressure and Δ pressure are shown to the nearest pound.

Calculations and Remarks. All Pressure Instruments are Temperature Compensated

Distribution
2-16-66

5 - 302 V & J Tower - Midland, Texas
1 - Our File

J. C. WILLIAMSON & ROBINSON BROS.
State "A" Well No. 1
Wildcat, Eddy County, New Mexico

Sub-Surface Pressure Recorded @ 9150' in Psig
"0" Hour = Time Opened = 11:15 AM on 2-11-66

HOURS	PRESSURE	choke SIZE	BBLS.OIL PER DAY	GOR	P.I.
-1.28	4292	0/64"			
-1	4295	0/64"			
0	4301	0/64"	0		
.02	3954	16/64"			
.03	3659	16/64"			
.08	3571	16/64"	Oil	Gas	
.17	3478	16/64"	Gravity =	Gravity =	
.25	3425	16/64"	49° @ 60°F	.790	
.5	3332	16/64"			
1	3276	16/64"			
2	3225	16/64"			
3	3219	16/64"			
4	3208	16/64"	434.7	1753	.376
4.08	3490	12/64"			
4.17	3535	16/64"			
4.25	3569	12/64"			
4.5	3614	12/64"			
5	3619	12/64"			
6	3622	12/64"			
6.05	3622	12/64"	273.0	1804	.368
6.08	3695	0/64"			
6.25	4028	0/64"			
6.5	4098	0/64"			
7	4104	0/64"			
8	4115	0/64"			
9	4123	0/64"			
10	4137	0/64"			
10.25	4140	0/64"			
90.62*	4364				

*Shut-In Hours

NEW MEXICO OIL CONSERVATION COMMISSION

FORM C-124
(Rev. 9-53)

COMPANY J. C. Williamson & Robinson Bros. BOTTOM HOLE PRESSURES Wildcat (Eddy County) POOL

POOL DATUM Mid-Point of Perfs. NOMINAL SHUT-IN TIME - HRS: AVERAGE POOL TEMPERATURE 158 F°

LEASE	WELL NO.	UNIT	S-T-R	DATE PRESS. RUN	TIME S.I. HRS./MINS.	D.F. ELEV.	GAUGE DEPTH	GRADIENT TBG.	B.H.P. @ GAUGE DEPTH	B.H.P. @ POOL DATUM	PREVIOUS TEST @ DATUM PRESS.	PREVIOUS TEST DATE
State "A"	1		36-19S-28E	2-11-66	25:15	3295	-5855	0.233	-5855	4315	Initial Test	-

1/2

NEW MEXICO OIL CONSERVATION COMMISSION

FORM C-124
(Rev. 9-53)

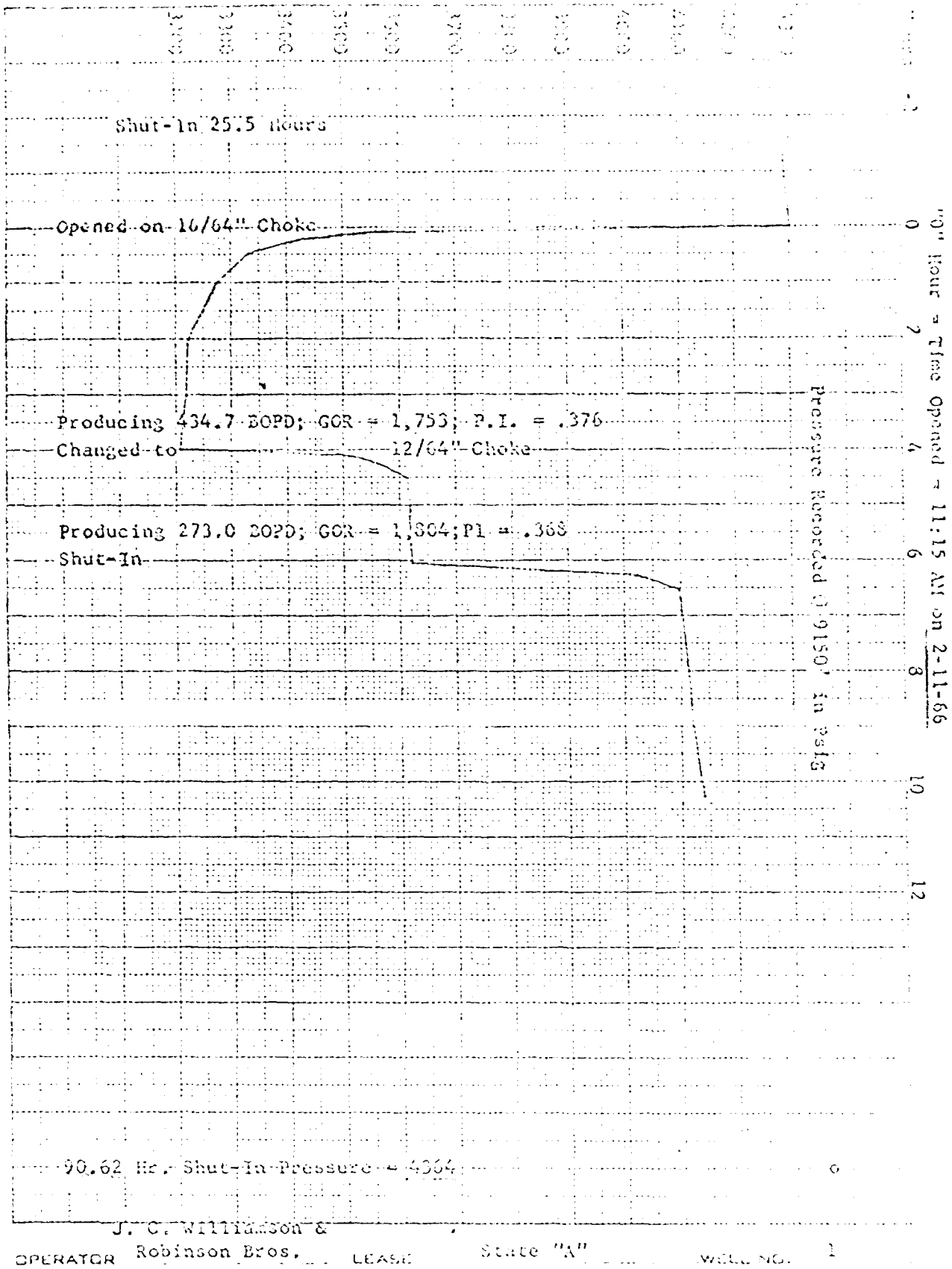
COMPANY J. C. Williamson & Robinson Bros. BOTTOM HOLE PRESSURES Wildcat (Eddy County) POOL

POOL DATUM Mid-Point of Perfs. NOMINAL SHUT-IN TIME - HRS: AVERAGE POOL TEMPERATURE 158 F°

LEASE	WELL NO.	UNIT	S-T-R	DATE PRESS. RUN	TIME S.I. HRS./MINS.	D.F. ELEV.	GAUGE DEPTH	GRADIENT TBG.	B.H.P. @ GAUGE DEPTH	B.H.P. @ POOL DATUM	PREVIOUS TEST @ DATUM PRESS.	DATE
State "A"	1		36-19S-28E	2-11-66	25:15	3295	-5855	0.233	-5855	4315	Initial Test	-

WEST TEXAS
ENGINEERING
SERVICE, INC.

PHONE MU 3-5361



OPERATOR J. C. Williamson & Robinson Bros. LEASE State "A" WELL NO. 1

POOL Wildcat COUNTY Eddy DATE 2-11-66

STAPLETON PTG. CO., MIDLAND

INDIVIDUAL WELL DATA SHEET

Company J. C. Williamson & Robinson Bros. Lease State "A" M

Field Wildcat County Eddy State

Test Date 2-15-66 Time 11:52 AM Status of Well Shut In

Top of Pay ' Total Depth 9700 PB Producing Formation Wolfcamp Reef Gulf. L30

Tubing 2 " Depth 9020 OE ' B.H.C. Packer 8700 Pressure Datum MSP

Casing 5 1/2 " Depth 9700 ' Perf. 9112-9132 9168-9188 Liner Packer

Depth Feet	Δ Depth	Pressure Lbs. Sq. In.	Δ Pressure	*Gradient Lbs./Ft.	
Surface		2127			
	4000		911	.227	Tubing Press. 2122 PSIG
4000		3038			Top of Fluid 1055
	4000		1046	.261	Top of Water No
8000		4084			Hrs. Shut In 90.82*
	1150		280	.243	
9150 Run Depth & Datum		4364			Elevation 3295 DF 3283 GR
					Last Test Date 2-12-66
					Press. Last Test 4292 @ Datum
					B.H.P. Change +72/6 days
					Gain - Loss/Day 12.000
					RPG .2602
					Calibration No. 930
					Run By D. F. Jones
					Calculated By R. W. Harrington

* Pressure and Gradients are calculated in decimals. Pressure and Δ pressure are shown to the nearest pound.

Calculations and Remarks: All Pressure Instruments are Temperature Compensated

Distribution

*Clock Stopped, unable to observe any pressure change during 3 Hours @ Run Depth

W. T. HAGLER
H. L. HAGLER
W. M. CATES
R. W. HARRINGTON
J. N. CASPARIS
D. F. JONES
FIELD PETROLEUM ENGINEERS

P. O. BOX [illegible]
TELEPHONE NO. [illegible]
2209 W. INDUSTRIAL AVE.
MIDLAND, TEXAS
FULL INSURANCE COVERAGE

INDIVIDUAL WELL DATA SHEET

Company J. C. Williamson & Robinson Bros. Lease State "A" Well No. 1

Field Wildcat County Eddy State New Mexico

Test Date 3-7-66 Time 8:10 AM CST Status of Well Shut In

Top of Pay ' Total Depth 9700 PB Producing Formation Wolfcamp Reef Guib. L 30

Tubing 2 " Depth 9020 OE ' B.H.C. Packer 8700 Pressure Datum MPP

Casing 5 1/2 " Depth 9700 ' Perf. 9168-9188 9112-9132 Liner Packer

Depth Feet	Δ Depth	Pressure Lbs. Sq. In.	Δ Pressure	*Gradient Lbs./Ft.		
Surface		1730				
	2500		151	.061	Tubing Press.	1727 DWG
2500		1881			Top of Fluid	3120
	2500		555	.222	Top of Water	None
5000		2436			Hrs.- Shut In	72
	2500		659	.264		
7500		3095			Elevation	3283 GL
	1050		261	.248	Last Test Date	2-15-66
8550		3356			Press. Last Test	4364 @ Datum
	400		101	.252	B.H.P. Change	-856/20 days
8950		3457			Grav. - Loss/Day	42.800
	200		51	.252	RPG	2602
9150 Run Depth & Datum	(3508)				Calibration No.	930
					Run By	D. F. Jones
					Calculated By	D. F. Jones

* Pressure and Gradients are calculated in decimals. Pressure and Δ pressure are shown to the nearest pound.

Calculations and Remarks: All Pressure Instruments are Temperature Compensated

Distribution
3-8-66
5 - 802 V & J Tower - Midland, Texas
1 - Our File

NEW MEXICO OIL CONSERVATION COMMISSION

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

(FOR COMPANY INFORMATION ONLY)

Type Test: [X] Initial [ ] Annual [ ] Special		Test Date: 6/9/71	
Company: Robinson Bros. Oil Producers	Connection:		
Pool: Winchester	Formation: Wolfcamp		Unit:
Completion Date	Total Depth: 10,300	Plug Back TD: 9900	Elevation: 3296 KB
Csg. Size: 5 1/2 / Wt. / d / Set At: 9700	Perforations: From 9064 To 9087 / From 9112 To 9188		Farm or Lease Name: State A
Tbg. Size: 2 3/8 / Wt.: 4.7 / d: 1.995 / Set At: 9100	Perforations: From 8893 To 8913 by Otis		Well No.: 1
			Unit: M / Sec.: 36 / Twp.: 19S / Rge.: 28E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single	Packer Set At: 9100		County: Eddy
Producing Thru: Casing	Reservoir Temp. °F: 148 @ 9150	Mean Annual Temp. °F: 60°	Baro. Press. – P_a: 13.2
			State: New Mexico

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
9100	9100	.675	-	-	-	X		

NO.	FLOW DATA: Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	TUBING DATA: Press. p.s.i.g.	Temp. °F	CASING DATA: Press. p.s.i.g.	Temp. °F	Duration of Flow
SI								1352	78	7#
1.	2	3/4	25		57			1140	78	1
2.	2	1	23		47			1026	78	1
3.	2	1 1/4	25		42			759	78	1
4.	2	1 1/2	25		50			180	78	1
5.	2	1 1/4	16		78			65	78	3#

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	9.453		38.2	1.003	1.217	1.000	441
2	17.09		36.2	1.013	1.217	1.000	763
3	27.63		38.2	1.013	1.217	1.000	1303
4	42.11		38.2	1.010	1.217	1.000	1977
5	27.63		29.2	0.9805	1.217	1.000	973

NO.	P_r	Temp. °R	T_r	Z
1	0.06	517	1.35	*
2.	0.05	507	1.35	*
3.	0.06	502	1.31	*
4.	0.06	510	1.34	*
5	0.04	530	1.39	*

Gas Liquid Hydrocarbon Ratio: Dry Gas Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons: Deg.
Specific Gravity Separator Gas: .675 XXXXXXXXX
Specific Gravity Flowing Fluid: XXXXX
Critical Pressure: 669 P.S.I.A. P.S.I.A.
Critical Temperature: 382 R R

P_c 1853.2** P_c^2 3434.4

NO	P_t^2	P_w**	P_w^2	$P_c^2 - P_w^2$
1		1720.2	2959.1	475.3
2		1585.2	2512.9	921.5
3		1272.2	1618.5	1815.9
4		629.2	395.9	3038.5
5		274.2	75.2	3359.2

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.130$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.102$

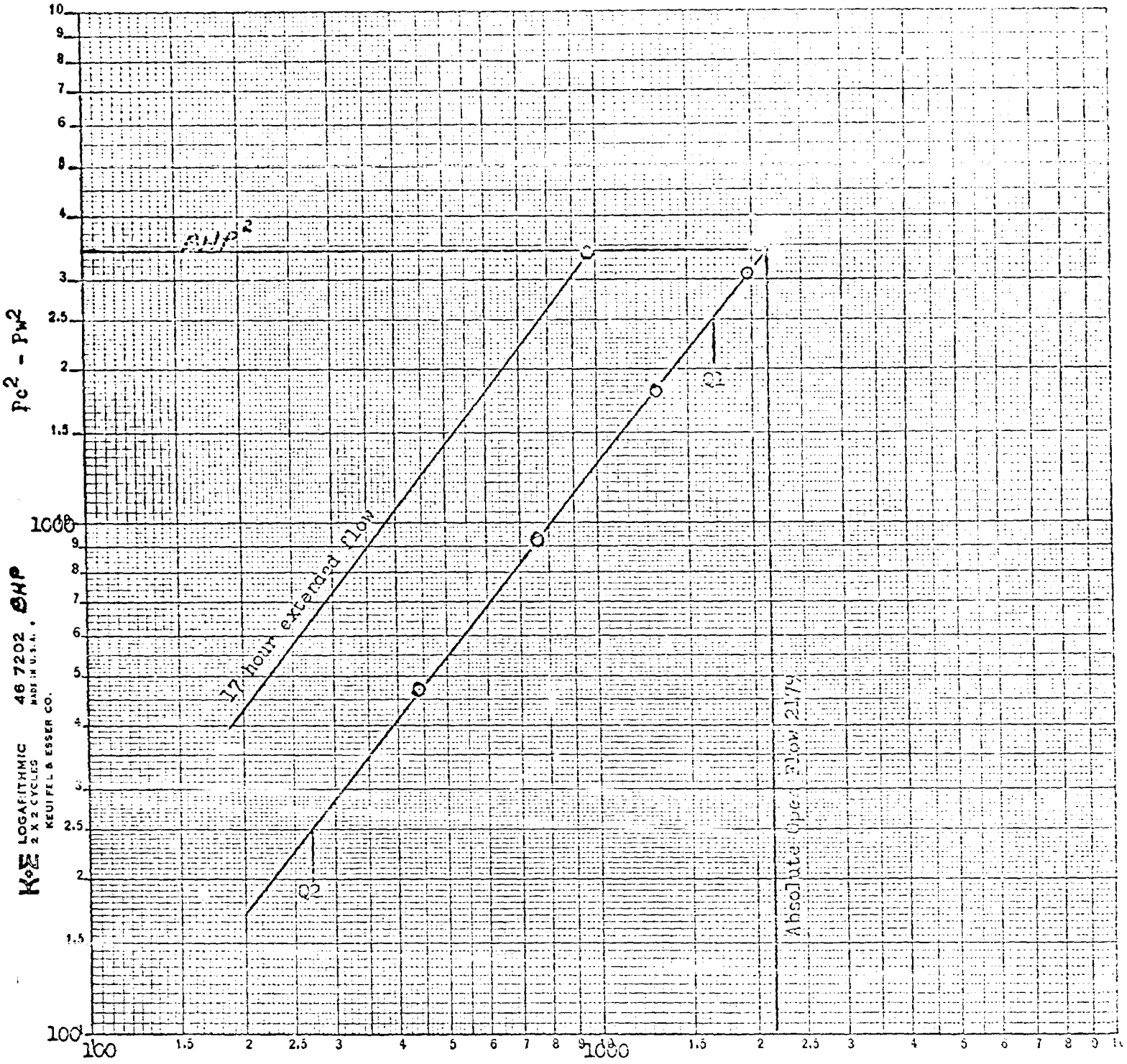
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 2179$

Absolute Open Flow: 2179 Mcfd @ 15.025 Angle of Slope θ: Slope, n: .793

Remarks: * Pr below limits of table
** from DHP bomb @ 9000'

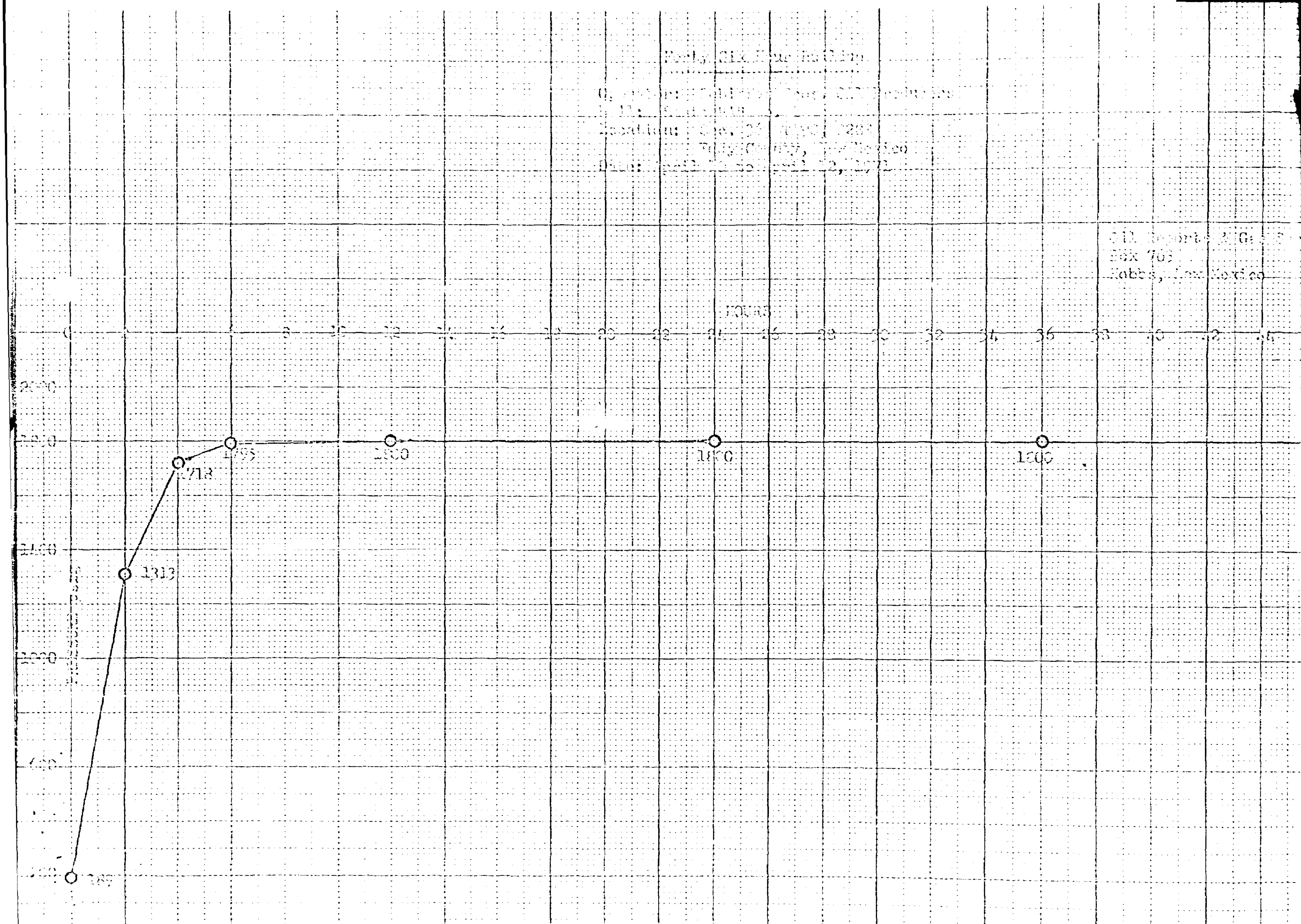
Approved by Commission:	Conducted by:	Calculated by:	Checked By:
	M. L. Smith	Norma Miller	

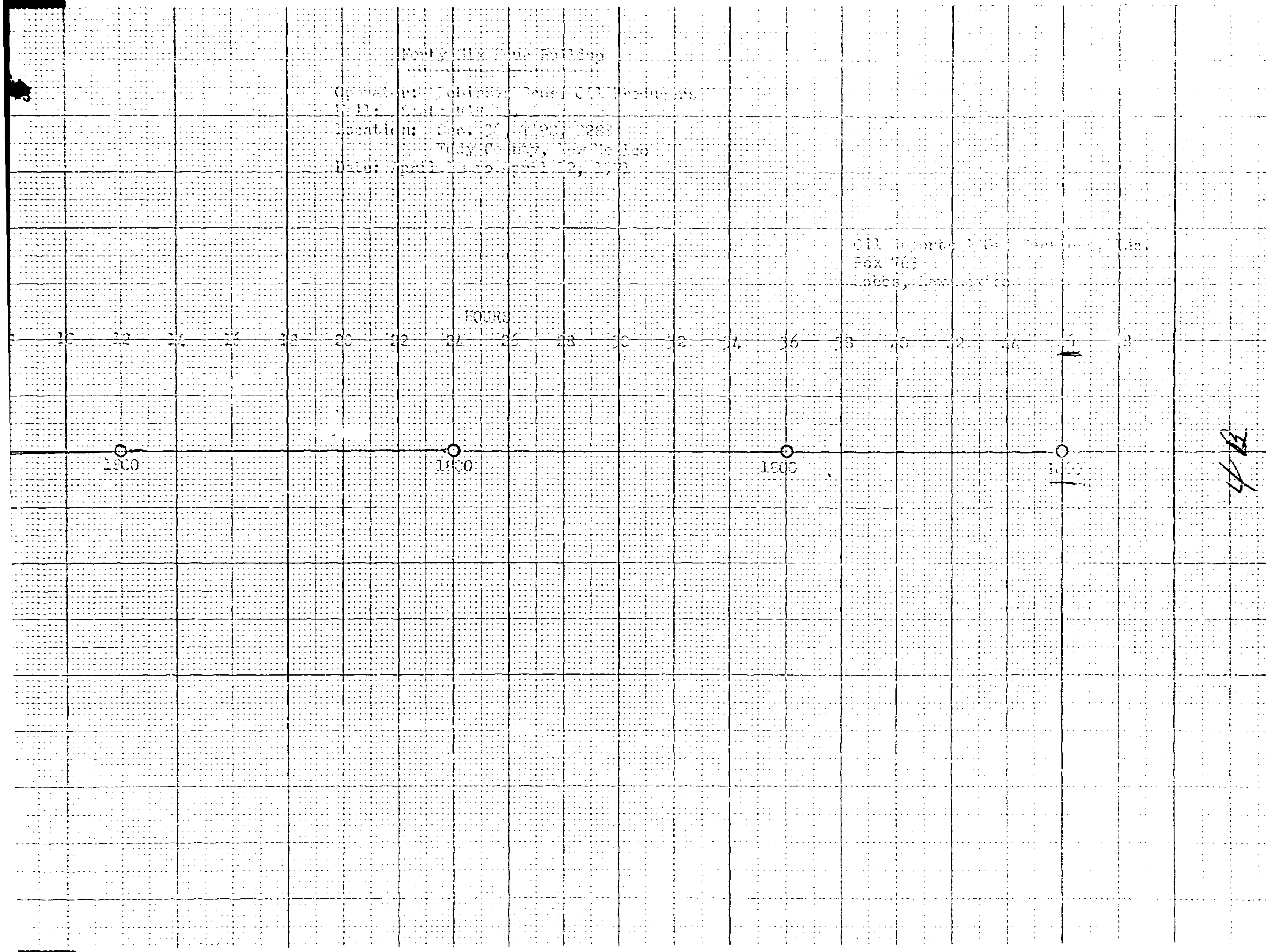
Ro[illegible]son Bros. Oil Producers
State "A" No. 1
Unit K, Sec. 36, T19S, R28E
Eddy County, New Mexico
April 9, 1971

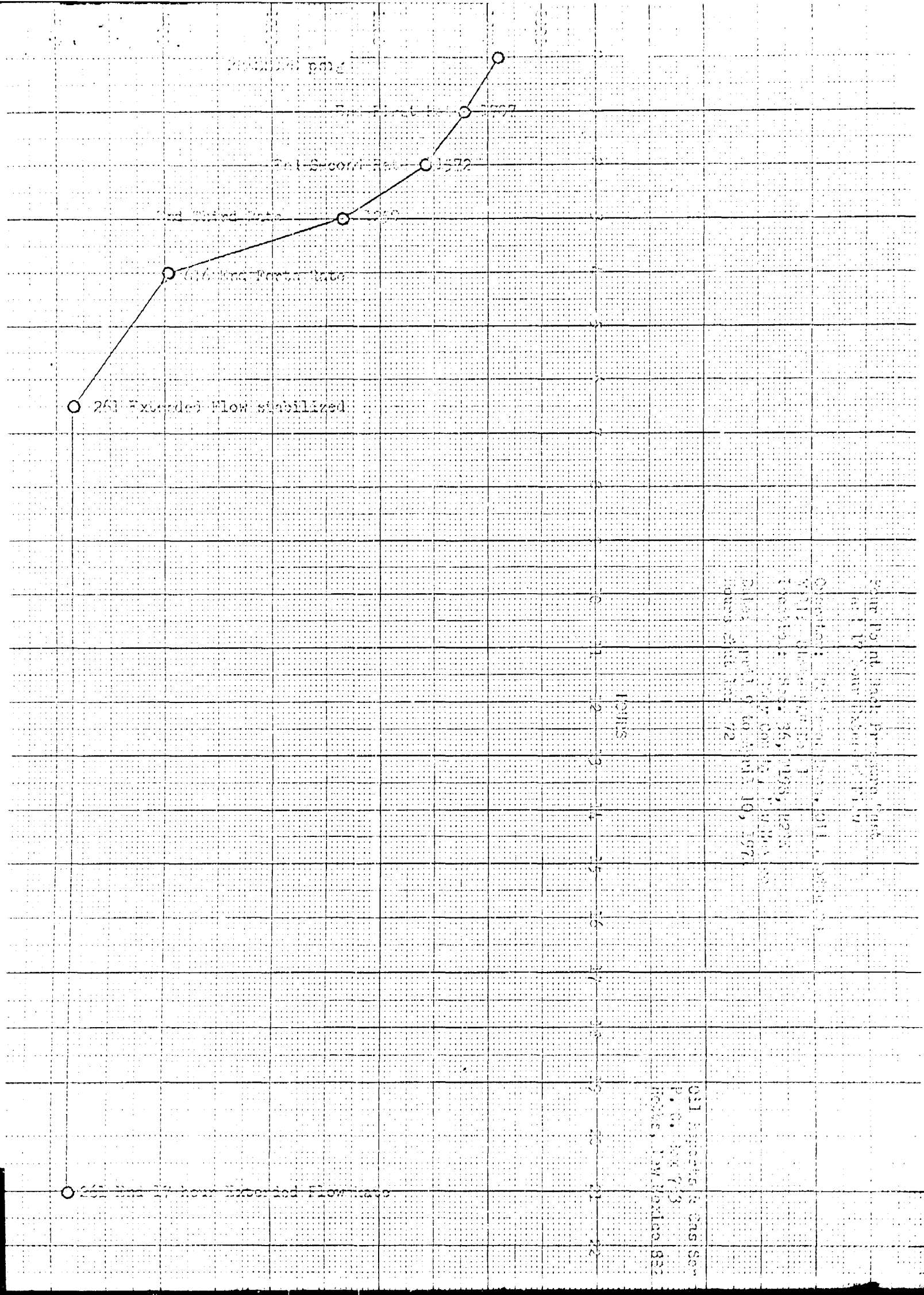


Q MCFPD

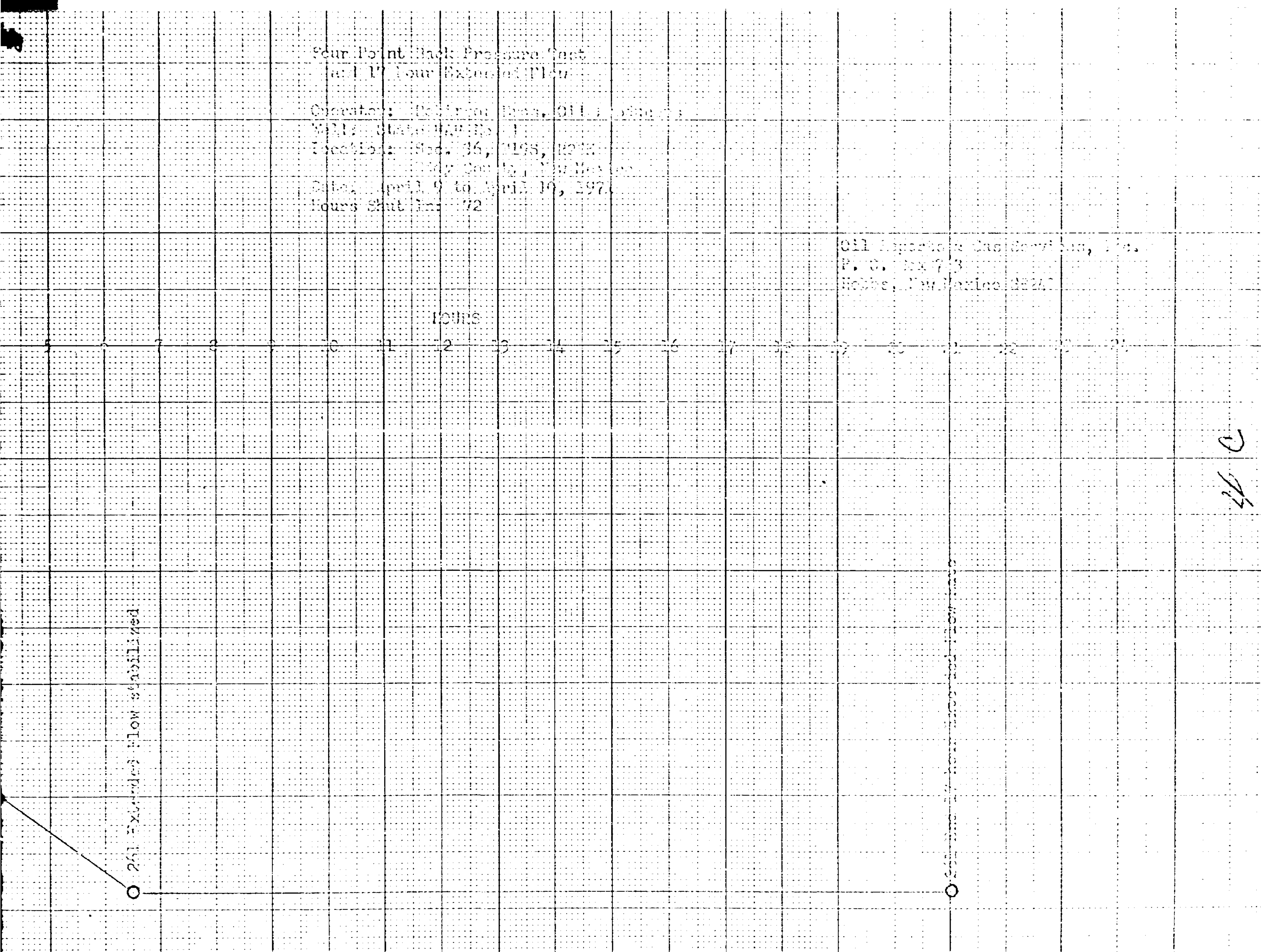
Log Q1 = 3.224015
Log Q2 = 2.431364
n = 0.792651


1313
1718

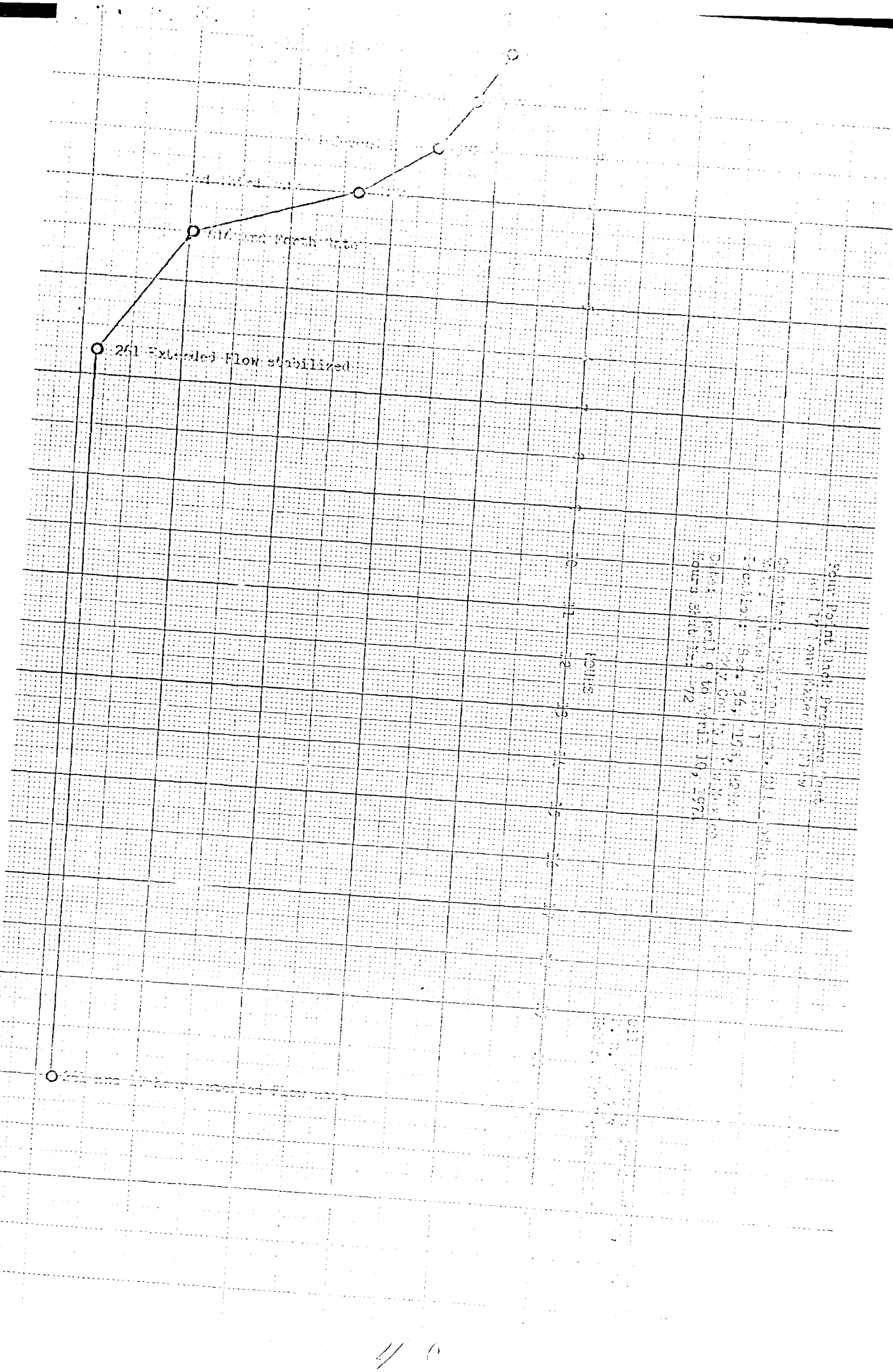

Forty Six Hour Buildup
Operator:
Location: Sec. 26
County, New Mexico
Date: April
Box 76
Hobbs, New Mexico
HOURS
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
1800
1800
1800



Four Point Back Pressure Test
and 17 hour Extended Flow
Operator:
Well:
Location: Sec. 36,
County, New Mexico
Date: April 9 to April 10, 197
Hours Shut In: 72
Oil Reports & Gas Ser
P. O. Box 7 3
Hobbs, New Mexico 882
HOURS
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
End Second Rate 1572
616 End Fourth Rate
261 Extended Flow stabilized
262 End 17 hour Extended Flow rate



Four Point Back Pressure Test
Operator:
Location: Sec. 36,
Hours Shut In: 72
P. O.
HOURS


261 Extended Flow stabilized

[illegible] Bros. Oil Producers
[illegible] "A" No. 1

Four Point Back Pressure Test

April 6, 1971 1:00 PM Shut in

April 9, 1971 12:20 PM Started in hole with bomb
1:00 PM Bomb @ 7000'. Casing pressure 1382. [illegible] Temp 71°. Tubing pressure 600#.
1:20 PM Start No. 1 flow rate. 2" prover x 3/4" plate. Casing pressure 1140#. Flowing Temp 57°.
2:20 PM Start No. 2 flow rate. 2" x 1" prover. Casing pressure 1026. Flowing Temp 47°.
3:20 PM Start No. 3 flow rate. 2" x 1 1/4" prover. Casing pressure 759. Flowing Temp 42°.
4:20 PM Start No. 4 flow rate. 2" x 1 1/2" prover. Casing pressure 130#. Flowing Temp 50°.
5:20 PM Start opening choke for extended flow. Flowing Temp 70°.
9:30 PM Choke wide open. Flowing Temp 70°.
9:40 PM Shut in & reconnected prover. 2" x 1 1/4" prover. Tubing pressure 1750, casing pressure 65 .

April 14, 1971 10:30 AM Pull BHP gauge. Casing pressure 75#, tubing pressure 200#.
11:10 AM Back on bottom with BHP gauge.
11:12 AM Shut in casing.

April 12, 1971 8:30 AM Pulled BHP [illegible].

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER

2. NAME OF OPERATOR: Dorchester Exploration, Inc.

3. ADDRESS OF OPERATOR: 1204 Vaughn Bldg., Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface:
1980 from north line and 1980 from west line of Sec. 35, T-19-S, R-28-E

5. LEASE DESIGNATION AND SERIAL NO.: NM-0473362

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME: None

8. FARM OR LEASE NAME: DWU-Federal

9. WELL NO.: 2

10. FIELD AND POOL, OR WILDCAT: Winchester-Morrow

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Unit F Sec. 35-T19S-R28E

12. COUNTY OR PARISH: Eddy

13. STATE: New Mexico

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 3307 GR

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) Drill Stem Test			X
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Drill stem test #3 9,040 - 9,180 (Straddle Test)

Open 30 min. Good blow gas in 6 min. Fluid in 15 min.
Flow pressure 2292#-3481#
Shut-in 60 min. Shut-in pressure 4500#
Open 60 min. Gas flowing. Fluid to surface in 5 min. Rate 11 MMCF/D
Flow pressure 2205#-3538#
Shut-in 120 min. Shut-in pressure 4500#
Open 140 min. Flowing wet gas. Rate 4,190 MCF/D
Flow pressure 2182#-4112#
Shut-in 240 min. Shut-in pressure 4500#
Recovered 558 ft. of distillate 324 ft. salt water
Hydrostatic pressure In - 4683# Out - 4683#
Sample Chamber
Pressure 2800#
Recovered 25.4 cu. ft. gas 400 cc oil 200 cc water

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Engineer DATE August 16, 1973

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Dorchester, No. 2 DWU Fed.
1980 FNL & WL, 35-19-28
As told to John Castle
by Bob Winkler
Original BHP 4500#
Produced 28,000,000
Pressure Drop 458#
Current BHP 4042#

DAILY DRILLING REPORT

Date 10/24/73 Lease Dero-Federal A Well No. 1

TD 9260' Formation Lime

Mud Weight Brine Wtr. 9.7 Vis. _____ Water Loss _____ F.C. _____

Slope Test _____ Depth _____ Bit No. in Hole 9

Bit Size _____ Min. Per Ft. _____

Footage Drilled Past 24 Hrs. 56'

Core No. _____ From _____ To _____

DST No. 1 From 9064 To 9204

Remarks:

10/24: 20.50 hrs drill stem test #1
3.50 hrs drilling.
DST #1 9064-9204 (Wolfcamp)
15 min Pre Flow, GTS 5"
Tool open 2 hrs, Flow 6,200,000 CFGPD
1/2" choke, Surface Flow Press. 1000#
Reversed out 20 bbls distillate
HMPI 4450#
I 15" PFP 422#, F 15" PFP 592#
90" ISIP 4450#
IFP 592#, FFP 1860#
180" FSIP 4450#
HMPO 4450#

PENROC OIL CORPORATION

WINCHESTER WOLFCAMP FIELD
Eddy County, New Mexico
October, 1973

FLUID GRAVITY DATA

Well	Interval	Gravity
Robinson Bros., State "A" #1 C SW/4 SW/4, Sec. 36-19S-28E	Perfs 9112 - 9188'	48.6°
Dorchester Expl. Co., DWU Fed #2 C SE/4 NW/4, Sec. 35-19S-28E	Perfs 9063 - 9128	58.9°
Penroc, Dero-Fed. "A" Comm. #1 C SE/4 SW/4, Sec. 35-19S-28E	DST 9064 - 9204	58.1°

EX... 3
9097
Penroc

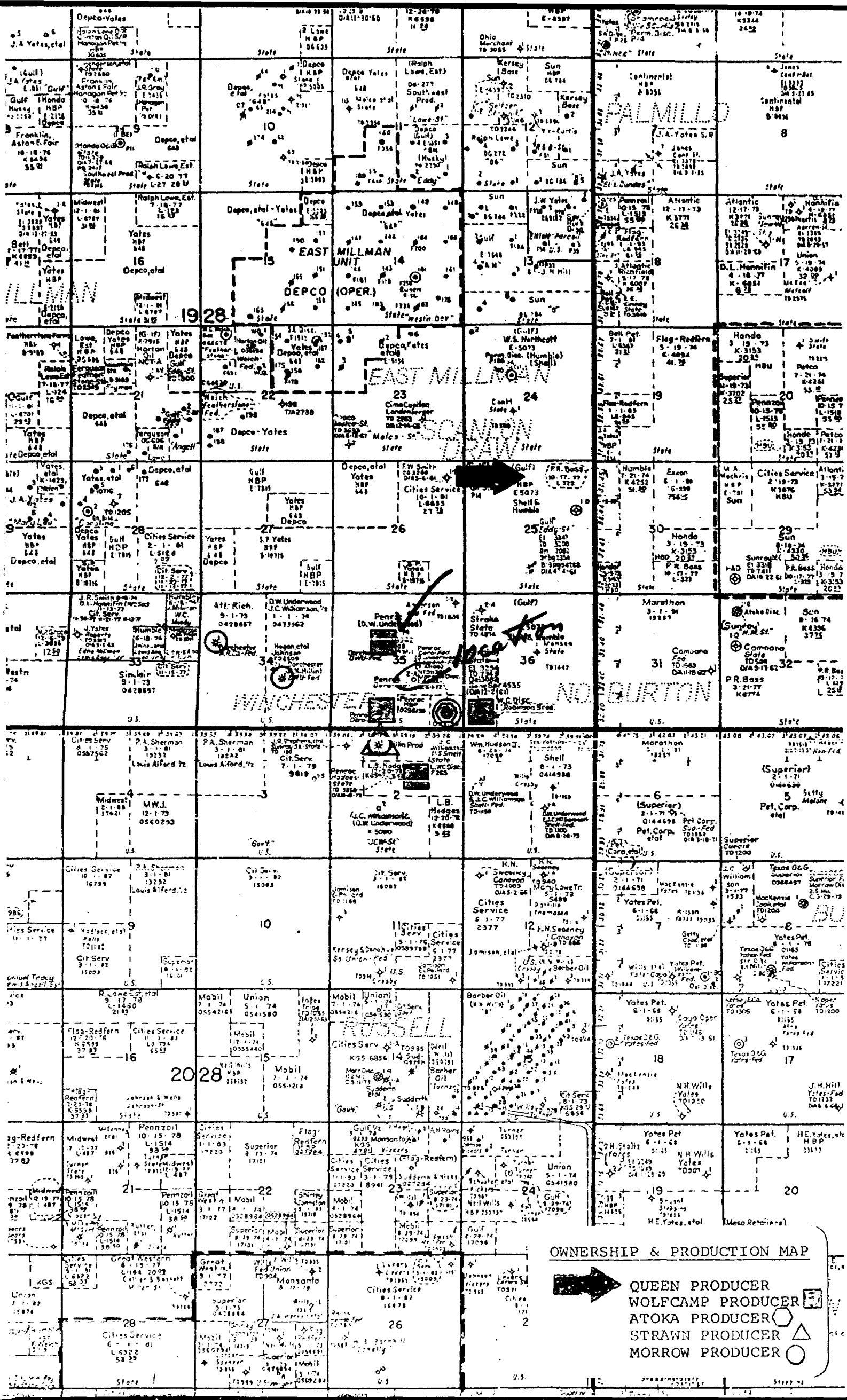
WINCHESTER WOLFCAMP FIELD
Eddy County, New Mexico
October, 1973

CUMULATIVE PRODUCTION

Robinson Bros. Oil Producers, State "A" No. 1
660' FS & WL's, Section 36, T-19-S, R-28-E
Eddy County, New Mexico

	Oil	Gas
To 1/1/73	87,284 BO	574,764,000 CFG
January 1973	95	7,550,000
February	43	3,720,000
March	4	1,127,000
April	12	6,927,000
May	13	18,664,000
June	1	20,575,000
July	6	20,294,000
August	3	19,471,000
Cumulative Prod. to 9/1/73	87,461 BO	673,092,000 CFG

OIL EXAMINER STAMP
OIL CONSERVATION COMMISSION
EXHIBIT NO. 8
5097
Pennzoil


PALMILLO
ILLMAN
EAST MILLMAN
MILLMAN UNIT (OPER.)
EAST
DEPCO
SPRABERRY
WINCHESTER
NO. BURTON
ROSSELL
Penroc
Depco-Yates
Depco, etal
Yates
Sun
Gulf
Cities Service
Flag-Redfern
Pennzoil
Great Western
Mobil
Union
Marathon
Superior
Shell
Texas O&G
Amoco Fed
Stroke State
Continental
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Hondo
Humble
Exxon
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8
OWNERSHIP & PRODUCTION MAP
QUEEN PRODUCER
WOLFCAMP PRODUCER
ATOKA PRODUCER
STRAWN PRODUCER
MORROW PRODUCER

[illegible]

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test			Test Date	
[X] Initial	[ ] Annual	[ ] Special	8-30-73	

Company	Connection	
Dorchester Exploration	None	
Pool	**Formation**	**Unit**
Wildcat	Wolfcamp	

Completion Date	Total Depth	Plug Back TD	Elevation	Farm or Lease Name
8-30-73	11,400	9,250		[illegible] Fed.

Csg. Size	Wt.	d	Set At	Perforations: From	To	Well No.
4½	11.6		9,300	[illegible]	[illegible]	2
Tbg. Size	**Wt.**	**d**	**Set At**	**Perforations: From**	**To**	**Unit / Sec. / Twp. / Rge.**
2 3/8	4.7		8980	open	End	F / 35 / 19-S / 28E

Type Well – Single – Bradenhead – G.G. or G.O. Multiple	Packer Set At	County
Single	8980	Eddy

Producing Thru	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press. – P_a	State
Tbg.	170 @ 9080	60°	13.2	New Mexico

L	H	G_g	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
8980	8980	.670					4"	Flg.

	FLOW DATA					TUBING DATA		CASING DATA		Duration
NO.	Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F		Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	of Flow
SI						2952	74			72
1.	4 x 1.500	825	3.55	68		2737	74			1 hr.
2.	4 x 1.500	830	29.00	76		2467	76			1 hr.
3.	4 x 1.500	830	51.00	68		2240	76			1 hr.
4.	4 x 1.500	890	82.00	70		1945	78			1 hr.
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor F_t	Gravity Factor F_g	Super Compress. Factor, F_{pv}	Rate of Flow Q, Mcfd
1	10.84	54.55	838.2	.9924	1.222	1.088	780
2	10.84	155.37	843.2	.9850	1.222	1.080	2,222
3.	10.84	207.37	843.2	.9924	1.222	1.080	2,960
4	10.84	272.14	903.2	.9905	1.222	1.095	3,910
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	1.25	528	1.38	.885
2.	1.26	536	1.40	.884
3.	1.20	528	1.38	.884
4.	1.35	530	1.39	.834
5.				

Gas Liquid Hydrocarbon Ratio 6,074 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 58.5 @ 60° Deg.
Specific Gravity Separator Gas .670 XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX @ Mix - 1.000
Critical Pressure 669 P.S.I.A. 683 P.S.I.A.
Critical Temperature 382 R 520 R

P_c 2965.2 P_c^2 [illegible]

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		[illegible].9	7878.7	913.7
2		[illegible]	[illegible]	2860.2
3		[illegible].0	5370.2	3422.2
4		[illegible].0	4266.2	4526.2
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2}$ = 1.942 (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 1.942

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 7,592

Absolute Open Flow 7,592 Mcfd @ 15.025 Angle of Slope θ 45 Slope, n 1.000

Remarks: [illegible] conformance [illegible]

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	J. C. Roberts	J. R. Murray	

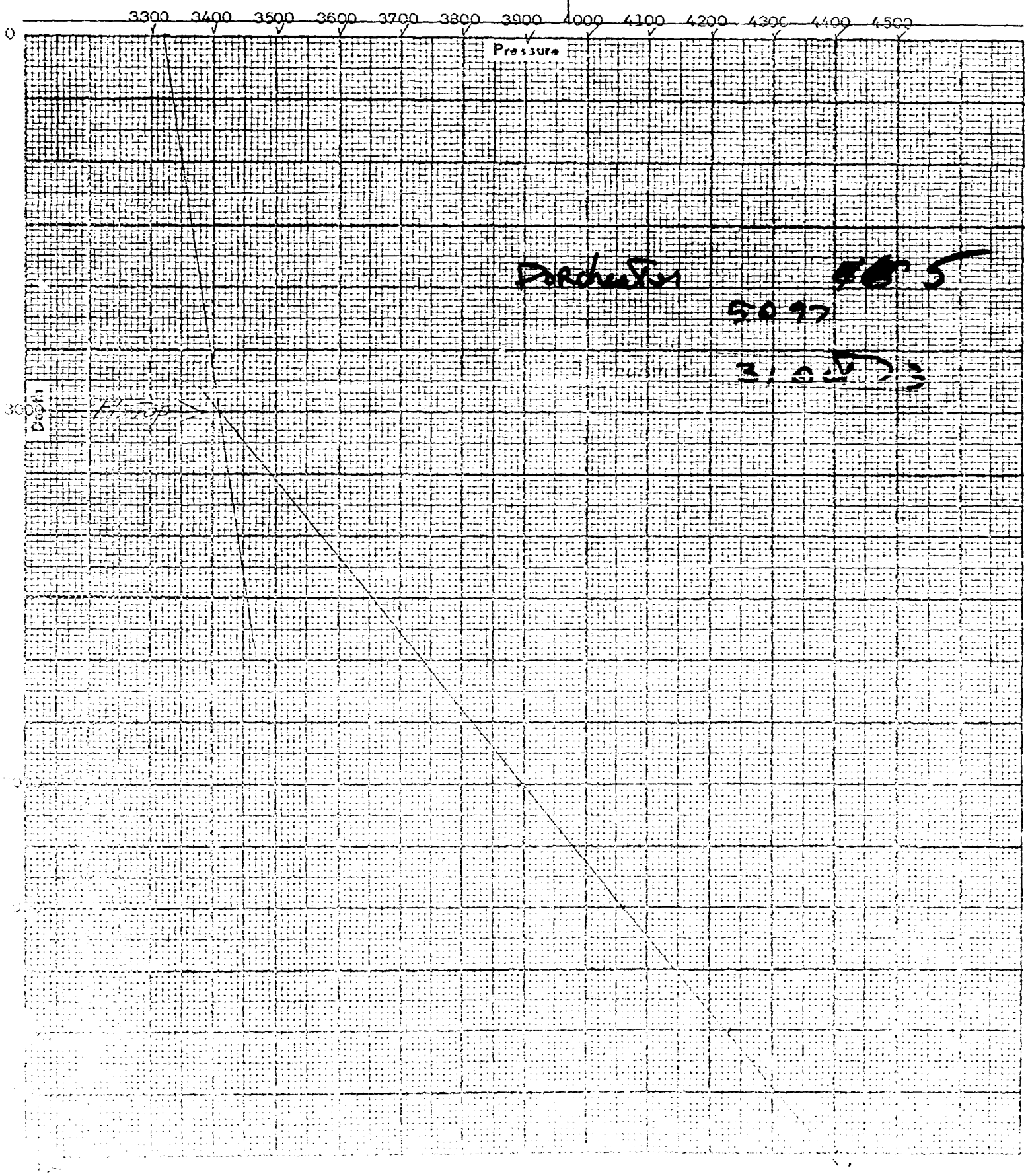
Bennett Wire Line Service
305 McArthur Ave. Ph. (505) 746 - 3281
Artesia, New Mexico - 88210

BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR DORCHESTER EXPLORATION CORPORATION
LEASE D W U
WELL NO. 2
FIELD
DATE 9/24/73 TIME 3:00 PM.

STATUS Shut-in TEST DEPTH 9100 Ft.
TIME S.I. 20 days LAST TEST DATE 9-4-73
CAS. PRES. BHP LAST TEST
TUB. PRES. 3321 Lbs. BHP CHANGE
ELEV. FLUID TOP 3000 ft.
DATUM WATER TOP None
TEMP. @ 9100 Ft. 150 RUN BY E.D. Bennett
CLOCK NO. GAUGE NO. 8567
ELEMENT NO. 8567

DEPTH	PRESSURE	GRADIENT Lbs./100 Ft.
0 Ft.	3321 Lbs.	
3000 "	3412 "	03.0
6000 "	3893 "	16.0
7000 "	4062 "	16.9
8000 "	4231 "	16.9
8500 "	4323 "	18.4
9000 "	4406 "	16.6
9100 "	4425 "	19.2



OCT 24

Bennett Wire Line Service

305 McARTHUR AVENUE • PHONE 746-3281
ARTESIA, NEW MEXICO - 88210

October 20, 1973

Dorchester Exploration Corporation

Midland, Texas

Gentlemen;

The following pressures on your DWU No.2 were recorded at depth of 9100 Ft. flowing & shut-in for 24 Hr. pressure buildup.

Date of test----------10/16/73

Pressure flowing					----------3650 Lbs.	
"	shut-in	10	mins.		------3945 "	
"	" "	15	"		------3949 "	
"	" "	30	"		------3952 "	
"	" "	60	"		------3957 "	
"	" "	2	Hrs.		------3960 "	
"	" "	3	"		------3963 "	
"	" "	4	"		------3965 "	
"	" "	5	"		------3967 "	Stabilized
"	" "	24	"		------3967 "	"

After how much production

28 million

3590 bbls

Dorchester 6

5097

31 Oct 73

Bennett Wire Line Service

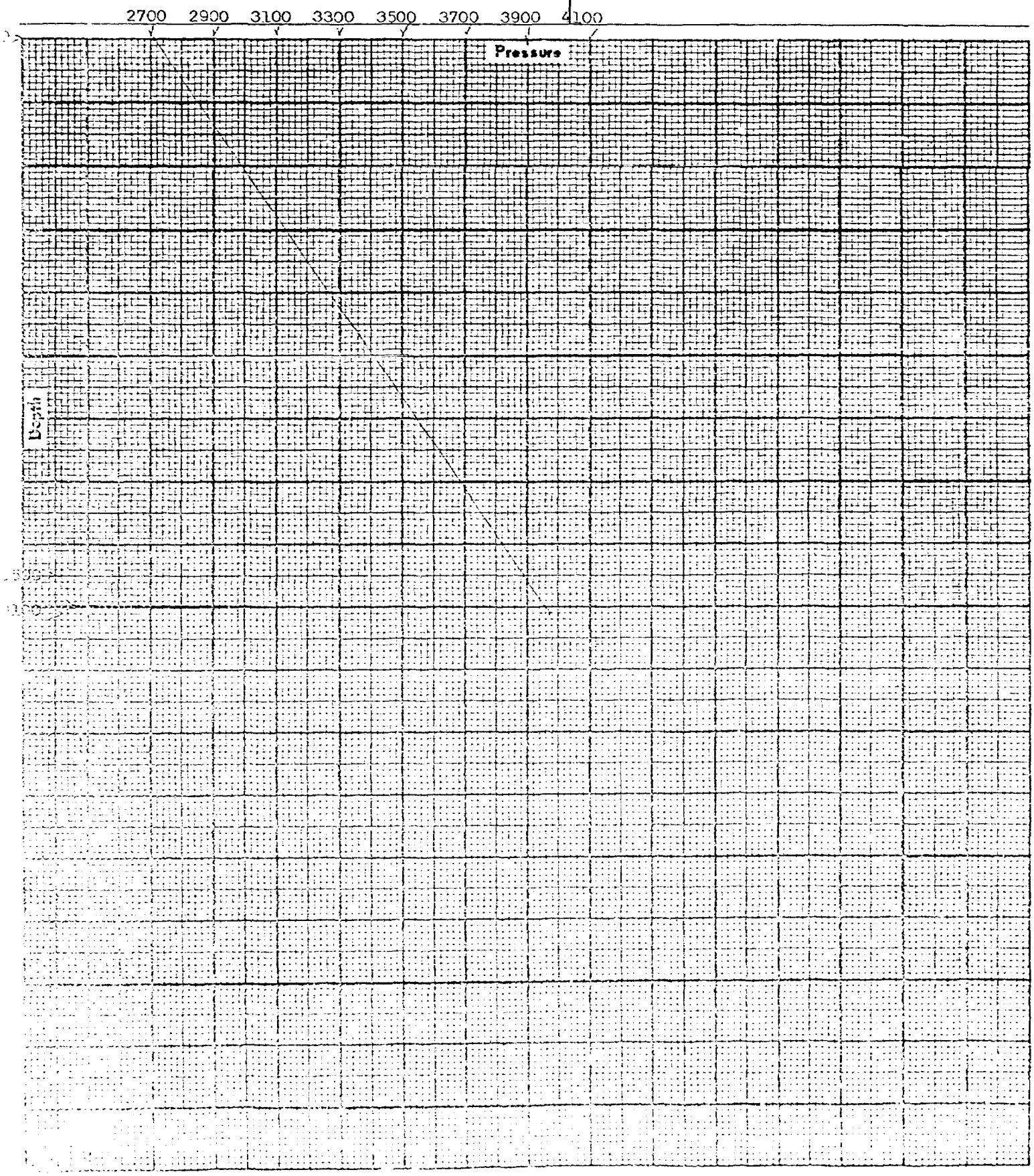
305 McArthur Ave. Ph. (505) 746 - 3281
Artesia, New Mexico - 88210

BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR DORCHESTER EXPLORATION CORPORATION
LEASE DWU
WELL NO. 2
FIELD
DATE 10/17/73 TIME 8:10 PM.

STATUS Shut-in TEST DEPTH 9100 Ft.
TIME S.I. 24 Hrs. LAST TEST DATE
CAS. PRES. BHP LAST TEST
TUB. PRES. 2709 Lbs. BHP CHANGE
ELEV. FLUID TOP None
DATUM WATER TOP
TEMP RUN BY E.D. Bennett
CLOCK NO. GAUGE NO.
ELEMENT NO. 8567

DEPTH	PRESSURE	GRADIENT
0 Ft.	2709 Lbs.	
8500 "	3882 "	13.8
9100 "	3967 "	14.1



BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

Case 5307

IN THE MATTER OF THE APPLICATION
OF DORCHESTER EXPLORATION COMPANY
FOR CREATION OF A POOL AND POOL
RULES FOR PRODUCTION FROM WOLFCAMP
FORMATION, EDDY COUNTY, NEW MEXICO

A P P L I C A T I O N

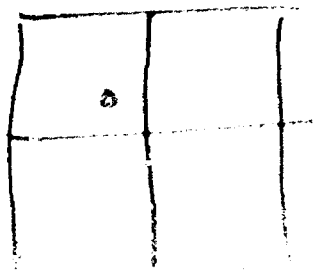
COMES NOW DORCHESTER EXPLORATION COMPANY, by and through its attorneys KELLAHIN & FOX, and applies to the Oil Conservation Commission of New Mexico for the designation of a new pool for production from the Wolfcamp formation and for pool rules therefor, and in support thereof would show the Commission:

1. Applicant is the owner and operator of a well located 1980 feet from the North line and 1980 feet from the West line in Section 35, Township 19 South, Range 28 East, N.M.P.M., Eddy County, New Mexico, completed for production from, the Wolfcamp formation.

2. Applicant seeks the creation of a new pool for production by this subject well from the Wolfcamp formation.

3. Applicant further seeks the promulgation of pool rules for said pool, including a provision for 320 acre spacing for all wells in said pool, and for well locations and such other rules to be consistent with the existing rules for the Winchester-Morrow Gas Pool, Eddy County, New Mexico.

WHEREFORE, applicant respectfully requests that this application be set for hearing before the Commission's duly appointed Examiner and that upon hearing, an order be entered granting the application as set forth herein.



DORCHESTER EXPLORATION COMPANY

BY _____

KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico
ATTORNEYS FOR APPLICANT

DRAFT

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 5097

Order No. R-4664

APPLICATION OF DORCHESTER EXPLORATION
COMPANY FOR POOL CREATION AND SPECIAL
POOL RULES, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 31, 1973, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____ day of November, 1973, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Dorchester Exploration Company, seeks the creation of a new gas pool for Wolfcamp production for its DWU Federal Well No. 2 located in Unit F of Section 35, Township 19 South, Range 28 East, Eddy County, New Mexico.

(3) That the applicant further seeks the promulgation of special rules for said proposed gas pool including a provision for 320-acre spacing and standard 320-acre well locations.

(4) That applicant's DWU Federal Well No. 2 in said Section 35 is a gas well and has discovered a separate common source of supply in the Wolfcamp formation.

(5) That a new pool for the production of gas from the Wolfcamp formation should be created and designated the Winchester-Wolfcamp Gas Pool with vertical limits comprising the Wolfcamp formation and horizontal limits comprising the NW/4 of said Section 35.

(6) That the evidence presented indicates that said pool should be developed on standard 160-acre gas spacing and proration units and that the application for special pool rules should be denied.

IT IS THEREFORE ORDERED:

(1) That a new pool for the production of gas from the Wolfcamp formation is hereby created and designated the Winchester-Wolfcamp Gas Pool with vertical limits including the Wolfcamp formation and horizontal limits as set out below:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 35: NW/4

(2) That the application for special pool rules for said Winchester-Wolfcamp Gas Pool is hereby denied.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.