

dearnley-meier reporting services, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 5, 1966

EXAMINER HEARING

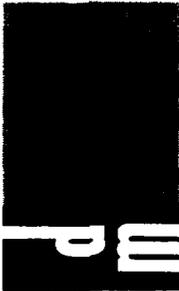
-----)
IN THE MATTER OF:)
Application of Carter Foundation Production)
Company for a waterflood project, Lea County,)
New Mexico. Applicant, in the above-styled)
cause, seeks authority to institute a)
waterflood project by the injection of water)
into the Queen formation through five wells)
located at unorthodox locations in Sections)
34 and 35, Township 23 South, Range 37 East,)
Langlie-Mattix Pool, Lea County, New Mexico.)
-----)

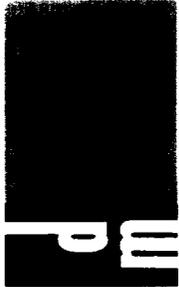
Case No. 3362

BEFORE:

Daniel S. Nutter, Chief Engineer
J. D. Ramey, Supervisor and Oil and Gas Inspector

TRANSCRIPT OF HEARING





MR. DURRETT: Application of Carter Foundation Production Company for a waterflood project, Lea County, New Mexico.

MR. MCKENNA: Mr. Examiner, Thomas F. McKenna appearing on behalf of Carter Foundation Production Company and we have one witness, Mr. Robert Fitting.

(Witness sworn.)

(Whereupon, Applicant's Exhibit 1 marked for identification.)

ROBERT D. FITTING, a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MCKENNA:

Q Would you state your name, please, sir?

A Robert D. Fitting.

Q And can you tell the Examiner where you're employed in Midland, Texas?

A In Midland, Texas; I have a consulting engineering geological firm. We've been in business since 1950.

Q Mr. Fitting, are you a petroleum engineer and a geologist?

A Yes, I am.

Q Have you testified before this Commission or before an Examiner previously?

A Yes, I have.

Q Have your qualifications been accepted?

A Yes, sir.

MR. MCKENNA: May we proceed?

MR. NUTTER: Yes.

Q (By Mr. McKenna) Now, Mr. Fitting, are you familiar with the application and the subject matter of Case Number 3362?

A Yes, sir, I am.

Q Will you briefly explain the purpose of the application of Carter Foundation in this case?

A The purpose of the Carter Foundation Production Company is to drill at unorthodox locations, five wells to initiate a pilot waterflood program using water from the Santa Rosa in a water well which they drilled on their Blinebry lease.

Q Would you say that the purpose of this application is to seek authority to institute a waterflood project and also to secure approval of unorthodox well locations, is that correct?

A Yes, sir.

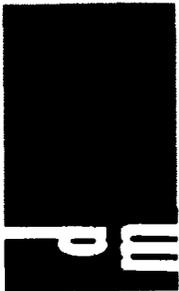
Q Do you have the descriptive data or the footage data on the various wells?

A The five wells that we applied for; the Number 11 is in proration unit "O", located in the Southwest quarter of the Southeast quarter of Section 34, Township 23 South, Range 37

East, and it's specifically located 1300 feet from the South line and 1240 feet from the East line of Section 34; Well Number 13 is located in proration unit "M" in the Southwest quarter of the Southwest quarter of Section 35, Township 23 South, Range 37 East, and it's specifically located 1300 feet from the South and West lines of Section 35; Well Number 14 is in proration unit "I", is located in the Northeast quarter of the Southeast quarter of Section 34, Township 23 South, Range 37 East, and it's specifically located 2660 feet from the North line and 20 feet from the East line of Section 34; Number 15 is located in Proration unit "E" and is located in the Southwest quarter of the Northwest quarter of Section 35, Township 23 South, Range 37 East, and is specifically located 1340 feet from the North line and 1200 feet from the West line of Section 35; Well Number 16 in proration unit "G", is located in the Southwest quarter of the Northeast quarter of Section 34, Township 23 South, Range 37 East, and is specifically located 1340 feet from the North line and East lines of Section 34.

Now, one other comment. The locations for the Number 11 and Number 15 were moved from the original planned location because they were in an unorthodox location at a tank battery and had to be moved a hundred feet.

Q Mr. Fitting, you have in your hand what has been



marked as Exhibit 1. Are these wells specified on one of the plats attached to this exhibit?

A Yes, sir. There is a location plat for these wells shown. It's labeled, "Location Plats", and it shows all of the five wells and locations on the map.

Q Now, how many leases are involved in this proposed project area?

A In the proposed project area all five wells are located on one lease; the Blinebry Federal Lease. It specifically affects an additional tract called the Cade Federal Lease but the wells are not located on that lease.

For convenience and to show what Carter Foundation Production Company has in the area, you will note that the additional acreage has been outlined on the maps. Also in the first page of the exhibit, the project area lists all four leases owned by Carter Foundation Production Company. However, the only ones affected by this hearing are the ones labeled "A" and "B", the Blinebry and the Cade.

Q Now, as to the Cade Lease, do you have any plans about separating the production as to this lease?

A Yes, sir, it is the intention of Carter Foundation Production Company to produce these wells for a short period of time before putting them on injection, and for that reason it would be necessary to separate on well Number 13 that

affects the Cade and portion of the Blinebry Federal.

Three parts of the production would go to the Cade Federal and one part to the Blinebry Federal on Well 14.

Three quarters would go to the Blinebry Federal Lease, and one quarter to the Cade.

Q As to Exhibit 1, which you are referring to, was this prepared by you personally or at your direction?

A At my direction.

Q I see. Now, can you explain to the Examiner why you felt it necessary to seek unorthodox locations for these injection wells?

A In the Langlie-Mattix Field it covers some, I've forgotten the exact number of wells in the field, but it is a substantial area, and in the area of the Langlie-Mattix they have attempted several secondary recovery projects where the old wells have been used for injection purposes, and they have had difficulty in trying to maintain injection into the Penrose Sand zone, the Queen Sand member, and we would like to drill these wells on the 160 acre 5 spot to determine whether or not there is any water changing, and whether or not the previous programs of 5 spot water flood are actually applicable in this area.

Q Now, Mr. Fitting, again referring to your exhibit, can you tell me what the past production has been for the

wells involved or that will be involved in this project?

A I have prepared the primary production history from all of the leases of Carter Foundation Production Company from the Langlie-Mattix Pay Zone, both in a tabular form, and as a monthly per well times extrapolation on decline graphs. These are included on the in-numbered pages, but they are graphs of each one of the leases.

The wells were first drilled on the Blinebry in March of 1950, and the Cade in June of 1950, and they have produced to the point where the leases are approximately 86 percent depleted in their primary producing life.

Q Do you have any idea what you believe you will recover by virtue of this program?

A It is estimated that we should recover the primary, ultimate primary oil recovery over again by secondary means. We estimate that under the Blinebry Lease we should recover 550,000 barrels, and under the Cade 150,000 for a total for the year, 700,000 barrels.

Q Do you have any estimate of the flood life of the program?

A The flood life is difficult to estimate using a pilot program in the beginning, but I would not think it would exceed 10 years.

Q Mr. Fitting, again referring to your exhibit, I notice

a diagrammatic sketch of a proposed injection well completion which is to the rear of your Exhibit 1. Is this the method that you will follow in completing your injection wells?

A Yes, sir, these wells will be drilled with 8 5/8" surface casing or approximately that size will be set, it may be that larger casing will be used, but the nominal size is 8 5/8". The cement would be circulated to the surface. The 7 1/2 to possible 7" casing would be set through the pay and the cement circulated if possible. Under the diagrammatic sketch it shows 3 or 4 hundred sacks of cement which is sufficient to protect it to the salt section. The 2" tubing would be coated as well as the packers set in the well.

Q Where did you intend to get the water for this?

A A water well has been drilled or--correction, a water well has been completed which was a reentry of Carter Foundation Production Company's Well Number 7 "E". That shows on the last map in the exhibit, labeled "WSW" in the Northwest quarter of the Northwest quarter of Section 35. It was an abandoned Ellenburger test, and it was reentered and Santa Rosa water was developed through an interval from, oh, approximately 607 feet in depth.

Q I understand you don't have at this time a chemical analysis of the water, but I understand you will be glad to supply this information.

A Yes, I will. I failed to bring it with me. The water is neither fresh nor salt, it's in between. It might be considered potable, I don't know.

Q Do you see any harm to the formation immediately below the Queen?

A No, sir. The next one is the Devonian and it's 8,000 feet.

Q Is there any production rising above the zone that you plan to inject?

A No, sir.

Q Do you feel as an engineer, that this proposal will work; that it's a sound program?

A I have little question in my mind that it will work.

Q Is it your opinion that it's a sound economic thing to do?

A Yes, sir, it's about the only thing to do.

Q Is it true or not, that the Langlie-Mattix Pool is generally becoming a secondary effort in any event?

A It is nearly depleted of the primary production and at the present time there is an effort made by many of the operators to install large secondary units.

At the present time, south of here, Shell has one program going; George Buckles has another program to the north, and Anadarko has a unit formed and they are injecting

water now.

Q Do you see any injury to Correlative Rights by virtue of this program that you seek approval of?

A No, sir.

Q Is it in keeping with the principles of conservation?

A Yes, sir.

Q Is there anything else that you would like to mention to the Examiner concerning this proposal?

A No, sir.

MR. MCKENNA: Mr. Examiner, I believe I'm through with the witness and I will offer in evidence Exhibit Number 1.

(Whereupon, Applicant's Exhibit 1 offered into evidence.)

MR. NUTTER: Exhibit 1 is the entire brochure?

MR. MCKENNA: Yes.

MR. NUTTER: Applicant's Exhibit 1 will be admitted into evidence.

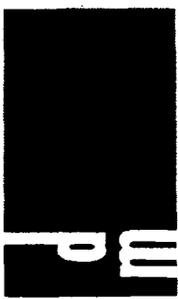
(Whereupon, Applicant's Exhibit 1 admitted into evidence.)

MR. NUTTER: Are there any questions of Mr. Fitting?

CROSS-EXAMINATION

BY MR. IRBY:

Q Mr. Fitting, you mentioned the two leases on which these wells will serve as the Blinebry Federal and Cade Federal.



The plat indicates other leases adjacent to these or cornering these, in the name of Carter Foundation. Are these other leases to be a part of this unit?

A No, sir, not at this time. I believe that in the future we would probably come back and try to get an expansion of this program to cover a portion of these other leases.

Q Then is it your understanding as it is mine, that when you come back for this expansion it will require another hearing?

A Yes, sir.

Q Now, these are all to be new wells, none of them are conversions?

A None of them are conversions, but I believe it is the intention to produce them for a little while: how long a period I don't know.

Q Comparatively short?

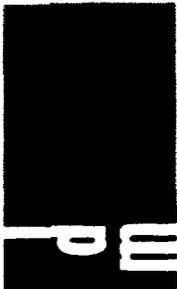
A Comparatively short I would think.

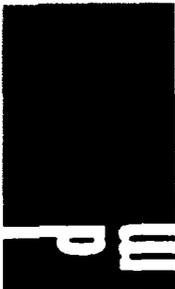
Q You estimated the life of the flood at ten years. Does that include this producing period?

A I would think so, but the guess of the life of a flood starting in this fashion may be a pretty bad guess.

Q Then, in all probability the production period would not exceed a year?

A I would not think so.





Q Now, you mentioned the plastic coating in the tubing and the packer. What type of packer is this to be?

A As I recall, the A. F. E. called for a Larkin Tension Packer; a short hook wall tension packer.

Q And you have taken a water sample but you don't have the analysis with you?

A I don't have it with me. It is hard water, but whether or not--I've made application to the State Engineer and also to the Capitan Water District, the new water district, that the--

Q The Capitan Basin is a basin declared by the State Engineer?

A Well, application has been made to them to use this water, but as of yesterday we hadn't received any additional word from them.

Q Well, since we're on this subject I'll pursue it just a little further. With regard to the water supply well you filed an application, an exploratory application to--

A To drill it or to complete it?

Q --to tap the Santa Rosa in this well which was down to some, I believe, 13,000 feet total depth?

A That's right.

Q And this exploratory application was granted?

A Right.

Q And as I understand you, you made your prorations there and you tested this well and you're getting a production of approximately 40 gallons per minute, amounting to some 65--roughly, 66 acre feet per annum at that rate of production contrary to the letter from either you or Carter, I don't know which?

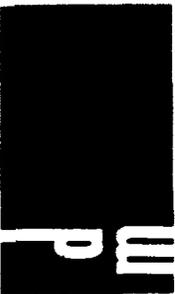
A Probably me.

Q A misplacement of a decimal?

A Right; my error.

Q All right. Now, you're up to this point with your application to appropriate that this core has been going on concerning the volume, annual volume of water to be taken, whether it's 66 or 666, and I presume that the Roswell District Office is about ready to issue your notice of publication. Then after publication must be a period for protest. If this application to appropriate is protested, and the protestant is successful, then what are you going to do about your water?

A That is a good question. I would think that we would probably develop it from some other horizon. We currently are using Ellenburger produced water for injection into the Simpson. We thought we would have an answer on the Simpson injection by now and we had the production up to where it looks like it should be continued, so we're going to have to find some other horizon in addition to the Simpson, to



inject the Ellenburger water.

Q The production of this well, if you have tested it at full capacity, is slightly over your estimated needs for these five injection wells. Now, I think we can anticipate that this factor is going to drop off in production and you're going to be confronted with another situation of acquiring additional water until you're able to do it by drilling a supplemental well to recover your losses in this well.

A That's right, and there also is this factor, we have about 3,000 barrels a day from the Ellenburger. We are currently injecting into the McKee or the Simpson, and as that pressure gets higher we probably won't be able to get this volume. As we fill it up the pressure will go on up higher and we don't have the equipment to go on higher with it, so we would have the excess water from the Ellenburger to put into this project.

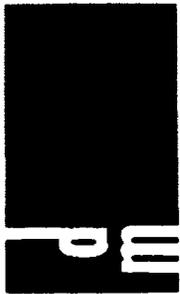
Q Your 250 barrel per well per day, I presume this is a figure computed from a basis of permeability in the Santa Rosa, I mean in the flooded formation?

A It's a little difficult for me to estimate in this area as all of the wells, all of the previous wells, are cabled to completion, and we don't have any core analysis, and most of this has been by comparison to other water floods in this general Langlie-Mattix pay.

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMAS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO
1213 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO



Q Your estimate of 250 barrels per well per day is within reason after your comparison to these other nearby wells?

A Yes, sir.

Q Now, in which case you have this--this is a typical schematic of the well completion applicable to all five of your wells?

A Yes, sir.

Q And you're setting this casing at approximately 325 feet. Now, how are you going to protect the Santa Rosa?

A The anticipation when I talked to management of the Carter Foundation was to attempt to circulate, to drill the salt section to gauge if possible, and then attempt to circulate the cement the entire way. The control of the Carter Foundation Production Company in the field is Roy Carter, and his basic assumption is that he ought to have all pipes protected with cement, and if it possibly can be circulated, he will so do.

Q This is the very thing that is disturbing me because it is frequent, at least upon the reports we get, that it's quite frequent that you're unable to circulate through the salt section. Of course, it depends on the manner in which the well is drilled, to a great extent, and I'm worrying about the section from the top of your cement in case you're unable to

bring it up above the salt section between that point and the bottom of this 8 5/8".

A It it wouldn't circulate, I see no reason for not running a DV tool.

Q What I want is complete separation of the Santa Rosa because we both know this is marginal quality water and it's also limited in quantity, and I'm very desirous of protecting that limited amount of water because it's within an economical reach of other uses, and I want to protect that against any contamination that might get in there and migrate, and I would appreciate, well, in fact, I would request that our Roswell District Office be kept fully advised with respect to the operations, promptly, with regard to this Santa Rosa formation. If we can protect that I think everything else you have here looks pretty good.

A I don't have with me the well record on these older wells that we've been drilling here. The first well in this area was drilled in 1935 by Carter Foundation, and whether or not there is protection of the Santa Rosa in all those wells with cement, I don't know.

Q I don't know either, and this also disturbs me, but I'm afraid I don't have the authority to go back to those wells, but I do have the authority to take care of anything in the future.

A I had talked to Mr. Carter last week concerning this problem of protection of the Santa Rosa water and it was his intention to try to circulate the cement through the salt section, I do know that.

MR. MCKENNA: You will keep the Roswell Office informed?

A Yes, sir.

Q (By Mr. Irby) That's good. Let's see if I have any more. The packer setting in all instances will be on the end or near the end of the tubing and will be below the cement surrounding the 5 1/2?

A Yes, sir, it better be.

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

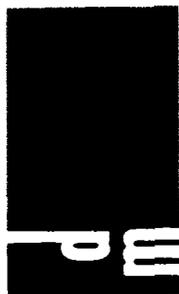
CROSS-EXAMINATION

BY MR. NUTTER:

Q Mr. Fitting, awhile ago you were talking about something about, for example, the injection well Number 13, that three quarters of it would go to the Cade Federal and one quarter to the Blinebry. Did you mean that was the water that was injected?

A No, sir, the production during its producing history, the first part that is produced, would have to divide the production.

Q Because it is so close to the lease line?



A Because it was so close to the lease line. These are all Federal Leases but the Cade has a 5 percent excess royalty, is the only difference here.

Q I presume they're override?

A Just one.

Q Just on the Cade?

A Just on the Cade.

Q And Blinebry Federal?

A And Blinebry Federal is straight Federal Lease. The Mattix Federal is one that had some excess royalty, and it terminated to the twenty years limitation, and it's in the Courts now.

Q Do the Cade overriding people agree to this kind of distribution from a well like the Number 13?

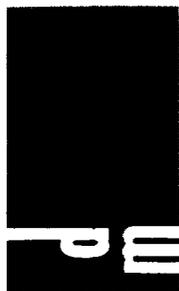
A They have not been approached, no, sir.

Q Now, in computing the maximum allowable for the project area, it's been the policy of the Commission to limit the allowable to a given basic lease for transfer purposes--

A Yes, sir.

Q --and unless the leases are unitized or consolidated by some other type of agreement, so in this case, we would have two leases involved here.

A We thought we would be to 42 barrels on the 40 acre,



plus the 14 barrels additional on the additional well on the 40 acre, until we could find out what was going to happen, and then reapply and have a hearing.

Q With some type of consolidation of the lease?

A Yes, sir.

Q I imagine what would have to be done would be for the Blinebry to stand on its on and for the Cade to stand on its on. As I have computed it here on this plat, you have 12, forty acre tracts in the Blinebry Lease plus four extra wells?

A There are 11 currently drilled wells on the Blinebry.

Q Your Number 16 will develop the 40?

A Yes, sir.

Q Plus 4 additional, and give that lease a maximum of 560 barrels, and the Cade would have 3 developed 40's on it and receive a maximum allowable of 126?

A Yes, sir.

Q Pending unitization?

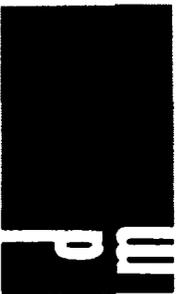
A That would be fine if we could get those wells to make that much oil. I think they would be satisfied. I think it will require further hearing after the response from these wells are known. It's possible that the pattern may be changed at that time.

Q I see. Let me review these locations with you there,

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO
1213 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO



Mr. Fitting. Number 11 was 1300 South, 1240 East; Number 13 was 1300 South and 1300 West; Number 14, 2660 North and 20 East; Number 15, 1340 North, 1200 West; and the Number 16, 1340 North, 1340 East?

A That's right.

MR. NUTTER: Any further questions of Mr. Fitting?
You may be excused. Do you have anything further Mr. McKenna?
Does anyone have anything they wish to offer in Case 3362?
The Commission will take the case under advisement and call Case 3358.

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

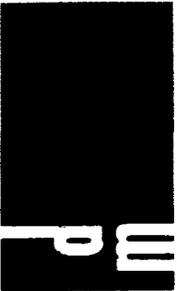
1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO
 1213 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO

I N D E X

WITNESS	PAGE
ROBERT D. FITTING	
Direct Examination by Mr. McKenna	2
Cross-Examination by Mr. Irby	10
Cross-Examination by Mr. Nutter	17

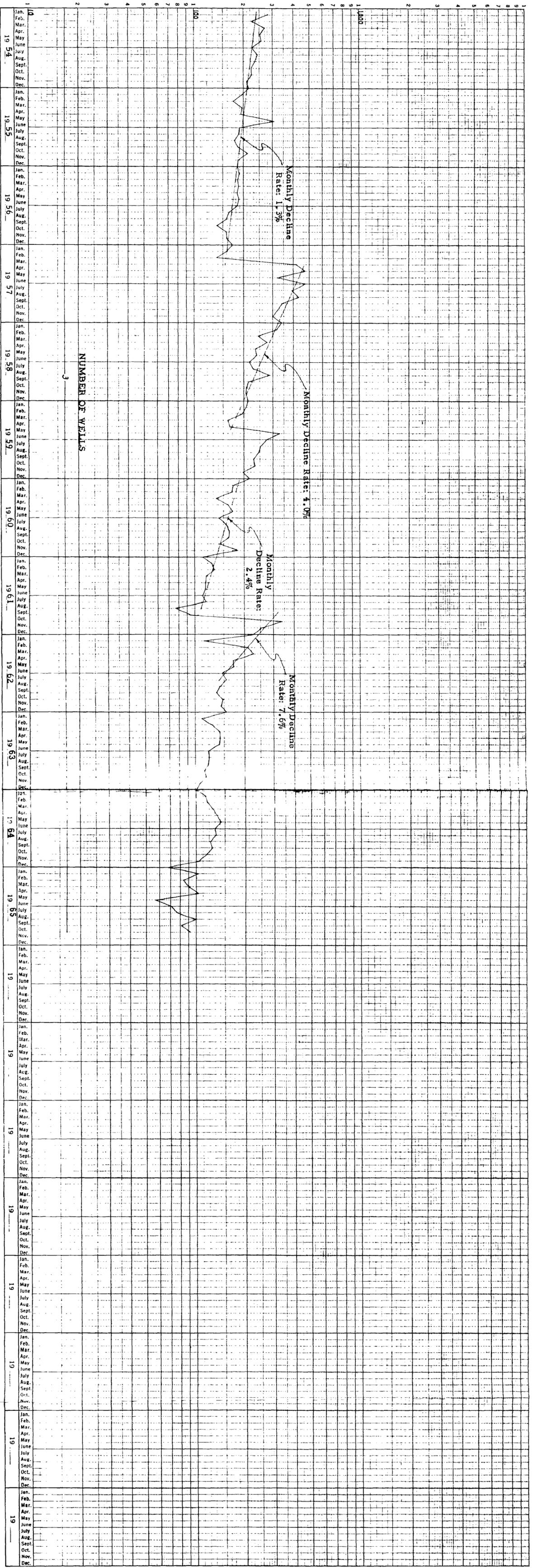
E X H I B I T S

<u>NUMBER</u>	<u>MARKED FOR IDENTIFICATION</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Applt's. 1	2	10	10

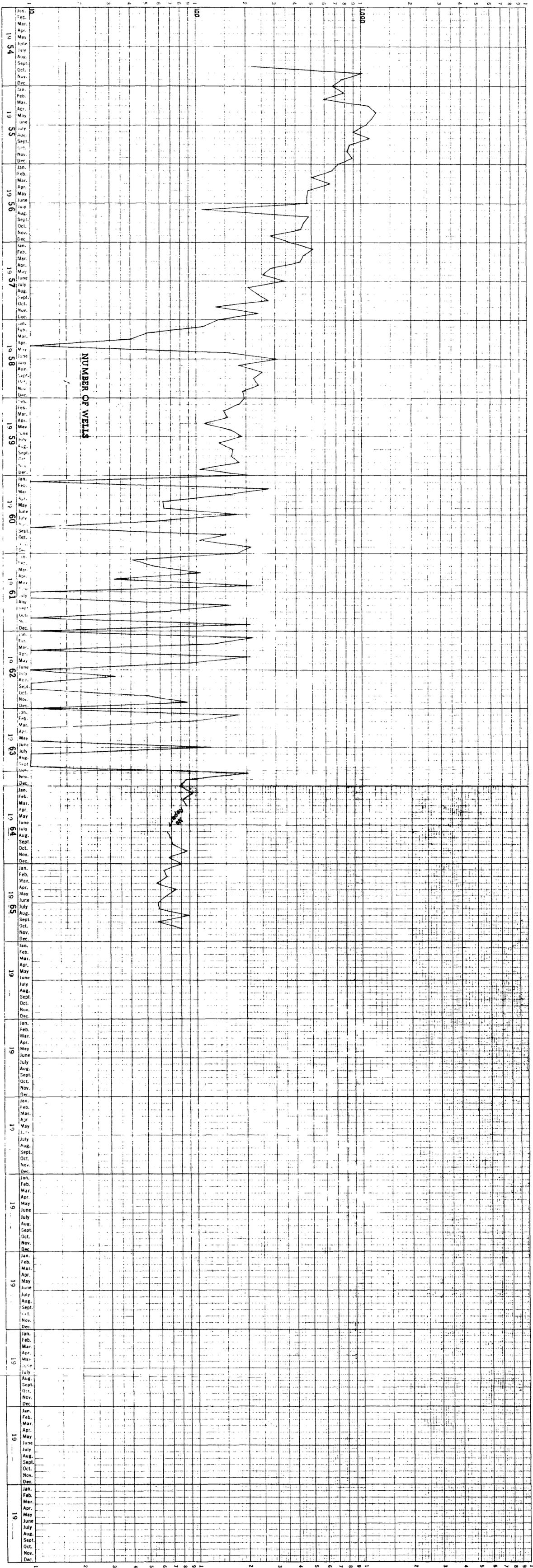


MONTHLY PER WELL OIL PRODUCTION IN BARRELS

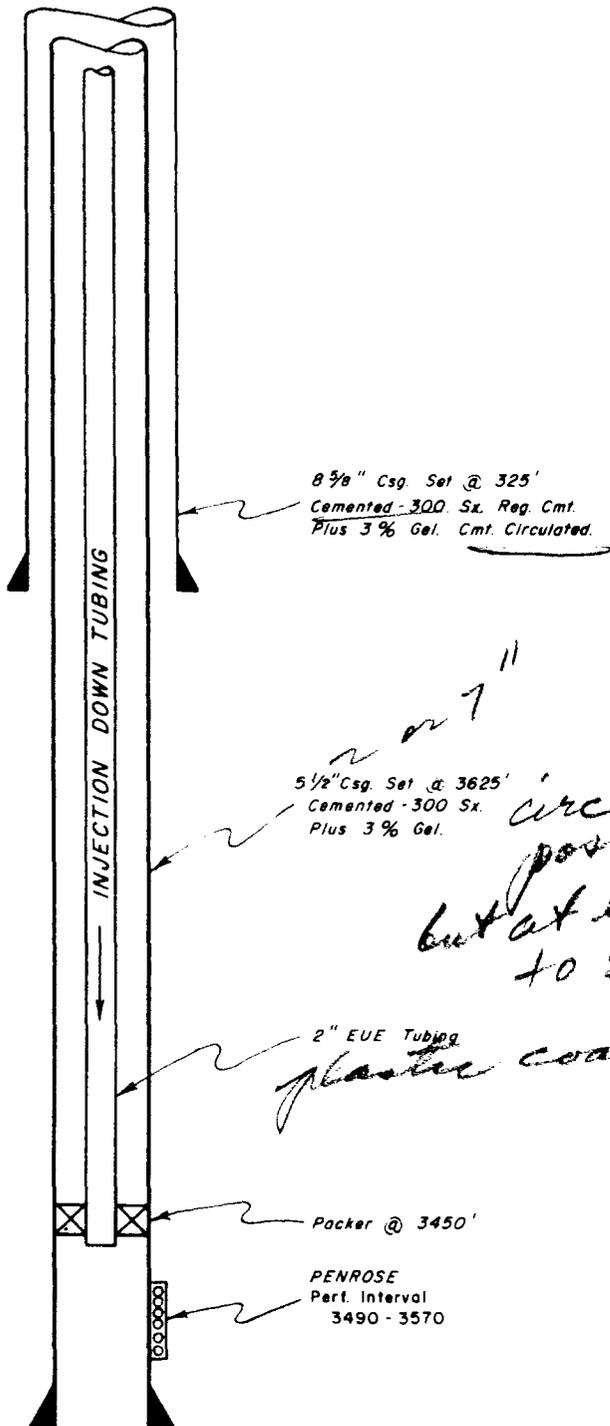
CARTER FOUNDATION PRODUCTION COMPANY
 CADE FEDERAL LEASE



MONTHLY PER WELL OIL PRODUCTION IN BARRELS



CARTER FOUNDATION PRODUCTION COMPANY
 ELMA MAY HUNT LEASE



TD. 3625

CARTER FOUNDATION PRODUCTION CO.
Blinebry - Federal Lease
LANGLIE MATTIX FIELD
Lea County, New Mexico

PROPOSED INJECTION WELL COMPLETION

DATE: 12-15-65

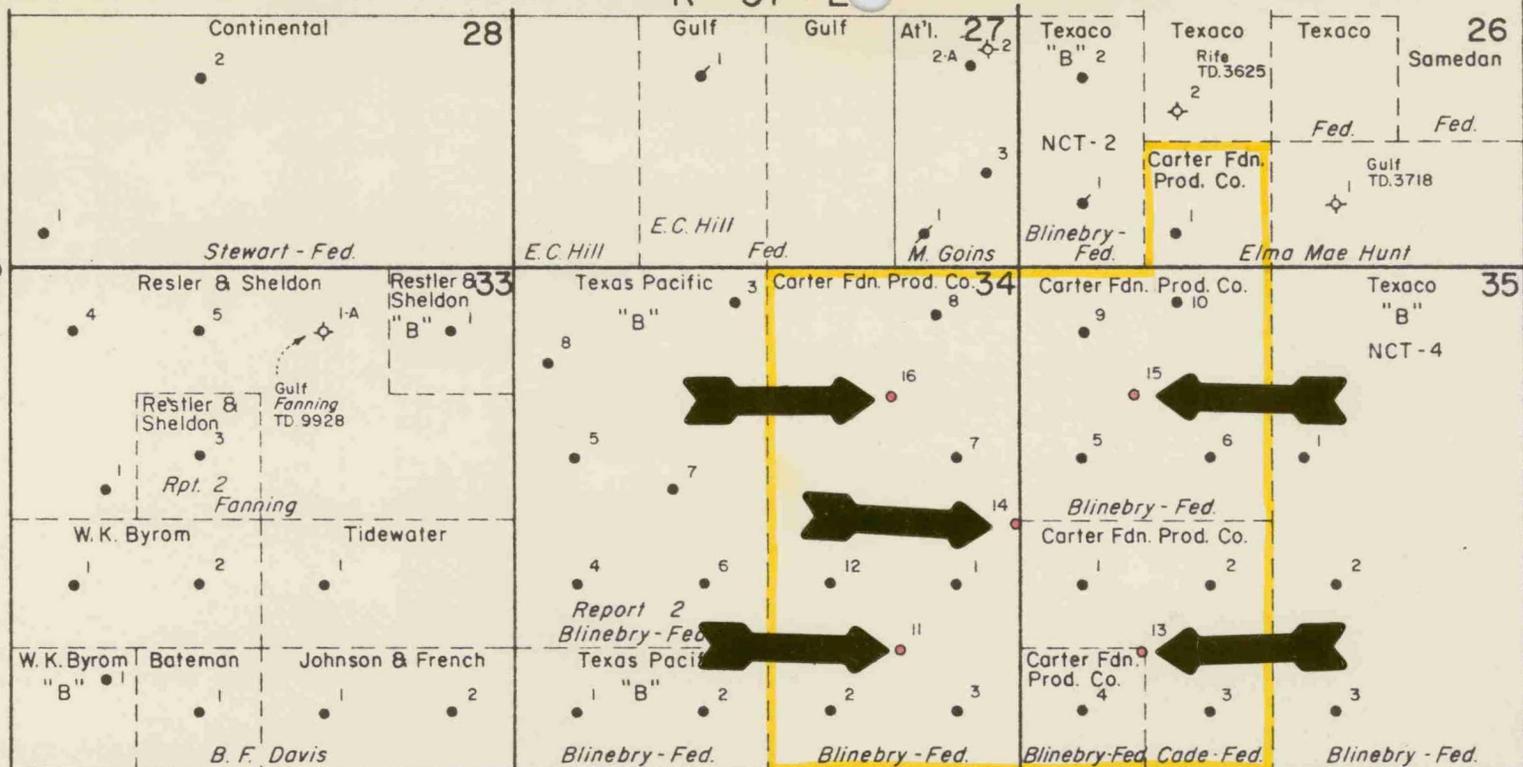
NO SCALE

PREPARED BY ROBERT D. FITTING
& ASSOCIATES

R - 37 - E

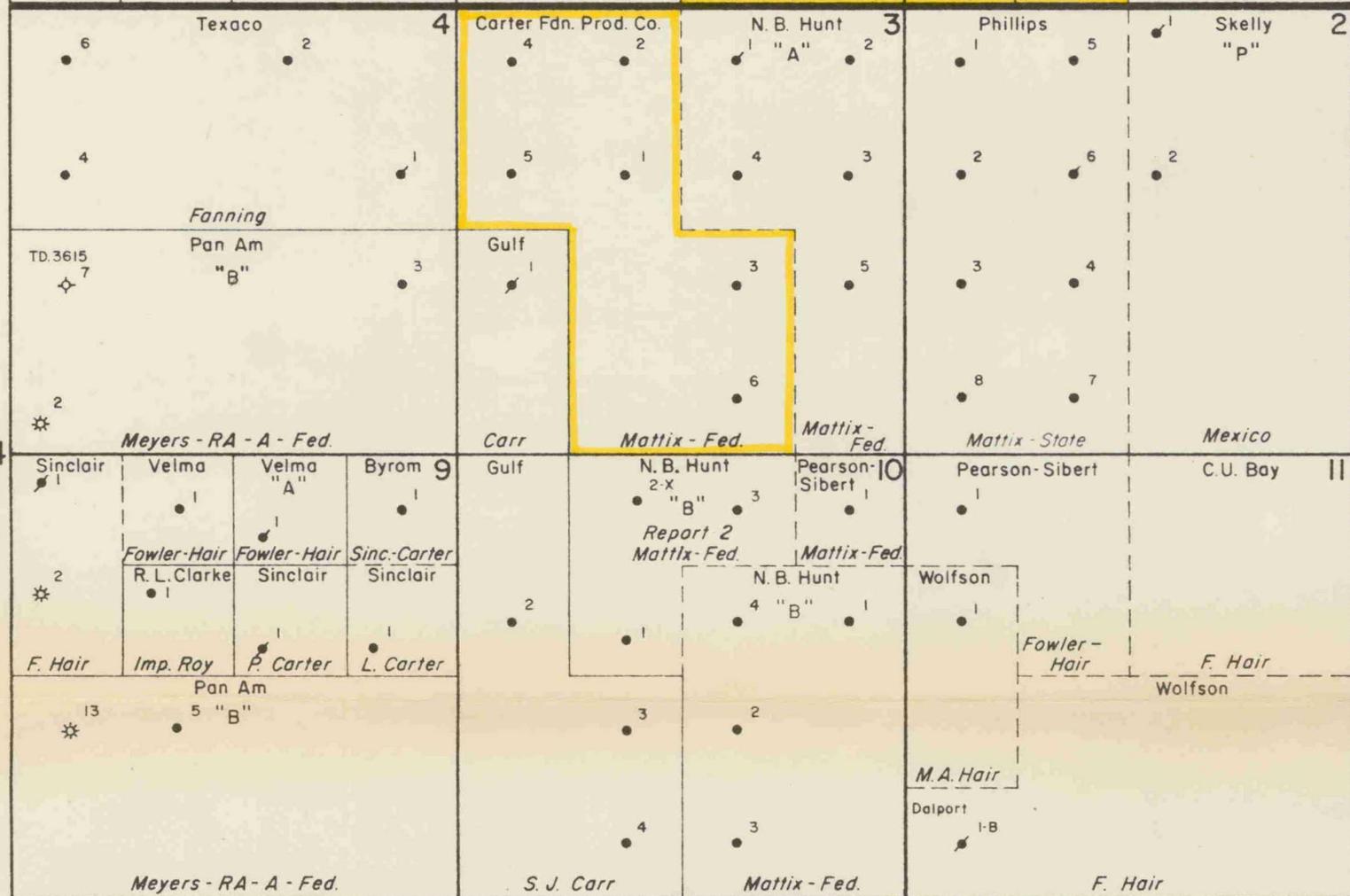
T
23
S

T
23
S



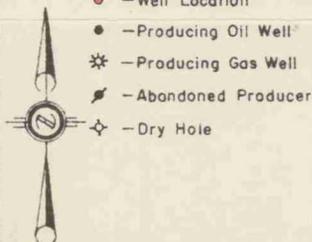
T
24
S

T
24
S



R - 37 - E

— LEGEND —



LANGLIE MATTIX FIELD AREA
Lea County, New Mexico

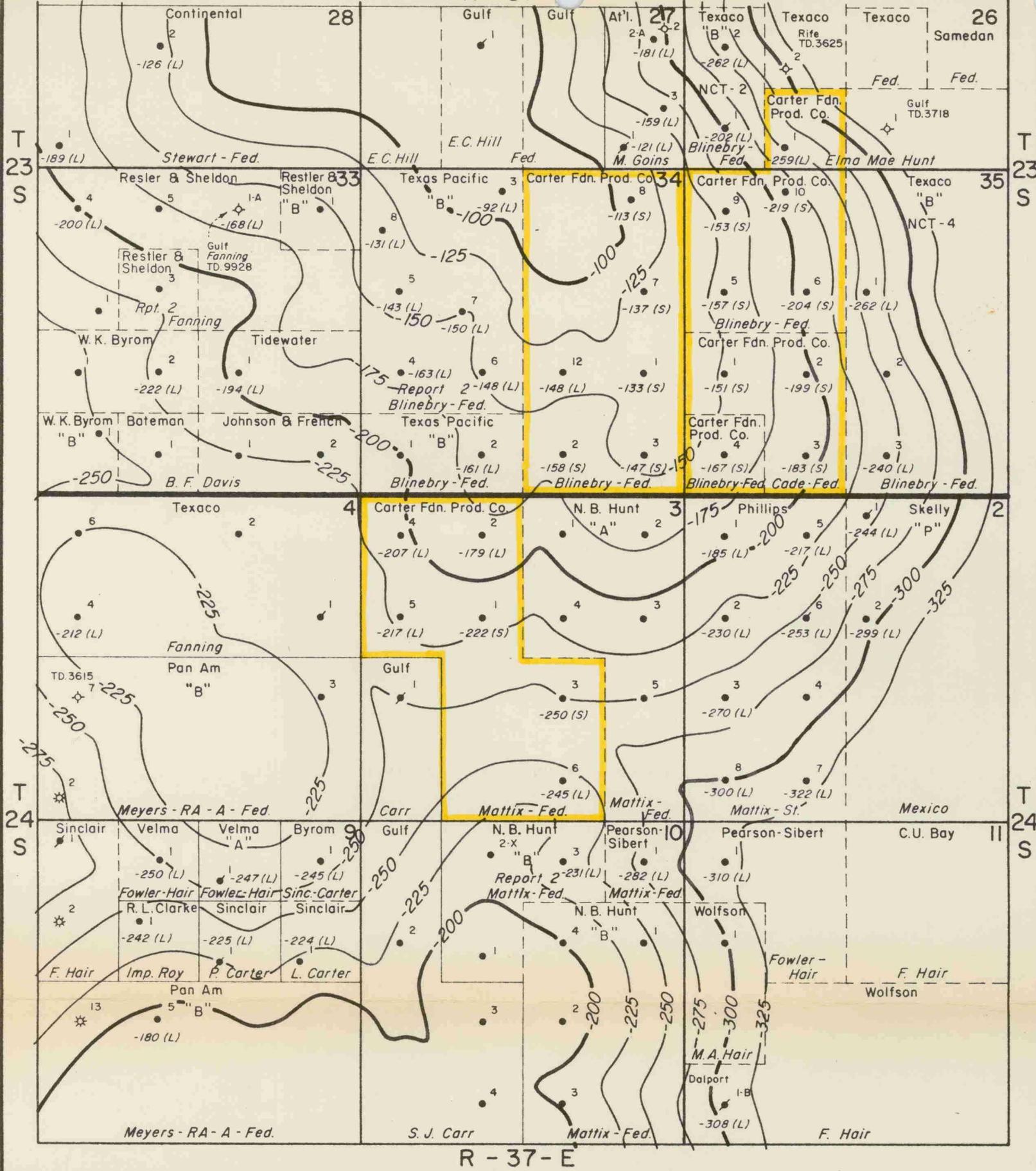
LOCATION PLAT



DATE: 12 - 15 - 65

PREPARED BY ROBERT D. FITTING
& ASSOCIATES

R - 37 -



— LEGEND —

- — Well Location
- — Producing Oil Well
- ✱ — Producing Gas Well
- ✱ — Abandoned Producer
- ◇ — Dry Hole

LANGLIE MATTIX FIELD AREA
Lea County, New Mexico

PENROSE STRUCTURE MAP
CONTOUR INTERVAL = 25'



DATE: 12 - 6 - 65

PREPARED BY ROBERT D. FITTING & ASSOCIATES