

CASE 4222: Application of COASTAL  
STATES FOR SPECIAL POOL RULES FOR  
WEST SAWYER-SAN ANDRES POOL.

Case Number  
4222

Application

Transcripts

Small Exhibits

ETC.

dearnley-meier

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
October 8, 1969

EXAMINER HEARING

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IN THE MATTER OF: )

Application of Coastal States Gas )  
Producing Company for special pool )  
rules, Lea County, New Mexico. )

Case No.  
4222

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BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 4222.

MR. HATCH: Case 4222.

Application of Coastal States Gas Producing  
Company for special pool rules, Lea County, New Mexico

MR. HINKLE: Clarence Hinkle; Hinkle, Bonnard  
and Christy, Roswell, appearing on behalf of Coastal States  
and we have two witnesses I would like to have sworn.

MR. UTZ: Let me ask for appearances first.  
Do we have any appearances?

MR. LEACH: Yes, sir. My name is Guy Leach,  
and I am with the Oil Development Company of Texas, in  
Amarillo, and I also represent Santa Fe-Pacific. And I have  
come to observe the proceedings, and I may want to make a  
statement later.

MR. UTZ: And what was the other company  
besides Santa Fe-Pacific?

MR. LEACH: The Oil Development Company of  
Texas.

MR. UTZ: All right. Swear the witness.

(Witness sworn.)

CARROLL STATON

the witness, called by Mr. Hinkle, having first been duly

upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE;

Q State your name, residence and by whom you are employed?

A. My name is Carroll Staton, employed by Coastal States Gas Producing Company, in Midland, Texas, as senior geologist.

Q Have you previously testified before the Oil Conservation Commission?

A. Yes, sir, I have.

Q Your qualifications as a geologist are a matter of record with the Commission?

A. They are.

Q Are you familiar with the application of Coastal States in Case 4222?

A. Yes, sir, I am.

Q What is Coastal States seeking to accomplish?

A. We are seeking to get special field rules for the West Sawyer-San Andres Field of northern Lea County, New Mexico, which will provide for eighty-acre spacing, eighty-acre allowables and special patterns of well locations.

Q. Have you made a study of the West Sawyer-San Andres pools?

A. Yes, sir, I have.

Q. You are familiar with all the wells that have been drilled in that area?

A. Yes, sir, I am.

Q. And also the surrounding area?

A. Yes, sir.

Q. Have you prepared or has there been prepared under your direction certain exhibits for introduction in this case?

A. Yes, sir.

Q. Refer to Coastal States Exhibit Number One and explain what that is and what it shows?

A. Exhibit Number One, designated in the lower right-hand corner of the title block is the West Sawyer, contoured on the Pi marker, contoured interval, twenty-five feet, is a structural map, showing the West Sawyer-San Andres Field and the surrounding areas of the northeastern Lea County, New Mexico.

As presently defined, the structural configuration of this field, as shown on this exhibit, is one of a gently plunging knolls, plunging in a southeast direction at a rate

of approximately fifty feet per mile.

The West Sawyer Field is separated from the Sawyer and San Andres Field, the nearest producing area from the equivalent --

Q. And the Sawyer is the one in the north --

A. Northeast part of the Exhibit One, yes.

MR. UTZ: Excuse me a moment. Do you need a set of the exhibits to look at?

MR. LEACH: I would appreciate it.

Q. (By Mr. Hinkle) You have testified that this contoured on a Pi marker. What is a Pi marker?

A. The Pi marker is a structural marker that exists in the San Andres Dolomite section, approximately one hundred and fifty feet from the so-called slaughter pay -- it's a stratigraphic feature that carries for wide distances and is a well recognized -- correlation marker, that provides a tool to contour these areas on a structural pattern.

Q. It's commonly used in contouring the San Andres?

A. That's right. It's a better marker than the top of the San Andres, for example, in that it is nearer to the pay.

Q. All right, go ahead.

A. The Sawyer Field that we have discussed is the

nearest -- San Andres production to the West Sawyer-San Andres Field, and as you can note on Exhibit One, the horizontal distance from the West Sawyer Field is approximately three miles and there are dry holes on the southwest part of the Sawyer Field that show that we have a separation of the producing areas.

Now, future development of the area will probably reduce the horizontal distance but the connection of the two fields is not expected in light of what we presently know.

Also shown on Exhibit One is the ownership of the leaseholder interest in an immediately around the West Sawyer-San Andres Field.

Coastal States Gas Producing Company, their leasehold interests are shown by the yellow coloration.

The discovery well of the West Sawyer-San Andres Field, in Coastal States Number One Santa Fe, located in the southwest quarter of the southwest quarter of Section 33 of Township 9, Range 37 East, is indicated by the red dot.

Q Does this also show other wells that have been drilled?

A Yes, it does. At the present time Coastal



States Gas Producing Company has drilled and completed five wells in the West Sawyer-San Andres Field, and of these five wells, four are presently producing oil at varying rates and one has been converted to a salt water disposal well.

Q Which one is that?

A The salt water disposal well is the Number Two Santa Fe, in the southeast quarter of the northwest quarter of Section 33, as you will designated on Exhibit One, it's shown as a producer, with a -- with an arrow, and designated "SWD" for the salt water disposal well.

Q Has any other company drilled any other wells in this area except Coastal States?

A Sun has drilled a well to the field pay in the southeast quarter of the northeast quarter of Section 32 -- this well is down, casing has been run and various tests have been run on the well, but no completion has been filed at the present time.

Q I notice that a location has been shown in the northwest quarter of Section 4 --

A This location is in the southeast quarter of the northwest quarter of Section 4 of ten south, Range 37 east -- that is the Number One Federal Four -- Coastal States

has run pipe on that well, and is presently attempting completion.

And in addition, a well located in the northwest quarter of the southeast quarter of Section 33 -- the Number Three Santa Fe is actively drilling at the present time.

Q. By Coastal States?

A. Yes, sir, by Coastal States.

Q. And does it look like the well in the northwest of Section 4 will be a producing well?

A. Core analysis of the pay section and the Number One Federal Four would tend to indicate that it is capable of producing.

We have run pipe and we will make additional attempts to complete it at the present time.

Q. Are these wells producing any water at the present time?

A. Mr. McGraw will testify of the specific nature of the fluid production; I understand they do make water.

Q. Do you have any further comments with respect to Exhibit One?

A. No, sir.

Q. Now, refer to Exhibit Number Two and explain what that shows?

A. Exhibit Number Two is entitled "A Diagrammatic Cross Section of the West Sawyer-San Andres Field", and is an additional tool to show the third dimension of these same -- when we present the geology of an area, we are limited to illustrating it on the basis of two dimensions -- this is merely a section hung on a sub-sea point of minus five hundred, as you will notice on Exhibit Two, showing the regional or the correlations across the area of the West Sawyer-San Andres Field.

As you will notice on the insert location plat, these wells are numbered, as they are numbered above each of the log sections pertaining to the individual wells -- it's not a section that goes across in a particular manner, but it's a matter of locating the wells with relationship to their sub-sea point.

Q. This includes all of the wells?

A. All of the wells in the area, yes, sir.

Q. Now, what does this show in effect?

A. It shows that the zone of porosity, in the San Andres, that is productive, in the West Sawyer Field, is laterally equivalent over the area, that there is a possibility

that the porosity pinch-out in the west direction are an indication that in the up-dip direction to be -- possible gas cap does exist.

Q. Does it show a continuity of the pay section throughout the present limits of the West Sawyer Pool?

A. Yes, it does.

Q. Do you have any trouble correlating the pay zone in these different wells?

A. No, sir. As you will notice, the Pi marker that we have referred to is a point that carries across the area of the wells -- the West Sawyer-San Andres Field well and, particularly, on this cross section and the pay porosity probably would be equivalent to the slaughter zone as it has been defined elsewhere in New Mexico and west Texas, is similarly shown to be existing over the area of the West Sawyer-San Andres Field.

Q. Does this cross section indicate that the pool is based on structure or as a stratigraphic trap?

A. The structure is of very little consequence -- it's a matter of a trap being existence by virtue of an up-dip porosity pinch-out -- which is stratigraphic in nature.

Q. Do you have any further comments with respect to this?

A. No, sir.

MR. HINKLE: We would like to offer in evidence these exhibits.

MR. UTZ: Without objection, Exhibits One and Two will be entered in evidence.

(THEREUPON, Applicant's Exhibits One and Two, inclusive, were admitted into evidence.)

MR. HINKLE: That's all of the direct of this witness.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Staton, what does this Exhibit Two show with regard to the gas cap situation that you spoke of?

A. It shows on the left of the diagrammatic cross section that a well drilled by Tenneco, in Section --

Q Six?

A. Six, Township 10 south, Range 37 east, Number One on the cross section was completed as a gas well with a potential calculated absolutely open flow of one and a half million cubic feet per day.

This well did not produce for any length of time, and has been subsequently abandoned.

Q That is the only well that has encountered substantial gas?

A I understand that the Sun Company in Section 32 is producing hydrocarbonates with a high GOR.

Q That's not one of the wells on the --

A It is on the cross section -- no, I beg your pardon, sir. It is not on the cross section, because the log of the well has not been released to the industry.

MR. HINKLE: That's the one that is in the process of being completed at the present time?

THE WITNESS: Yes, sir.

Q (By Mr. Utz) Do you know what kind of a test they got on this well?

A I've heard reports that the GOR is as high as forty-thousand has been experienced.

Q And there is a possibility that this might be an associated pool?

A I haven't considered that at the moment, to this time.

Q But you will consider future evaluations of the pool?

A Yes, sir. As Mr. McGraw will testify, our oil production is -- with GOR is approximately five hundred to one.

Q. Mr. McGraw will testify as to the pool rules?

A. As to what we would hope for.

Q. What you are asking for in the pool rules?

A. Yes, sir.

MR. UTZ: Any further questions of the witness?

I might mention this location down here, in

Section 4 --

A. Yes, sir.

Q. (By Mr. Utz) You are not drilling that yet?

A. We are down -- pipe has been run.

Q. Otherwise?

A. And it's possible that this morning we have perforated it. But we have also stated the location in Section 33 in the northwest quarter of the southeast quarter, which does not appear on this plat, by virtue of its having been staked -- and the rig skidded from the Federal Four -- in drilling over the weekend, and I didn't have an opportunity to put that on -- but the well is active in the northwest southeast of Section 33 -- the Number Three Santa Fe.

Q. I believe you mentioned at the beginning of your testimony another San Andres pool; was that the Sawyer?

A. Yes, the Sawyer, which is principally gas production.

Q It was your testimony that to the best of your knowledge at the present time there is no connection between the two?

A The field is separated by a horizontal distance of some three miles and by dry holes on the southwest part of the Sawyer Field.

MR. UTZ: Any further questions of the witness? You may be excused.

MR. HINKLE: The next witness is Jack McGraw.

(Witness sworn.)

JACK MCGRAW

the witness, called by Mr. Hinkle, having first been duly sworn upon his oath was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE;

Q State your name, residence and by whom you are employed?

A My name is Jack McGraw, and I work for Coastal States Gas Producing Company in Midland, Texas, as a divisional petroleum engineer.

Q Have you previously testified before the Oil



Conservation Commission?

A. Yes, I have.

Q. And your qualifications as a petroleum engineer is a matter of record with the Commission?

A. Yes, sir.

Q. Are you familiar with the West Sawyer-San Andres Pool?

A. Yes, sir, I am.

Q. Have you made a study of that area?

A. Yes, sir.

Q. And of all the wells that have been drilled?

A. Yes, sir.

Q. And are you familiar with the production and history of all the wells?

A. Yes, sir.

Q. Have you prepared or has there been prepared under your direction certain exhibits for introduction in this case?

A. Yes, sir, I have. Exhibit Number One --

Q. Number Three --

A. I mean, Number Three -- excuse me. Exhibit Number Three is a plat of the field, and also shown on this plat underneath or near the well location is the initial bottom hole pressure of each well that was completed in the reservoir.

As has been previously testified, the West Sawyer-San Andres Field was discovered by Coastal States with completion of our Santa Fe Number One, located in the southwest quarter of the southwest quarter of Section 33, Township 9 south, Range 37 east.

This well was completed through perforations at forty-nine forty-four to fifty, fifty-three to sixty, and sixty-five to sixty-eight.

It was potentialized on comp for one hundred and sixty-nine barrels of oil and eighty-six barrels of water per day, on January 14, 1969.

At this time, a bottom hole pressure bomb was run in the hole immediately after completion of the well, prior to running the pump.

The well was shut in for seventy-two hours, and we feel like we got the static reservoir pressure, the initial static reservoir pressure, in the reservoir -- it was fifteen hundred and sixty pounds at that time.

Since the completion of the Santa Fe Number One, the following wells have been completed:

The Santa Fe Number Two, which is in the southeast quarter of the northwest quarter of Section 33, Township 9, Range 37 east -- it was completed in March, March the 10th,

1969 -- potential for ninety-two barrels of oil and ninety-two barrels of water per day.

Now this well experienced a severe pressure decline -- a production decline, and was later, along about August, was converted to a salt water disposal well in the lower San Andres zone, below the producing interval.

The bottom hole pressure on this well was attempted, but was not obtained properly, due to a pressure leak at the surface. It leaked off the pressure and it didn't record it properly.

The next well drilled was the Ad Long Number One, in the northwest quarter of the northeast quarter of Section 5, Township 10 south, Range 37 east, and was completed on April the 8th, 1969, potential for sixty-three barrels of oil and ninety-five barrels of water pumping.

The initial static reservoir pressure in this well was fifteen twenty-seven, taken on April the 8th.

The next well was the State Sawyer Number One, located in the northwest quarter of the northeast quarter of Section 4, Township 10 south, Range 37 east. It was completed on June the 25th, 1969, at a potential for two hundred and twenty barrels of oil and seventy-four barrels of water pumping,

The initial static reservoir pressure in this well was fifteen eighty-five.

The next well drilled was the Marr Number One in the southeast quarter of the southeast quarter of Section 33, Township 9 south, Range 37 east.-- completed on September the 10th, 1969, potential for ninety-five barrels of oil and ten barrels of water pumping.

The initial reservoir pressure in this well was fourteen seventy-two, approximately one hundred pounds less than the initial pressure in the Santa Fe One.

The Sun Oil Company well was completed or was drilled following this, however, a completion has not been filed on the well.

Q. The information was not available?

A. It was not completely available -- they have not revealed certain test information to us on this well.

Q. What is the drop-in pressure there between the well located in the southeast and southeast thirty-three and the initial test well indicate, if anything?

A. Of course, this is very early in the life of the reservoir, and there are certain inaccuracies in bottom hole pressure bombs. However, we feel that this is a significant pressure difference and it indicates a trend that

will be very evident as time goes on, if it, in effect, is indicating what we think that it indicates.

Q. Would that also indicate that it will drain a wide area?

A. Yes, that drainage in the area is over an extensive area.

Q. Do you have any further comments with respect to this exhibit?

A. No, sir.

Q. How does this field compare with other San Andres Pools in Lea County and in Roosevelt County?

A. We feel that the West Sawyer Field is comparable, at least in depth, in oil gravity, in reservoir characteristics, to several of the other major San Andres Fields in north Lea County, southern Roosevelt County, and in portions of Chaves County.

Namely, these fields are the Flying "M" San Andres Field, which is located about twenty miles to the west, the Chaveroo-San Andres Pool, which would be about twenty-five miles northwest; and the Cato-San Andres Field, which is about another forty miles west.

Q. Is there eighty-acre spacing in the proration units of the Flying "M"?

A. Yes, sir. The pressure trend that we see in this field is similar to what we noticed in the early life of the Flying "M" Field, and at that time further pressure information was obtained and eighty-acre spacing was obtained for the Flying "M"-San Andres Field.

Also following the obtaining the eighty-acre spacing for the Flying "M"-San Andres Field, the Todd-San Andres Field, which is about fifteen miles northwest of the West Sawyer Field, also obtained eighty-acre spacing for the San Andres.

Q. Do you know of any studies that have been made to compare these pools, as far as their characteristics and range factors are concerned?

A. Yes, sir. There was recently a technical article published and I will refer to that in just a moment.

The current pressure trend in the West Sawyer Field indicates that one well will drain in excess of eighty acres.

The same trend was noticed in the early life of the Flying "M" Field, and after additional development had taken place, drainage was clearly demonstrated.

In July, 1965, permanent field rules were established in the Flying "M" Field, designating eighty-acre

spacing, with eighty-acre allowables, for the San Andres formation.

Following this, eighty-acre spacing was also established in the Todd-San Andres Field of southern Roosevelt County.

After the rather exceptional drainage radius of a given well in the Flying "M"-San Andres Field had been clearly and definitely established, several other operators, including Pan-American Petroleum Corporation, who was actively engaged in developing the Chaveroo and Cato-San Andres Fields, in the same general area, set out to determine the effective drainage radius of a well in each of these fields.

A technical paper was published by Mr. D. L. Groves, and Mr. B. F. Abernathy, with Pan-American Petroleum Corporation, reporting the results of interference tests that were conducted by them in the Chaveroo and Cate-San Andres Fields of New Mexico. And also the Dean Wolfcamp Fields of Rincon County, Texas.

The title of the paper is "Early Analysis of the Fractured Reservoirs Compared to Later Performance."

The paper was presented at the forty-third annual fall meeting of the Society of Petroleum Engineers, of A.I.M.A., in October, 1968.

The paper is rather lengthy, but I would like to quote from one paragraph of the abstract.

I quote -- "The ability to drain areas considerably larger than current well density has been proven in the three fields studied by production and pressure data. In the Chaveroo Field, drainage of greater than eighty acres was proven with pressure data. Interference tests in the Cato Field, indicated drainage of six hundred and forty acres per well. These three pays -- plays will be economically unattractive due to excessive drilling.

In the future, economic failure in this type of reservoir can be avoided or reduced by applying the techniques discussed in this paper in selecting a well density, which will be economically attractive" -- unquote.

Q Do you have any further comments with respect to Exhibit Three?

A We certainly feel that this West Sawyer-San Andres Field falls into this category.

Q Now refer to Exhibit Four and explain that to the Commission?

A Exhibit Number Four is a graph showing the total field production history to date.

It also shows the time that each well was completed



and the effect of completing the well on the total field performance.

Q Any further comments with respect to this exhibit?

A No, sir. Not at this time.

Q Have you had made an economic study of this area?

A Yes, sir. We have. This particular field -- we have been dealing with the San Andres in north Lea County and Roosevelt County for some time and so we decided, when we first started developing this field, that we would get a reservoir data, so we do have a PVT analysis on the reservoir fluid, we have cored every well that we have completed, and we do have good reservoir information.

Exhibit Number Five shows the average reservoir characteristics from core data, and from our PVT analysis of the reservoir fluids.

Exhibit Five also shows the economic evaluation, based on a forty-acre density, and eighty-acre well spacing.

Q What does this show to the porosity --

A The average porosity from core analysis, so far, is eight point two percent.

The water saturation is thirty-five percent, the formation volume factor, from PVT data is one point two four two.

The recovery factor is estimated from experiencing Flying "M" and other San Andres Fields, to be twelve point five percent.

The net pay is approximately twenty feet.

Then, we go into economic factors, which includes the price of the oil, which is two seventy-eight per barrel, trucking charge of nine cents, operating costs, including salt water disposal cost, taxes and so forth, of about fifty cents a barrel.

This leaves a net working interest income of approximately one dollar and sixty-eight cents.

Q Does this indicate the recoverable oil in place per acre?

A Yes -- in utilizing the core data and the recovery factor, we have calculated eight hundred and thirty barrels per acre of recoverable oil.

This is also in agreement with the previously mentioned technical paper, that was presented on the Cato and the Chaveroo Fields.

Q What about the estimated recovery on the forty- and eighty-acre basis?

A We feel that based on this information, the recovery for a forty-acre well will be thirty-three thousand

two hundred barrels.

This would yield a total net income of fifty-six thousand dollars. The development costs, per well, has averaged sixty thousand dollars in the area.

Therefore, a ratio of income to investment of less than one or less than pay out will be achieved on forty acres.

However, on eighty acres, we will receive an acceptable pay out condition.

Q Which is one point eight six?

A One point eight six, yes.

Q Would your company consider drilling a well on each forty acres in this area?

A No, sir, we would not.

Q In view of this economic study?

A Yes, and the development to date has been on eighty-acre development patterns.

Q Do you have any recommendations to make to the Commission with respect to the adoption of special pool rules?

A Yes, sir. Coastal States is requesting temporary field rules, designating eighty-acre spacing with eighty-acre allowables.

We are further requesting that each well be located

in the northwest quarter or the southeast quarter of a governmental quarter section, and that all wells be located within two hundred feet of the center of a governmental quarter quarter section.

Now, there is one exception to this. The initial well, the discovery well within the field, was drilled off the -- off this pattern and we would like to ask that this well be granted an exception to the rules, but that all additional wells drilled in the pool adhere to these spacing rules.

MR. HATCH: Which well was that?

THE WITNESS: The Santa Fe Number One in the southwest of the southwest of thirty-three.

Q. (By Mr. Hinkle) That's the discovery well?

A. That's the discovery well, yes.

Q. You are asking for temporary field rules?

A. Yes, sir. We would like to get temporary field rules for one year, during which time we will gather additional information to prove conclusively that one well will drain in excess of eighty acres.

Q. Do you contemplate that Coastal States will drill additional wells during this one-year period?

A. Yes -- if these spacing rules are adopted, we will

continue our development in the area, as long as we are able to make a -- to make an economical well.

Q In your opinion, will the adoption of special field rules along the lines you've recommended be in the interest of conservation and the prevention of waste?

A Yes, sir -- very definitely.

Q And it will tend to promote the greatest ultimate recovery of oil and gas?

A Yes, sir.

Q When you filed this application, did you notify all of the offset owners in the area?

A Yes, sir. We -- as the Commission probably remembers, filed for this case I think about four months ago, and notified everyone at that time.

And then, following that, we drilled the two poor wells, which is the Santa Fe Number Two, which we have later converted to salt water disposal; and the Ad Long Well and we decided, after drilling those two, that maybe we didn't need any rules -- but we did finally get started to drilling again and began to get better wells, and so, we filed the case and renotified all of the operators in the area and have discussed it with them.

Q Do you have waivers from any of the operators?

A. Yes, we have waivers from Bell Petroleum and also I was told by phone that we have one from Sun in our office this morning.

Q. Where does Bell have acreage?

A. Bell's acreage is in Section 5 -- the south half -- most of the south half of Section 5.

Q. And where is the Sun acreage?

A. The Sun acreage is in the thirty-two -- the northeast quarter.

Q. Let me get those letters --

A. I just have the one.

MR. HINKLE: We would just like to file with the record the statement from the Bell Petroleum Company.

Q. (By Mr. Hinkle) Do you have any further comments with respect to any of these exhibits?

A. No, sir -- not at this time.

MR. HINKLE: We would like to offer Exhibits Three, Four and Five in evidence.

MR. UTZ: Without objection, Exhibits Three through Five will be entered into the record of this case.

(THEREUPON, Applicant's Exhibits Three through Five, inclusive, were duly admitted into evidence.)

MR. HINKLE: That's all the direct I have.

CROSS EXAMINATION

BY MR. UTZ:

Q At the present time, Mr. McGraw, you have four producing wells?

A Yes, sir, that's true.

Q Now, I understood that one of them was pumping; are they all pumping?

A Yes, sir -- all are pumping.

Q What kind of GOR's do you have on these wells? Do you have a record of that?

A Yes, sir, we do. I do not have it in the form of an exhibit, but I guess our ratios -- when we run our PVT data, we put a tester on the Santa Fe Number One, the discovery well, and we got a real accurate production test and gas-oil ratio. And the gas-oil ratio on that was five hundred and sixty-three cubic feet per barrel.

Now, since that time, there is not a gas market in the area, so casing head gas is flared, but we measure it periodically, and it appears to be -- still appears to be in the five hundred range.

Q Is that the only well you have a GOR on?

A Yes, sir -- that I could report to you.

Q How much does that well produce in oil?

A. The Santa Fe One?

Q. Yes.

A. About fifty to fifty-five barrels a day at this time.

It also makes about fifty to fifty-five barrels of water per day.

This is also approximately true with the State Four Number One in the northwest of the northeast of Section 4, and the Marr Well -- they all seem to be -- at least, the wells that are economically attractive will level off around fifty barrels a day -- although, some of them produce quite a bit more than this for the first month or so.

As you can see, if you look at Exhibit Four, you can see that completing the Ad Long and the Santa Fe Two did not change the field producing rate appreciably --

Q. Yes --

A. However, when the Sawyer State Number One was completed, then we went up to an additional fifty to sixty barrels a day -- seventy barrels a day.

The curve does not reflect the Marr Well production -- it wasn't available at that time.

Q. What's the point one two five and your volumetric calculations?



A. This is our recovery factor.

Q. Well, I just couldn't see it --

And you testified that that was about a normal recovery factor for the pools in this area?

A. Yes, sir. It has proven to be for the Flying "M"-San Andres Field, which has somewhat better permeability characteristics in this field.

The primary recovery there is going to be pretty close to that. However, if we do have the Flying "M" under secondary -- under pressure maintenance operations -- now, and practically, all the primary has been recovered.

Q. Do you think this field will lend itself out to secondary recovery?

A. This is one of the reasons for asking for the fixed well spacing.

We feel that if it is developed in an orderly manner, that we will definitely try to recover some secondary oil from the reservoir if it does continue to develop and we can see enough total oil in place to justify the initial expense.

MR. UTZ: Any further questions of the witness?  
You may be excused.

Do you have any further testimony?

MR. HINKLE: That's all we have.

MR. UTZ: Any statements?

MR. LEACH: Yes.

MR. UTZ: You have a statement?

MR. LEACH: Yes, sir.

MR. UTZ: All right, sir.

MR. LEACH: My name is Guy Leach, and I am, I guess, a senior geologist, with the Oil Development Company of Texas. And I also represent Santa Fe Railroad Company.

And we own undeveloped, adjacent leases and mineral in the West Sawyer-San Andres Field.

We are generally in agreement with Coastal States' application. However, due to the present small amount of development, we respectfully request the Commission to allow as much flexibility as possible within the framework of the eighty-acre unit, in locating the future wells.

We believe that this flexibility will protect the correlative rights and the operators and mineral owners.

Thank you.

MR. UTZ: Any other statements?

The case will be taken under advisement.

(WHEREUPON, the hearing stood in a brief recess)

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E X H I B I T S

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I, CA FENLEY, 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.

  
CA FENLEY - COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner Hearing of Case No. 4222 heard by me on Oct 16, 1969.  
*Thos. J. [Signature]*  
New Mexico Oil Conservation Commission



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

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
September 30, 1970

EXAMINER HEARING

IN THE MATTER OF:

Case 4222 being reopened pursuant  
to the provisions of Order No. R-  
3850, which order established 80-  
acre spacing units for the West  
Sawyer-San Andres Pool, Lea County,  
New Mexico, for a period of one year.

Case No. 4222

BEFORE: Daniel S. Mutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Call Case 4222.

MR. HATCH: Case 4222. In the matter of Case 4222 being reopened pursuant to the provisions of Order No. R-3850, which order established 80-acre spacing units for the West Sawyer-San Andres Pool, Lea County, New Mexico, for a period of one year.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant, Cox and Eaton, appearing on behalf of Coastal States Gas Producing Company. Mr. Examiner, we have one witness, Jack McGraw, who previously testified in the original hearing in October of 1969, in connection with these special pool rules.

Jack will give some engineering information and then the Oil Development Company is also interested in this area. In fact, the Oil Development Company and Coastal States own practically all of the wells in the pool and Oil Development will go ahead then and give some information with respect to the geology and some further information in support of Coastal States recommendation that these rules be continued in effect.

(Witness sworn.)

(Whereupon, Coastal States Exhibits 1 through 5 were marked for identification.)

JACK McGRAW

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, your residence and by whom you are employed.

A My name is Jack McGraw. I work for Coastal States Gas Producing Company as division petroleum engineer in Midland, Texas.

Q Have you previously testified before the Commission?

A Yes, I have.

Q And your qualifications as petroleum engineer are a matter of record with the Commission?

A Yes, they are.

Q Did you testify originally in connection with this case in October of 1969?

A Yes, I did.

Q Have you made a continuing study of this area --

A Yes, sir.

Q -- since that time? Have you prepared or has there been prepared under your direction certain exhibits

for introduction in this case?

A Yes, sir, they have.

Q Refer to Exhibit 1 and explain what this is and what it shows.

A Exhibit 1 is a plat showing the field as it now exists. At the time of the last hearing there were 6 wells either producing or in the process of completing. Since that time, 8 wells have been drilled and completed, 3 by Coastal States and 5 by Oil Development Company of Texas.

Two dry holes were drilled in Section 8 and 9 approximately one mile south of the existing production. At the present time, Oil Development Company has 3 locations staked, 1 in the northwest quarter of the northwest quarter of Section 33, 1 in the northwest quarter of the southeast quarter of Section 28 and the third 1 in the southeast quarter of the northwest quarter of Section 34.

This plat also shows the bottom hole pressures as measured by an Amerada bomb in several of the wells. This pressure was measured in most cases on the wells immediately after completion and after a 72 hour build-up.

Q Do you have any further statement with respect to Exhibit 1?



A No, sir, not at this time.

Q Refer to Exhibit 2 and explain that.

A Exhibit 2 is a graph of the total field production. This graph shows that -- it also shows the completion date of each well. The field was discovered in January of '69 and is presently producing at the rate of 13,692 barrels of oil per month. Cumulative production to 8-1-70 is 128,362 barrels.

Q Now, refer to Exhibit 3; explain that.

A Exhibit 3 is a plat showing the structural position of each well and its current producing rate in both oil and water. Also shown is the present producing gas-oil ratio for each well.

If you study this map, you will note that the producing gas-oil ratio does appear to be a function of the structural position of the well. The 2 wells that are located at or above the minus 775 contour line are producing at high gas-oil ratios.

Coastal States Adlong Number One in the northwest quarter of the northeast quarter of Section 5 and Sun Oil Company's State One S located in the southeast quarter of the northeast quarter of Section 32, both these wells have in the neighborhood of 7,000 to 1 gas-oil ratios, Coastal's

Well **having** 7100 and Sun's having 7400.

Q Would that indicate a gas cap or presence of a gas cap near it?

A Yes, it does tend to indicate this.

Q What are the contours drawn on, what formation?

A This map is contoured on the Pi marker which is approximately -- this is a geologic marker that is commonly used to contour on in this area and it's approximately 200 feet above the pay zone.

MR. NUTTER: Mr. McGraw, I am missing the contour intervals.

THE WITNESS: Yes, sir. You might notice one of them is minus 725, the furthest one to the -- they are at 25-foot intervals. Minus 750 and then minus 775.

MR. NUTTER: Okay. Fine. Thank you.

THE WITNESS: You might also note that Oil Development Corporation's Number Four Well, which is in the northwest quarter of the northeast quarter of 33, is near this line and it produces with a 2180 GOR. All other wells have very low gas-oil ratios. In fact, some of them too small to measure, but they range from 100 to 350.

MR. NUTTER: Do you see any correlation of water production in the structural position here?

THE WITNESS: Yes, sir, some. Well, for instance, the figure that is shown on the map, the first number shown is the oil rate and the second number shown is the water rate in barrels per day and you might notice the Oil Development Corporation Well in -- well, the one east of Section 33 there is producing 39 barrels of oil and 150 barrels of water per day.

MR. NUTTER: That's about the lowest well structurally.

THE WITNESS: About the lowest. Some of these other wells at one time may produce more water than they do now. The water has decreased to some extent.

MR. NUTTER: I see.

Q (By Mr. Hinkle) Do you have any further comments with respect to Exhibit 3?

A Well, I might add that this indicates that possibly a gas cap exists up-dip in the reservoir. Completion information on the Sun Well in Section 32 further substantiates this theory.

Their well is presently producing from perforations at 4975 to 79 which is the very bottom of the productive interval and they did this in order to avoid having a higher gas-oil ratio. The well had previously been perforated at

4917 to 46 which is the comparable interval that other down-dip wells are producing from and at that time their well had a gas-oil ratio of 42,900 to 1.

MR. NUTTER: What is that interval, 4917 to what?

THE WITNESS: To 46.

MR. NUTTER: And the COR was --

THE WITNESS: 42,900. This will be a little better -- more information will be presented on this later in the geologic testimony.

A cross section will be presented which will show the normal completion interval in the area.

Q (By Mr. Hinkle) Okay. Refer to Exhibit 4.

A Excuse me. This zone was -- in Sun's Well, this zone was squeezed off and the well is presently producing from the lower zone. A reservoir fluid study I conducted on a sample from Coastal States Santa Fe Number One indicated that the reservoir was saturated at the original reservoir pressure.

This indicates that it is possible for a gas cap to exist at the original reservoir pressure. It is, therefore, our conclusion that this is an associated reservoir.

Q Refer to Exhibit 4 and explain that to the

Commission.

A Exhibit 4 is a data sheet showing the volumetric calculations and economics for both the 40-acre development plan and an 80-acre development plan. With the rock and fluid properties shown, the estimated recovery for a 40-acre location is 33,200 barrels. For an 80-acre location, 66,500. With the operating costs and development costs shown a pay out cannot be achieved on 40 acres. A ratio of income to investment of 1.57 can be achieved on the 80-acre location.

Q You use a recovery factor of twelve and a half percent. Where does that come from?

A This is a factor that is used for San Andres reservoirs in this area and it has been used by us in other reservoirs.

Q Pretty uniformly. Any further comments with respect to 4?

A Not at this time.

Q Refer to Exhibit Number 5.

A Exhibit Number 5 is a graph of the producing rate of Coastal States Santa Fe Number One Well. This is the discovery well in the field.

This graph shows that the well has accumulated

28,668 barrels to 9-1-70, and has established approximately a 30 percent per year decline. If this well continues to decline at this rate, it should recover an additional 37,000 barrels for a total recovery of 65,668 barrels. This is almost 100 percent of that calculated to be recoverable for an 80-acre location by volumetric calculation.

Q The amount that actually has been produced as shown by Exhibit 5 is substantially the amount of oil which you estimate to be in place and producible from 40 acres, is it not?

A Yes, sir. It has already recovered 85 to 90 percent of that calculated to be recoverable from 40 acres.

Q Would this tend to indicate that one well, then, would drain more than 40 acres?

A Yes. We feel this indicates that the better wells in the field are draining in excess of the 40-acre location.

Q Have you conducted any interference tests to determine the drainage factors in this area?

A Yes. An attempt was made to conduct an interference test in the field. Three of the better wells were pulled and bottom hole pressure bombs were run. A 72-hour

build-up was obtained on the following wells: Coastal States Santa Fe Number One, the discovery well and Coastal States Santa Fe Number Three which is in the northwest quarter of the southeast quarter of Section 33 and Oil Development Company's Santa Fe Number One which is in the southeast quarter of the southwest quarter of Section 33.

You will note that this includes the oldest well in the field and consequently the one with the highest cumulative recovery. The Santa Fe Number One was about 28,700 barrels and also a relatively new well with much less cumulative recovery.

Oil Development Corporation Santa Fe Number One has accumulated approximately 6,000 barrels. Coastal States Santa Fe Number Three was also chosen because it is relatively a good producer and has accumulated a substantial amount of oil approximately 28,000 barrels also.

It was our opinion that by selecting these wells and obtaining the static reservoir pressure in each well that if one well can drain an excess of 80 acres, the bottom hole pressure in each well will be influenced by the production from the offset wells and consequently the static reservoir pressure would be approximately equal even though the recoveries from each of these wells was vastly different.

The following information was obtained. The bottom hole pressure on Coastal States Santa Fe Number One was found to be 477 pounds after 72 and a half hours and it was still building at the rate of 3 PSI per hour. Bottom hole pressure on Coastal States Santa Fe Number Three was 575 pounds after 73 hours and it was still building at the rate of 4 PSI per hour.

The bottom hole pressure on the Oil Development Company's Santa Fe Number One was 264 PSI after 70 and a half hours and it was still building at the rate of 2 PSI per hour.

After we graphed this pressure build-up data, we found that we could not extrapolate it to the static reservoir pressure with any degree of accuracy because we had not left the bombs in the hole long enough.

It was determined that from 7 to 30 days would be required to get reliable data and since these 3 **weeks** contribute a large portion of the production from the field and this production could not be made up, it was not feasible to obtain the necessary data for reliable information.

It is our opinion that the recoveries obtained to date from the better wells indicate they have almost produced that oil calculated to be recoverable from 40 acres



by volumetric calculations and that if they continue at the indicated decline rate they will recover that calculated to be recoverable from 80 acres.

It is, therefore, our opinion that one well will efficiently and effectively drain 80 acres in this reservoir.

Q From your study of the West Sawyer Field and all the information available, could you recommend that you go back now and put a well on each 40 acres?

A No, sir. I could not recommend to my management that we drill the inside locations at all.

Q What are your recommendations to the Commission with respect to continuing the special pool rules?

A It is our recommendation that the Commission make the temporary field rules permanent.

MR. HINKLE: We would like to offer in evidence Exhibits 1 through 5.

MR. NUTTER: Coastal States Exhibits 1 through 5 will be admitted in evidence.

MR. HINKLE: Do you have anything else?

THE WITNESS: No, sir.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. McGraw, if you have indicated that you have

gotten 40-acre production to date using your volumetric calculations that could indicate that your 80-acre drainage pattern is effective or it could indicate that your recovery factor is going to be higher than your twelve and a half percent either one, isn't it?

A Yes, sir, it could.

Q And you have no conclusive evidence at this time as to interference or draw downs from one well to the other?

A That's true, we do not.

Q How can you then make a recommendation that these pool rules be made permanent?

A Because with these rock characteristics, I do not believe that we could have a higher than -- recovery factor than is normally recovered from better quality San Andres rock in the area.

Q You think twelve and a half percent is the maximum for the San Andres?

A I certainly do.

Q I think you will find some San Andres reservoirs that produce up to as high as 30 percent --

A Yes, sir, that is true.

Q -- in Southeast New Mexico. Mr. McGraw, has any indication other than these high GOR's that you find as you

move up structure, is there any other indication that there's a gas cap? Are there any gas wells farther to the northwest up here?

A No, sir. This will be pointed out in later geologic testimony.

Q I see.

MR. NUTTER: Are there further questions of Mr. McGraw? He may be excused.

(Witness excused.)

MR. NUTTER: Call your next witness, please.

MR. PAULANTIS: J. T. Paulantis, Iden and Johnson, 1220 Simms Building, Albuquerque, New Mexico, appearing on behalf of Oil Development Company of Texas who appears here in support of the contentions of Coastal States Gas Producing Company for the continuation and permanence of the Commission's temporary Rule 3850 with regard to the Sawyer West-San Andres Oil Field.

We have two witnesses. First will be Mr. Guy W. Leach. Would you please stand and be sworn?

MR. NUTTER: If they would both please stand and be sworn at the same time.

MR. PAULANTIS: And Mr. Meeks.

(Witnesses sworn.)

(Whereupon, Oil Development Company Exhibits 1 through 5 (Leach) were marked for identification.)

GUY W. LEACH

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PAULANTIS:

Q Would you state your name and address, please?

A My name is Guy W. Leach. My address is 4100 Tucson, Amarillo, Texas.

Q By whom are you employed and in what capacity?

A Oil Development Company of Texas, as an area geologist.

Q Have you appeared and testified before this Commission --

A I have not.

Q -- previously? Will you briefly state your education and employment qualifications as a petroleum geologist?

A I received my BS Degree in geology at the University of Oklahoma in 1949. I worked on a Masters, completing my residency in 1950; however, I did not complete my thesis.

I have been employed by Oil Development Company since 1950 as a geologist and have been on special assignments with Kochlin Oil Corporation, Santa Fe Pacific Railway Company and Cherokee and Pittsburg Coal and Mining Company.

Q Mr. Leach, are you familiar with and have you made a study of the field in question?

A I have.

Q And have you prepared or had prepared under your supervision and direction exhibits which you have presented here today?

A I have 5 exhibits to present, yes, sir.

Q Would you explain Exhibit Number 1?

A All right. Exhibit Number 1 --- Oil Development Company's Exhibit Number 1, rather, is a plat showing the location of the West Sawyer Field in relation to known structures and fields of this region.

Exhibit Number 1 shows that the West Sawyer Oil Field is located geologically in the northern part of the Watum Basin. This basin is bounded on the north by the Matador **Ridge**, on the east by the North Midland Basin Platform, to the south by the Artesia Vacuum trend and to the west by the northwest shelf of the Midland Basin.

The regional structural strike of the San Andres

Formation is generally in a northeast-southwest direction and the regional dip is generally southeast at about 100 feet per million. However, the rate and direction of dip vary somewhat locally.

The closest oil and gas fields to the West Sawyer Oil Field are Number 1, the abandoned southeast segment of the Allison-Bough C Oil Field are located about 5 miles north.

Number 2, the Sawyer San Andres Oil and Gas Field is located about 3 miles east and Number 3, the cross-roads East Devonian Oil Field is located about 2 miles northwest. These are all on Exhibit 1. They are kind of hard to read there, but they are there.

Q The field in question is marked in red?

A Is marked in red, yes, sir.

Q Would you explain Exhibit Number 2?

A Exhibit Number 2 is a map showing by color code the names of the various lease hold ownerships in the West Sawyer Field. You will note the discovery well is marked by large red circle. This is the Coastal States Number 1 Santa Fe, in the southwest quarter-southwest quarter, Section 33.

I have only -- the Coastal States leases are shown by yellow color; Oil Development Company of Texas

leases are by pink and the Santa Fe Pacific Railway by green. All other ownership are shown by printing only. This is within a 9 section square surrounding the field.

You will note that Coastal States and Oil Development Company and Sun are the only operators in the field at present. Coastal States has 8 wells, Oil Development 5 wells and Sun 1.

Q And those wells are shown on the map?

A The wells are shown on the map, yes, sir.

Q Exhibit Number 3.

A Exhibit Number 3 is a map showing the structure on top the San Andres Formation Pi Zone as marker or subsea datum. Locally the San Andres Pi zone has a strike ranging from northeast-southwest, swings around to east-west in about Section 23 and then swings back to northeast-southwest in Section 25 or thereabouts.

East from the Cross-roads East Devonian Oil Field the dip of the Pi zone flattens in a east-southeast direction from about 100 feet per mile to about 50 feet per mile indicating the presence of east-southeast plunging nose -- structural nose, I'm sorry.

The Exhibit 3 shows that the West Sawyer Field is located on the eastern flank of this structure. East of the

West Sawyer Oil Field, the normal southeast dip of the Pi zone reverses in about Section 35 and becomes a southwest dip near the Sawyer Oil and Gas Field. The rate of dip becomes steeper, averaging about 100 feet per mile. This reversal of dip, the type of production which is mainly gas and the Featherstone Number One McCormick State dry hole in Section 36, Township 9 South, Range 37 East, in my opinion is strong evidence that the re-entrant in Section 26 and 35 or a low area between the two fields acts as a structural separation.

The trapping mechanism for the West Sawyer-San Andres Field appears to be the structural nose having minor closure in 3 directions and porosity development on the east flank with an up-dip or west pinch-out forming a cell in that direction.

This is a combination stratigraphic structural type trap. However, in my opinion the development of zones of porosity and permeability appear to be more important than structural elevation.

Q Is this exhibit compatible with the -- I believe it was Exhibit Number 3 of the previous witness?

A It is. The only difference would be my interpretation against their interpretation and no geologists



contour exactly alike.

Q Mr. Leach, in your opinion, does this bear out the structure as testified to by the previous witness?

A Yes, sir, it does.

Q Exhibit Number 4, please.

A Exhibit Number 4 is a diagrammatic east-west cross section from the Sawyer Oil and Gas Field passing through the West Sawyer Oil Field and terminating in the East Cross-Roads Devonian Field in the Oil Development Company of Texas Number 1-30 Santa Fe dry hole.

I have included it to illustrate the structural separation between the Sawyer and West Sawyer Fields and the up-dip or west thinning of this Slaughter P-1 or upper porosity zone. This is shown by a blue color. My datum is sea level plus 700 feet or it's actually a reference to sea level.

I have the information on each well below it showing the date it was spudded and completed, the acid treatments and the perforations. The Slaughter P-1 or upper porosity zone is located near the middle of the San Andres Formation. It's encountered about 4900 feet in depth in the West Sawyer-San Andres Oil Field or about 700 feet below the top of the San Andres Formation.

Generally, there are 5 or more porosity intervals present in the area and each is usually separated by a dense and impermeable stratum. However, sometimes these zones are hard to distinguish on electrical logs, cores and samples because of erratic development.

We are only concerned with 3 Slaughter zones of porosity in the West Sawyer Field. These are P-1, or upper porosity zone which normally contains oil or gas, the P-2 or middle porosity zone which is a transition type zone; it contains oil and water. P-3 or lower zone is normally water bearing as is P-4 and P-5.

I would like to note that many operators in this area call these zones the Slaughter A, B, C, et cetera. You will note on the cross section that the P-1 zone is about 35 feet thick -- this is gross thickness -- and has an average net pay of about 23 feet.

Exhibit 4 also illustrates the variable thickness of this zone and how it thins to the west, northwest or up-dip. This up-dip pinch-out of porosity and permeability forms a very effective seal or barrier. To date, we have not established a definite water-oil contact because most of the wells in the field have stopped in the P-2 zone or have barely penetrated the P-3 zone.

The available core data and electrical logs do not show this zone clearly. However, from experience, it appears that the oil-water contact will essentially parallel this structural dip. In other words, as you go up-dip, your water-oil contact will become higher or to the west; as you go down-dip, the water-oil contact will be lower and this is kind of emphasized in this Oil Development Company of Texas Number One Rich Unit which is the lowest well down-dip. Up-dip we have no good information yet except there was one well which I don't show is the Lone Star Number Three Santa Fe in Section 30, Township 9 South, Range 36 East, which tested this P-1 zone before becoming a water injection well.

We had them test it and they -- it was real tight and it could recover nothing in this particular zone. The San Andres Formation, the local area, is usually a tan to gray, fine to medium, crystalline anhydritic dolomite. The anhydrite appears to be secondary inclusions, nodules, bug fillings and fractures. Other minor minerals present are pyrite, chert, quartz and clay minerals. However, no swelling clay minerals such as bentonite have been reported.

The type porosity encountered ranges from intergranular, pinpoint, small bug and fracture. Most of the

fractures have a vertical orientation. We find in our calculations from logs and core analyses that the P-1 porosity averages about 7.1 percent. I think that's all I have to say on this one.

Q All right, sir. Would you explain Exhibit Number 5?

A Oil Development Company Exhibit Number 5 is essentially east-west diagrammatic cross section -- I mean northeast-southwest, I'm sorry. It runs through the center of the field.

It is presented to show the continuity of the Slaughter P-1 pay zone and that the wells shown are completed from a common zone or reservoir. The zone perforated -- the perforations are shown on the logs. The zone perforated is shown in -- I mean the P-1 zone is shown in blue color. This is my interpretation.

There's one well, that Coastal States Number 3 SPPRR which the P-1 and what I call the P-2 zones seem to have grown together; there's not a very permeable barrier between the two zones and this is the only well, but the rest of them are in this particular P-1 zone.

You note again we have the core description, perforations, acid treatment underneath each well and the

production. This is about all I have to say for this cross section.

Q Mr. Leach, do you have anything further to say about the geology in the area in question other than what you have already testified to?

A No, sir. I think this is all my testimony.

MR. PAULANTIS: I have no further questions of Mr. Leach.

MR. NUTTER: Are there any questions of Mr. Leach? He may be excused.

(Witness excused.)

MR. PAULANTIS: We would move the introduction of Exhibits 1 through 5, inclusive.

MR. NUTTER: Oil Development Exhibits 1 through 5 will be admitted in evidence.

(Whereupon, Oil Development Company Exhibit 6 (Meeks) was marked for identification.)

J. DEAN MEERKS

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PAULANTIS:

Q Will you state your name and address, please?

A My name is J. Dean Hicks. I live at 104  
Parada Trail in Amarillo, Texas.

Q By whom are you employed and in what capacity?

A I am employed by Oil Development Company of Texas  
as chief petroleum engineer.

Q Have you testified before this Commission previously?

A I have not.

Q Would you briefly state your education and em-  
ployment qualifications for your position?

A I received a Bachelor of Science Degree in  
petroleum engineering from Texas Tech University in May of  
1959. Following graduation, I was employed by Halliburton  
Company for approximately one year. Consequently, I taught  
as an instructor at South Plains Junior College for one  
semester, teaching math and geology.

For approximately -- following my instruction at  
South Plains, I was employed by Shamrock Oil and Gas Cor-  
poration for approximately three years in their production  
engineering department as a petroleum engineer. Following  
Shamrock, I was employed by Texas Pacific Oil Company for  
two and a half years as a district engineer in the Ardmore,  
Oklahoma district and was responsible for engineering in  
that district.

The last four years I have been employed by Oil Development Company of Texas and my position as chief petroleum engineer has made my responsibilities in all there is of engineering in the company operations.

Q Mr. Meeks, have you prepared or had prepared under your supervision any exhibits?

A Yes, sir, I have Exhibit Number 6.

Q Oil Development Company Exhibit Number 6?

A Yes, sir.

Q Let me ask you one thing before we get into the exhibit, Mr. Meeks. Has your company and you and Mr. Leach cooperated with Coastal States in exchanging data and information so that everything could be brought out before this Commission?

A Yes, sir, we have exchanged information quite freely and we have both followed the development of the field since the discovery well was drilled.

Q Would you explain Exhibit Number 6?

A Exhibit Number 6 shows the volumetric calculations of reserves and pay out data based on information from drilling and completing five wells. That's the Oil Development Company wells in the West Sawyer-San Andres Field.

Oil in place was calculated to be 7,152 barrels

per acre. Using a twelve and a half percent recovery factor, a 40-acre drilling pattern will result in 35,760 barrels of recoverable oil and an 80-acre drainage pattern will result in 1,520 barrels of recoverable oil.

As you will note, the recoverable oil on 40 acres will not pay for an average well cost of \$73,255.00. An 80-acre pattern will allow the operator reasonable rate of return on his investment of 1.691.

Q Mr. Meeks, where did you get this recovery factor of 12.5 percent?

A We feel that this is a reasonable and typical recovery factor that should be used for a San Andres Field of this nature as noticing by both low porosities, fairly low gravity crudes and rock characteristics.

Q Did you arrive at this figure independently from the figure that was testified to here by Mr. McGraw?

A Yes, sir. We have been using this twelve and a half percent in other fields, particularly in West Texas that are of this quality.

Q Is it your opinion that the 80-acre location will effectively and efficiently drain the 80 acres?

A Well, our production history from our wells is not adequate to establish a decline, but in my opinion,



Mr. McGraw's extrapolation of the production on the Coastal States Santa Fe Number One -- I believe that's Exhibit Number 5 -- is a reasonable extrapolation and is indicative that one well will effectively and efficiently drain 80 acres.

Q Are you using Mr. McGraw's graphs and figures in calculating your reserves in the length of time that you will be able to operate in this field?

A My volumetric calculations?

Q Yes, sir.

A The only data that we received from Coastal States was the formation of volume factor which was arrived from PVT data that they had taken earlier. Our porosities were arrived from both log and core data and also the water saturations.

Q Your company, Oil Development Company of Texas, supports the position of Coastal States Gas and asks the Commission that the temporary Rule 3850 be made permanent?

A Yes, we do. We concur with Coastal States and request along with Coastal States that these temporary rules be made permanent.

MR. PAULANTIS: I have no further questions of Mr. Meeks.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Meeks, has your company made any attempt to conduct pressure interference tests or draw down tests between the wells here to establish the radius of drainage on the wells?

A Well, our efforts were really combined with Coastal States in that we ran the --

Q In those unsuccessful tests that Mr. McGraw was referring to?

A Yes, sir. Our Santa Fe Pacific Number One was involved.

MR. NUTTER: Are there any further questions of Mr. Meeks? He may be excused.

(Witness excused.)

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

MR. PAULANTIS: We move the introduction of Exhibit Number 6.

MR. NUTTER: Oil Development Company's Exhibit 6 will be admitted in evidence.

MR. PAULANTIS: I have nothing further.

MR. NUTTER: Does anyone have anything they wish

to offer in Case 4222, reopened?

MR. BATCH: Sun Oil Company has advised the Commission that they concur with Coastal States.

MR. NUTTER: If there's nothing further, we will take the case under advisement and call a fifteen-minute recess.

(Whereupon, a fifteen-minute recess was taken.)

I N D E X

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[illegible]

I, GLENDA BURKS, 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.

Blenda Burks  
Court Reporter

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Executive hearing of Case No. 4222  
heard by me on 9/30, 1970.  
[Signature]  
New Mexico Oil Conservation Commission

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
September 15, 1971

EXAMINER HEARING

-----  
IN THE MATTER OF:

Case 4222 being reopened pursuant  
to the provisions of Order  
No. R-3850-A, which order continued  
80-acre spacing units for the West  
Sawyer-San Andres Pool, Lea County,  
New Mexico, for an additional one-  
year period.  
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*Case 4222  
(Reopened)*

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF Hearing

I N D E XPAGELARRY D. LEAVELL

Direct Examination by Mr. Lanphere  
 Cross Examination by Mr. Nutter

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JACK McGRAW

Direct Examination by Mr. Hinkle  
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E X H I B I T S

Marked      Offered and  
Admitted

Oil Development Exhibits 1, 2, & 3

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Coastal States Exhibits 4, 5, 6, 7 & 8

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MR. NUTTER: Case 4222, Reopened.

MR. HATCH: Case 4222, Reopened. In the matter of Case 4222 being reopened pursuant to the provisions of Order No. R-3850-A, which order continued 80-acre spacing units for the West Sawyer-San Andres Pool, Lea County, New Mexico, for an additional one-year period.

MR. HINKLE: Clarence Hinkle of Hinkle, Bondurant, Cox and Eaton, appearing on behalf of Coastal States Gas Producing Company.

Coastal States was the original Applicant two years ago, pursuant to which the special pools were entered and which were extended a year ago. During the last year, the Oil Development Company of Texas has been the principle developer in the pool. That is the reason we would like for them to put on evidence first in the case and we will follow them with evidence of Coastal States.

MR. NUTTER: Very good.

MR. LANPHERE: Mr. Examiner, I am Eric D. Lanphere. I am an attorney with the firm of Iden and Johnson, 1220 Simms Building, Albuquerque, New Mexico, and I appear on behalf of Oil Development Company of Texas. I have one witness with three exhibits.



(Witness sworn)

LARRY D. LEAVELL

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LANPHERE:

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

A My name is Larry D. Leavell, I work for Oil Development Company of Texas as a Petroleum Engineer in Amarillo, Texas.

Q Have you previously testified before the Commission?

A No, sir, I have not.

Q Can you briefly state your education and employment qualifications as a Petroleum Engineer?

A I received a Bachelor of Science degree in Mechanical Engineering from New Mexico State University in January of 1966. Following graduation, I was employed by Pan American Petroleum Corporation as a Petroleum Engineer in the Brownfield and Andrews, Texas area offices. In September of 1967, I was transferred to the Fort Worth Division Office, Fort Worth, Texas. My first assignment

for approximately one and one-half years was in the operations and development section, following and directing drilling operations in southeastern New Mexico. Following that assignment, I worked as a reservoir engineer for Pan American until February of 1970 when I joined Oil Development Company of Texas. My responsibilities for Oil Development Company has been in both drilling operations and reservoir engineering.

Q Are you familiar with and have you made a study of the field in question?

A Yes, sir, I have.

Q Have you prepared or have there been prepared under your direction certain exhibits in this case?

A Yes, sir, I have.

Q Please refer to Exhibit 1, explain what it is and what it shows?

A Exhibit 1 is a plat showing a field as it now exists. Oil Development Company of Texas leases are shown in the pink color. At the time of the last Hearing, there were 14 wells completed in the field. Since that time 14 additional wells have been drilled with 12 wells completed as oil wells, and 2 wells completed as dry holes. These 14 wells are marked with red dots on Exhibit 1.

Oil Development Company has drilled 9 of the 12 producers. The 2 dry holes are located in the SW/4 of Section 34 and SW/4 of Section 26. The other operators in the field are Sun Oil Company and D & B Oil Company.

The plat shows the wells' initial potential test in barrels of oil, barrels of water and MCF per day. Also shown are the wells' completion dates.

Q Do you have anything further with respect to Exhibit No. 1?

A No, sir, I do not.

Q Now, would you please refer to Exhibit No. 2 and explain that, please?

A Exhibit 2 is a map showing the structure and the top of the San Andres pie marker as the sub-C data. Again, Oil Development Company's leases are shown in the pink color. This exhibit was prepared to show the geology with the recent development. It is essentially the same as presented at the last Hearing. I would like to point out that Wilmac has drilled a dry hole in the SW/4 of Section 26. This well which is marked with a black arrow is between the Sawyer-San Andres field to the east and West Sawyer-San Andres field.

Q Do you have anything further with respect to

Exhibit No. 2?

A No, sir, I do not.

Q Please, then, refer to Exhibit 3 and explain it, please?

A Exhibit 3 is a plat showing structural positions of each well, contoured on the San Andres pie marker along with the latest daily test information in barrels of oil per day, barrels of water per day and the producing gas-oil ratio. You will note in studying the map that the producing gas-oil ratio appears to be a function of the structural position of the wells. The wells located near the minus 775-foot contoured line are producing at the highest gas-oil ratios in the field. Coastal States Etta Long Well No. 1 located in Section 5 has a present gas-oil ratio of 2970. Moving northward along this line, Sun State S-No. 1, located in Section 32 has a gas-oil ratio of 7300. R. S. C. P. R. R. Well No. 6 located in the NW/4 of Section 33 has the highest gas-oil ratio in the field with 22,100. R.S.C.P.R.R. Well No. 10, 11 and 9, located in the W/2 of Section 28 have respective gas-oil ratios of 4330, 21,650 and 6150.

Q How do the gas-oil ratios compare at the minus 825-foot contour line to the gas-oil ratios at the minus

775-foot contour line?

A The gas-oil ratios are considerably less. They range from about 400 on Coastal States' West Sawyer State No. 1 located in the NE corner of Section 4 to approximately 1420 on Coastal States' Mar No. 1 located in the SE/4 of Section 33. Moving northward along this line you will note that most of the gas-oil ratios are within this range.

Q Do the higher gas-oil ratios at the higher structure completions indicate a gas cap near by?

A Yes, it does indicate this.

Q Do you believe that this is an associated reservoir?

A Yes, sir, I do. Based upon the reservoir fluid study conducted by Coastal States and a sample from their Coastal States Santa Fe Well No. 1 which indicated that the reservoir was saturated at the original reservoir pressure and the high gas-oil ratios at the high structural wells, we concluded that this is an associated reservoir.

Q In your opinion, is the field reaching the final stages of development?

A Yes, I do. With the probable drilling of three or four wells in Sections 22 and 27, the field is reaching

the end of development.

Coastal States Mar No. 2 is located in the SW/4 of Section 34 was non-productive of oil in the San Andres. Thus, continued development to the east and south of this location cannot be justified. Generally, because of the low productivity of the wells in the north and west part of the field, additional development is not expected in these areas.

MR. LANPHERE: We would like to offer in evidence Exhibits 1 through 3, inclusive.

MR. NUTTER: Oil Development's Exhibits Nos. 1 through 3 will be admitted in evidence.

(Whereupon, Oil Development's Exhibits 1, 2 and 3 were marked for identification, offered and admitted in evidence.)

MR. LANPHERE: That is all I have of this witness, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Leavell, the pool to date has not been classified as an associated reservoir, has it?

A That is correct. It has not.

Q Was it at the request of Coastal States previously that the field be so classified?

A This is correct.

Q Are there any wells that could be conclusively classified as gas wells?

A No, sir.

Q And there haven't been any wells, then, that have been drilled in the gas cap if such does exist up here to the northwest?

A That is correct.

Q Do you anticipate there will be developments in that area?

A No, sir.

Q In other words, this line that you pointed out across through here with the high GOR is probably the limit of development in that direction?

A That is correct.

Q Actually, the contours that you have shown on Exhibit 3 are simply a blown-up version of the information shown on Exhibit 2, isn't that right?

A Yes, sir, that is correct.

Q It is contoured on the same interval?

A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Leavell?

MR. HATCH: Mr. Examiner, maybe Mr. Hinkle could help us out here. It seems to me that Coastal States did not ask for a classification as an associated pool, but that the Examiner in prior Hearings questioned as to whether it was or not and that is the reason the case was advertised as it was and finally put it in one of the prior orders as to the purpose of reopening.

MR. NUTTER: I noticed that in the previous Order, the question as to whether it should be classified as an associated reservoir was mentioned in the Order itself. I didn't see where it had been denied, so I wondered where it was in there.

If there are no further questions of Mr. Leavell, he may be excused.

(Witness dismissed)

MR. HINKLE: We have one witness we would like to have sworn.

(Whereupon, Coastal States' Exhibits 4 through 8 were marked for identification.)

(Witness sworn)

JACK McGRAW

called as a witness, having been first duly sworn, was examined and testified as follows:



DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, by whom you are employed and your residence?

A My name is Jack McGraw. I work for Coastal States Gas Producing Company in Midland, Texas as Division Petroleum Engineer.

Q Have you previously testified before the Commission?

A Yes, sir, I have.

Q And your qualifications as a Petroleum Engineer are a matter of record with the Commission?

A Yes, they are.

Q Did you testify in this case when the Application was originally filed by Coastal States?

A Yes, I did.

Q Also a year ago?

A Yes.

Q Have you kept up with the development in the West Sawyer-San Andres pool?

A Yes, sir.

Q Since its inception?

A Yes, I have.

Q And have kept up with the development this

last year?

A Yes, sir.

Q Have you prepared or has there been prepared under your direction certain exhibits for introduction in this case?

A Yes, they have.

Q Refer to Coastal States' Exhibit No. 4 and explain what this is and what it shows?

A Exhibit No. 4 is a graph showing the total field monthly producing performance. Also shown is the development rate of the field. This graph shows that the present producing rate is 13,100 barrels per month and the present cumulative recovery from the field is 280,682 barrels. This exhibit also shows that the field has enjoyed an orderly development rate under the existing field rules. There are at the present time 25 wells producing from the reservoir and has been previously testified, probably three or four more wells will be drilled.

Q Refer to Exhibit 5 and explain what this shows?

A Exhibit 5 is a graph of the monthly producing rate of Coastal State's Santa Fe No. 1. This well is the oldest producing well in the reservoir and has the

best established decline. This well was used at last year's Hearing to illustrate that one well could drain approximately the amount of oil calculated to be recoverable from 80 acres in this reservoir. At that time a decline rate of 30 per cent per year was used and an ultimate primary recovery of 65,668 barrels was projected. It can be seen from this exhibit that the 30 per cent per year decline still is an approximate fit for this well. By using the present cumulative of 39,746 barrels and the present rate of 900 barrels per month, the ultimate primary appears to be 66,746 barrels, almost the same as was calculated last year.

Q Practically this same exhibit was introduced a year ago?

A Yes, sir, it sure was.

Q Refer to Exhibit No. 6 and explain this?

A Exhibit 6 shows this decline rate applied to the Coastal States' Santa Fe No. 3 well. This exhibit shows that the well has declined at considerably different rates in the past, but now is at an approximately 30 per cent per year decline. Using this decline rate, the reserves attributed to this well would be 88,350 barrels -- correction -- 88,850 barrels.

Q Refer to Exhibit No. 7 and would you explain this?

A Exhibit 7 shows the performance of the Coastal States' Santa Fe No. 4 with this 30 per cent per year decline applied to this well; a calculated recovery of 80,500 barrels is projected. Although this is in excess of the amount calculated to be recoverable from 80 acres, it is also obvious that the better wells in a reservoir will recover a disproportionate part of the oil mainly because of the inability of the poor wells to recover the oil due to limited permeability in the vicinity of the well bore. Also these wells enjoy early development. They were in first and got a little bit of additional oil due to that.

Q Have you made a study of the economics involved in drilling and developing this pool on 40-acre and 80-acre basis?

A Yes, we have. Exhibit 8 shows the reservoir data and economic analysis that was presented at the prior Hearings. The only change to be made at this time is the price per barrel which is increased to \$3. and the cost to drill a well has increased to \$78,000. This change in the economics changes the 40-acre ratio of income to investment would be .83 which is still, of

course, uneconomical, and on the 80-acre pattern, the ratio of income to investment is 1.65 which is somewhat better than was calculated last year.

Q What do you conclude from this Exhibit?

A We conclude from this Exhibit that although the price of oil has increased some, it still is not economical to develop this field on 40 acres.

Q In your opinion will substantially the same amount of oil be recovered by development on 80 acres as well as 40?

A Yes, sir, in our opinion, it will be.

Q In your opinion has the development of the pool about reached the state of completion?

A Yes, as has been previously testified to by Mr. Leavell, it looks like at this point probably three or four more wells will be needed to fully develop the field. We are already beginning to think about secondary recovery in this field and will be to that stage in the near future.

Q Have you made some preliminary investigation with respect to secondary recovery?

A Yes, some preliminary studies have already been initiated.

Q In your opinion will 80-acre spacing be helpful in secondary recovery operations?

A We feel that it will not be detrimental to secondary recovery.

Q What is your recommendation to the Commission with respect to the present temporary ruling?

A It is our recommendation that the temporary rules that have existed for the last two years now be made permanent in this reservoir.

Q In the event that these are not made permanent and you go back on a 40-acre spacing basis, would you recommend to your company that the undrilled locations be drilled?

A No, sir, we could not -- I could not recommend to my management that we drill this on 40 acres.

Q According to your economic study, if you did, it would not pay off?

A Yes, sir.

Q In your opinion, would the continuation of these rules be in the interest of conservation and prevention of waste?

A Yes, sir, they would.

MR. HINKLE: I might ask Mr. Leavell if he

concur in this recommendation?

MR. LEAVELL: Yes, we concur that the temporary rules be made permanent.

MR. HINKLE: We would like to offer Exhibits 4 through 8.

MR. NUTTER: Coastal States' Exhibits 4 through 8 will be admitted in evidence.

(Whereupon, Coastal States' Exhibits Nos. 4 through 8 were offered and admitted in evidence.)

MR. HINKLE: That is all of this witness.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. McGraw, you presented the decline curves on Exhibits 5, 6 and 7. Are they typical wells or are they three of the better wells in the pool or just what would you say?

A Well, they are three of the oldest and three that have at least some decline established and they are the better wells. They are not the average well.

Q They are better than average?

A They are better than average.

Q And their cumulative productions up to August 1, 1971 are among the highest of the cumulative productions?

A Yes, sir, they certainly are.

Q What would you say of the remaining reserves; are they typical of the remaining reserves?

A Yes, sir, they probably are, of the remaining reserves.

Q So the best one that you have here would be the Santa Fe No. 3 and you estimate it has a remaining reserve of 44,000 barrels?

A Yes, sir. Some of the tighter wells, of course, will not be able to recover that amount of remaining primary oil, but the average well probably will.

Q But in each case here, these three wells have produced more than they have remaining?

A Yes, sir. I might also add that we have been successful in obtaining a gas market. We are now selling gas from this reservoir.

Q Which would affect the economics somewhat?

A Somewhat, yes, sir. I am sorry to say it is not very much, but a little.

MR. NUTTER: Are there further questions of Mr. McGraw?

You may be excused.

(Witness dismissed.)



MR. NUTTER: Is there anything further, Mr. Hinkle?

MR. HINKLE: Nothing further.

MR. NUTTER: Does anyone have anything they wish to offer in Case No. 4222, Reopened?

MR. HATCH: The Commission has received a letter from Atlantic Richfield Company saying that we request favorable consideration of the continuation of 80-acre spacing in the subject field. And a letter from D & B Oil Company addressed to the Commission: (Reading) We feel that a spacing order of less than 80-acres per well in the above mentioned field is very uneconomical. There is every reason to question the feasibility of the present spacing of 80-acres showing a profit. As you know, the gravity of this oil is very low and costly to handle with the water separation problem. Daily production declines rapidly after the first two or three weeks, therefore, we feel there is very little justification with 10 to 14 barrels a day wells for 40-acre spacing rules.

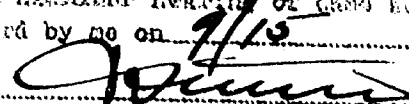
MR. NUTTER: Thank you. If there is nothing further on Case No. 4222, we will take it under advisement.

STATE OF NEW MEXICO )  
 ) SS.  
 COUNTY OF SANTA FE )

I, RICHARD L. NYE, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

  
 RICHARD L. NYE, COURT REPORTER

My commission expires March 25, 1975.

I do hereby certify that the foregoing is a complete record of the proceedings in the hearing of Case No. 4222/1974 heard by me on 7/15, 1974.  
  
 Commissioner  
 New Mexico Oil Conservation Commission

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. 4222  
Order No. R-3850-B

IN THE MATTER OF CASE 4222 BEING  
REOPENED PURSUANT TO THE PROVISIONS  
OF ORDER NO. R-3850-A, WHICH ORDER  
CONTINUED 80-ACRE SPACING UNITS FOR  
THE WEST SAWYER-SAN ANDRES POOL, LEA  
COUNTY, NEW MEXICO, FOR AN ADDITIONAL  
ONE-YEAR PERIOD.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 15, 1971, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 5th day of October, 1971, 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 by Order No. R-3850-A, dated October 6, 1970, the temporary Special Rules and Regulations promulgated by Order No. R-3850 for the West Sawyer-San Andres Pool, Lea County, New Mexico, establishing 80-acre spacing units were continued for an additional period of one year.

(3) That pursuant to the provisions of Order No. R-3850-A, this case was reopened to allow the operators in the subject pool to appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

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CASE NO. 4222

Order No. R-3850-B

(4) That the evidence establishes that one well in the West Sawyer-San Andres Pool can efficiently and economically drain and develop 80 acres.

(5) That the Special Rules and Regulations promulgated by Order No. R-3850 and continued in effect by Order No. R-3850-A have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-3850, and continued in effect by Order No. R-3850-A, should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the West Sawyer-San Andres Pool, Lea County, New Mexico, promulgated by Order No. 3850, and continued in effect by Order No. R-3850-A, are hereby continued in full force and effect until further order of the Commission.

(2) 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

  
BRUCE KING, Chairman

  
ALEX J. ARMIJO, Member

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

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. 4222  
Order No. R-3850

APPLICATION OF COASTAL STATES GAS  
PRODUCING COMPANY FOR SPECIAL POOL  
RULES, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 8, 1969, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 14th day of October, 1969, 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, Coastal States Gas Producing Company, seeks the promulgation of special rules and regulations for the West Sawyer-San Andres Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.

(3) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the West Sawyer-San Andres Pool.

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CASE No. 4222

Order No. R-3850

(4) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(5) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well and to determine whether or not the subject pool is in fact an associated reservoir.

(6) That this case should be reopened at an examiner hearing in October, 1970, at which time the operators in the subject pool should be prepared to appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

That temporary Special Rules and Regulations for the West Sawyer-San Andres Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
WEST SAWYER-SAN ANDRES POOL

RULE 1. Each well completed or recompleted in the West Sawyer-San Andres Pool or in the San Andres formation within one mile thereof, and not nearer to or within the limits of another designated San Andres oil pool, shall be spaced, drilled, operated, and produced in accordance with the special rules and regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit

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comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. The first well drilled on every standard or non-standard unit in the West Sawyer-San Andres Pool shall be drilled in the NW/4 or the SE/4 of a governmental quarter section. All wells shall be located within 200 feet of the center of a governmental quarter-quarter section.

RULE 5. The Secretary-Director may grant an exception to the footage requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon, provided the well will be located no nearer than 330 feet to the outer boundary of the unit. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 2.00 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

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CASE No. 4222  
Order No. R-3850

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the West Sawyer-San Andres Pool or in the San Andres formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before November 1, 1969.

(2) That, pursuant to Paragraph A. of Section 65-3-14.5, NMSA 1953, contained in Chapter 271, Laws of 1969, existing wells in the West Sawyer-San Andres Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 65-3-14.5, existing wells may have non-standard spacing or proration units established by the Commission and dedicated thereto.

Failure to file new Forms C-102 with the Commission dedicating 80 acres to a well or to obtain a non-standard unit approved by the Commission within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the West Sawyer-San Andres Pool or in the San Andres formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in October, 1970, at which time the operators in the subject pool may appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

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



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CASE No. 4222

Order No. R-3850

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
DAVID F. CARGO, Chairman

  
ALEX J. ARMILLO, Member

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



esr/

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. 4222  
Order No. R-3850-A

APPLICATION OF COASTAL STATES GAS  
PRODUCING COMPANY FOR SPECIAL POOL  
RULES, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 30, 1970, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 6th day of October, 1970, 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 by Order No. R-3850, dated October 14, 1969, temporary Special Rules and Regulations were promulgated for the West Sawyer-San Andres Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.

(3) That pursuant to the provisions of Order No. R-3850, this case was reopened to allow the operators in the subject pool to appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

(4) That the evidence presently available is insufficient to establish that the provision for 80-acre spacing and proration units should be continued permanently.

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CASE No. 4222

Order No. R-3850-A

(5) That the evidence presently available is insufficient to establish whether or not the subject pool is in fact an associated reservoir.

(6) That the temporary Special Rules and Regulations for the West Sawyer-San Andres Pool, promulgated by Order No. R-3850, should be continued in effect for an additional one-year period in order to allow the operators in the pool time to gather additional information concerning reservoir characteristics of the pool.

(7) That this case should be reopened at an examiner hearing in September, 1971, at which time the operators in the pool should appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

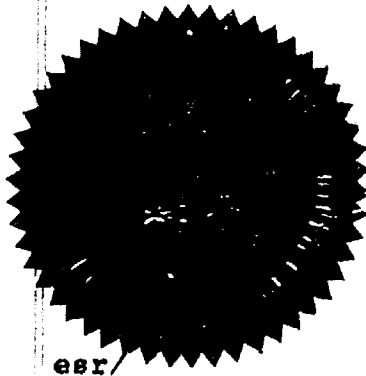
IT IS THEREFORE ORDERED:

(1) That the temporary Special Rules and Regulations for the West Sawyer-San Andres Pool, promulgated by Order No. R-3850, are hereby continued in full force and effect for an additional one-year period.

(2) That this case shall be reopened at an examiner hearing in September, 1971, at which time the operators in the subject pool shall appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

(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

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

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



## OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

October 5, 1971

GOVERNOR  
BRUCE KING  
CHAIRMAN

LAND COMMISSIONER  
ALEX J. ARMIJO  
MEMBER

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

Mr. Clarence Hinkle  
Hinkle, Bondurant, Cox & Eaton  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico 88201

Re: Case No. 4222

Order No. R-3850-B

Applicant:

Coastal States

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.  
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC X

Artesia OCC       

Aztec OCC       

Other Mr. Eric D. Lanphere - Albuquerque, New Mexico

NORTH AMERICAN EXPLORATION AND PRODUCTION GROUP  
CECIL A. COLVILLE  
Manager, Dallas Production Region



**SUN OIL COMPANY**

MEADOW PARK BUILDING, POST OFFICE BOX 2880, DALLAS, TEXAS 75221



September 13, 1971

**RECEIVED**

SEP 16 1971

Mr. Daniel S. Nutter  
New Mexico Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

OIL CONSERVATION COMM.  
SANTA FE

Re: Case 4222 - Order No. R-3850-A  
West Sawyer - San Andres Pool  
Lea County, New Mexico

Dear Sir:

In connection with the referenced case, Sun Oil Company is the operator of the New Mexico "S" State Lease on which there is 1 well producing from the West Sawyer - San Andres Pool. Currently the well produces 13 barrels of oil and 5 barrels of water per day.

Sun plans no further drilling on its lease and concurs with Oil Development Company of Texas and Coastal States in their recommendation that it would be uneconomical to develop the West Sawyer - San Andres Pool on less than 80 acre spacing.

Yours very truly,

H. R. Huey

HRH/ps

cc: Oil Development Company of Texas  
Coastal States



PHONE 332-5741

BOX 4453

GENERAL CONSTRUCTION

ROUSTABOUT CREWS

1601 W. MURPHY  
ODESSA, TEXAS 7

**RECEIVED**  
SEP 13 1971

OIL CONSERVATION COMM.

September 10, 1971

*Case 4222*

*Sept. 15<sup>th</sup>*

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

Attention: Mr. Daniel S. Nutter

Re: Spacing Order  
Sawyer Field wells  
Lea County, New Mexico

*DN*

Dear Sir:

We feel that a spacing order of less than eighty (80) acres per well in the above mentioned field, would be very uneconomical.

There is every reason to question the feasibility of the present spacing of 80 acres showing a profit.

As you know, the gravity of this oil is very low and costly to handle with a water separation problem, and the daily production declines rapidly after the first two or three weeks. Therefore, we feel there is very little justification with ten (10) to fourteen (14) Bbl per day wells, for a 40 acre spacing rule.

Very truly yours,

D & B OIL, INC.

*G. C. Bingham*  
G. C. Bingham

GCB:11

c.c.: Atlantic Richfield  
Attn: Mr. Bryan Burk

c.c.: Oil Development Company  
Attn: Mr. Larry Leavell

AtlanticRichfieldCompany

North American Producing Division  
Permian District  
Post Office Box 1610  
Midland, Texas 79701  
Telephone 915 682 8631

P. E. Fletcher  
Operations Manager



September 14, 1971

RECEIVED

SEP 15 1971

OIL CONSERVATION COMM.  
SANTA FE

New Mexico Oil Conservation Commission  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Attention: Mr. Daniel S. Nutter

Reference: Spacing Orders R-3850 and R-3850-A  
Sawyer Field  
Lea County, New Mexico

Gentlemen:

We request favorable consideration of a continuation of 80-acre spacing in subject field. It is felt that production in the area would be uneconomical with a spacing of less than eighty acres.

Spacing Order R-3850 established 80-acre spacing until October 6, 1970, and R-3850-A extended this spacing until October 6, 1971.

Yours very truly,

P. E. Fletcher

jj

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 15, 1971

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

The following cases will be heard before Daniel S. Nutter, Examiner, or A. L. Porter, Jr., Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for October, 1971, from fifteen prorated pools in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico;
- (2) Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba, and Sandoval Counties, for October, 1971.

CASE 4222 (Reopened): In the matter of Case 4222 being reopened pursuant to the provisions of Order No. R-3850-A, which order continued 80-acre spacing units for the West Sawyer-San Andres Pool, Lea County, New Mexico, for an additional one-year period. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units and present evidence as to whether or not said pool is in fact an associated reservoir.

CASE 4588: Application of V. H. Westbrook for a pressure maintenance project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project by the injection of water into the Delaware formation through his Guy A. Reed Well No. 2 located in Unit L of Section 24, Township 24 South, Range 28 East, Malaga-Delaware Pool, Eddy County, New Mexico.

CASE 4589: Application of Anadarko Production Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Burnham Grayburg San Andres Unit Area comprising 480 acres, more or less, of state lands in Section 2, Township 17 South, Range 30 East, Square Lake Field, Eddy County, New Mexico.

CASE 4590: Application of Wolfson Oil Company, MKA Oil Properties, John H. Hendrix, and Bruce A. Wilbanks for a special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks as an exception to Rule 506 of the Commission Rules and Regulations, a limiting gas-oil ratio of 6,000 cubic feet of gas per barrel of oil in the Drinkard Pool, Lea County, New Mexico.

CASE 4591: Application of American Quasar Petroleum Company of New Mexico for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill an exploratory gas well at an unorthodox location 660 feet from the South and East lines of Section 21, Township 25 South, Range 33 East, Lea County, New Mexico, to test the Devonian, Pennsylvanian, and Wolfcamp formations within one mile of the Red Hills Field.



Examiner Hearing  
September 15, 1971  
-2-

Docket No. 20-71

- CASE 4592: Application of Gulf Oil Corporation for amendment of order permitting commingling of production, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-4079, which order authorized the applicant to commingle production from the Hobbs (Grayburg-San Andres) and Hobbs-Blinebry Pools on its W. D. Grimes NCT-B Lease and to commingle production from said lease with the Hobbs (Grayburg-San Andres) Pool on its W. D. Grimes NCT-A lease, located in Sections 32 and 33, Township 18 South, Range 38 East, Lea County, New Mexico. Applicant seeks to allocate production to each lease and pool on the basis of bi-monthly tests rather than monthly tests.
- CASE 4593: Application of Continental Oil Company for an exception to Order No. R-3221, as amended, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, to dispose of water produced by wells located on its W. R. Means lease comprising the S/2 and NW/4 of Section 28, and E/2 and E/2 W/2 of Section 29, Township 14 South, Range 30 East, Vest Ranch-Queen Pool, Chaves County, New Mexico, in unlined surface pits.
- CASE 4594: Application of Continental Oil Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its second well on a proration unit at an unorthodox location 660 feet from the South line and 2540 feet from the East line of Section 19, Township 26 South, Range 37 East, Scarborough Yates-Seven Rivers Pool, Lea County, New Mexico.
- CASE 4595: Application of Continental Oil Company for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from undesignated Gallup and Dakota oil pools in the wellbores of two wells to be drilled in Section 27, Township 25 North, Range 4 West, West Lindrith Field, Rio Arriba County, New Mexico. Applicant further seeks the establishment of a procedure whereby similar approval may be granted administratively for other wells to be drilled in said area.
- CASE 4597: Application of Morris R. Antweil for lease commingling and off-lease storage, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle condensate produced from his Little Jewel Well No. 1 and Allen Well No. 1 located in Units F and J, respectively,

Examiner Hearing  
September 15, 1971  
-3-

Docket No. 20-71

(Case 4597 continued)

of Section 31, Township 22 South, Range 27 East, and from his Joell Well No. 1 located in Unit C of Section 6, Township 23 South, Range 27 East, South Carlsbad-Strawn Gas Pool, Eddy County, New Mexico, after separation and measurement of the liquids from each well.

CASE 4583: (Continued from the August 18, 1971, Examiner Hearing) Application of V. F. Vasicek and J. M. Fullinwider, doing business as V-F Petroleum for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 15, Township 16 South, Range 35 East, Lea County, New Mexico, said acreage to be dedicated to a well to be re-entered and recompleted in the Pennsylvanian formation and located 1980 feet from the South and East lines of said Section 15. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4596: Southeastern New Mexico nomenclature case calling for an order for the creation, extension and abolishment of certain pools in Lea, Eddy, and Chaves County, New Mexico.

(a) Create a new pool in Eddy County, New Mexico, classified as an oil pool for Strawn production and designated as the South Hackberry-Strawn Pool. The discovery well is the Perry R. Bass Big Eddy Unit No. 33 located in Unit P of Section 4, Township 20 South, Range 31 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 31 EAST, NMPM  
SECTION 4: SE/4 SE/4

(b) Create a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Maroon Cliffs-Morrow Gas Pool. The discovery well is the Perry R. Bass Big Eddy Unit No. 7 located in Unit O of Section 19, Township 20 South, Range 31 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 31 EAST, NMPM  
SECTION 19: S/2

Examiner Hearing  
September 15, 1971  
-4-

Docket No. 20-71

(c) Create a new pool in Lea County, New Mexico, classified as an oil pool for Pennsylvanian production and designated as the McDonald-Pennsylvanian Pool. The discovery well is the J. M. Huber Corporation Griffin No. 1 located in Unit A of Section 4, Township 14 South, Range 36 East, NMPM. Said pool would comprise:

TOWNSHIP 14 SOUTH, RANGE 36 EAST, NMPM  
SECTION 4: NE/4

(d) Abolish the Northwest Vacuum-Abo Pool in Lea County, New Mexico, described as:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 2: SW/4  
SECTION 3: NE/4 SE/4

(e) Extend the North Vacuum-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 2: SW/4  
SECTION 3: SE/4

(f) Extend the Blinebry Oil Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM  
SECTION 36: NE/4

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM  
SECTION 8: NW/4

(g) Extend the South Carlsbad-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH RANGE 26 EAST, NMPM  
SECTION 25: S/2

TOWNSHIP 22 SOUTH, RANGE 27 EAST, NMPM  
SECTION 30: S/2  
SECTION 31: W/2

(h) Extend the South Carlsbad-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

Examiner Hearing  
September 15, 1971  
-5-

Docket No. 20-71

TOWNSHIP 22 SOUTH, RANGE 27 EAST, NMPM  
SECTION 30: S/2

- (i) Extend the Double L-Queen Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 29 EAST, NMPM  
SECTION 25: NW/4 SE/4

- (j) Extend the Eagle Creek-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 25 EAST, NMPM  
SECTION 22: W/2

- (k) Extend the Flying "M"-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM  
SECTION 9: NE/4

- (l) Extend the Flying "M"-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM  
SECTION 9: W/2, NE/4 and N/2 SE/4

- (m) Extend the Grayburg Jackson Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 30 EAST, NMPM  
SECTION 18: S/2 NW/4

- (n) Extend the Langlie-Mattix Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM  
SECTION 20: NW/4 and NW/4 SW/4

- (o) Extend the Power Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 30 EAST, NMPM  
SECTION 1: NE/4 NE/4

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM  
SECTION 6: SW/4 NW/4

Examiner Hearing  
September 15, 1971  
--6--

Docket No. 20-71

(Case 4596 continued)

(p) Extend the East Shoebar-Devonian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 36 EAST, NMPM  
SECTION 29: SW/4  
SECTION 30: SE/4

(q) Extend the North Vacuum-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 12: S/2  
SECTION 14: S/2  
SECTION 23: N/2

(r) Extend the North Vacuum-Lower Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 4: NW/4

(s) Extend the Northwest Vacuum-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 5: SE/4

(t) Extend the Vada-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 34 EAST, NMPM  
SECTION 2: S/2 and NW/4  
SECTION 3: NE/4  
SECTION 7: S/2  
SECTION 10: E/2  
SECTION 11: N/2

CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
HAROLD L. HENSLEY, JR.  
STUART D. SHANOR

C. D. MARTIN  
PAUL J. KELLY, JR.  
J. M. LITTLE

LAW OFFICES  
HINKLE, BONDURANT, COX & EATON  
600 HINKLE BUILDING  
POST OFFICE BOX 10  
ROSWELL, NEW MEXICO 88201

August 2, 1971

RECEIVED  
TELEPHONE (915) 412-5511  
AUG 3 1971

MIDLAND, TEXAS OFFICE  
521 MIDLAND TOWER  
(915) 683-4891

*OK*

Ida Rodriguez  
Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico 87501

Dear Ida:

You may recall that I discussed with you over the telephone the reopening of Case No. 4222 in which special pool rules were adopted for the West Sawyer-San Andres Pool. I have discussed this matter with Jack McGraw, Division Engineer for Coastal States Gas Producing Company, and it will be satisfactory for this matter to be heard at the examiner's hearing on September 15.

Yours sincerely,

HINKLE, BONDURANT, COX & EATON

By *Clarence E. Hinkle*

CEH:Cs

*Lo -*

*Please Note*

*OK*

DOCKET MARKED

Date 9-3-71



## OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

GOVERNOR  
DAVID F. CARGO  
CHAIRMAN

LAND COMMISSIONER  
ALEX J. ARMijo  
MEMBER

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

October 6, 1970

Mr. Clarence Hinkle  
Hinkle, Bondurant, Cox & Eaton  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico 88201

Re: Case No. 4222  
Order No. R-3850-A  
Applicant:  
Coastal States

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.  
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC X

Artesia OCC           

Aztec OCC           

Other Mr. J. T. Paulantis

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 30, 1970

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

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 4416: (Continued from the September 16, 1970, Examiner Hearing)

Application of Robert L. Parker Trust for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a cooperative waterflood project in the Langlie Mattix Pool on its George L. Erwin Lease by the injection of water through its Erwin Well No. 2 located in Unit L of Section 35, Township 24 South, Range 37 East, Lea County, New Mexico.

CASE 4422: (Continued from the September 2, 1970, Examiner Hearing)

Application of Atlantic Richfield Company for amendment of Order No. R-3588, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3588, which order authorized the disposal of produced salt water into the Yates and Seven Rivers formation in the perforated and open-hole interval from 3110 feet to 3300 feet in the Sinclair ARC Federal Well No. 1 located in Unit O of Section 9, Township 20 South, Range 33 East, West Teas Pool, Lea County, New Mexico. Applicant now seeks authority to dispose into said zones in the interval from 3010 feet to 3300 feet.

CASE 4222: (Reopened)

In the matter of Case 4222 being reopened pursuant to the provisions of Order No. R-3850, which order established 80-acre spacing units for the West Sawyer-San Andres Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

CASE 4429: Application of Union Texas Petroleum Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Langlie-Jal Unit Area comprising 3,748 acres, more or less, of federal, state, and fee lands in Townships 24 and 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 4430: Application of Union Texas Petroleum Corporation of a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Langlie-Jal Unit by the injection of water into the Seven Rivers and Queen formations through 46 wells in Townships 24 and 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.



(Reopened)

CASE 4173: In the matter of Case 4173 being reopened pursuant to the provisions of Order No. R-3811-A, which order extended 80-acre spacing units and a limiting gas-oil ratio of 4000 cubic feet of gas per barrel of oil for the Hobbs-Drinkard Pool, Lea County, New Mexico, for a period of 90 days. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing, why the limiting gas-oil ratio should not revert to 2000 to one, and/or why all casing-head gas produced by wells in the pool should not be reinjected.

CASE 4420: (Continued and Readvertised)

Application of Xplor Company for the creation of a new gas pool and special rules therefor, a dual completion, and authority to commingle, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Pennsylvanian gas pool for its Cleveland Well No. 1 located in Unit G of Section 23, Township 12 South, Range 32 East, Lea County, New Mexico, and for the promulgation of special rules therefor, including a provision for 160-acre spacing units. In the alternative, applicant seeks approval of a non-standard 160-acre gas proration unit comprising the NE/4 of said Section 23 to be dedicated to said well. Applicant also seeks authority to dually complete said well in such a manner as to produce oil from the East Caprock-Devonian Pool and gas from said Pennsylvanian formation and to commingle on the surface the liquids from said zones.

CASE 4431: Application of William A. and Edward R. Hudson for unorthodox well locations and a dual completion, Lea County, New Mexico. Applicants, in the above-styled cause, seek authority to drill a well at an unorthodox location (off pattern) 660 feet from the South line and 1980 feet from the West line of Section 15, Township 17 South, Range 32 East, Lea County, New Mexico, for the production of oil from the Baish-Wolfcamp and Maljamar-Abo Pools and to dually complete said well in the subject pools.

CASE 4432: Application of MWJ production Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the rules governing the Baum-Upper Pennsylvanian Pool to permit the drilling of an oil well at an unorthodox location 2310 feet from the South line and 990 feet from the West line of Section 5, Township 14 South, Range 33 East, Lea County, New Mexico.

CASE 4433: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to permit Allied Chemical Corporation to appear and show cause why said corporation should be permitted to institute its proposed waterflood project in its Milnesand (San Andres) Unit Area, Milnesand-San Andres Pool, Roosevelt County, New Mexico, by the injection of fresh water; said corporation testified in the hearing that authorized said waterflood project that produced salt water be used for waterflooding purposes.

CASE 4423: (Continued from the September 2, 1970, Examiner Hearing)

Application of Union Oil Company of California for compulsory pooling, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests down to and including the San Andres formation underlying the N/2 NE/4 of Section 20, Township 8 South, Range 38 East, Bluitt-San Andres Associated Pool, Roosevelt County, New Mexico. Said acreage to be dedicated to a well to be drilled at an orthodox location in the NW/4 NE/4 of said Section 20. Also to be considered will be the cost of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4434: Application of Union Oil Company of California for the creation of a new gas pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new gas pool for its Pipeline Federal Well No. 1 located in Section 4, Township 19 South, Range 34 East, Lea County, New Mexico. Applicant further seeks the promulgation of special rules therefor, including a provision for 640-acre spacing and proration units and fixed well location requirements.

CASE 4435: Application of Blackrock Oil Company for a dual completion and salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Mobil Atlantic Well No. 1 located in Unit D of Section 10, Township 9 South, Range 36 East, Lea County, New Mexico, in such a manner as to produce oil from the Pennsylvanian formation through tubing and to dispose of produced salt water into the San Andres formation from 4300 feet to 5045 feet and possibly other formations between the 8 5/8-inch casing shoe at 4153 feet and the top of the cement at 9205.



# Telegram

KA095 DA222

1970 SEP 29 PM 4 37

(509)

D LLC414 ME XXT1496 ME TLX PD=DALLAS TEX 28 506P CDT=  
E A UTZ, NEW MEXICO OIL CONSERVATION COMMISSION=  
STATE LAND OFFICE BUILDING SANTA FE NMEX=

RE: CASE NO. 4222 ORDER R-3850=SUN OIL COMPANY AS  
OPERATOR OF THE N.M. "A" STATE LEASE, WELL NO. 1H, WEST  
SAWYER SAN ANDRES POOL, LEA COUNTY, HEREBY ADVISES OF  
ITS CONCURRENCE WITH COASTAL STATE GAS PRODUCING COMPANY  
APPLICATION FOR SPECIAL POOL RULES, INCLUDING A PROVISION  
FOR 80-ACRE SPACING AND PRORATION UNITS. RESPECTFULLY  
SUBMITTED=

H R HUEY.==.

SEP 29 4 10 PM '70



Case 4222  
Heard 10-8-69  
Rec. 10-9-69

Grant Coastal Sts. request for  
Special pool rules for  
W. Sawyer, S.A. Bohl.

Use above rules to allow  
80 A.C. spacing & allowable,  
Rigid locations, NW + SE  $\frac{1}{4}$  S,  
200' from center of NW + SE  $\frac{1}{4}$  S  
section.

Temporary 1 yr. at which  
time a determination should  
have been made to determine  
if pool is an associated one.

Thos. C. C. C.

Docket No. 27-69

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 8, 1969

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

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 4220: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit E. P. Campbell, and all other interested parties to appear and show cause why the E. P. Campbell Christmas Well No. 1 located in Unit C of Section 6, Township 23 South, Range 36 East, Jalmat Pool, Lea County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 4221: Application of Tenneco Oil Company for a dual completion and water injection, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its South Hospah Unit Well No. 23 located in Unit K of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico, in such a manner as to permit the production of gas from the perforated interval 2590 feet to 2865 feet, undesignated Dakota gas pool, and the injection of water for secondary recovery purposes into the upper sand, South Hospah-Upper Sand Oil Pool, in the perforated interval from 1685 feet to 1714 feet.

CASE 4222: Application of Coastal States Gas Producing Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the West Sawyer-San Andres Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.

CASE 3881: (Reopened)

In the matter of Case No. 3881 being reopened pursuant to the provisions of Order No. R-3533, which order established 80-acre spacing units for the South Prairie-Devonian Pool, Roosevelt County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 4181: (Continued from the September 10, 1969 Examiner Hearing)

Application of J. M. Huber Corporation for a dual completion and salt water disposal, Lea County, New Mexico. Applicant,

(Case 4181 continued)

in the above-styled cause, seeks authority to dually complete its Stoltz Federal Well No. 1 located in Unit J of Section 12, Township 15 South, Range 34 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Morton-Wolfcamp Pool and the disposal of produced salt water through the 8 5/8 X 4 1/2-inch casing-casing annulus into the San Andres, Tubb, Abo, and possibly other formations in the open-hole interval from approximately 4330 feet to 9750 feet.

CASE 4223: Application of Resler and Sheldon for two waterflood projects, Lea County, New Mexico. Applicants, in the above-styled cause, seek authority to institute two waterflood projects by the injection of water into the Grayburg, and possibly other formations in the perforated interval from approximately 3555 feet to 3617 feet in their Kelly Well No. 3 and into the Queen, and possibly other formations in the perforated interval from approximately 3439 feet to 3689 feet in their Steeler Well No. 1, said wells being located, respectively, in Unit M of Section 16, and Unit I of Section 20, Township 23 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico. In the alternative, applicants seek authority to dispose of produced salt water in said wells in the intervals as described above.

CASE 4224: Application of Big "6" Drilling Company for a dual completion and salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Ora Jackson "A" Well No. 1 located 660 feet from the South and West lines of Section 5, Township 19 South, Range 35 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Scharb-Bone Springs Pool and the disposal of produced salt water through the intermediate casing-production casing annulus into the Seven Rivers, Queen, San Andres, Upper Bone Springs, and possibly other formations in the interval from approximately 3989 feet to 9500 feet.

CASE 4225: Application of S. P. Yates for a pressure maintenance project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project by the injection of water into the Queen formation through his Anderson Well No. 2 located 2310 feet from the South line and 990 feet from the East line of Section 11, Township 20 South, Range 26 East, West McMillan Pool, Eddy County, New Mexico.

Examiner Hearing - October 8, 1969

-3-

Docket No. 27-69

CASE 4226: Application of John A. Yates for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg formation through his John A. Yates-State A Wells Nos. 2 and 6 located in Units J and P, respectively, of Section 5, Township 19 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

CASE 4227: Application of Penrock Oil Corporation for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 104 C 11 to permit the re-entry of a well at an unorthodox gas well location 660 feet from the South and East lines of Section 33, Township 12 South, Range 34 East, West Ranger Lake-Devonian Gas Pool, Lea County, New Mexico. The E/2 of said Section 33 to be dedicated to the well.



P. O. BOX 235

PHONE MU 2-7925

COASTAL STATES GAS PRODUCING COMPANY

NORTH TEXAS DIVISION  
WILCO BUILDING  
MIDLAND, TEXAS  
79701

September 26, 1969

RECEIVED

OCT 1 1969

L.A. OFFI

Bell Petroleum Corporation  
P. O. Box 1538  
Midland, Texas 79701

Attention Bob Meyers

Re: West Sawyer (San Andres) Field  
Section 33, T-9-S, R-37-E  
Lea County, New Mexico

Gentlemen:

Reference is made to our letter of April 4, 1969, in which we advised you of our application for special field rules for the subject field. We later postponed the hearing and have re-scheduled it for October 8, 1969. Our application is the same as before since we are asking for 80 acre spacing with 80 acre allowables.

We again request your support in this matter. You may indicate your position by signing in the appropriate place below and returning this letter to us in the attached envelope.

Very truly yours,

*Joe R. Howard*  
Joe R. Howard  
Division Production Manager

CSGP CO.		
Dir. & Prod. Dept.		
Midland Div.		
OCT 6 1969		
To	In	Out
JRH	W6	
JRM		

JRH:CM:bm  
Attachment

APPROVAL:

Name

Title

Date

OBJECTION:

Name

Title

Date

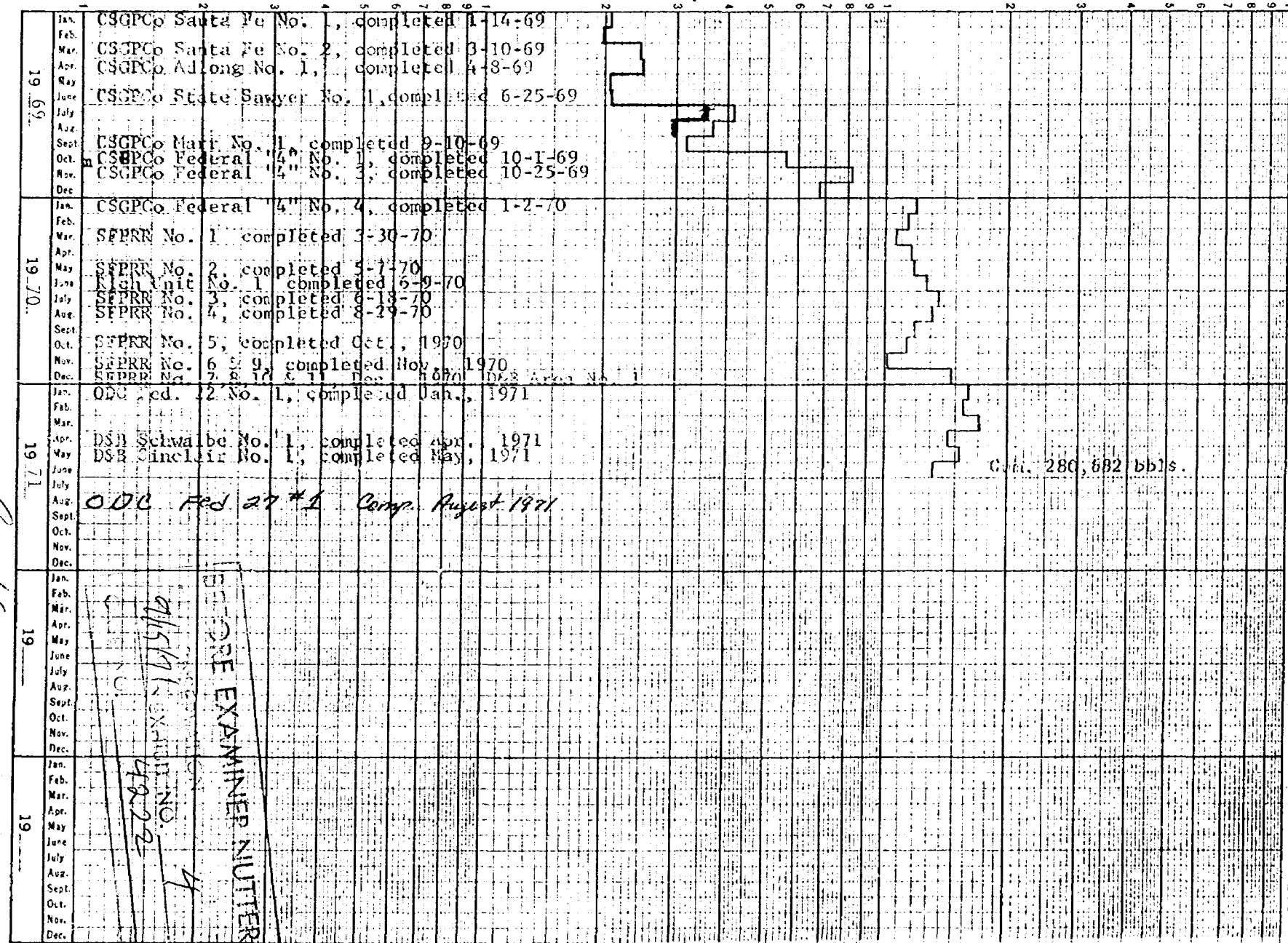
RECEIVED

SEP 29 1969

Midland Office

**K&E** 5 YEARS BY MONTHS 46 6693  
X 3 LOG CYCLES  
MADE IN U.S.A.  
**KUEFFEL & ESSER CO.**

Barrels of Oil per Month



PRODUCTION HISTORY  
WEST SAWYER FIELD  
LEA COUNTY, NEW MEXICO

5 YEARS BY MONTHS 46 6690  
 X 3 LOG CYCLES  
 REPRODUCED BY THE U.S. GEOLOGICAL SURVEY

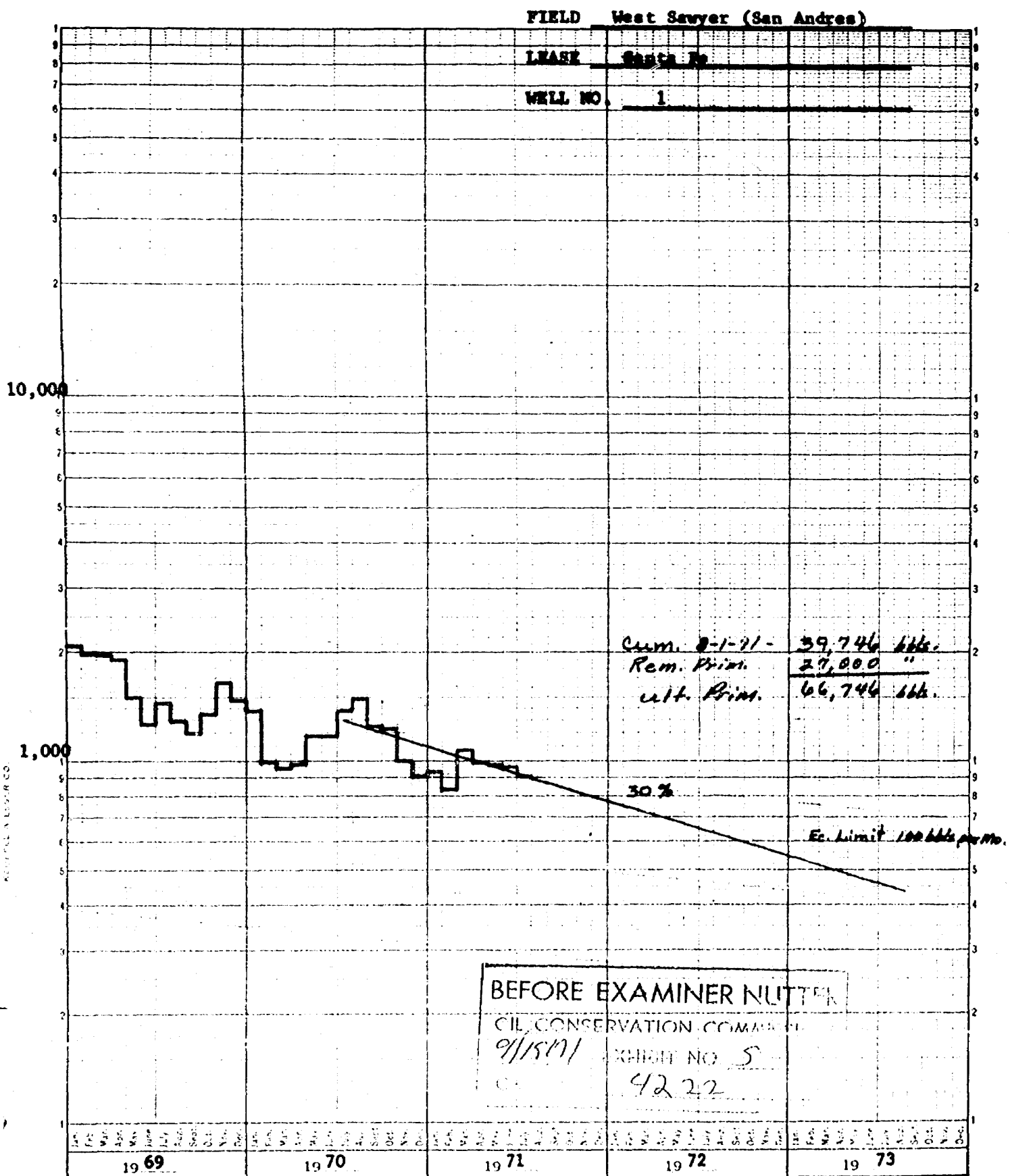


EXHIBIT # 5

5 YEARS BY MONTHS 46 6690  
X 3 LOG CYCLES  
MADE IN U.S.A.  
KEUFFEL & ESSER CO.

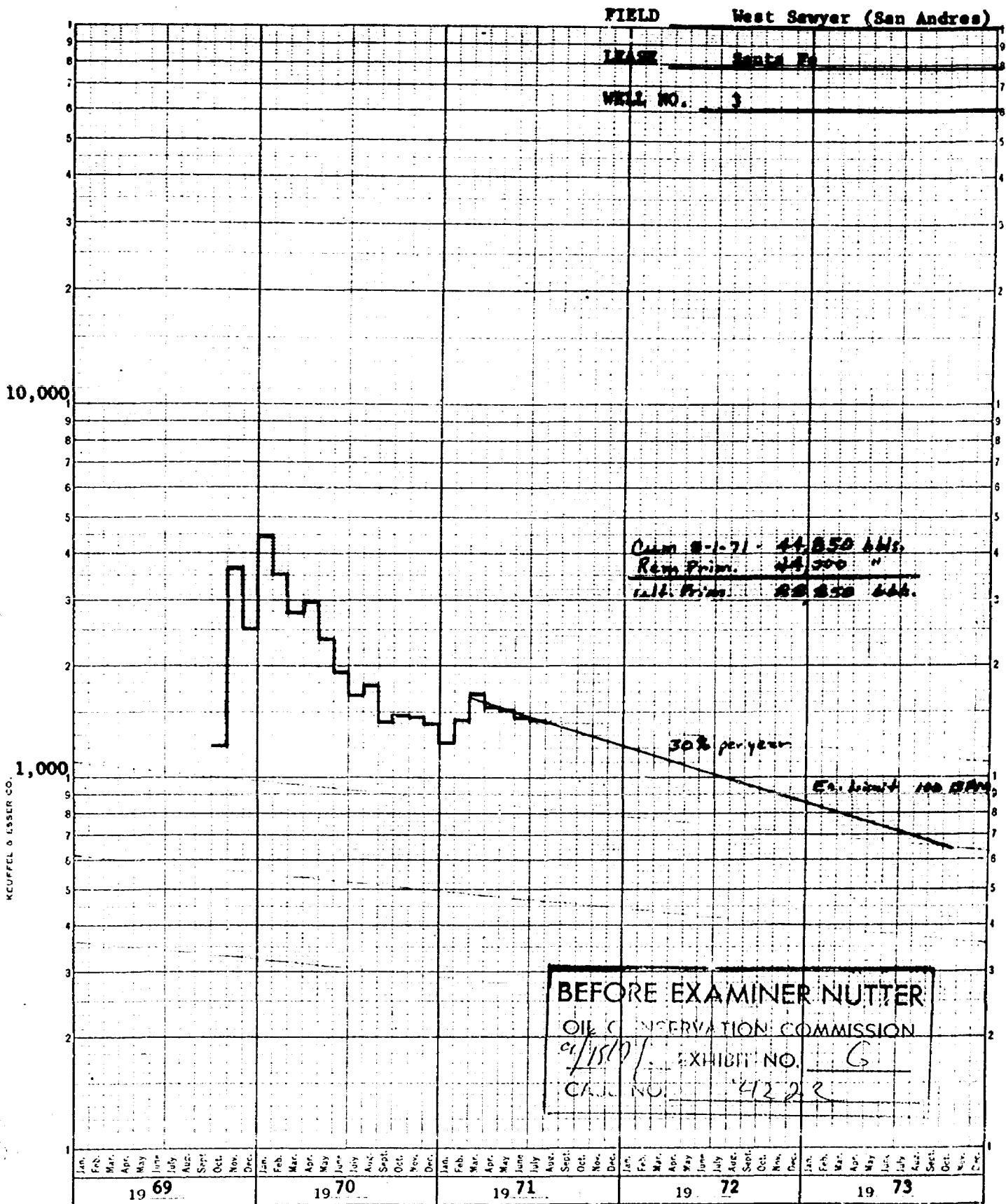


Exhibit #6

K&E 5 YEARS BY MONTHS 46 6690  
X 3 LOG CYCLES  
KEUFFEL & ESSER CO.

10,000

1,000

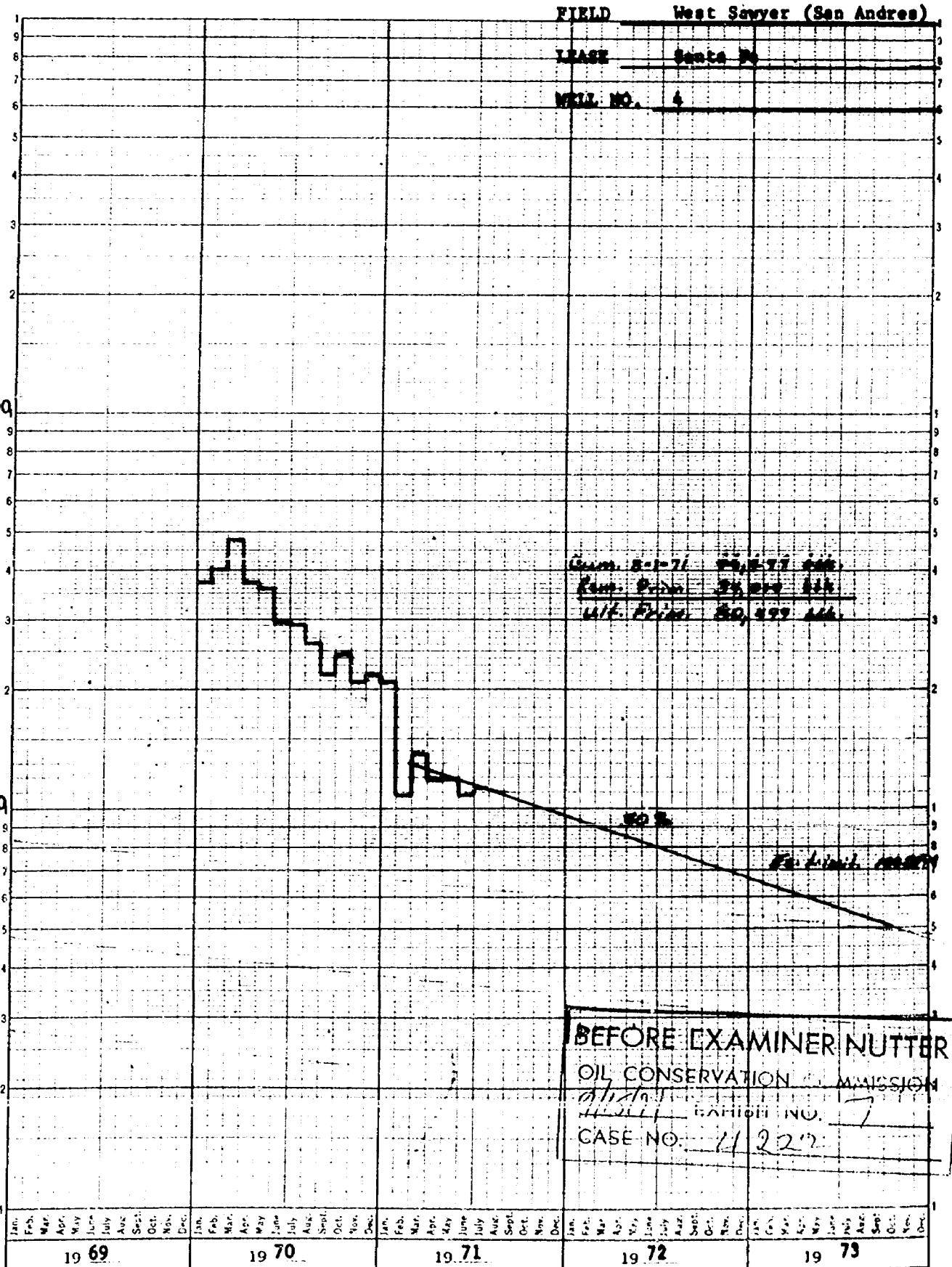


Exhibit #7

West Sawyer Field  
Reservoir Data and Reserve Estimates

Porosity	8.2%
Water Saturation	35%
Formation Volume Factor	1.242
Recovery Factor (estimate)	12.5%
Net Pay	20 ft.
Gross Price Per Barrel	\$3.00
Mineral Interest Income at .8125	2.44/bbl.
Operating Costs, SWD Cost and Taxes	.50/bbl.
Net Working Interest Income	1.94

Recoverable Oil-in-place per acre =  $\frac{(7758)(.082)(.65)(20)(.125)}{1.242}$  = 830 bbls/ac.

	<u>40 Acres</u>	<u>80 Acres</u>
Estimated Recovery	33,200 bbls.	66,500 bbls.
Total Net Income	\$64,500	\$129,000
Development Cost Per Well	\$78,000	\$78,000
Ratio of Income to Investment	.83 ✓	1.65 ✓

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
9/15/77 EXHIBIT NO. 8  
CASE NO. 4222

Exhibit # 8  
Co. 4222 9/15/77

BF

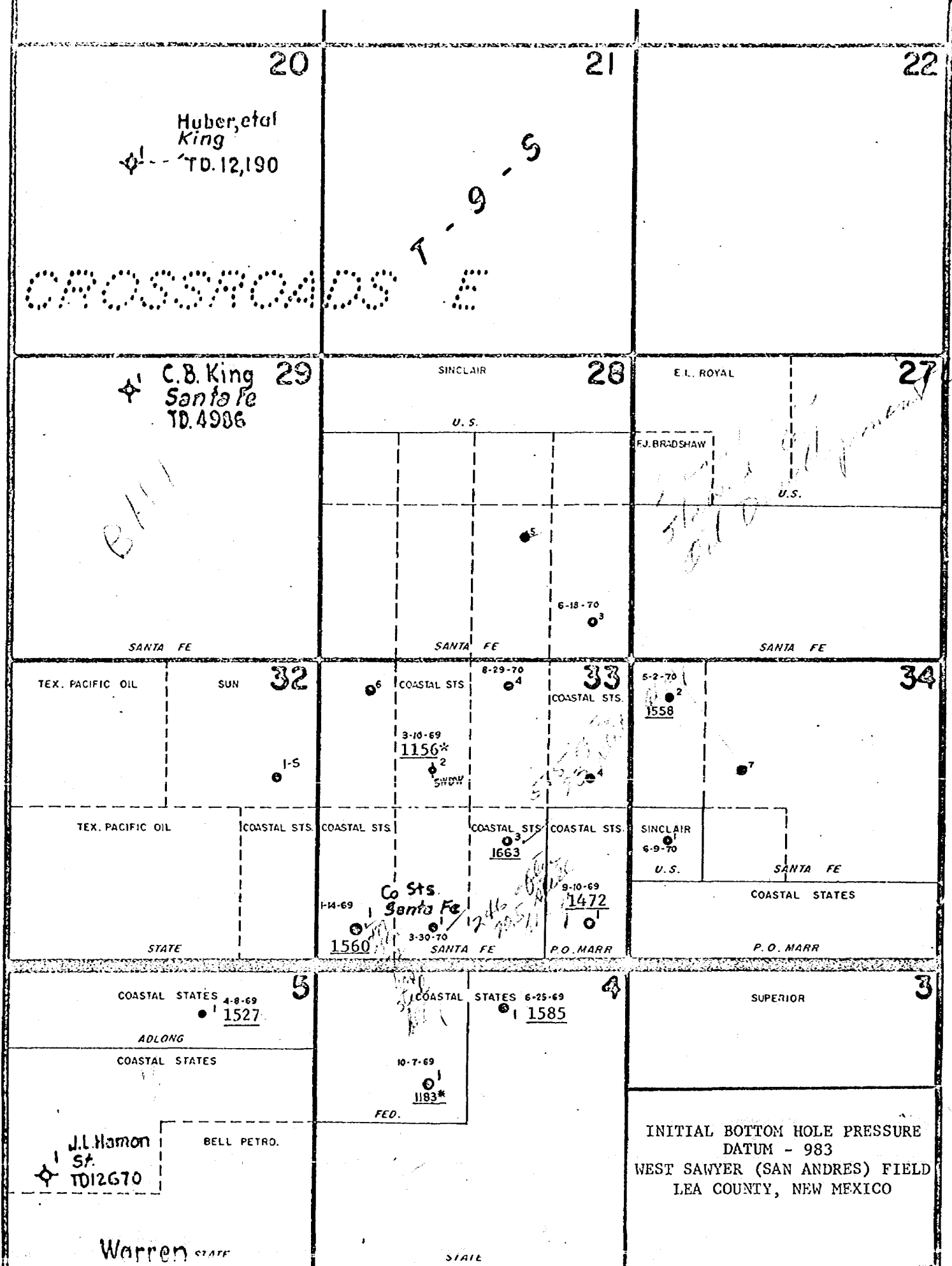
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ON



LEGEND

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

EXHIBIT NO. 1

CASE 4222

Producing Well

SWD Well

Drilling Well

Abandoned Producer

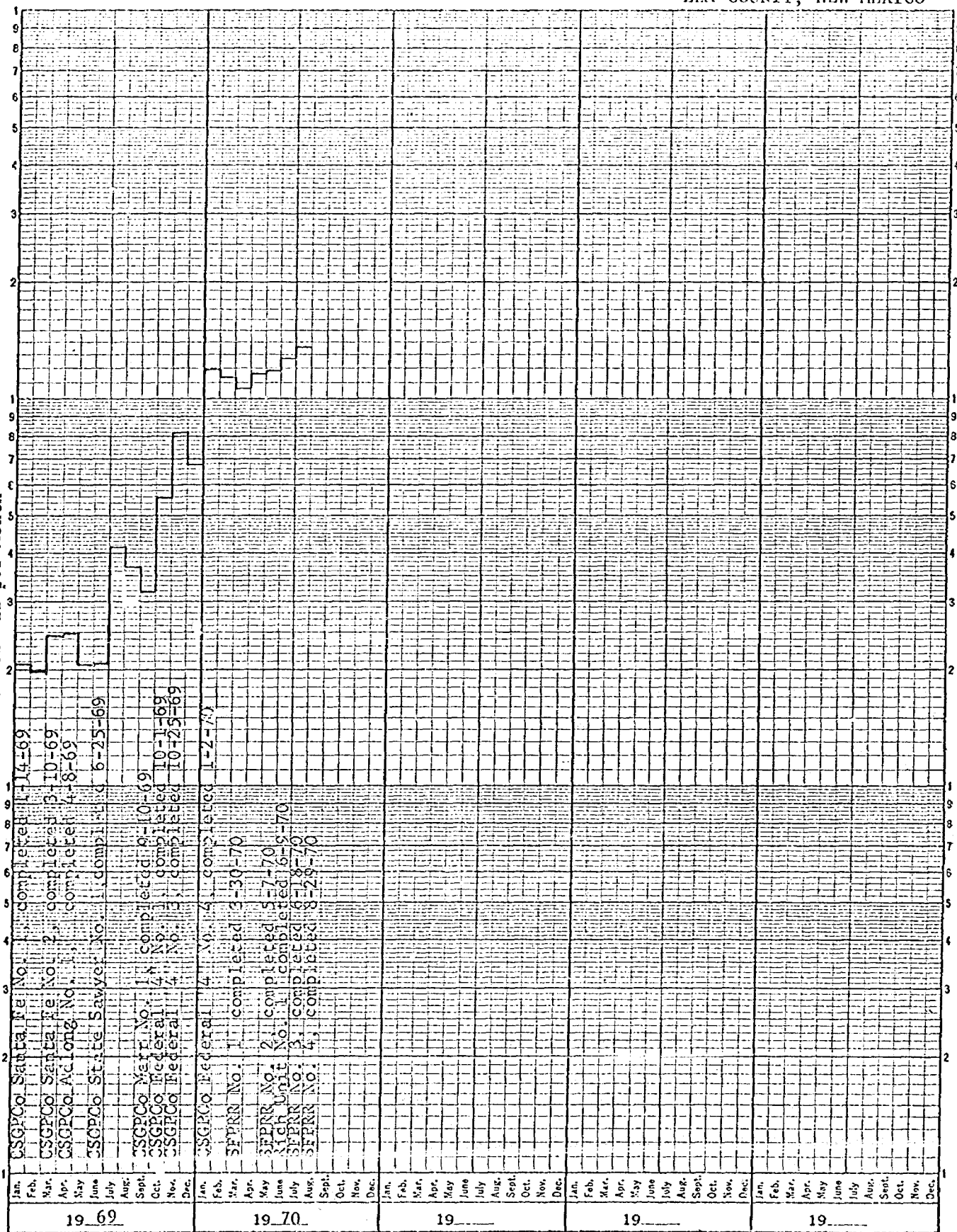
\* Pressure not accurate - tubing valve leaking

PRODUCTION HISTORY  
WEST SAWYER FIELD  
LEA COUNTY, NEW MEXICO

K&E 5 YEARS BY MONTHS 46 6693  
X 3 LOG CYCLES  
MADE IN U.S.A.  
KEUFFEL & ESSER CO.

10,000

Barrels of Oil per Month



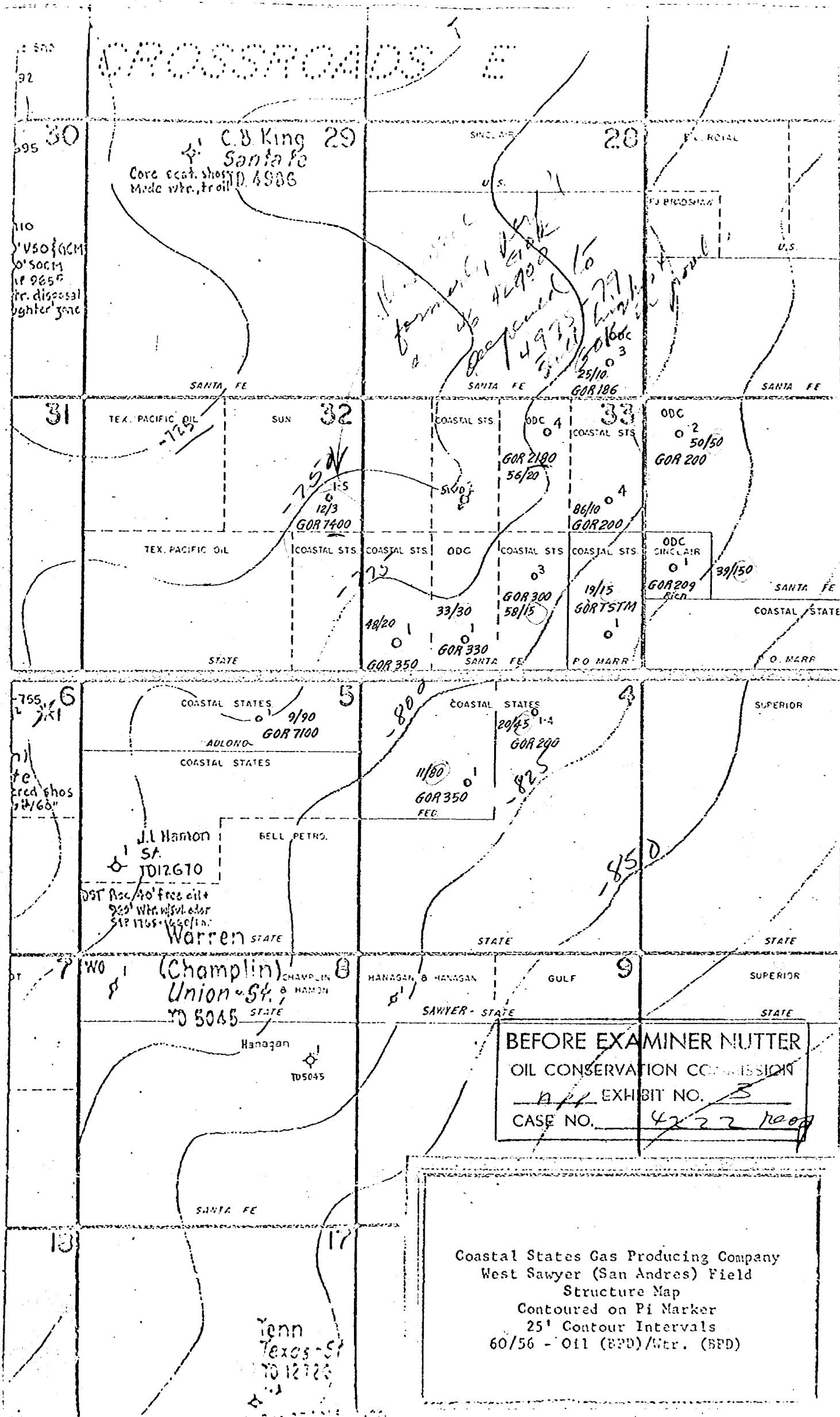
BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

EXHIBIT NO. 2

CASE NO. 4722 HCCP





West Sawyer Field  
Reservoir Data and Reserve Estimates

Porosity	8.2%
Water Saturation	35%
Formation Volume Factor	1.242
Recovery Factor (estimate)	12.5%
Net Pay	20 ft.
Gross Price Per Barrel	\$2.76
Mineral Interest Income at .8125	2.24/bbl.
Operating Costs, SWD Cost and Taxes	.50/bbl.
Net Working Interest Income	1.74

Recoverable Oil-in-place per acre =  $\frac{(7758)(.082)(.65)(20)(.125)}{1.242} = 830 \text{ bbls/ac.}$

	<u>40 Acres</u>	<u>80 Acres</u>
Estimated Recovery	33,200 bbls.	66,500 bbls.
Total Net Income	\$57,900	\$116,000
Development Cost Per Well	\$74,000	\$74,000
Ratio of Income to Investment	.78	1.57

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
App. EXHIBIT NO. 4  
CASE NO. 4222 HCOX

Model 5 YEARS BY MONTHS 46 6690  
MADE IN U.S.A.  
KUFFEL & ESSER CO.

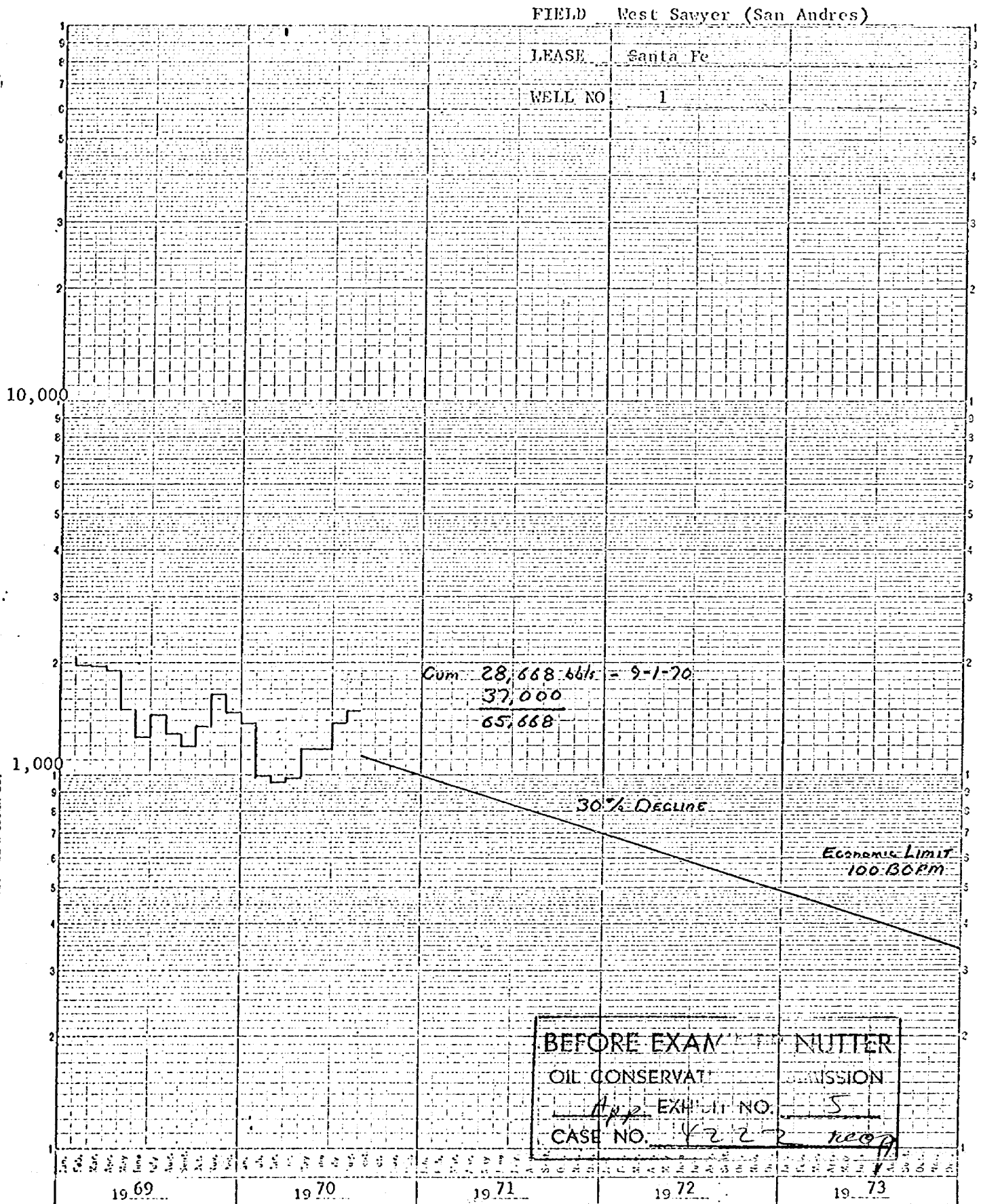


EXHIBIT NO. 6

OIL DEVELOPMENT COMPANY OF TEXAS  
WEST SAWYER (SAN ANDRES) FIELD  
RESERVE ESTIMATE AND PAYOUT DATA

RESERVES

Volumetric calculation based on average porosity and net pay from 5 wells.

Porosity - 7.1%  
Water Saturation - 30%  
Formation Volume Factor - 1.24  
Net Pay Thickness - 23 ft  
Estimated Recovery Factor - 12.5%

Oil in place =  $\frac{7758 (0.071) (0.70) (23)}{1.24} = 7152 \text{ BO/AC}$

Recoverable Oil - 40 acres =  $(0.125) (7152) (40) = 35,760 \text{ BO}$

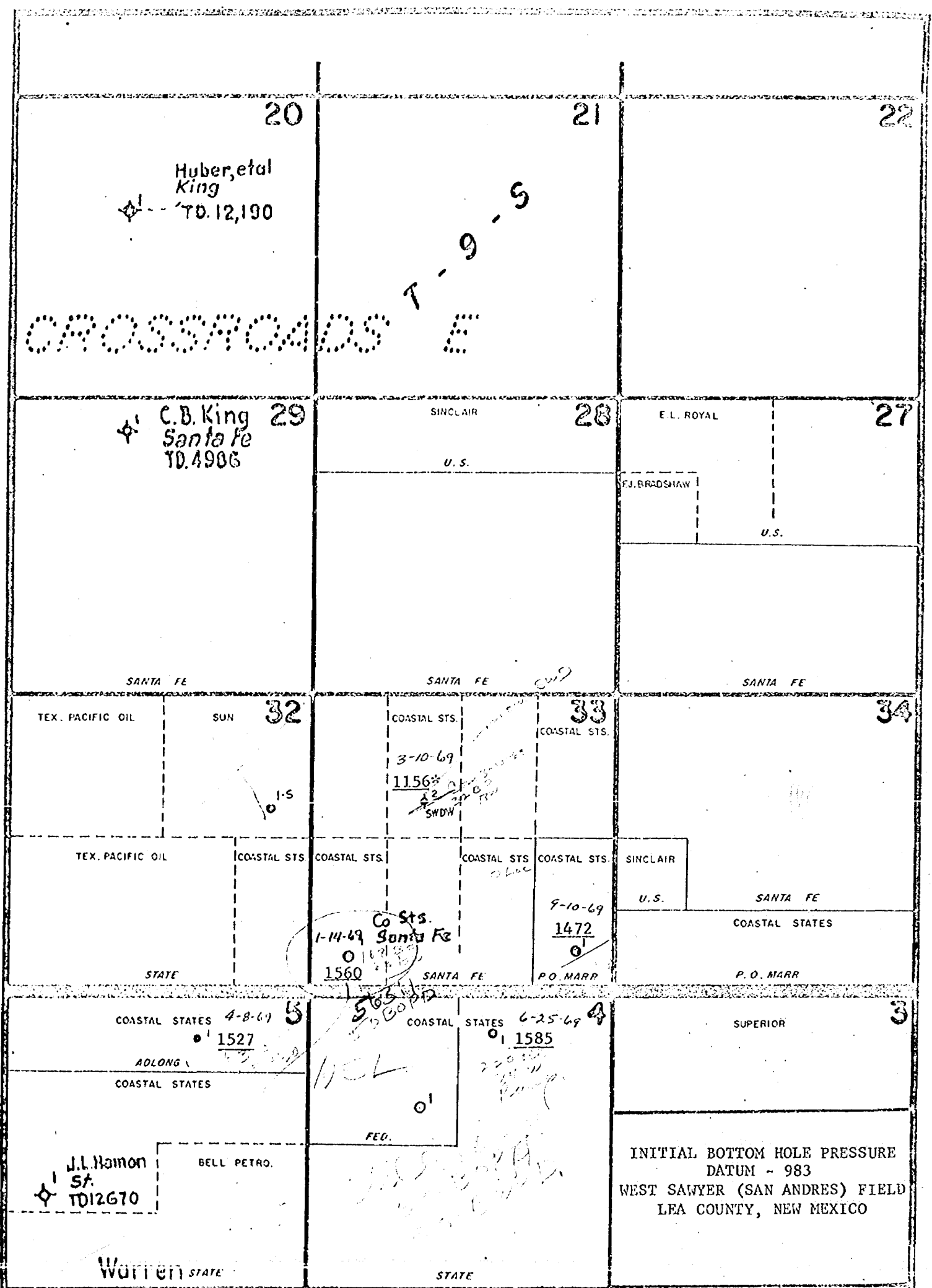
Recoverable Oil - 80 acres =  $(0.125) (7152) (80) = 71,520 \text{ BO}$

PAYOUT DATA

Gross Price for 22° API Gravity Oil - \$2.75 /bbl  
Working Interest Price 0.8125 - 2.23 /bbl  
Operating Costs - 0.50 /bbl  
Net Price - 1.73 /bbl  
Av Well Costs with Lease Facilities (based on 5 wells) - \$73,255

	<u>40 Acres</u>	<u>80 Acres</u>
Recoverable Reserves-bbls	35,760	71,520
Net Income	\$61,865	\$123,730
Well Costs with Lease Facilities	\$73,255	\$73,255
Ratio of Income to Investment	0.84	1.69

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
App EXHIBIT NO. 6  
CASE NO. 4222



**BEFORE EXAMINER UTZ**  
 OIL CONSERVATION COMMISSION  
 Exhibit No. 3  
 CASE NO. 4272

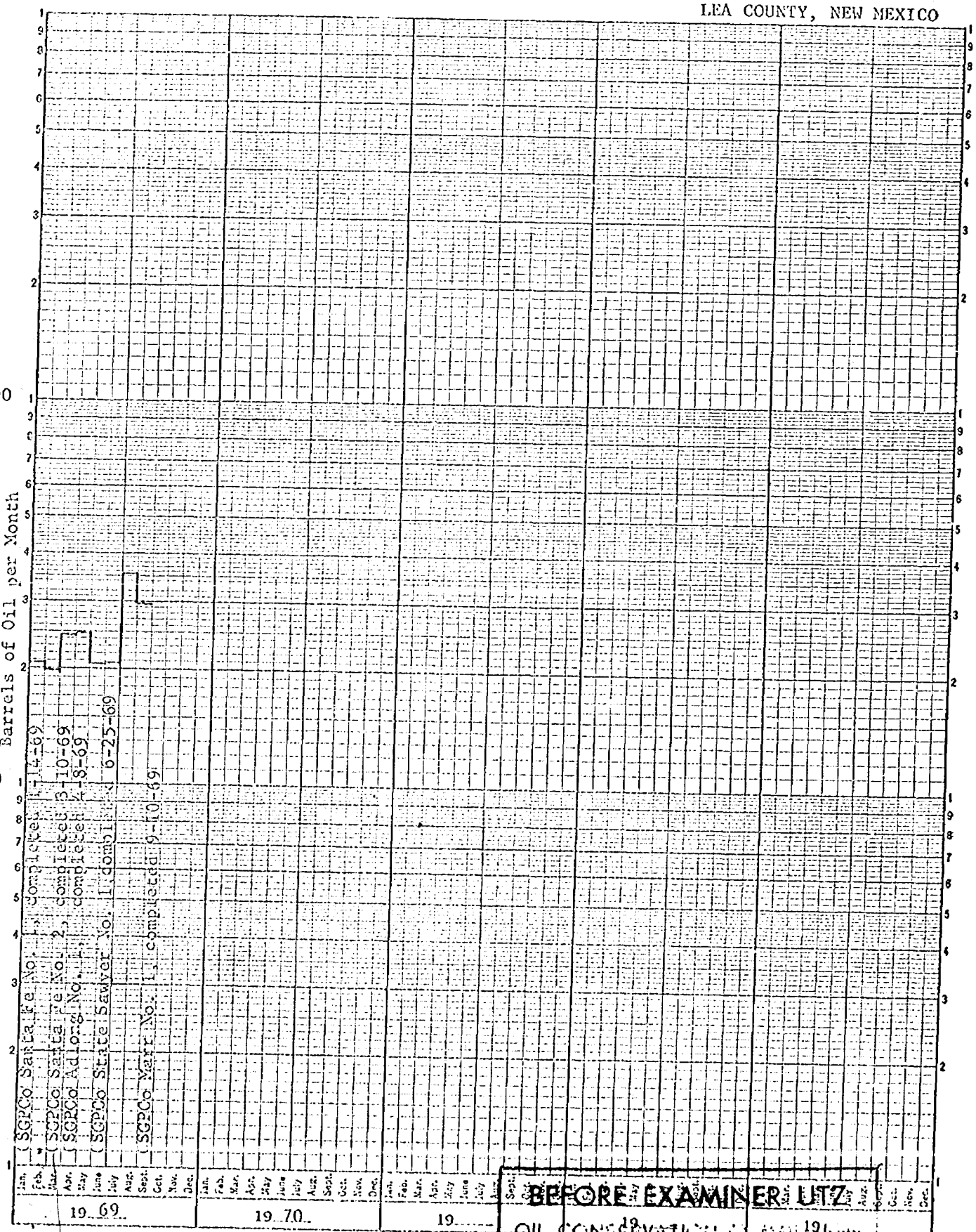
- LEGEND**
- ⊙ Producing Well
  - ⊖ SWD Well
  - Drilling Well
  - ⊗ Abandoned Producer
  - \* Pressure not accurate - tubing valve leaking

PRODUCTION HISTORY  
WEST SAWYER FIELD  
LEA COUNTY, NEW MEXICO

KE 5 YEARS BY MONTHS 46 6693  
MADE IN U.S.A.  
KEUFFEL & ESSER CO.

10,000

Barrels of Oil per Month



BEFORE EXAMINER UTZ  
OIL CONSERVATION DIVISION  
EXHIBIT NO. 4  
CASE NO. 4272

West Sawyer Field  
Reservoir Data and Reserve Estimates

Porosity	8.2%
Water Saturation	35%
Formation Volume Factor	1.242
Recovery Factor (estimate)	12.5%
Net Pay	20 ft.
Gross Price Per Barrel	\$2.78
Trucking	.09/bbl.
Mineral Interest Income at .8125	2.18/bbl.
Operating Costs, SWD Cost and Taxes	.50/bbl.
Net Working Interest Income	1.68/bbl.

*Recovery Factor*

Recoverable Oil-in-place per acre =  $\frac{(7758)(.082)(.65)(20)(.125)}{1.242} = 830 \text{ bbls/ac.}$

	<u>40 Acres</u>	<u>80 Acres</u>
Estimated Recovery	33,200 bbls.	66,500 bbls.
Total Net Income	\$56,000	\$112,000
Development Cost Per Well	\$60,000	\$ 60,000
Ratio of Income to Investment	.93	1.86

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	<u>5</u>
CASE NO.	<u>4222</u>

CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
S. B. CHRISTY IV  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
HAROLD L. HENSLEY, JR.  
STUART D. SHANOR  
C. D. MARTIN  
PAUL J. KELLY, JR.

LAW OFFICES  
HINKLE, BONDURANT & CHRISTY  
600 HINKLE BUILDING  
ROSWELL, NEW MEXICO 88201

September 17, 1969

MIDLAND, TEXAS OFFICE  
521 MIDLAND TOWER  
(918) MU 3-4691

TELEPHONE (505) 622-6510  
POST OFFICE BOX 10

22 SP 18

*Case 4222*

Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico 87501

Gentlemen:

We enclose herewith in triplicate application of Coastal States Gas Producing Company for the adoption of temporary special field rules for the West Sawyer (San Andres) Pool, including 80 acre spacing and 80 acre allowable. This is the case about which the writer's secretary talked with Dan Nutter so as to be sure that it would be placed on the examiner's docket for October 8.

Yours sincerely,

HINKLE, BONDURANT & CHRISTY

By Clarence E. Hinkle  
@J

CEH:cs  
Enc.

DOCKET MAILED

Date 9-18-70

DOCKET MAILED

Date 9-26-69



8  
22  
SP  
18

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF COASTAL STATES GAS )  
PRODUCING COMPANY FOR ADOPTION OF )  
TEMPORARY SPECIAL FIELD RULES FOR )  
THE WEST SAWYER (SAN ANDRES) POOL, )  
LEA COUNTY, NEW MEXICO, INCLUDING )  
80 ACRE SPACING AND 80 ACRE ALLOW- )  
ABLE )

*Case 4222*

Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico 87501

Comes Coastal States Gas Producing Company, acting by and through the undersigned attorneys, and hereby makes application for the adoption of temporary special field rules for the West Sawyer (San Andres) Pool, Lea County, New Mexico, including 80 acre spacing and 80 acre allowable and in support thereof respectfully shows:

1. That applicant completed a discovery well in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  Section 33, Township 9 South, Range 37 East, N.M.P.M. and as a result of the discovery the Commission designated the pool as the West Sawyer (San Andres) Pool in February 1969. Since the completion of the discovery well, applicant has drilled 4 additional producing wells in the pools, and in addition, Sun Oil Company has drilled a producing well located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$  Section 32, Township 9 South, Range 37 East. There is attached hereto, made a part hereof and for purposes of identification marked Exhibit "A", a plat showing the leasehold acreage owned by Coastal States in the area and also all of the producing wells.

2. That all of the wells which have been drilled in the West Sawyer (San Andres) Pool have been located so that 80 acres may be dedicated thereto for spacing and allowable purposes. From all available information, applicant believes that each well producing from the West Sawyer (San Andres) Pool will effectively and efficiently drain 80 acres or more and that in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation

of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and to protect correlative rights, it is in the interest of conservation and the prevention of waste to promulgate temporary special field rules and regulations providing for 80 acre spacing units and 80 acre proration units in said pool.


3. That applicant proposes that each well drilled to and producing from the West Sawyer (San Andres) Pool be located on a standard unit containing 80 acres more or less, consisting of the  $N\frac{1}{2}$ ,  $S\frac{1}{2}$ ,  $E\frac{1}{2}$  or  $W\frac{1}{2}$  of a single governmental quarter section.

4. That applicant has made an additional well location, being Coastal States' Federal 4 Well No. 1 located in the  $SE\frac{1}{4}NW\frac{1}{4}$  Section 4, Township 9 South, Range 37 East, which well location is shown on the plat attached hereto as Exhibit "A".

5. Applicant respectfully requests that this matter be included on the docket for the examiner's hearing to be held on October 8, 1969.

Respectfully submitted,

COASTAL STATES GAS PRODUCING COMPANY

By   
Member of the Firm of  
HINKLE, BONDURANT & CHRISTY  
Attorneys for Applicant  
Box 10  
Roswell, New Mexico 88201

SANTA FE

31

SANTA FE

TEX. PACIFIC OIL

SUN

32

SANTA FE

COASTAL STS.

SWD

SANTA FE

34

SINCLAIR

U.S.

SINCLAIR

U.S.

SANTA FE

AZTEC

Tex. Pac.  
(Samedan)  
T-P State

J.L. HAMON

STATE

UNION

CASOT

SUN

STATE

COASTAL STATES

ADLONG

COASTAL STATES

BELL PETRO.

J.L. HAMON  
H. ST.  
Y-1012549

Warren State

(Champlin)  
Union St. & HAMON  
TO 5045 STATE

HANAGAN & HANAGAN

STATE

GULF

SUPERIOR

STATE

SUPERIOR

SO. UNION

MAMERITTI SO. MIN.

GULF

CHAMPLIN

GU

CHAI

STATE

SUPERIOR

STATE

Township 9 South, Range 37 East

SANTA FE

SANTA FE

HAN/ HAI

S

DRAFT

GMH/esr  
October 2, 1970

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:

RECORDS CENTER

CASE No. 4222

Order No. R-3850-A

APPLICATION OF COASTAL STATES GAS  
PRODUCING COMPANY FOR SPECIAL POOL  
RULES, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 30, 1970,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of October, 1970, 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 by Order No. R-3850, dated October 14, 1969,  
temporary Special Rules and Regulations were promulgated for the  
West Sawyer-San Andres Pool, Lea County, New Mexico, including a  
provision for 80-acre spacing and proration units.

(3) That pursuant to the provisions of Order No. R-3850,  
this case was reopened to allow operators in the subject pool  
to appear and show cause why the West Sawyer-San Andres Pool  
should not be developed on 40-acre spacing units and present  
evidence as to whether or not the subject pool is in fact an  
associated reservoir.

(4) That the evidence presently available is insufficient to establish that the provision for 80-acre spacing and proration units should be continued permanently.

(5) That the evidence presently available is insufficient to establish whether or not the subject pool is in fact an associated reservoir.

(6) That the temporary Special Rules and Regulations for the West Sawyer-San Andres Pool, promulgated by Order No. R-3850, should be continued in effect for an additional one-year/<sup>period</sup>in order to allow the operators in the pool time to gather additional information concerning reservoir characteristics of the pool.

(7) That this case should be reopened at an examiner hearing in September, 1971, at which time the operators in the pool should appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

IT IS THEREFORE ORDERED:

(1) That the temporary Special Rules and Regulations for the West Sawyer-San Andres Pool, promulgated by Order No. R-3850, are hereby continued in full force and effect for an additional one-year period.

(2) That this case shall be reopened at an examiner hearing in September, 1971, at which time operators in the subject pool shall appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units and present evidence as to whether or not the subject pool is in fact an associated reservoir.

(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.

DRAFT

GMH/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. 4222

Order No. R-3850-B

IN THE MATTER OF CASE 4222 BEING  
REOPENED PURSUANT TO THE PROVISIONS  
OF ORDER NO. R-3850-A, WHICH ORDER  
CONTINUED 80-ACRE SPACING UNITS FOR  
THE WEST SAWYER-SAN ANDRES POOL, LEA  
COUNTY, NEW MEXICO, FOR AN ADDITIONAL  
ONE-YEAR PERIOD.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 15, 1971,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 10th day of September, 1971, 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 by Order No. R-3850-A, dated October 6, 1970,  
the temporary Special Rules and Regulations ~~were~~ promulgated <sup>by Order No. R-3850</sup> for the  
West Sawyer-San Andres Pool, Lea County, New Mexico, establishing  
were continued for an additional  
80-acre spacing units ~~for a~~ period of one year.

(3) That pursuant to the provisions of Order No. R-3850-A,  
this case was reopened to allow the operators in the subject pool  
to appear and show cause why the West Sawyer-San Andres Pool  
should not be developed on 40-acre spacing units <sup>and present</sup>  
evidence as to whether or not the subject pool  
is in fact an associated reservoir.

(4) That the evidence establishes that one well in the West Sawyer-San Andres Pool can efficiently and economically drain and develop 80 acres.

(5) That the Special Rules and Regulations promulgated by Order No. R-3850 <sup>and continued in effect by Order No. R-3850-A</sup> have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-3850 <sup>and continued in effect by Order No. R-3850-A</sup> should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the West Sawyer-San Andres Pool, Lea County, New Mexico, promulgated by Order No. 3850 <sup>and continued in effect by Order No. R-3850-A</sup>, are hereby continued in full force and effect until further order of the Commission.

(2) 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.

DRAFT

GMH/esr

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:

✓  
RECORDS CENTER

CASE No. 4222

Order No. R-3850

*GMH*  
APPLICATION OF COASTAL STATES GAS  
PRODUCING COMPANY FOR SPECIAL POOL  
RULES, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 8, 1969,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this \_\_\_\_\_ day of October, 1969, 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, Coastal States Gas Producing Company,  
seeks the promulgation of special rules and regulations for the  
West Sawyer-San Andres Pool, Lea County, New Mexico, including a  
provision for 80-acre spacing and proration units.

(3) That in order to prevent the economic loss caused by  
the drilling of unnecessary wells, to avoid the augmentation of  
risk arising from the drilling of an excessive number of wells,  
to prevent reduced recovery which might result from the drilling  
of too few wells, and to otherwise prevent waste and protect  
correlative rights, temporary special rules and regulations  
providing for 80-acre spacing units should be promulgated for  
the West Sawyer-San Andres Pool.



(4) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(5) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well *and to determine whether or not the subject pool is in fact an associated reservoir.*

(6) That this case should be reopened at an examiner hearing in October, 1970, at which time the operators in the subject pool should be prepared to appear and show cause why the West Sawyer-San Andres Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

That temporary Special Rules and Regulations for the West Sawyer-San Andres Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
WEST SAWYER-SAN ANDRES POOL

RULE 1. Each well completed or recompleted in the West Sawyer-San Andres Pool or in the San Andres formation within one mile thereof, and not nearer to or within the limits of another designated San Andres oil pool, shall be spaced, drilled, operated, and produced in accordance with the special rules and regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. *The first well drilled on every standard or non-standard unit in the West Survey - San Andres Pool shall be drilled in the NW/4 or the SE/4 of a governmental quarter section. All wells shall be located within 200 feet of the center of a governmental quarter-quarter section.*

RULE 5. The Secretary-Director may grant an exception to the footage requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon, provided the well will be located no nearer than 330 feet to the outer boundary of the unit. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 2.00 for

allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the West Sawyer-San Andres Pool or in the San Andres formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before November 1, 1969.

(2) That, pursuant to Paragraph A. of Section 65-3-14.5, NMSA 1953, contained in Chapter 271, Laws of 1969, existing wells in the West Sawyer-San Andres Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 65-3-14.5, existing wells may have non-standard spacing or proration units established by the Commission and dedicated thereto.

Failure to file new Forms C-102 with the Commission dedicating 80 acres to a well or to obtain a non-standard unit approved by the Commission within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the West Sawyer-San Andres Pool or in the San Andres formation within one mile thereof

shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in October, 1970, at which time the operators in the subject pool may appear and show cause why the West Sawyer-San Andres Pool

should not be developed on 40-acre spacing units *and present evidence as to whether or not the subject pool is in fact an associated reservoir.*

(4) 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.

Clarence Hinkle.

Central State Gas Producing Co.

adoption temp spec pool owner

Wit Sawyer SA Lea Co

80-acre spec 20-acre allowance.

CASE 4223: Application of RESLER  
& SHELDON FOR TWO WATERFLOOD  
PROJECTS, LEA COUNTY.