BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
April 11, 1973

EXAMINER HEARING

IN THE MATTER OF:

Application of Twinlakes Oil Company for the reinstatement of pool rules, Chaves County, New Mexico.

Case No. 4497

BEFORE: Elvis A. Utz
Examiner

TRANSCRIPT OF HEARING

MR. CARR: Case 4497 reopened, Application of Twinlakes Oil Company for the reinstatement of pool rules, Chaves County, New Mexico.

MR. STEVENS: If the Examiner please, I'm Donald G. Stevens, Attorney from Santa Fe, New Mexico, representing the Applicant. We have one witness to be sworn.

MR. UTZ: Are there any other appearances in the case?

(No response)

MR. UTZ: You may proceed.

WILLIAM J. LeMAY

appeared as a witness, and after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY DONALD G. STEVENS:

Q Would you state your name, your occupation, residence, please?

A My name is William J. LeMay, I am a consulting geologist in Santa Fe, New Mexico.

Q Have you testified before the New Mexico Oil Conservation Commission before?

A Yes, I have.

MR. STEVENS: Mr. Examiner, are the witness' qualifications acceptable?

MR. UTZ: Yes, sir.

Q (By Mr. Stevens) Mr. LeMay, would you briefly state what

is sought by this application?

A Yes. Twinlakes requested that the Commission reinstate the field rules as set out in Order R-4102-A, dated February 8, 1971, which provides for 40-acre oil well spacing in the San Andres formation and 160-acre gas well spacing with a limiting gas-oil ratio of 4,000 to 1. The Applicant seeks reinstatement of this rule with a provision that the gas-oil ratio limitation be reduced to the state-wide 2,000 to 1 limitation.

Now, the purpose of this reinstatement is based upon some new information concerning Twinlakes Oil Company's Well Number CH. This well is located approximately 1980 feet from the South line and 660 feet from the West line of Section 36, 8 South, 28 East. It was originally felt that the well would not produce sufficient gas to require 160-acre spacing. However, it is now determined that the well is capable of producing such gas and that 160-acre spacing for gas wells, with the resultant increase in allowable necessary. Also, communitization agreement covering the West half of the West half of Section 36, which is a CH proration unit, initially approved by the Commission, this is based upon the Commission order and thus the Commission order is necessary to maintain the communitization agreement.

Q Referring to what has been marked as Exhibit No. 1, would

you identify that for the Commission?

A Exhibit No. 1 is a structure map contoured on top of the PS porosity in the San Andres field. It is also a well location map and acreage ownership map. This map generally shows that all the wells are producing or dry holes in the San Andres, with the exception of the one sole Devonian producer in the Southwest of the Southwest of Section 1. This well is a Devonian producer. All other wells shown as oil wells produced from the field pay, PS of the San Andres.

Now, the only real gas well in the Twin Lakes field as defined by the Commission, is the Number 1 CH, as previously mentioned, and this well has a gas-oil ratio in excess of 30,000 to 1. All other wells are considerably below this figure. I might say in analyzing the geology of the field as portrayed in Exhibit No. 1 that the controlling factor for the San Andres production in the field is the sharp Southeast plunging structural nose. The structure contours are not designated as such, but the nose, the high part of the field, is in Section 35, and the plunge of the nose is Southeast so that the fall-off is rather rapid in all directions and the highest well in the field is the gas well, the previously mentioned Number 1 CH. Also, there are conflicting factors to the porosity of the PS, being a hydrodynamic condition which

result in a tilted oil-water contact and variations in the porosity of the San Andres, which accounts for the variation in the wells.

Q Referring to what has been marked as Exhibit No. 2, would you identify it for the Commission?

A Exhibit No. 2 is a typical set detailed section of San Andres porosity which is type P-1, the upper slaughter porosity. This Citgo State Number 4 Well was rodded 1980 feet from the North and West line. Its characteristics are such that you can see on the radioactivity log that there is approximately 40 feet of pay interval. This is one well that has probably more pay than other wells. In other wells, variations occur within this P-1 pay interval, but some of the porosity is usually present to produce hydrocarbon.

Q Referring to what has been marked as Exhibit No. 3, would you identify it for the Commission?

A Exhibit No. 3 is well history in the Twin Lakes field and it shows the cumulative production of all the current producing wells in the field. Note the wells in Section 35 and Section 2 were high-water cut and this was due to the previously mentioned hydrodynamic condition existing producing a tilt on the oil-water contact in an East, Southeast direction. So, even though these wells which are plugged out in Section 35 and Section 2 are structurally high

enough to produce when compared with the wells in Section 36, the activated oil-water contact which I mentioned erroneously before as far as the tilt goes, the oil-water contact is such that on the West end of the field water is encountered at a higher structural elevation than on the East end, and, therefore, the oil-water contact does activate in an East, Southeast direction. The gas-oil ratios compared to the original gas-oil ratios, these were taken last summer and indicated increasing gas-oil ratios in wells near the gas cap, being Wells Number 2, 3, and 5, referring back to Exhibit No. 1. These wells are in close proximity to the gas well and the further away you get from this gas well, which is in the gas cap, the less increase you see in the gas-oil ratios, as exhibited by, say, the O'Brien Number 4, which has not seen any increase in gas-oil ratios.

The new well, the Number 3 O'Brien in the Northeast of the Northwest, some distance from the gas cap --

Q Excuse me, Mr. LeMay, I believe that is the Northeast of the Southwest of Section 1, is it not?

A O'Brien Number 3?

Q Yes.

A That's correct. The Northeast of the Southwest of Section 1. This is some distance from the gas cap and also some distance from older production, and this well recorded virgin

pressures on drill stem test, being 764 pounds and a ratio of 697 to 1. In conclusion, the Twin Lakes field is an oil field with an associated gas cap as evidenced by the number 1CH and the increasing gas-oil ratio in wells near the gas cap.

Q Mr. LeMay, could you describe a few of the changes in the production history of this State CH Well which warrants reinstatement of the rules for the field?

A Well, the Commission originally established an associated pool, and I think this was correct, the Number 1 CH is in the gas cap, the original pressure on the CH declined from the commencement of production in October, 1971, to 232 pounds of cubic pressure and 293 pounds bottomhole pressure taken August 25, 1972. Production since September, 1972, has been reduced. The purpose of this reduction was to allow a build up of bottomhole pressure and to prevent the up-dip migration of oil into the gas cap.

As of April 9, 1973, the tubing pressure had risen in the CH to 350 pounds and it is possible that in the future when the pressure increases to a higher point, that production might be increased sufficiently to justify the allowable applicable to 160-acre spacing.

Q What is that allowable on 40-acre spacing as opposed to 160-acre gas spacing in an associated gas?

A Well, 40-acre spacing on a 80-acre allowable, it would be

160,000 cubic feet gas per day. On 160, this would be times 4, which would be 640,000 cubic feet of gas per day.

Q Mr. LeMay, in your opinion, will the granting of this application protect correlative rights and help to prevent waste?

A Yes. it will.

Q Were Exhibits 1 through 3 prepared under your direction?

A Yes, sir, they were.

MR. STEVENS: Mr. Examiner, I would like to introduce into evidence Exhibits 1 through 3.

MR. UTZ: Without objection, Exhibits 1 through 3 will be entered into the record of this case.

MR. STEVENS: We have no further questions of the witness.

CROSS EXAMINATION

BY MR. UTZ:

Q This order had expired, am I correct?

A That's correct, sir.

Q Now, you are asking for reinstatement of the order as it was with a GOR change?

A Yes, sir, to the statewide 2,000 to 1.

Q What was it originally?

A It was listed as 4,000 to 1 initially, and we feel there is no need for this additional provision.

Q All you want is the order reinstated at 2,000 to 1?

A Correct, classified as an associated pool which it was

previously.

Q And prorate that one gas well?

A To date, only one; maybe in the future more, who knows.

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

(No response)

MR. UTZ: If there are not, the witness may be excused. Are there statements in the case?

(No response)

MR. UTZ: The case will be taken under advisement.

* * * *

I N D E X

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, JOHN DE LA ROSA, a Certified Shorthand Reporter, 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.

John De La Rosa
CERTIFIED SHORTHAND REPORTER

I do ... in ... 4497 ... April ... 1973.

... Examiner
New Mexico Oil Conservation Commission

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
MORGAN HALL, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Wednesday, February 14, 1973

EXAMINER HEARING

IN THE MATTER OF:

Case 4497 being reopened pursuant to the provisions of Order No. R-4102-A which order established temporary special rules and regulations for the Twin Lakes-Devonian Pool, Chaves County, New Mexico.

Case No. 4497

BEFORE: Daniel S. Nutter,
Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We will call next Case Number 4497.

MR. CARR: Case 4497 reopened, in the matter of Case 4497 being reopened pursuant to the provisions of Order Number R-4102-A which order established temporary special rules and regulations for the Twin Lakes-Devonian Pool, Chaves County, New Mexico.

MR. NUTTER: The Commission has been advised by the only operator in this pool that there would be no appearance made and that the operator had no objection to the pool reverting to the state-wide rule. Therefore, the Examiner will recommend that the special rules for the Twin Lakes-Devonian Pool will be abolished and it will revert the state-wide pool and regulations.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4497, heard by me on 2/14, 1973.

COURT REPORTER

Examiner
New Mexico Oil Conservation Commission

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
February 2, 1972

EXAMINER HEARING

IN THE MATTER OF:

Special rules and regulations for the Twin Lakes-San Andres Pool, Chaves County, New Mexico

Case No. 4497

BEFORE: Elvis A. Utz,
Alternate Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 4497.

MR. HATCH: Case 4497: In the matter of Case 4497 being reopened pursuant to the provisions of Order No. R-4102.

MR. STEVENS: With McDennett, Connelly & Stevens representing the applicant, Twin Lakes Oil Company.

We have one witness to be sworn.

MR. UTZ: Are there any other appearances?

The witness will be sworn.

H. N. SWEENEY

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

DIRECT EXAMINATION

BY MR. STEVENS

Q Could you state your name and occupation and your association with the applicant in this case?

A I am H. N. Sweeney, Geologist and President of Twin Lakes Oil Company.

Q Have you previously testified before the New Mexico Oil Conservation Commission and had your qualifications accepted?

A Yes.

Q Will you accept the witness' qualifications?

MR. UTZ: Yes.

Q (By Mr. Stevens) Could you state briefly what the purpose of this hearing is and the annual history say since the last hearing we had on this case?

A The hearing is the review of the special rules for the Twin Lakes-San Andres Field, involving primarily 4,000 to 1 GOR, which was, we asked for a year ago to permit us to produce gas economically from the gas cap with the aim of reducing the GOR's in our oil wells and prevent the continued expansion of the gas cap.

Q Within this past year, could you briefly summarize what has been done in accordance with these rules which were granted last year as far as physical equipment is concerned?

A We have put the gas well on production, one additional well on production.

We have built the pipeline from Twin Lakes to a site in the Dakota Field and have installed a compressor, and are taking and delivering gas from the Field.

Q When did you start the production of gas from the Field?

A In the last week of October, '71.

Q So basically you have got three months production under the rules which are granted last year?

A Right.

Q Last February, I believe.

According to what has been marked as Exhibit 1, would you explain it to the Commission?

A Oh, this is a structure map showing the location of the wells and the general structure of the Field, showing the gas cap and the oil rim with the reversal to the west.

The Field is undefined to the north.

Q The purpose of this exhibit is principally to give reference as to the position of the wells which you will discuss individually?

A Yes.

Q Referring to what has been marked as Exhibit No. 2, would you discuss it and refer to the Exhibit No. 1 for the purposes of identification?

A It is a tabulation of GOR's from initial completion of the producing wells in the Field, and in general it shows a gradually increasing GOR through the history of the wells, and somewhat erratic oil production, although actually the oil production has been, if anything, increasing, due in part to putting some of the flowing wells on the pump.

At the present time we have just two wells still flowing in the Field and they probably should be put on the pump.

Q Noting the gas-oil ratios of the various wells and comparing them with the structural position of the wells on your structure map in Exhibit A, is there an absolute correlation between the gas-oil ratio and structural position, or are there variations from what would be a norm?

A I think in general the State 2 and 3 are the two highest and the CO-2, which is a special case, those two of the high wells are the ones with the highest GOR's, and while

the last GOR's which were taken, oh, just last week, I believe, within the last couple of weeks, show a continuing increase in general and in the GOR's, I think that the program actually hasn't been in effect long enough to produce positive results.

It will probably take another year to show what is happening here.

Q Was it your intention by this program to produce gas, one, to save gas being flared, but, two, to produce gas from the State CM, the northwest quarter of the southwest quarter--northwest, southwest quarter of Section 36, was it the intention by the taking of the gas from what is principally a gas well to prevent the encroachment of gas, the gas cap into the oil wells?

A Yes.

Q You have not had sufficient time on production to determine whether this has any effect; is that correct?

A That is right.

Q Is it your opinion that it would be in the best interest of conservation to continue this hearing and these rules for another year in order to determine if said gas cap expansion can be decreased?

A Definitely.

Q Do you have any other information for the Examiner concerning these two exhibits?

A I don't believe so.

MR. STEVENS: We have no further questions, Mr. Examiner.

CROSS-EXAMINATION

BY MR. UTZ

Q Mr. Sweeney, did I understand you to say that neither of the gas wells had been connected?

A No, the gas, the one gas well, the C-2 in Section 1, northwest, northwest of Section 1 has been somewhat erratic.

It was put on production just last April, I believe, and in that particular well it was originally completed, both in our production zone, where the other wells are producing from, and from a lower zone which carries water in this area, and I am just not real sure what is happening in that well. It hasn't performed as we expected.

We have a pump on it and it hasn't acted as a gas well, but it appears the water is going down and oil production is going up just within the last three weeks. The one gas well, the State CH in Section 36, which we are producing.

Q What kind of production are you getting out of that well?

A At the moment it is running about 4,000 cubic feet per day.

Our tuck pressures have dropped somewhat since we started producing, and I am inclined to think that the well tends to load up with fluid and probably would need swabbing

to regain maximum production, but I just don't know whether we have actually reduced pressures or not.

Our last bottom-hole pressures were run, oh, prior to the time we started producing the gas, and they had shown relatively small drop from the pressures that were taken about two years previously.

It has been something like a hundred pounds, a little more than that, about 120 pounds pressure drop in the Field since it was completed since the initial discovery well.

Q You have both gas wells connected and producing?

A Yes.

Q Where are you marketing the gas?

A Cities Service is taking the gas at a point on their Gathering System in the Dakota Field.

Q Now, as I recall your temporary order, it requires you to return a 2,000 to 1 until connections; am I correct?

A That is right.

Q And you have all of your wells connected now?

A No, there are three wells which haven't been connected as yet, but will be within the next month or so.

Q So, in effect, you are producing the pool under a 4,000 GOR rule?

A Yes. The only west well that would actually make any difference is the gas well, and that not at the present time, but I think production, it is capable of making more

gas than we are actually producing at the moment.

That is producing against our pipeline pressure of approximately 135 pounds, and we could make more gas from the gas well by running it through our compressor, rather than directly in the pipeline.

Q I didn't hear this case the last time and I haven't read the transcript.

I presume that you explained your theory rather well in the transcript, but I would like to ask you at this time: Isn't this a little bit contrary to the usual theory of producing a gas cap first?

A I don't think so, from strictly an economic situation, the oil here is much more valuable than the gas, and it is apparently as we are reducing the pressures in the oil wells, the gas cap is expanding and is producing the GOR's --have been greatly increasing in the oil wells then as a result, and we have no market for the gas.

For a number of reasons it is comparatively a small volume. It is sour gas, runs about 7 CO2 and H2S, it is difficult to find anybody that would take it. The nearest sour gas plant is 45 miles away.

Q What per cent is it?

A 17 per cent.

Q Co2?

A Yes.

Q And H_2O?

A Yes.

Q Sour gas?

A Yes.

Q I gather it is your opinion then that the control of the gas cap should continue?

A Yes.

Q Well, then I gather it is your opinion that by partially depleting the gas cap you are removing more oil?

A I think so. Actually we have seen no harmful effect since we started producing the gas, and I expect it to show beneficial results from producing the gas from the gas cap. That gas, as that gas expands, it tends to drive the oil down the structure away from our bore holes, and the economics aren't such that we can keep drilling wells to produce that migrated oil.

A very good example of what has been happening, I think, is the Obrien-A, which is in the northwest of northeast Section 1.

If you will look at the GOR's on that one well, that well was originally completed on pump. The pump initially pumping potential of ten barrels a day, and virtually no gas.

The production has been just virtually steady at that rate through the years and oh, about a year ago we started

making more gas and more oil in that well.

That is the lowest well that we are producing in, incidentally, and the farthest away from the gas cap, and now it is producing an appreciable amount of gas and the oil production is actually up from what it was initially.

Q Well, the gas is channeling to the well, then, I presume pushing the oil aside?

A It has been fairly uniform in all of the wells, the increase.

Q You have control of the lower part of the structure, too?

A Yes.

Q If there is no other operators in the Field, you produce this by drilling wells along the lower structure and letting the gas sweep the oil to the wells?

A It would require additional wells, we can't accomplish the same thing by lowering the pressures in the gas cap.

Q You aren't going to have to drill some more wells, anyway?

A No.

Q What about to the north?

A To the north where it isn't defined on the west side we have an entirely different situation.

My personal opinion, the principal trap is on the down dip side of that gas cap. Now we have the oil trap against a wrinkle there on the down dip side of the structure.

There have been several wells drilled on the west side of the structure which were actually higher than the wells that we are producing on the east side, and they have been non-commercial, produced an excessive amount of water.

Q So these wells in Section 2 and the one well in Section 35, southeast quarter, were dry?

A Yes, they produced a small amount of oil and a great deal of, amount of water.

MR. UTZ: Are there any other questions of the witness?

MR. STEVENS: At this time we would like to introduce Exhibits 1 and 2 into evidence.

MR. UTZ: They will be admitted.

Thank you.

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, RICHARD STURGES, a Certified Shorthand 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.

CERTIFIED SHORTHAND REPORTER

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

February 3, 1971

EXAMINER HEARING

IN THE MATTER OF:

Application of Twinlakes Oil Company for special pool rules and a non-standard proration unit, Chaves County, New Mexico. Case No. 4497

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We will call the next case, 4497.

MR. HATCH: Case 4497, Application of Twinlakes Oil Company for special pool rules and a nonstandard proration unit, Chaves County, New Mexico.

MR. H. N. SWEENEY: Mr. Examiner, our attorney, Don Stevens, is in court this morning. Could we continue this after lunch?

MR. NUTTER: Yes, sir. We'll call Case 4497 after the lunch recess.

(Whereupon, at approximately 1:12 o'clock p.m., the following proceedings were held.)

MR. NUTTER: Everybody ready? The hearing will come to order, please. The first case this afternoon will be 4497.

MR. HATCH: Case 4497, Application of Twinlakes Oil Company for special pool rulles and a nonstandard proration unit, Chaves County, New Mexico.

MR. STEVENS: Mr. Examiner, I am Donald Stevens with the firm of McDermott, Connelly and Stevens representing the Applicant Twinlakes Oil Company. We have one witness to be sworn, Mr. H. N. Sweeney.

(Witness sworn.)

(Applicant's Exhibits 1 through 6, inclusive, were marked for identification.)

H. N. SWEENEY

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

DIRECT EXAMINATION

BY MR. STEVENS:

Q Mr. Sweeney, would you tell us your occupation and your association with Twinlakes Oil Company.

A I am the geologist and President of Twinlakes Oil Company.

Q Have you previously testified before the Oil Conservation Commission?

A Yes.

MR. STEVENS: Are the witness's qualifications acceptable?

MR. NUTTER: Yes, sir, they are.

Q Could you take what's been marked as Exhibit Number 1 and tell us what it contains. Describe it for us.

A It shows the area of the Twinlakes San Andres field, and with the area what we consider to be a gas cap in the pink, the oil rim on predominantly the basin side, the east side of the gas cap, and the general structure.

It also has outlined in yellow, the acreage which we control, and the line of cross-section that's Exhibit 3.

I'd like to point out that the field is pretty well defined except to the north, and it appears that what we're

dealing here with is a gas cap reservoir with the trapping mechanism consisting of the oil being trapped on the basin side of the gas cap with a rather thin oil around.

It just happened that the oil wells were drilled first.

Q Excuse me. Let me interrupt, Mr. Sweeney. I forgot to ask you, and would you please explain what Twinlakes seeks in this application? It might lay a little groundwork here.

A We want special rules for the field that permits us to produce enough gas from those two gas wells in the gas cap to make a pipeline feasible and, at the same time, enable us to balance the pressures to some extent between the gas cap and the oil rim.

There's evidence that the G.O.R.'s are increasing in the oil rim, that we're getting an invasion from the gas cap, and it would actually benefit our oil production, I think, to start taking gas from the gas cap.

Q Back to Exhibit 1 then, could you explain the remainder of the exhibit.

A I think that just about covers it unless you want to go into that cross-section. That line of cross-section bears out the Exhibit 3, and we've got the logs of four wells showing the west reversal.

Q Let me ask you some questions about Exhibit 1,

however. The red line on the W/2 of the W/2 of Section 36, could you explain its significance.

A That outlines the 160 acres which we ask special spacing for the gas well, the State CH located in the NW of the SW.

That is the only 160-acre tract that we can allocate to that well as a gas well remaining in that W/2 of the section.

The acreage is all held of record by Cities Service and we have completed the Communitization Agreement which has been signed by Cities Service and is in the process of being signed by the Land Office.

Q In your opinion, is the W/2 W/2 of Section 36 underlain by gas?

A I think so.

Q Could you explain the significance of the dashed line along the west side in Sections 26 and 35.

A That marks the presumed western limit. It hadn't been defined precisely on the west side of the gas cap, but due to the nature of the trap, the oil appears to be trapped on entirely the east side of here and an area of the reversal on the west side. There's been two wells drilled which were high wells but made water, an excessive amount of water which indicated a tilted water table. We don't have a constant water table in there at all. The water table seems to dip to the east, the down dip side.

Q The dashed line then to the east in Section 36 and Section 1 confirms the east side water table as contrasted with the west side?

A It appears to.

Q And the dashed line between the red and the green lines, what does that signify?

A That's the transition zone between your gas cap and your oil rim.

Q Basically, a transition gas/oil contact?

A Right.

Q Could you tell us the pressures basically in most of the fields originally?

A We took bottom hole pressures in one well shortly after it was completed, and that was at the Citgo State 2 in the NE SW of Section 36, and then again, last fall I believe, after approximately thirty thousand barrels of oil had been produced and a considerable amount of gas. This is a high G.O.R. well.

Q Was that Number 2 or 3?

A Three, I believe. It's the second well drilled. And there had been initial pressures on 72-hour shut-in with 762 pounds, and last fall, it was 699, and then about a sixty point pressure drop.

Q What does that indicate to you as a geologist?

A I would say that the pressures are being maintained

from expansion of the gas cap.

Q What is the drive mechanism in this field?

A Gas cap expansion.

Q Referring now to Exhibit Number 2, would you explain its significance to us before you get to the cross-section, Exhibit 3.

A Yeah. Exhibit 2 is a log of our high well in the field, the State CH which was originally drilled by Cities Service and which we acquired from them. And that's been shut-in since completion because it makes a large amount of gas, practically dry gas.

There's very little fluid produced with that well and what fluid it does make is produced in the form of a heavy emulsion of water and oil, which will just barely flow.

There's about, oh, a maximum rate of flow. I think we got about eight barrels of flow a day of fluid out of that. And we found, on about three separate occasions when we've opened the wells to test it, and it takes about a month for that well to clean up after we get it kicked off, but it gradually increases the tubing pressures and, actually, last fall, we flowed it for about a month to see what it would do. At the end of the period, we tested actual flow of three and a half million on a half-inch choke from that well.

Q Could you describe the pay thickness in that well and in the field and the porosity ordinarily found in the

field?

A That particular well has about forty feet, about eight percent porosity, and that one, or two other wells, has a little more. I'd say twenty-five to thirty feet is an average thickness. This is fracked, buggy porosity with irregular permeabilities, so it doesn't act as a homogenous reservoir.

Q What formation is that; in what zone?

A It's primarily the P-2 Zone. It's the San Andres Slaughter Zone.

Q Could you describe the character of the oil in the field?

A It's 24 gravity and it is typical San Andres oil which emulsifies very easily with almost any form fluid.

Q Referring then to Exhibit 3, the cross-section, would you explain its significance to the Commission.

A It shows four wells in a west to east direction across the axis of the field with the porosity marked in red, and it shows quite plainly the west reversal of the axis which is actually, in that country, quite rare to have a reversal in the San Andres.

We are dealing with a definite structure and I think there's a probable closure to the north, but it actually hasn't been pinned down.

Q Exhibit 4, the table of production, would you describe

that for the Commission.

A This shows the cumulative production of the wells to the first of the year. Production in November, which you can see, is quite marginal, and it indicated increase in the G.O.R.'s from the time the wells were completed, and we haven't actually taken gauges but there's evidence in the last two or three months that there has been an increase in the G.O.R.'s in our two high oil wells, two and three. Well, it hasn't affected the oil production to a great extent. As a matter of fact, we are making more oil now than we have in some time due to some minor changes in the well, nothing drastic, but it appears that the gas has gone up materially.

Q What is the disposition of that gas?

A We have been working two years to obtain a market for the gas, and this is sour gas with approximately seventeen percent sour gas content. That's H_2S and CO_2 which limits the market, and the nearest gasoline plant which treats our gas is forty-five miles away. And our efforts have boiled down to two alternatives; and as of now, we propose to sell the gas to Cities Service at their gathering system at Cato which we'll deliver to them approximately nine miles away, but they have informed us that they will buy the gas if we will build the pipeline and deliver it to them. And we have made arrangements to do that, provided we can produce sufficient volume from the field to halfway pay for the pipeline.

Q This four thousand to one gas/oil ratio that is being requested --

A Yes.

Q -- could you explain its possible effect upon the reservoir?

A Actually, our two best oil wells are running in excess of two thousand to one thousand. But I don't think it would affect those oil wells at all because our oil production isn't sufficient for the limiting gas/oil ratio to affect this, but I actually think that with invasion of the gas cap, that it's actually preventing the oil coming into the bore hole, that we're losing oil production by the fact that the expansion of the gas cap is preventing, is hampering our oil production and that it will probably produce more oil if we can arrive at and maintain optimum balance between the gas cap and the oil rim.

Q Is the four thousand gas/oil ratio, necessary to establish initial amounts of gas necessary, sufficient to build the pipeline?

A Yes.

Q Would you be able to build the pipeline if the gas/oil ratio were less than four thousand?

A No, it wouldn't have enough volume to support the pipeline.

Q In the future, if you determine that four thousand to one was having a deleterious effect upon the reservoir, what

plans would you have in that event?

A Well, our idea is to get an optimum balance, and if we're reducing the pressures too severely in the oil rim and lowering our production, then we'd have to cut back in the gas cap, but I don't think we would. I think the oil production could be helped by lowering the pressures in the gas cap.

Q Is it your opinion that that interim period, while you are lowering the gas/oil ratios by taking from the gas cap, that this would enable you to build the pipeline if you had to cut back later, you could still maintain the pipeline?

A I think we could.

Q Referring to what's been marked as Exhibit 5, would you explain that to the Commission.

A That is a copy of the Communitization Agreement covering the W/2 W/2 of Section 36 which has been signed by Cities Service and is in the process of being signed by the Land Office.

Q Could you explain --

A Communitizing the 160 acres which we asked the special spacing for.

Q Would you explain Exhibit 6, the proposed rules for the field for the Commission.

A These are, as you will find, patterned after the special field rules for the North Paduka-Delaware and cover about the same provisions on it. It provides for 160-acre spacing for gas wells, and forty acres for oil wells,

and, oh, in general, normal spacing of wells and with the provision that any well with G.O.R. in excess -- or, gas/liquid ratio in excess of 30,000 be classified as a gas well, and a limitation of G.O.R. of 4000 to one.

And I think, in general, we propose semi-annual reports. Actually, when we start selling the gas and put meters on these wells, we'll have, visually, a constant check on our gas production from the wells which we don't now.

I mean, it's just periodic gauging of the gas, and it is something, since we have the entire field, that we can watch real closely and try to get the maximum economic benefit out of the field.

Q Could you expand upon the gas well allowables as set out in the rules?

A We propose that the gas wells get an allowable of a number of acres dedicated to the gas well divided by forty times the limiting gas/oil ratio times the base allowable.

Q Were Exhibits 1 through 6 prepared by you or under your direction?

A Yes.

MR. STEVENS: At this point, Mr. Examiner, we'd like to move the introduction of Exhibits 1 through 6 and ask that they be admitted into evidence.

MR. NUTTER: Applicant's 1 through 6 will be admitted into evidence. Exhibit 6 is the proposed rules, right?

MR. STEVENS: Yes. We have no further questions.

(Whereupon, Applicant's Exhibits 1 through 6 were duly admitted into evidence.)

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Sweeney, it appears from your tabulation here on Exhibit 4 that your Citgo A-2 and 3 both were originally completed with relatively low ratios, but that they both have high ratios at the present time, is this correct?

A Yes. Well, we'll say 1300 is a fairly high ratio for San Andres.

Q Yes. One was 1395 and the --

A They have increased.

Q But they are low with respect to what they are now?

A Yes.

Q You attribute this increase to the expansion of the gas cap and the possibility that the gas/oil contact is approaching the perforations in these wells?

A I think that's correct.

Q Now, do you anticipate that increasing withdrawals from the gas cap will cause the G.O.R.'s to go down in these wells or will it remain --

A Actually, I would expect it to. Actually, I think by lowering pressures in that gas cap, I think that we should get more oil at the well bore.

Q Do you anticipate drilling any other wells in the gas cap; for example, in the NE/4 of Section 35, in the pink area on your exhibit?

A Yeah. Well, not immediately. I mean, we've made no immediate plans, and we have, oh, comparatively new leases there where we are not forced to do any drilling, and we wouldn't, until we know more about what the situation is. And I think the only way we're going to find out is to produce that gas.

Q What is this well that's in the NW NW of Section 1 there? It's indicated as an oil well with stars on it.

A That is the gas well that makes some oil. The last test, I think, ran something like 800,000 a day and about 20 barrels of oil.

Q Is that well shown on your Exhibit Number 4?

A No. -- Yes. Yes, it is, too. The O'Brien C-2. It shows 65,000 to one and has cumulative production of 455 barrels, but it's been shut-in practically ever since completion due to that high G.O.R.

Q Now, the Twinlakes CH-1 on Exhibit 4, the last well there which shows the current estimated G.O.R. of 120,000, is that the gas well --

A Yes.

Q -- in your nonstandard gas unit?

A Yes.

Q And where is the other one, the Cities Service CH-1?

A That's it. I mean, we acquired that well from Cities Service. It is now --

Q Oh. This would be the same well then on the two lines?

A Right.

Q Once, it's shown as the Cities Service.

A Well, I hadn't noticed that. That's an error.

Q And then it drops down to the other line.

MR. STEVENS: At the time of the original oil/gas ratio, it was the same well.

Q But it is the same well. I was looking for another well there.

Well, is it your plans, Mr. Sweeney, that in the event you build this pipeline to connect the Twinlakes CH-1 and also the casinghead gas, and then what would you do with this well that we were just discussing in the NW NW of Section 1? Would that also be connected?

A Yes.

Q So, in effect, you'd have two gas wells producing.

A And plus the gas from our Twinlakes Devonian field there in the SW SW. It makes about 150,000 a day of gas. It would also go in the pipeline.

Q That one well in the SW SW of Section 1?

A Yes. It's the Lower Devonian.

Q But what you would propose as of now would be to produce the two wells as gas wells, put that gas in the line and, also, you'd have casinghead gas from your oil wells?

A Yes.

Q What would you expect the total volume of produced gas would be under this 4,000-to-one ratio?

A Oh, approximately two million a day.

Q Two million a day. All right. And how much of it would be casinghead gas and how much of it would be gas well --

A Approximately eighty percent would be the two gas wells and twenty percent would be casinghead gas.

Q Now, I missed that percentage of H_2S that you mentioned.

A H_2S runs one percent. CO_2 runs around sixteen percent.

Q So the combined total is "sixteen" percent?

A Yes.

Q Or, seventeen.

A Seventeen. We have offered a wellhead price of that gas for eight and three-quarter cents and plus transportation charge for delivering it to Cato.

Q Now, your CH-1, the gas well, does it make any liquids

at all?

A About -- Very little.

Q What kind of liquid does it make?

A Emulsion of oil and water.

Q Is it black oil and water?

A Yes. It makes just enough water to form a heavy emulsion, with a turbulence from the gas mixing that little bit of oil and little bit of water.

Q It's like black oil rather than a condensate?

A Right. It's oil. There's no condensate and that San Andres gas is quite dry. From that gas well, it runs about a gallon and a half.

Q Now, you mentioned that you drilled two wells on the west side of this field which were high, but made water. Would that be this one that is shown in Section 35?

A Yes. Cities Service actually drilled that well.

Q The top of the one would be at 1401 --

A Right.

Q -- in Section 35? And then down in Section 2, the well with the top shown as being 1402?

A Well, the one, 1402, is shut-in. But the third one -- plus 1383, the B-1, has been plugged. Both of those wells have been plugged and, if you'll notice, they are both higher or are in the range of our O'Brien A-1.

Q I can't tell what that is. Is that a 1329 on that

O'Brien?

A Yes.

Q It is marked out with the dotted line on this exhibit.

A It's 1392.

Q So both of those wells would be higher than that well?

A One of them would.

Q And they were both water productive?

A Right.

Q Mr. Sweeney, you are aware of a Commission policy established over a long period of time in which they have been reluctant to increase the G.O.R. for any pool until such time as casinghead gas connections, or gas well connections have been made in the pool, aren't you?

A I wasn't familiar; but in this case, we can't get a connection until we do get our increase.

Q Well, if you had an order which, in effect, approved your application here and said that the G.O.R. would increase at such time as you had connections, you could go ahead and build your pipeline based on that?

A Right. It wouldn't make any difference until we started selling the gas.

Q It would be a tentative G.O.R. increase to wait until you got your connections?

A Right.

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

MR. STEVENS: I may ask him one question for your benefit: Would it be agreeable with you if the Commission so desired to have this order if it were ordered to be on a one-year basis, only, to be reviewed next year?

THE WITNESS: Certainly. I mean, we expect to maintain continuous review of the situation.

MR. NUTTER: We, in all probability, would establish these rules on a temporary basis.

If there's no further questions, the witness may be excused. Do you have anything further, Mr. Stevens?

MR. STEVENS: None.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 4497? We'll take the case under advisement and the hearing is adjourned.

I N D E X

EXHIBIT	MARKED	OFFERED AND ADMITTED
Applicant's Exhibits 1 - 6	2	13

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

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

Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4497 heard by me on 2/3, 1971.

Examiner
New Mexico Oil Conservation Commission