Case No. 3701

Application, Transcript, Small Exhibits, Etc.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 22, 1968

EXAMINER HEARING

IN THE MATTER OF: Case No. 3701 being reopened at the request of Coastal States Gas Producing Company to consider the amendment of the special pool rules for the Baum-Wolfcamp Pool, Lea County, New Mexico, to provide for 160-acre spacing and proration units with the assignment of 80-acre allowables.	Case 3701 (Reopened)

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We will call Case 3701.

MR. HATCH: In the matter of Case No. 3701 being reopened at the request of Coastal States Gas Producing Company to consider the amendment of the special pool rules for the Baum-Wolfcamp Pool, Lea County, New Mexico, to provide for 160-acre spacing and proration units with the assignment of 80-acre allowables.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant and Christy, Roswell, appearing on behalf of Coastal States. We have two witnesses and ten exhibits. I would like to have the two witnesses sworn.

(Witnesses sworn.)

(Whereupon, Exhibits Nos. 1 through 10 were marked for identification.)

ROBERT ZINKE

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name.

A Robert Zinke, Z-i-n-k-e.

Q By whom are you employed?

A Coastal States Gas.

Q In what capacity?

A Senior geologist in the Midland Division.

Q Have you previously testified in this Case 3701?

A Yes, I have.

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

A Yes, they are.

Q Since the original Case 3701, have you made a continuing study of this area, the Baum-Wolfcamp area?

A Yes.

Q Are you familiar with the application of Coastal States in this case?

A Yes, I am familiar.

Q What is Coastal States seeking to accomplish?

A They are seeking to amend the temporary special field rules to provide for 160-acre spacing and proration unit with 80-acre allowables.

Q Have you prepared a number of exhibits to be considered in this case?

A Yes, I have.

Q Refer to your Exhibit No. 1 and explain to the Examiner what this is.

A Exhibit No. 1 is a location plat showing the

location of the Baum field relative to the many other oil fields in Southeastern New Mexico. The red arrow points to the Baum Pool.

Q It shows the location of other pools in the area?

A That's right.

Q Now, refer to Exhibit No. 2 and explain what this shows.

A The second exhibit is a structure map of both the Baum field and the Lazy "J" field area. This map shows all of the nine producing wells in the Baum field. When I previously testified in the case in December, this field, the Champlin No. 1 Featherstone Federal and the Coastal States No. 1-6 State were the only wells or producers in the Baum field.

MR. NUTTER: What is the location of those, please?

THE WITNESS: The Champlin No. 1 Featherstone Federal is 660 from the South and East Lines of Section 6, Township 14 South, Range 33 East.

MR. NUTTER: That's the one with the subsea depth of 5537?

THE WITNESS: That's correct. The Coastal States Gas Producing No. 1-6 State is located 1980 feet from the East Line and 660 feet from the North Line of the same section.

MR. NUTTER: That's the minus 5479?

THE WITNESS: That's correct.

MR. NUTTER: Those were the only two wells in the pool at the time of the last hearing?

THE WITNESS: Yes. Previous wells drilled in the pool were the Champlin No. 1 "A" Featherstone Federal, located 2310 from the North and West Lines of Section 6, and it was an abandoned producer. It has since been re-entered and made a producer by Coastal States.

Q (By Mr. Hinkle) Were you in the process of re-entering that well at the time of the original hearing?

A That's true.

Q But it had not been completed?

A It had not been completed as a well yet.

Q Go ahead with your explanation of Exhibit No. 1.

A Currently Delaware Apache is drilling a well in the area and it's located 1980 from the North Line, 660 from the East Line of Section 30, Township 13 South, Range 33 East. There is a cross section line which is drawn through all producing wells in the field, in the Baum field, on through a dry hole, the Cabot No. 1 "P" State located 660 from the South and East, South and West, excuse me, of Section 33, Township 13 South, Range 33 East, on into the Lazy "J" Pool.

The exhibit is a structural contoured map on top of the Permo-Pennsylvanian lime. It's also designated the "B" zone member. The Baum Pool is called the Baum-Wolfcamp Pool but pay zones in this field are of Permo-Pennsylvanian age.

Q Really it's a misnomer in that respect?

A This is true. But it is designated the Baum-Wolfcamp Pool. In fact, we discussed this at the first hearing. This map shows the structural configuration of the Baum field and the fact that the Baum field is separated structurally from the Lazy "J" Pool. This structural separation is best shown by the Cabot No. 1 "P" State well.

Q Where is it located?

A It is located 660 from the South and West Lines of Section 33, Township 13 South, Range 33 East. This well is 189 feet low to the nearest abandoned Lazy "J" producer and 117 feet low to the nearest Baum producer. This low definitely separates the two structures and is quite pronounced as it is pulled back in between the two structures.

Q You referred to "B" and "C" zones in the Baum-Wolfcamp. Are those the only two zones from which the pool is producing?

A The Baum Pool produces from the "B" and the "C"

zone and the Lazy "J" Pool actually produces from designated "A" zone, which does not exist in the Baum Pool, and the "B" zone and possibly from the "C" zone.

Q Is the Lazy "J" Pool or field higher structurally than the Baum-Wolfcamp?

A Yes. It produces from elevations that range a little over 50 feet higher than the Baum-Wolfcamp Pool or Baum Pool.

Q But the so-called "A" zone is not productive in the Baum-Wolfcamp area?

A No, it is not.

Q Does this Exhibit No. 2 show the acreage ownership in the Baum-Wolfcamp Pool?

A Yes. Coastal States owns approximately 4280 acres and the other operators or ownership operators in the area are Delaware Apache, Bell Petroleum, M. W. J. Oil Company, Cabot Oil Company and Cities Service. The Lawless interest, which is indicated on the map, has been acquired by M. W. J.

Q Now refer to Exhibit 3 and explain to the Commission what this is and what it shows.

A Exhibit 3 is an electric log cross section which passes through all the nine producers in the Baum-Wolfcamp field, then through the Cabot 1 "P" State dry hole onto the

Hennigan No. 1 Depco State dry hole, into the Lazy "J" field. The cross section shows both the "B" zone member and the "C" zone member of the Permo-Penn formation. It also shows that they conform structurally very close together. The index map on this cross section is contoured on the "C" zone and it may be noted here that that structure configuration is very close to the structural configuration of the "B" zone.

The cross section shows the Baum Pool structure and the separate Lazy "J" structure. The Cabot 1 "P" State again showing the low between the two wells quite pronounced on this cross section. The Cabot 1 "P" State also tested fluid in the amount of 260 feet of free oil, 270 feet of drilling mud and 6560 feet of salt water from the "B" zone member of the Permo-Penn, being essentially a salt water test, and it only tested 50 feet of drilling mud from the top of the "C" zone member.

The Hennigan No. 1 Depco State, which is, incidentally, located 1980 from the West Line, 330 from the North Line of Section 28, Township 13 South, Range 33 East, is also a dry hole and this well tested only 400 feet of oil and gas cut drilling mud with very low members in the "B" zone and 780 feet of salt water in what we consider to be the "C" zone.

These two dry holes I feel definitely established a separation between the Baum-Wolfcamp field and the Lazy "J" field. Though it's not indicated on here, I would also like to point out again that the "A" zone exists, you can see some of the porosity in the wells in the Lazy "J" field, and that this zone does not exist in the Baum-Wolfcamp or the Baum field.

Q It's your opinion, then, that these are two separate and distinct pools?

A Yes. There's no doubt geologically that they are.

Q Definite separation?

A Definite separation.

Q Are the characteristics of the pool different?

A Yes, the next exhibit will show some of that difference in characteristics.

Q Refer to Exhibit No. 4 and tell the Examiner what it shows.

A Exhibit No. 4 is a map with the initial potentials of both the area of the Lazy "J" and the Baum Pool. This map is made to show the significant difference between the Baum Pool or field potentials and the Lazy "J" initial potentials, and if you will note, there is a line running between the two pools and the initial potential average in the Baum Pool was

59 percent salt water, and in most cases in the Lazy "J" Pool it was salt water free. There are only two wells located in Section 21 that have some percentage of salt water, but still nothing of the average of 59 percent in range.

This map definitely indicates that the fluid accumulations in the Lazy "J" field and those of the Baum field are decidedly different, with the Baum field producing and having in the fluid state salt water along with the oil whereas in substantially the largest part of the Lazy "J" field, why, it is primarily oil free.

The producing zone in the Lazy "J" field probably relative to the producing zone, the "B" zone produces in the Coastal States 1-32 located 1980 from the South Line, 660 from the West Line of Section 32; the 1-8, located 660 from the North and West Lines of Section 8 and the 1-7, located 1650 from the West Line and 330 from the North Line of Section 7. These wells all produce from the "B" zone and all produce substantial quantities of water from initial production where the "B" zone, up in the Lazy "J" Pool has not produced with initial production any quantities of water at all.

Q Does that mean that all the rest of the wells in the Baum-Wolfcamp have been completed only in the "C" zone?

A Primarily, yes, that is correct. The 1-32 is

producing both from the "B" and the "C" zone.

Q Is there anything else you would like to add to your testimony?

A Other than that this supports the geological structural configuration, this fluid separation.

MR. NUTTER: Mr. Zinke, going back to your cross section there, the well symbols across the bottom of the cross section of these number like your 6-1, it says B-2574, C-3118. What do those numbers represent?

THE WITNESS: Bottomhole pressures.

MR. NUTTER: In the "A", "B" and the "C" zone?

THE WITNESS: Yes, sir, these will be used in later testimony by the engineer who will testify.

MR. NUTTER: On your cross section, does that indicate that those wells are completed in those intervals if it says if you have a "C" pressure?

THE WITNESS: No, it does not. Actually, if I am correct --

MR. McGRAW: No, not necessarily.

MR. NUTTER: No correlation between the zones?

MR. McGRAW: No, we will make that distinct.

THE WITNESS: We have maps that will show which zones these wells are producing in.

Q (By Mr. Hinkle) Have Exhibits 1 through 4 been prepared by you or under your direction?

A Yes, they have.

MR. HINKLE: We would like to offer Exhibits 1 through 4.

MR. NUTTER: Coastal States Exhibits 1 through 4 will be admitted in evidence.

(Whereupon, Exhibits 1 through 4 were offered and admitted in evidence.)

MR. HINKLE: That's all.

CROSS EXAMINATION

BY MR. NUTTER:

Q I see from your Exhibit No. 2 and from the plat or the cross section that you do have a low for the "C" zone as well as the "B" zone?

A That's correct.

Q However, your syncline or your trough, whatever you might want to call it, extend further north as far as the "B" member is concerned, than it does here in the "C" zone? It goes clear up into Section 29, the 5575-foot line does?

A It was contoured just more or less because there isn't other control other than the Cabot well in that area.

Q But the evidence is that the trough exists in all the zones?

A Yes, it does. In fact, it is a little deeper in the "C" zone. There appears to be just a slight amount of thickening in the section between the "B" zone and the "C" zone.

Q In the State "C" No. 1 to the State "P" No. 1?

A Yes. Incidentally, the Lyon well located,this 1 "C" State located in Section 32 appears, though it was drilled and abandoned, appears to be a potential producer in the Baum-Wolfcamp Pool,if there is any question about that later.

Q When was it drilled?

A I do not have the date but it was drilled --

Q Well, I guess that's the date up there at the top of the cross section, September of '54?

A Yes. It was drilled just subsequent to the drilling of the Baum-Wolfcamp discovery wells and because of the oil and water, was abandoned.

Q After you went back into this old Coastal, or this old Champlin 1-6, you made a producer out of it, you say?

A Yes.

Q It was in the process of being recompleted when we had the last hearing?

A That's true.

Q What kind of potential did you get on that well?

A We have that on the potential map. It did not make a very good well. It was potentialed for --

Q 80 barrels of water --

A -- 80 barrels, and 610 barrels of salt water. We have not figured out why yet.

MR. NUTTER: Any other questions of Mr. Zinke? He may be excused.

(Witness excused.)

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 where you reside.

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

Q Did you previously testify in Case 3701?

A Yes, I did.

Q And your qualifications as petroleum engineer are a

matter of record with the Commission?

A Yes, sir.

Q Since the hearing on case, originally on 3701, have you made a continuing study of the Baum-Wolfcamp area?

A Yes, I have.

Q All the wells that have been drilled?

A Yes.

Q All the production information and all the pressure information?

A Yes, sir.

Q Have you prepared certain exhibits to be considered in this case?

A Yes, I have, Exhibits 5 through 10.

Q Refer to Exhibit 5 and explain to the Commission what this is and what it shows.

A Exhibit 5 is the graph of the production history on the Baum-Wolfcamp field back from its inception in 1955 to the present time. We have simply -- This is the same graph that was used in the last hearing. We have simply added to it the current producing rate in the field. This plat shows that the Baum field was discovered in May 1955 by Champlin Petroleum Corporation with the completion of their Featherstone Federal No. 1. That well is located in the

Southeast Quarter of the Southeast Quarter of Section 6, Township 14 South, Range 33 East.

The well was completed from the "C" zone of the Permo-Penn formation, and although it was potentialed higher, it actually produced 58 barrels of oil and 20 barrels of water per day. This well is currently producing 35 barrels of oil and 40 barrels of water per day and it has a cumulative recovery of approximately 120,000 barrels of oil and 150,000 barrels of water.

In January 1956 Champlin drilled the Featherstone Federal No. 1 "A", located in the Northeast Quarter of the Northwest Quarter of Section 7, and after drillstem testing the pay zone, the well was plugged and abandoned. Champlin later drilled and completed the Featherstone Federal No. 2, located in the Southeast Quarter of the Northwest Quarter of Section 6, and that was in August 1956. This well produced for approximately two and a half years and recovered 39,374 barrels of oil and approximately 136,000 barrels of water. It was plugged and abandoned in January of '59.

In November 1967 Coastal States drilled and completed the State 6 No. 1, which is located in the Northwest Quarter of the Northeast Quarter of Section 6, for 360 barrels of oil and 640 barrels of water per day. Following this

Coastal has drilled five additional wells and re-entered the two wells that were plugged prior to '59 and completed them as producers. As of April 1, 1968 Coastal operates eight wells in the field with a combined capacity of 1400 barrels of oil plus 4,000 barrels of water per day. Champlin operates one well, which is producing at a rate of 35 barrels of oil, 40 barrels of water. Two additional wells are in the planning stage by other operators at this time.

Q What are those wells?

A Well, the one that was testified to prior is the Apache, Delaware Apache well in Section 30 and M.W.J. plans a well in Section 5. I believe it would be in the Northwest Quarter.

MR. NUTTER: You've proved up a location for them there and also in the Southeast of 31?

A Yes, sir. In fact, they will undoubtedly drill both of those in the very near future. According to the present geology, there appears to be ten additional proven locations on 160-acre spacing. This would make a total of 19 wells for the field on 160-acre spacing. All the wells completed to date, including the two current operations, have been drilled on 160-acre spacing, although the field currently is operating under a temporary order designating 80-acre spacing.

Q (By Mr. Hinkle) Now refer to Exhibit 6 and explain that for us.

A Exhibit 6 is a plat showing the well location and pressure information. It also shows the completion interval for each well; the color code down there I believe is, I believe you can see that the blue color represents a Bough "B" completion and the yellow a Bough "C".

Q These are initial pressure completion, are they not?

A Yes.

Q Drillstem test?

A Initial drillstem test pressures in the test interval covering the "B" or the "C" zone. We took the initial shut-in pressure from the drillstem test. We feel that this is the true static reservoir pressure in the area of the well at the time the well was drilled. The initial bottomhole pressure for this area was determined to be 3495 in the Bough "C" zone and 2806 in the Bough "C" zone in the Lyon Oil Company State 31 in November of '54. This was testified to awhile ago. You'll notice the well is in Section 32 in the Southwest Quarter of the Southeast Quarter of Section 32. That is the oldest well drillstem tested in this area in 1954 and they had an immediate shut-in pressure of 3495 on the "C" zone and 2806 on the "B" zone.

Now, Champlin drillstem tested their wells in, later in '55 and '56. They only took a fifteen-minute buildup. We have evidence to prove that fifteen minutes is not long enough to get an accurate buildup pressure. We feel that fifty minutes is. In every case on ours where we have the buildup curve, fifty minutes is sufficient to get the static buildup pressure. So, therefore, our Champlin pressures were not useable from this respect. They were somewhat lower than the 3495.

We feel that the pressure in this area was at least this high when Champlin completed their Featherstone Federal No. 1. Now, assuming that this initial bottomhole pressure was 3495, and that the surrounding area contained equal pressure, then by virtue of the production of 160,000 barrels of oil and 240,000 barrels of water, the bottomhole pressure was lowered to 2282 in the nearest well, which is Coastal States State 5 No. 1.

Q How far is that?

A That's about 1700 feet Northeast of Champlin's well. Now, also the pressure was lowered to 2824 in the Featherstone Federal No. 2 or Coastal's Federal 6 No. 1, which is located approximately 3,000 feet Northwest. If you'll go to the next exhibit, we feel that this is --

Q That would be Exhibit No. 7?

A We are actually able to draw an isobaric map showing a pressure sink in the vicinity of this Champlin well where by far the majority of this production has come from. All these pressures now are initial pressures and they are taken from over a period of time November through April with mostly -- if you'll look at the dates on this map, the completion date is the little number to the upper right of the well, most of these were in the latter part of November, December and January. And so we have a given time that we can draw a static pressure for the reservoir and it definitely indicates a sink, a pressure sink in the vicinity of the Champlin's well. We feel that this shows definite indications that the pressure has been influenced over, well, practically a thousand acres in here by the production of this fluid.

Q Is this pretty conclusive evidence that one well will effectively and efficiently drain as much as a thousand acres?

A This is conclusive evidence that it will affect the pressure over this area. We feel that it also definitely proves that one well will effectively drain in excess of 160 acres. It could, of course, influence the pressure without effectively draining the oil over the other area.

Q Do you consider this as good evidence of the drainage factor?

A Yes, we consider this as being conclusive evidence of interference between wells on 160-acre or greater spacing.

Q And about the best evidence you can obtain?

A Yes, sir, it is. In fact, it's the type of information you would receive if you run an interference test and actually shut a well in, in fact, you couldn't possibly run one for the period of time that we have been able to observe here. You wouldn't get anywhere near this grade of pressure variation.

Q Now, refer to Exhibit No. 8 and explain what this shows.

A Exhibit No. 8 shows the initial bottomhole pressure in the "B" zone in many of these same wells. You'll note that the pressure is quite uniform all across the field at approximately 2550 pounds and has not been influenced locally by the previous mentioned production from the "C" zone. This, we think, supports the previous map and our statement that says that the low pressures were a direct influence of the production from that zone.

MR. NUTTER: That Chamblin well is producing from the "C" zone only?

THE WITNESS: "C" zone only.

MR. NUTTER: This would indicate there was no vertical communication between the zones?

THE WITNESS: That is true. Vertical communication between the zones in the field area. I'll have to point out that this 2550 average pressure for the "B" zone is some 300 pounds less than what it was found to be in '54. It was 2806 in '54.

MR. NUTTER: Any Lyon well?

THE WITNESS: Any Lyon well. We feel this indicates a regional migration of oil. It wasn't from the production in this field.

Q (By Mr. Hinkle) Refer to Exhibit No. 9 and explain what this shows.

A Exhibit No. 9 is an isobaric map of subsequent bottomhole pressures obtained in April 1968 on five of the producing wells. This map has the same general shape as the initial bottomhole pressure map, indicating that the bottomhole pressure is declining uniformly across the field. Although the current well density is more on the order of 320 acres than 160 at this time.

Q Is this indicative of wide drainage?

A Yes, it is; if you didn't have good pressure communication you would expect some of the poorer wells to have

much higher pressures due to the fact that they have recovered smaller volumes of oil and total fluid.

Q Is there anything else you would like to say about the Exhibit No. 9?

A We have taken extensive bottomhole pressures as we have indicated, and the permeability has been calculated from this drillstem test information on six separate test intervals on four separate wells. The average permeability over the pay zone ranged from 52 millidarcies to 407 millidarcies, with the average for all test intervals being 160 millidarcies.

I would expect the permeability distribution on a given well to range from several hundred millidarcies down to a tenth of a millidarcy in order for the total interval to have an average of 160. Therefore, we must have some several feet in the wells that have high permeability in order for the average to be 160. This indicates that the wells would be capable of producing large volumes of fluid and should be able to recover this fluid from an area with a drainage radius in excess of 1320 feet, which, of course, is a drainage for a well developed in a field on 160-acre spacing.

Production history to date has verified this conclusion that the wells would be capable of producing large

volumes of fluid and pressure observation has indicated interference between wells over much greater distance than 1320 feet.

It is our conclusion that one well can effectively and efficiently drain in excess of 160 acres in this reservoir.

Q Have you made the study of the economics involved in developing this area on 40, 80 and 160-acre spacing?

A Yes, we have, and Exhibit 10 shows the economics and it's the same as we presented in the last hearing. We have no information to date to indicate that we will recover in excess of the 151,000 barrels per 160 acres that we had testified to at our previous hearing. In fact, our subsequent pressure information indicates that it might be somewhat less. So we saw no reason to recalculate the economics, they're the same as we used before.

We have obtained a gas sales contract, and as testified to before, we still believe that it will require about the same amount of cost to dispose of water that the gas will bring, so that does not enter into the economics, and we also have a pipeline connection now for the field, or we have signed an agreement, and they will be hooking that up and that will improve the economics very slightly.

Q What is your ratio of income to investment?

A The ratio of income to investment on 160 acres is 1.63, which is fair economics considering that the wells in this field do come in at high producing rates and you do get a fairly fast payback and it makes favorable economics.

Now, of course, the ratio to investment on 40 and 80 acres are negative. It will not pay out.

Q They are .41 on 40 acres and .81 on 80 acres?

A Yes, sir, that's true.

Q I believe you testified that if this field is fully developed insofar as the limits of it are now known, it would require the drilling of some ten additional wells which would be about nineteen wells total, is that right?

A Yes, sir, we think that's what it will be.

Q If it were developed on 80-acre spacing, how many wells would have to be drilled?

A It would require 38 wells to produce the same amount of oil.

Q And how much would it cost to drill those additional nineteen wells?

A Well, at $180,000 per well, this, of course, would require some $3,400,000 of additional drilling money.

Q According to the figures you have just given us, it would never pay out?

A No, sir, it would not pay out on that basis.

Q In other words, it would be complete economic loss of the three million four hundred thousand?

A Yes, sir.

Q Have the other lease owners in this area indicated whether or not they approve of this application?

A Yes, sir. We have contacted all the other lease owners in the area and all of them have indicated by phone to us that they support us in this. We have received two letters from operators and we understand that they have mailed some letters in to the Commission.

MR. HINKLE: Our letters are from Cabot Corporation and M.W.J.

MR. HATCH: The Commission has received those letters.

MR. HINKLE: You have received them?

MR. HATCH: Yes.

Q (By Mr. Hinkle) What about Apache?

A Apache told us they would support us in the hearing and said they would mail the letter in.

MR. NUTTER: Here is a letter from Apache, too.

Q (By Mr. Hinkle) In your opinion, will the amendment of the temporary special field rules in this case to provide

for 160-acre spacing and 80-acre allowable be in the interest of conservation and prevention of waste?

A Yes, sir.

Q Would it also tend to protect correlative rights?

A Yes, sir. We feel that it will.

Q Does Coastal States have any particular development program planned for this area?

A Yes, sir. We have a development program planned. It is temporarily halted, though, while we're considering the bottomhole pressures that we just run and we are waiting to run additional bottomhole pressures in the last of May. We're somewhat alarmed at this rapid pressure decline and although we recognize that generally the first subsequent pressures run after initial cause alarm and generally it will flatten after this. We're hoping this will be the case but we're not planning to drill any more until we do determine the pressure performance on one additional test.

Q If pressure performance is along the lines that you anticipate, would you then plan on developing it on 160 acres, that is, drilling the additional wells necessary to drill it up on 160-acre spacing?

A Yes, sir. We would continue to develop the field on one, if this order is amended, on 160-acre spacing; however,

if this pressure performance does continue to decline at the same rate we probably would not drill it on 160.

Q Under the same conditions, if it doesn't decline as much as it might, would Coastal States continue to develop this field on an 80-acre basis?

A No, sir, we would not.

Q It would just be economically impossible?

A We could not justify a well on 80 acres.

Q Do you have anything else you would like to mention?

A Well, only that we are, of course, requesting field rules similar to those granted for the Vada-Penn Pool. The rules should include a provision for 160-acre spacing with a 160-acre proportional factor of 4.77 for allowable purposes. This is the normal proportional factor for 80-acre spacing as published by the New Mexico Oil Conservation Commission, and the present allowable for the field. We are not asking for these in allowable since we only have one well in the field now. Well, we have two that do make more than, I believe this would be 277 barrels of oil per day. Our latest test indicates that two wells, two of our wells would be capable of producing in excess of this.

Q You have testified that Coastal States would probably not develop this area on 80 acres. Do you know what the

attitude of the other operators in the area might be?

A No, sir, I don't. Possibly some of these 80-acre tracts could be farmed out and some of them might be drilled.

Q There might be one or two of them drilled?

A Yes, sir.

MR. HINKLE: We would like to offer in evidence Exhibits 5 through 10.

MR. NUTTER: Coastal States Exhibits 5 through 10 will be admitted in evidence.

(Whereupon, Exhibits 5 through 10 were offered and admitted in evidence.)

MR. HINKLE: I believe that's all.

CROSS EXAMINATION

BY MR. NUTTER:

Q Turning first to your Exhibit No. 5 and tracing the history of the production of this pool, we can see that after that first well was completed, that the production declined until about August of 1956 when the second well was brought in and then production for the pool went up again.

A Yes.

Q Then the production declined again and then it raised just a little bit here in late 1958, but not much. What was the cause for the production to jump up in 1966?

A It is our understanding that in 1966 Champlin was experimenting with a Kobe pump or a high voltage pump, and they put it on and you can see that it actually did increase the production considerably, in fact, it more than doubled it, almost tripled it, and increased the water proportionately, but for some reason they were not successful or not able to keep this pump operating properly, and so they took it off and went back to their Baum pumping unit and still the production stayed above what it was.

Q They kept it up over a thousand barrels a month, anyway?

A Yes, sir. It might have helped the well just to relieve some of this water from it temporarily.

Q Then the next spurt is when you started drilling your wells?

A Yes. As you can see, our April production is shown at 27,500 barrels. Now, that's down because we were shutting in in April, taking those bottomhole pressures. Our May production will be over 42,000 barrels.

Q That will be way up here?

A Yes, sir, it will be right on up.

MR. HINKLE: What is your average production per day now?

THE WITNESS: We average 14,000 barrels per day and about 4,000 barrels of water.

MR. HINKLE: How is the water being handled, by submergible pump?

THE WITNESS: We are producing the water with Kobe pumps, hydraulic pumps.

Q (By Mr. Nutter) If we turn to Exhibit No. 7, Mr. McGraw, your first isobaric map, I presume that all of the wells that are colored blue are producing from the Bough "B" zone, the ones that are colored yellow are producing from the Bough "C", and there's a couple of wells that are blue and yellow both, they are completed in both intervals?

A That's true.

Q The pressures that you have on your subsequent isobaric map, Exhibit No. 9, would be "B" and "C" zone only combined for those two wells that are producing from both zones?

A Yes, sir.

Q And then they would be "B" or "C" for the others?

A They're just "C" on the others. The two "B" zone wells, the two in the south, have no pressures. They weren't even completed in April. These having two zones open in the field in the well bore, as you can see, distorted this map

somewhat. We really thought it would distort it more than this, but it didn't have a great effect on it.

Q The Champlin well in the Southeast, Southeast of 6 was the first well completed, that was back in May of '55?

A Yes, sir.

Q It has produced how much, about a half a million barrels?

A Well, it has produced 120,000 barrels of oil and 150,000 barrels of water.

Q I don't know where I got the half million.

A The other well, of course, the combined total was about 400,000 barrels that was removed from this area, but the other well was shut-in back in '59, we feel like the pressure has stabilized in that area.

Q Then the well over here, the 1-7 in Section 7, was the second well completed, it was brought in in --

A That one was drilled. That was the second well drilled.

Q It didn't have any producing history until you re-entered it?

A That's right. They plugged it without even running pipe.

Q And you recompleted it when, Mr. McGraw?

A I believe the date shows on that, April '68.

Q It was drilled back in '55?

A Yes, sir.

Q Then they drilled their third well up here in Section 6?

A Yes.

Q And when did they abandon it, in 1959?

A Yes, sir. They abandoned it in, oh, about December of '59. Excuse me, that's December of '58.

Q December of '58?

A Yes.

Q Then you recompleted that well?

A Yes, sir.

Q When did you put it back on production?

A In December of '67.

Q All the rest of the production in here is from new wells that have been drilled since that time?

A Yes, sir, that is true.

Q How are the wells holding up as far as productivity, Mr. McGraw?

A Well, they're holding up real well, we feel like. I have the latest test here that you might get that plat that shows the initial potential, and I will read you off the

latest tests on those. The Coastal States Federal 6 No. 1, which is in the Southeast Quarter of the Northwest Quarter of Section 6, the current test on that is 40 barrels of oil and 645 barrels of water. The State 5 No. 1, that is the one in the Southwest Quarter, 288 barrels of oil, 60 barrels of water. The 5, 2 is 139 barrels of oil, 533 barrels of water. The State 6, 1 in the Northeast Quarter, 318 barrels of oil, 790 barrels of water. The State 7, 1, 70 barrels of oil, 30 barrels of water. The State 31, 1, 165 barrels of oil, 1,018 barrels of water.

Q My next question is, where is all this water going?

A The State 32, 1 is 220 barrels of oil, and 480 barrels of water. The State 8 No. 1, 175 barrels of oil, 168 barrels of water.

Q Now, where is all this water going?

A At the present time we're still storing it in the drilling pits. We are, of course, going to have to have a disposal well, we had been hoping, not really hoping, but watching if we got a dry hole, the first dry hole we got was going to be a disposal well. We have not drilled a dry hole to date. We have approached Lyon on their well, we would like to have had it. The Cabot well. We have checked every dry hole in the area, now we are all the way in Section 20

working on this dry hole that shows up there.

Q The old Trigg State well of Ohio?

A That's the closest one, and if we don't get a dry hole in the next couple of months or three we'll have to go to there.

Q You mentioned earlier that the Lyon State might have a possibility of being recompleted?

A That's true.

Q But this Cabot State, it is down in the trough?

A It's too low and it would be the ideal well.

Q Who owns the well, now?

A Cabot does, and so far they have not responded to our offer to buy it from them.

Q Now, in determining your reserves, Mr. McGraw, on your economic sheet here, I wonder if you could give me the factors that you used in arriving at your estimated recovery. Give me your average net feet of pay.

A The figures were calculated from our State 6 No. 1, from the logs on our State 6 No. 1.

Q Is it an average well?

A It's the best one.

Q It is?

A It's the best one.

Q Is it in both zones?

A No, sir, it's only in the "C" zone right now.

Q So these factors here, these economic factors might not include the "B" zone, then?

A This is true, but the wells that do produce from both zones don't make as much oil as this well and don't have as high a pressure. I thought about going back and average this but everything would tend to decrease it from this amount that we have no indication that we'll recover any more oil out of any well than this State 6, 1.

MR. HINKLE: This gives the most favorable aspect?

THE WITNESS: This is the most favorable. This is the one we used to sell our management.

Q (By Mr. Nutter) Net pay?

A Nine feet.

Q Water saturation?

A 38 percent.

Q Porosity?

A Nine percent.

Q Formation volume factor?

A 1.45.

Q And recovery factor?

A 35 percent.

Q That's optimistic, too, isn't it?

A Yes, sir.

Q And using those factors, you arrived at these estimated recoveries?

A Yes. That will calculate 299 barrels per acre foot and 135 barrels of acre feet recovery, nine feet of pay gives you 945 per acre. On 160 acres, that's 115,000 barrels. We feel, looking at the optimistic side, that this is what we can hope to recover it and we would like to develop it on that basis.

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

REDIRECT EXAMINATION

BY MR. HINKLE:

Q In connection with your last testimony there, are all of these wells, when you penetrated the "B" zone and completed in the "C" zone, did you have any indication of production in all of them in the "B" zone?

A Not all of them, but I would say, well, if you look at the cross section you can see this, we do have other zones that we can open.

MR. NUTTER: In other words, you have drillstem tests in the "B" zone?

THE WITNESS: That's true.

MR. NUTTER: You tested it in every well?

MR. HINKLE: But it was not productive in every well.

THE WITNESS: Not in every case. The "B" zone is more erratic. In fact, our greatest production decline is on the wells in Sections 7 and 8 that are completed only in the "B" zone.

MR. HINKLE: The "C" zone seems to be the most uniform productive zone of the three.

THE WITNESS: That's true. It's the best reservoir.

MR. NUTTER: I would like to get the nomenclature straight in my mind if possible. Is the "B" zone Lower Wolfcamp, Mr. Zinke?

MR. ZINKE: I believe the "B" zone is actually what you call the Pennsylvanian in the Lazy "J". It's right below the Wolfcamp.

MR. NUTTER: Well, Wolfcamp is Permian, how could the proper name for this be Permo-Penn, then?

MR. ZINKE: It's in a transition zone. Remember, we mentioned the "A" zone that does not exist in the Baum but does exist in the Lazy "J"?

MR. NUTTER: Is the "A" Lower Permian?

MR. ZINKE: "A" could very well be Lower Permian.

It's difficult to draw an exact line between the Wolfcamp or Permian and Pennsylvanian here. It appears to be that the top of the "B" zone could be considered the top of the Pennsylvanian because it definitely is a good correlative marker across the country and used by many people to map on.

MR. NUTTER: The proper name for this would be Baum-Pennsylvanian?

THE WITNESS: This is true. We did point this out in our testimony today. We did also when the case came up originally. It should be changed.

MR. NUTTER: The first time I thought there was some Lower Permian production here but evidently not, no Permian production at all.

MR. ZINKE: Not in my opinion, there isn't.

MR. NUTTER: It's below the transition zone even?

MR. ZINKE: In my opinion it's below the transition zone. The "A" zone is probably in the transition zone.

MR. NUTTER: Any other questions of Mr. McGraw? He may be excused.

(Witness excused.)

MR. HINKLE: I just want to point out that in my experience before the Commission I think if there is ever a case that justifies wide spacing for oil field development,

this is one. It meets all of the qualifications of the factors which are involved in the rules and law, the conservation law, in that it has been clearly proven that one well will effectively and economically drain more than 160 acres, and it's been clearly shown here that the development on 160-acre basis will prevent the expending of some $3,400,000 for the drilling of non-essential wells which can never be recovered.

MR. NUTTER: Thank you. Is there anything else to be offered in Case 3701 (reopened)? If not, we will take the case under advisement, and the hearing is adjourned.

I N D E X

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public 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.

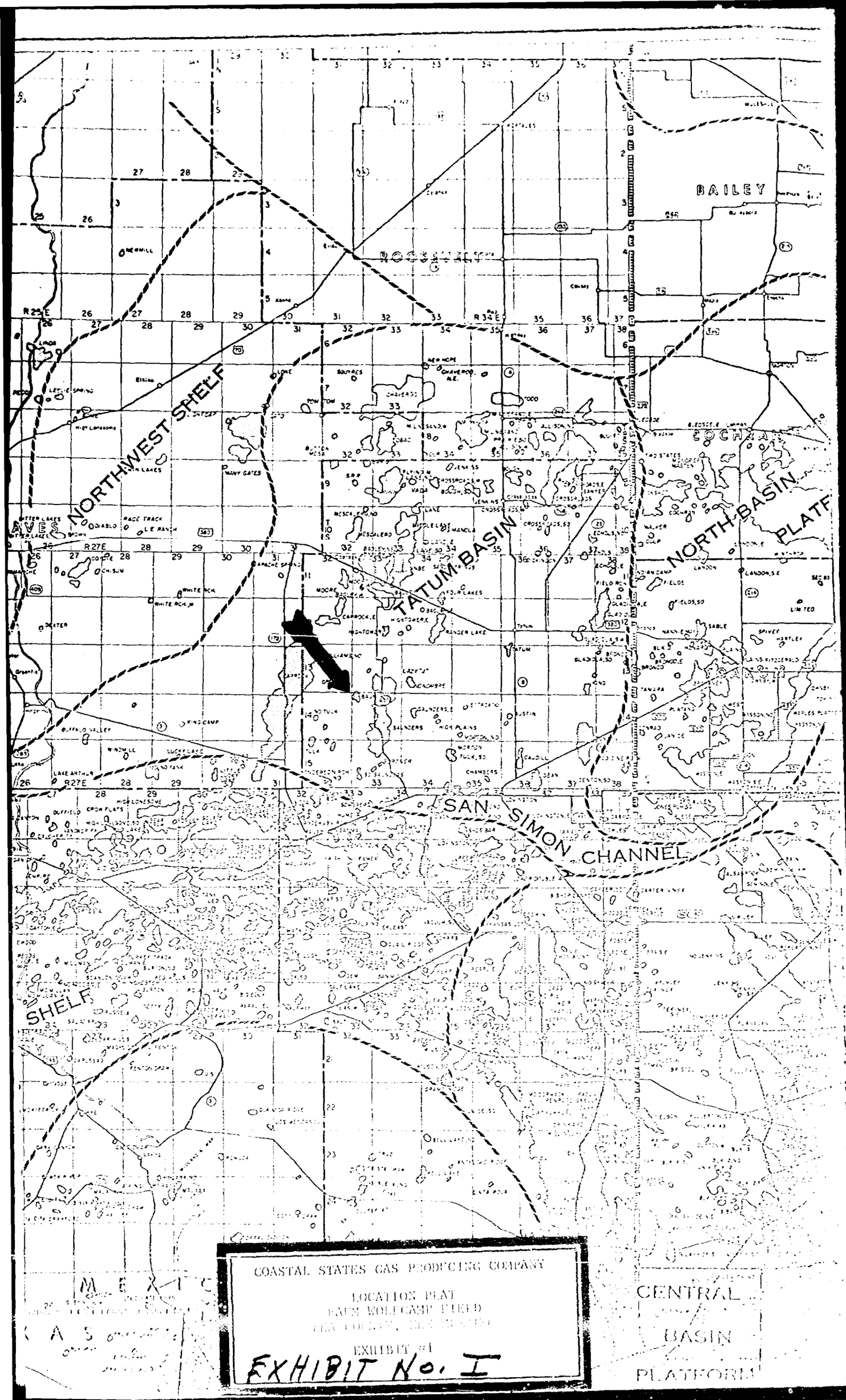
Witness my Hand and Seal this 26th day of June, 1968.

Ada Dearnley
NOTARY PUBLIC

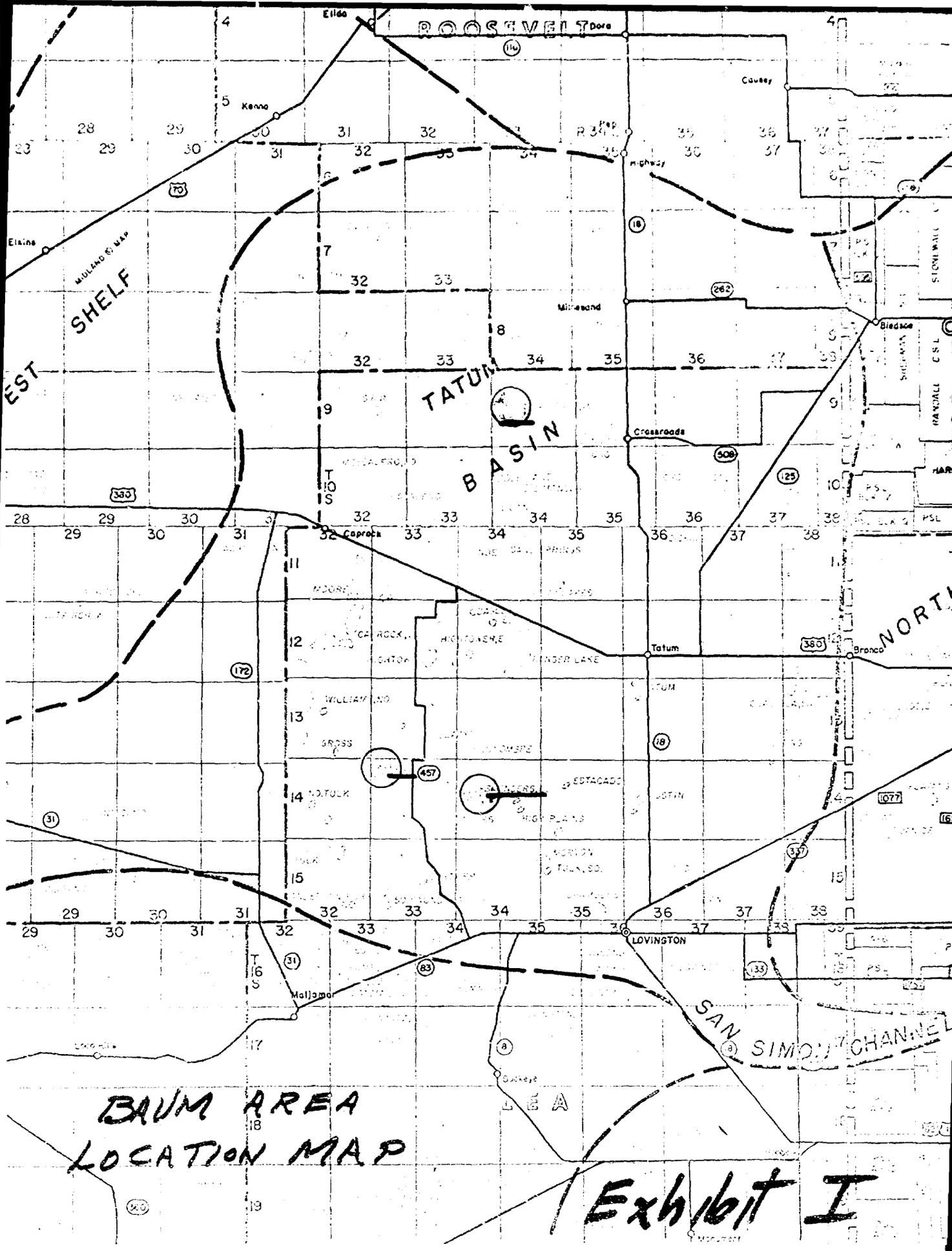
My Commission Expires:

June 19, 1971.

5/22 3701 68


BAILEY
NORTHWEST SHELF
TATUM BASIN
NORTH BASIN
SAN SIMON CHANNEL
SHELF
CENTRAL
BASIN
PLATFORM
R 25 E
R 34 E
R 27 E
COASTAL STATES GAS PRODUCING COMPANY
LOCATION PLAT
EXHIBIT #1
EXHIBIT No. I

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Oil EXHIBIT NO. 1
CASE NO. 3701


ROOSEVELT
Elida
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Causey
Kenna
Highway
Elkins
MIDLAND
SHELF
EST
TATUM
BASIN
Milnesand
Bledsoe
Crossroads
Caprock
Tatum
Bronco
NORTH
LOVINGTON
Maljamar
SAN SIMON CHANNEL
LEA
BAUM AREA
LOCATION MAP
Exhibit I

EXHIBIT X

BAUM PERMO-PENN FIELD
ECONOMICS

Gross Income	$ 3.11 per bbl.
Trucking Charge	0.11 per bbl.
Mineral Interest Income at .8125	2.44 per bbl.
Operating Cost and Taxes	0.50 per bbl.
Net Working Interest Income	1.94 per bbl.

Estimated Recovery	40 Acres	80 Acres	160 Acres
	37,800	75,500	151,000
Total Net Income	$ 73,300	$146,000	$293,000
Development Cost per Well	$180,000	$180,000	$180,000
Ratio of Income to Investment	0.41	0.81	1.63

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 20, 1967
EXAMINER HEARING

IN THE MATTER OF:

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

Case No. 3701

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We'll call Case 3701.

MR. HATCH: Case 3701, Application of Coastal States Gas Producing Company for special pool rules, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant, and Christy, appearing on behalf of the Coastal States Gas Producing Company. We have two witnesses and several exhibits which I will have identified. I'd like to have Jack and Mr. Zinke both sworn.

(Witnesses sworn.)

(Whereupon, Applicant's Exhibits Numbered 1 through 9, inclusive, were marked for identification.)

ROBERT ZINKE

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name.

A Robert Zinke.

MR. NUTTER: How do you spell that, please?

A Z-i-n-k-e.

Q Where do you reside?

A Midland, Texas.

Q By whom are you employed?

A I am employed for Coastal States in Midland, Texas.

Q In what capacity?

A As a Senior Geologist.

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

A No, I have not.

Q Are you a graduate geologist?

A Yes, I am.

Q What school did you graduate from?

A Missouri School of Mines in Rolla, Missouri.

Q Of what year?

A In 1951.

Q Have you practiced your profession since graduation?

A That, I have.

Q Have you been employed by other companies?

A Yes. I have been employed by several oil companies in Midland.

Q How long have you been employed by Coastal States?

A Two years, approximately two years.

Q Are you familiar with Coastal States operations in New Mexico?

A Yes, I am.

Q Are you familiar with their operations in the Baum area?

A Yes, I am.

Q Are you familiar with the application that's been filed by Coastal States in this case?

A Yes, I am.

Q What is Coastal States seeking to accomplish by this application?

A To drill wells on a hundred sixty acre spacing, to do this for economic reasons.

Q And to obtain special field rules?

A Yes, special field rules for the Baum Pool.

Q Have you made a study of all the wells and the logs of the wells that have been drilled in this area?

A Yes, I have.

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

A This is a regional map showing, first of all, the different fields across most of Lea County, Texas, and on into the other surrounding counties, and there are three areas circled.

The two orange areas are: one area in Township 9 south, Range 34 east, the Vada Pool out of the Bough "C" line and the other orange circle in Township 14 south, Range 34 east in the Saunders East Pool from the Permo Penn line, and then the yellow circle, which circles the Baum Pool,

giving the location of the Baum with relationship to the Vada and the East Saunders Pool.

Q Are these three pools all producing from the same formations?

A Yes.

Q Have they adopted special field rules for the other two pools that you mentioned?

A There are, to my knowledge, field rules of a hundred sixty acre spacing for both these pools.

Q Now, refer to your Exhibit 2 and explain what this shows.

A This is a subsurface map contoured on the top of the Permo Penn line and it shows the structures that the various pools in the area of the Baum Pool, the size and relationship of these structures to the Baum Pool. It also has a line of cross-section drawn from the Baum Pool over to the East Saunders Pool, the relationship of the size of structure of the Baum Pool to the East Saunders Pool and to the Saunders Pool itself, and the Lazy J Pool.

Q The line which you have mentioned, showing the cross-section, refers to another exhibit which will be introduced later?

A Right.

Q Did you prepare this structural map?

A Yes, I did.

Q Was it prepared under your direction?

A Yes, it was. I prepared it.

Q Is Coastal States acreage indicated in yellow?

A Yes, Coastal States acreage, the holdings, the present holdings are indicated in yellow.

Q What was the initial test well that was drilled in the area, in the Baum area?

A It was the Coastal States Number 6-1 State, and it is located nineteen eighty feet from the east line, six sixty feet from the north line of Section 6, Township 14 south, Range 33 east.

Q Is that well completed as a producer?

A Yes, it is.

Q Was it the original producer in the area?

A No, it is the third producer in the Baum Pool area.

Q What was the first one?

A The discovery well was the Champlin Number 1, Federal -- Featherstone Federal, located six sixty from the south and east of Section 6, and the second producer was the Featherstone -- Champlin Number 2, Featherstone Federal, and it is located twenty-three ten from the north and west of Section 6.

Q When was the Champlin Well completed?

A Approximately 1955.

Q Is it producing considerable water at the present time?

A Yes, it's producing fifty percent water.

Q When was your last well completed in this area?

A Coastal States well?

Q Yes.

A It was completed -- I do not have the exact date.

MR. JACK R. McGRAW: The first of December.

A It would be the first of December.

Q Is that well capable of making it's allowable at the present time?

A Yes, it is.

Q What is the potential of the well?

A The well was initially potentialed for a hundred and sixty barrels of oil and six hundred forty barrels of water and was repotentialed at a later date for three hundred sixty barrels of oil and six hundred forty barrels of water.

Q Is Coastal States engaged in any additional operations at the present time?

A Yes, they are, at the present time, drilling below seven thousand feet on their Number 1-32 State Well in Section 32, Township 13 South, Range 33 east.

Q What is the depth of the formation in which you are

producing the Baum formation?

A It's at ninety-nine seven to ninety-nine seventeen.

Q When do you anticipate your next well will be completed?

A It should be completed right after the first of the year. There is another Coastal States well that is in testing. It was a reentry and redrilling from eight thousand feet to the Permo Penn Pay through the same Champlin Number 2, Featherstone Federal, which is located twenty-three ten from the south -- no, from the north and west of Section 6. It's the Coastal States 6-1 Federal.

Q Is there anything else that you would like to testify to with respect to Exhibit 2?

A No.

Q Now, refer to your Exhibit Number 3 and explain what this shows.

A This is a cross-section. It has an index map. It goes from Coastal States Number 6-1 State, east to the Texas Company Number 8-1 -- "A-T" Number 1 in the southeast part of Section 10, Township 14 south, Range 33 east, through the David Faskin No. 1 Tidewater State in Section 13, Township 14 south, Range 33 east on to the discovery, the Kern County No. 1 State, located nineteen eighty from the south and west of Section 17, fourteen south, thirty-four east.

This cross-section was made to show the correlation of the Permo Penn Pay in the Baum Pool across through the Saunders Pool into the East Saunders Pool showing the complex of the Permo Penn line and indicating that the Baum Pool is producing from the same Permo Penn line as the East Saunders Pool.

Q Does this also indicate that the characteristics of the producing formation in each pool is substantially the same?

A Approximately the same, yes. The East Saunders does not produce as much water as the Baum Pool does.

Q What is your pay thickness as shown by this cross-section?

A The pay thickness in the Coastal States 6-1 State is approximately nine to ten feet, and in the Kern County Number 1 State, in the East Saunders Pool, it is approximately fifteen feet thick. The perforations are over a much wider range, but the porosity is approximately the same.

Q How does this thickness of pay compare with the thickness of pay in the intervening wells between these two pools that are shown on this cross-section?

A The thickness of pay in the Baum Pool is approximately nine to ten feet. The overall thickness in the Saunders Pool is approximately forty to fifty feet, and this is in comparison

to the Saunders Pool.

Q In other words, you've got a thinner pay section in this area than they have in the main Saunders Pool?

A That's right, and the Saunders Pool is a larger structure.

Q What about the porosity and permeability as shown in the cross-section of the logs?

A The porosity and the permeability are well developed in all of the pools, except the Lazy J probably has some weak porosity and the permeability developments, but the East Saunders has very good permeability and porosity developments than the Saunders Pool does and, also, the Baum Pool.

Q Do you have anything else that you would like to testify to with respect to Exhibit 3?

A No, I do not.

MR. HINKLE: We would offer Exhibits 1, 2, and 3.

MR. NUTTER: Exhibits 1, through 3 will be admitted into evidence.

(Whereupon, Applicant's Exhibits number 1, 2, and 3 were admitted into evidence.)

MR. HINKLE: I'd like to call Mr. Jack McGraw.

MR. NUTTER: I'd like to ask Mr. Zinke a couple of questions.

MR. HINKLE: Oh, excuse me.

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

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Zinke, this pool has, by the Commission, been classified as a Wolfcamp Pool; however, you keep referring to it as a Permo Penn. Now, is it down in that twilight zone between the Lower Wolfcamp and the Upper Pennsylvanian, and it can't be well defined as a Wolfcamp or can it be defined as a Wolfcamp?

A One of the reasons, for making this cross-section, was to show that it definitely was the same correlative zone as the Permo Penn, and I would classify it as the Permo Penn, rather than the Wolfcamp. It's a term used to describe this transition zone between the Wolfcamp and the Pennsylvanian, where it's very questionable whether it is Wolfcamp or Pennsylvanian.

Q There is that twilight zone, though. I realize that.

A That's right.

Q Now, what has the Commission designated as the formation name for the Saunders and the East Saunders?

A Permo Penn.

Q Permo Penn.

A And, I believe, the Baum Pool is also Permo Penn

as this cross-section shows.

Q Rather than Wolfcamp, really.

A Yes. Of course, the geologists would argue one way or the other about this. I think it's Permo Penn from the correlations.

Q Now, geologically, do you have anything to indicate here that you've got sufficient permeability to drain a hundred and sixty acres?

A I believe that the samples indicate real good porosity and the Drillstem Test data, which will be on one of the later exhibits, also indicates this through very good pressures.

Q Now, I was having a little bit of difficulty following you there on some of these wells on your Exhibit Number 2, Mr. Zinke.

Now, you stated that the discovery well for the area was the Champlin Well down in the southeast, southeast of 6.

A That's right.

Q And is this the well that you said is presently making about fifty percent water?

A Yes, this well is producing -- I'll find out approximately what it is making, production wise.

Q I'd like the I. P. on it too, if you've got that there.

A It's on Exhibits-- this well was completed flowing for two hundred seven barrels of oil per day, plus twelve percent salt water, and we have some field production, it's total production, but it is producing -- it has produced approximately eight to nine hundred barrels of oil per month and a little bit more up to nine hundred to a thousand barrels of water per month.

Q And, that is about what it's making now?

A Recently, it was approximately a year ago or fourteen months ago, it was reworked and it's producing approximately eleven hundred barrels of oil and about twelve hundred barrels of salt water per month on a standard Beam pump.

Did I answer that question?

Q Yes, sir. Now, you said that the second well drilled in the area was the well that's identified there with the minus fifty-five hundred.

A That's right. It's twenty-three ten from the north and west line of the section.

Q Now, this well is shown to be abandoned now. Is this the one you said is being redrilled?

A Well, it's the one that's been redrilled and tested

by Coastal as of now.

Q Did it produce from this same interval?

A Yes, it did.

Q And what was its production history?

A I do not have the initial potential on it.

MR. HINKLE: Our next witness will go into that in a little more detail.

A It's produced thirty-nine thousand barrels of oil and was abandoned, I believe for the same reason of the water problem.

Q And then the third well that was drilled was your 6-1?

A That's right, into the same pay zone.

Q And it's potential was one sixty barrels of oil and four sixty barrels of water?

A Six forty barrels of water.

Q Six forty. What was the difference there between that first potential and that repotential? How come you went from one hundred and sixty barrels of oil to three sixty?

A Well, the engineers told me that their pumping equipment, this is a Kobe pump situation, that they had to rework their pump and put it back to pumping again, and it did improve their oil production.

Q And has it held up, this three sixty, as far as --

A I'm not qualified to testify exactly what the well is making. The engineers can.

MR. NUTTER: I believe that's all, Mr. Zinke. You may be excused. Thank you.

(Witness excused.)

MR. HINKLE: I'd like to call Jack McGraw.

JACK R. 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, your residence and by whom you are employed.

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

Q What is your official position with the company?

A Divisional Petroleum Engineer.

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

A Yes, sir, I have.

Q Your qualifications as a petroleum engineer are a matter of record?

A Yes, sir.

Q Are you familiar with Coastal States' operations in New Mexico?

A Yes, sir, I am.

Q And in the Baum Permo Penn Pool?

A Yes, sir.

Q You made a study of all the wells in that area?

A Yes, sir.

Q Of the logs and of the production data and all the information available?

A Yes, sir.

Q Have you prepared certain exhibits for introduction in this case or were they prepared under your direction?

A Yes, sir, I have.

Q Refer to Exhibit 4 and explain what it shows.

A Exhibit 4 is a graph showing the production history of the subject field. This graph shows that the discovery well, the Champlin Featherstone Federal Number 1, was completed in May of 1955 and that it has continued to produce to the present time. This particular well has a cumulative oil recovery of a hundred and fifteen thousand barrels and a water recovery of a hundred and thirty thousand barrels. The graph also shows that the Champlin Featherstone Federal Number 2 was completed in August of 1956 and produced until January of 1959. It recovered approximately 39,374 barrels of oil and approximately 136,000 barrels of water.

The Champlin Featherstone Federal 1-A located in the northeast quarter of the northwest quarter of Section 7, 14 south, 33 east, was drilled and then plugged and abandoned in January of '56. No completion attempt was made on this well. The well was later converted to a salt water disposal well and is used for that purpose at this time.

The Coastal States Number 6, State 6 Number 1 well, was completed in November of 1967, and is presently capable of producing 361 barrels of oil per day and 735 barrels of water per day for the gas-oil ratio of twelve hundred and eighty-eight.

Coastal States has recently reentered the Champlin Featherstone Federal Number 2 and are now testing for commercial production.

Q Is that the well that is located in the southeast of the northwest quarter of Section 6?

A Yes, sir. Coastal's production is not shown on this graph since the well was completed too late to actually have a monthly production figure as reported to the Oil Conservation Commission; and, of course, we're now drilling our State 32 Number 1, which is located in the northwest quarter of the southwest quarter of Section 32.

Q Is there anything else concerning Exhibit Number 4

that you would like to testify to?

A Well, it indicates the nature of the reservoir in that it produces at least fifty percent water, and has, throughout the life of the reservoir. It also shows that as the oil rate is increased, the water rate increases, also, and at a faster rate. This is, of course, true of our well, also, the new one.

Q Now, refer to Coastal States' Exhibit Number 5 and explain what that shows.

A Exhibit Number 5 is a graph of the bottom hole pressure versus cumulative production for the field. This graph shows that the initial bottom hole pressure in the field was thirty-four sixty-five as recorded on a D. S. T. from the Champlin Featherstone Federal Number 1 in May of 1955. The D. S. T. on the Featherstone Federal 1-A in January of '56 recorded a bottom hole pressure of twenty-seven fifty-eight. However, this was not a fully built-up pressure, and it's not shown on this graph.

In July of '56, the Featherstone Federal Number 2 recorded a bottom hole pressure of thirty-one sixteen and that is shown as the second point on the graph.

The Coastal States' State 6 Number 1 was Drillstem tested in November of 1967 and found to have a bottom hole pressure of thirty ninety-one. An observation of the

latter two charts indicate that they are at or near the static reservoir pressure.

Q What does this drop in pressure of the last well that was completed indicate or intend to show?

A Well, it tends to indicate that after a recovery of approximately a hundred and sixty thousand barrels of oil from the reservoir and a like amount of water, the pressure has been lowered to thirty ninety-one from thirty-four sixty-five.

Q Does that indicate drainage factor of a wide area?

A Yes, sir, it would. It would indicate quite a bit in excess of a hundred and sixty acre drainage.

Q It also indicates that all these wells are producing from the same pool formation?

A Yes, sir, from the same porous zone.

Q Now, refer to Exhibit 6 and explain what this shows.

A Exhibit 6, it's a cross-section through the Baum Field, showing all the completions are dry holes that have been drilled in the immediate area of the Baum Field. Shown in yellow on the cross-section is the Baum zone or the zone that has contributed the oil that has been recovered to date from the reservoir. This is the main pay zone, in other words. And, you can see from the logs that it is very

thin, and in our State 6 Number 1, it's just about nine feet.

Now, it shows to be thicker over to the east; however, that particular well was a dry hole and although the logs indicate the pay to be thicker, it was evidently too tight to produce.

The Champlin Featherstone Federal Number 1 is shown as the second log from the left, and their pay zone is also very thin. The well on the far left is the Champlin Featherstone Federal Number 1-A and a completion attempt was not made and, by log, you can see why in this particular zone. It was only a foot or two.

Q Do you have any other remarks with respect to Exhibit Number 6?

A Only that this does show that these zones are correlative from well to well and as the pressure information indicated.

Q Now refer to Exhibit Number 7 and explain what that exhibit shows.

A Exhibit Number 7 shows the reservoir data that was used in order to calculate the expected recovery on a per well basis, using well spacing of forty, eighty and one hundred and sixty acres. A porosity value of nine percent was determined from log analysis, using Coastal States State 6 Number 1 Well. A water saturation of thirty-eight

percent was also determined from logs. Formation volume factor of 1.45 was arrived at from correlations published by M. D. Standing. A recovery factor of thirty-five percent was estimated from observation of the performance in some of the older fields producing from this same zone; namely, the Inbe-Penn, North Bagley Penn, Vada and others. A net pay of nine feet was determined from logs.

The oil in place is calculated to be twenty-six hundred and ninety barrels per acre in the vicinity of the Coastal States' State 6 Number 1. The estimated recoverable reserves are nine hundred forty-two barrels per forty acres, seventy-five thousand five hundred barrels per eighty acres, and one hundred fifty-one thousand barrels per one hundred sixty acres.

Q Now, refer to Exhibit Number 8 and explain this exhibit.

A Exhibit Number 8 shows the economics that can be expected by developing the field on forty, eighty or one hundred sixty acre spacing. This exhibit shows that the net income would be a dollar ninety-four per barrel. This, of course, also shows that our gross income is three eleven per barrel, trucking charges, eleven cents. Our mineral interest is .812. Our operating cost

and taxes are estimated to be fifty cents per barrel throughout the life of the reservoir, and this gives our net working interest income of a dollar ninety-four per barrel.

This does not include any income for gas sales. No gas market is available at this time; however, we anticipate that it will become available in the near future. It is estimated that the gas income will approximately equal the cost to dispose of the produced water. Disposal costs have not been included in the estimated fifty cents per barrel operating cost. And, if a pipeline connection is obtained for the field, some improvement will be seen in this economic projection, possibly eight or nine cents a barrel.

Q What do you estimate the cost of drilling a well in this area?

A The cost to drill and complete our State 6 Number 1 was one hundred eighty thousand dollars. We feel that it will cost this much to drill and complete additional wells in the field.

Q That would be, in your opinion, the average cost of drilling a well?

A Yes, sir, it is. And, when you consider the excessive cost to lift this amount of fluid, Kobe equipment is rather expensive.

Q What will this result in, then, as far as forty, eighty, and a hundred and sixty acre spacing is concerned?

A Well, it, of course, shows you do not receive a pay out of forty or eighty acres. However, on one hundred sixty acres, a pay out is achieved and a fairly satisfactory rate of return is shown due to the high rate, initial rate, of the wells.

In other words, if they make a hundred -- three hundred fifty or sixty barrels of oil a day, they will show a pretty good rate of return on the invested capital.

Q Now, from your study of this area and all the wells and all the information available, have you formed any opinion as to whether one well will affect it, whether it will efficiently drain as much or more than one hundred sixty acres?

A Yes, I feel that they will. In studying the area in general, comparable production and other fields in that pay zone, they have very higher total fluid recoveries. It's not unusual for wells in this area to recover in the neighborhood of a million barrels of total fluid and, of course, with nine feet of pay and nine percent porosity, that's just about all the space there is under a hundred and sixty acres. So, it indicates that they do drain in excess of this.

Q Now, Coastal States in this case, by it's application, is proposing special field rules.

A Yes.

Q Do you have any suggestions as to the type of field rules that you would like?

A We are requesting field rules somewhat similar to those recently granted for the Vada Penn Pool. The principal difference is that we're requesting a 6.77 proportional factor for the one hundred sixty acre proration units, which will yield a total allowable of three hundred and seventy-eight barrels of oil per day at the November basic allowable rate. This is the normal proportional factor for one hundred sixty acre spacing as published by the New Mexico Oil Conservation Commission.

We are requesting that these rules be temporary rules for a period of one year, in which time we can gather the necessary information to prove whether or not they will drain one hundred sixty acres.

Q And the fact that you are drilling another well and in the process of completing a well, all will add to this information?

A Yes, we feel that by this time next year, there will be a lot more information available in this area.

Q Do you have any suggestions as to the rules?

A Yes, we have.

Q Refer to Exhibit 9.

A We have a copy typed up that varies only slightly

from the field rules that were granted in the Vada Penn field, mainly in the well spacing. We would like to limit the location of new wells to either the northwest quarter or the southeast quarter of a governmental quarter quarter section or lot. This is so that a new well cannot crowd an existing well in the field. It would have to be located some distance from it.

Q Now, Exhibit 9 is a copy of the rules which Coastal States is proposing.

A That is right.

Q Is there anything else that you desire to bring to the attention of the Commission?

A We do have waiver letters that we received from offset operators in the field that you might want to read into the record.

MR. HINKLE: I have a letter from Champlin under date of December 16, 1967. "This is to inform you that Champlin does not intend to be at the hearing scheduled for December 20th in Santa Fe, nor do we intend to object to the application." That letter is addressed to the Oil Conservation Commission. I assume that you have that in the record.

There's another letter under date of December 8th, 1967. "Gentlemen: Attached is Coastal States' application for special field rules for the Baum Wolfcamp Pool situated

in 14, 38, requesting one hundred sixty acre spacing proration units. We would appreciate very much your supporting us in this hearing. If you are in agreement, please sign at the bottom of this page and return to Coastal States." And, it is signed and approved by M. W. J. Producing Company on December 13, 1967.

There's another letter in the same form addressed to W. F. Lawless under date of December 8th, which has been approved by Mr. Lawless as indicating there is no objection.

Another letter in the same form to Cabot Corporation, which was returned and approved by Cabot Corporation on December 11, '67.

Would you like to see these?

MR. NUTTER: They were read into the record. I think that should be sufficient, unless you have copies.

Q (By Mr. Hinkle) Now, in your opinion, will the establishment of special field rules in this field, including one hundred sixty acre spacing, one hundred sixty acre allowables, prevent the economic loss caused by the drilling of unnecessary wells?

A Yes, sir.

Q And, will this otherwise prevent waste and protect correlative rights?

A Yes, sir.

Q Do you have anything else you would like to present?

A I don't believe I do.

MR. HINKLE: We would like to offer in evidence Exhibits 4 to 9, inclusive.

MR. NUTTER: Coastal States' Exhibits 4 through 9 will be admitted into evidence.

(Whereupon, Applicant's Exhibits 4 through 9, inclusive, were admitted into evidence.)

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. McGraw, I missed a couple of figures as you were reciting those. Now, you mentioned that the well which you are presently redrilling has produced thirty-nine thousand barrels of oil in it's first line.

A Yes.

Q And how much water?

A One hundred and thirty-six thousand barrels.

Q So it exceeded that fifty-fifty water cut, then?

A Yes, sir. it certainly did.

Q About three or four to one?

A Yes, sir.

Q How about this other well, the original Champlin Federal well in the southeast, southeast of 6? What has

been it's total cumulative production of oil and water?

A A hundred and fifteen thousand barrels of oil and a hundred and thirty thousand barrels of water.

Q Now, this water that's produced is interstitial or connate water. It's not a Baum water drive or an edge water drive or anything like that?

A It's certainly not a water drive.

Q It's typical Pennsylvanian connate water situation?

A Yes, sir.

Q Now, looking at this production decline curve, Exhibit Number 4, we see that apparently the Featherstone Number 1 had a very marked decline during the years '55 and '56 because the pool production went down until that Number Two well was completed. Do you know what they did then to arrest that decline, what brought that well back up?

A This is mainly pumping problems. As you can see, the number one well has never been produced at a very high rate. Now, when the number two well first came on, it came on at, obviously from the total field production, a hundred barrels a day or so or nearly three thousand barrels a month and maybe four; whereas, the number one well, it's maximum rate has been on the order of less than one thousand barrels a month and so, on the number two well, they were moving more fluid and getting more oil and more water. A

lot more water is shown.

Q But, it didn't last long?

A It didn't last long, again, mainly because of their inability to keep their pumping equipment operating.

Q What was that Number Two well pumped with, a Beam pump?

A Yes, sir.

Q And, you mentioned that the Number One is still on a Beam pump.

A It still is. Now, they tried a Kobe pump on the Number One Well. The production increase over in '66 is a result of installation of Kobe pumping equipment.

Q And, at that time, it went up from approximately four hundred and five hundred barrels a month up to approximately fifteen hundred?

A Yes, sir. And the water went up as is shown there.

Q But, the oil production has now declined again back down to about a thousand?

A They took it off. They couldn't make their Kobe pump work, so they went back to a Beam unit. They went back to what they had and it shows that they actually increased their ability of the well to produce, because they did not go back to the same rate they were producing before.

Q Now, your well was completed the first of December

and it's still flowing.

A No, sir. It's pumping on Kobe pump.

Q The first potential was one sixty --

A Was one sixty, yes, sir.

Q -- and then three sixty.

A Yes, sir.

Q And, that was on a Kobe.

A Yes, sir.

Q And, you mentioned that it can now produce three hundred sixty-one barrels of oil and is making seven hundred and thirty-five barrels of water.

A Seven thirty-five, that's right.

Q What do you anticipate as a result of this redrilling of this old well, recompletion in the same zone or an attempt to recomplete in another zone or what?

A Well, we're at the present time testing another zone. However, we do intend to go back to the same zone. We feel like we can make substantial amounts of oil out of that.

Q How much was that zone making when they plugged and abandoned it?

A Well, of course, as the curve shows here, it got down to where it wasn't making anything. Now, whether that was a result of pumping problems or what, I really don't know,

but we feel that we can restore the well to an economical producing rate.

Q Now, all these pressures that you have on Exhibit Number 5 are all Drillstem test pressures, aren't they?

A Yes, sir.

Q Do you have any idea what the bottom hole pressure is in any of the former wells? Was the bottom hole pressure ever taken on that Number Two Well before it was plugged and abandoned?

A No, sir. However, there was a bottom hole pressure taken on the Number One Well. Subsequent bottom hole pressure was taken on that well. I do not have that down, but it was about twenty-two hundred pounds at that time.

Q Is that on Exhibit 6 by any chance?

A No, sir, I don't believe it is.

Q About twenty-two hundred pounds on the Number One?

A Yes, sir, but the reason I don't use it and show it, it was the bottom hole pressure taken on a twelve-hour buildup or just twelve-hour shut-in period, and I'm sure that it was not a static reservoir pressure, so I did not use it.

Q Now, these bottom hole pressures that you've got here, are these final shut-in pressures or initial shut-in pressures?

A These are initial shut-in pressures after one hour

or one hour and a half of buildup -- initial shut-in.

Q I see. Then no subsequent pressure has been taken on your 6-1?

A No, sir, we are planning to do that in the very near future.

Q Have any of the wells been cored, to your knowledge?

A No, sir.

Q Are you planning to core this 132 that you're drilling now?

A No, sir.

Q Now, what, Mr. McGraw, in your opinion, substantiates the claim that a well here will drain a hundred and sixty acres or more, the decline and bottom hole pressure plus the fact that these wells have made a considerable amount of fluid and according to the calculated porosity, it would have to be coming from more than that?

A That's it. Mainly, of course, the analysis of Drillstem test information indicates that the average ability could be on the order of a hundred milli-dorsies, which is not bad for a line. So, it evidently has good to excellent permeability in the reservoir, else it couldn't give up fluids at this rate.

Q And, you used the same recovery factor in calculating your reserves under forty, eighty, a hundred and sixty recovery

regardless of the drain?

A Yes, sir, figuring on that. We're not, at this point, able to prove that we can drain that effectively, but that was what we used.

MR. NUTTER: I see. I guess that's all, Mr. McGraw. Thank you.

Do you have anything further, Mr. Hinkle?

MR. HINKLE: No. That's all.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3701? Do you want to read that into the record?

MR. HATCH: Mr. Hinkle has already read that.

MR. NUTTER: The one that we had the copy of.

MR. HATCH: Yes.

MR. NUTTER: If there's nothing further in Case 3701, we'll take the case under advisement and a fifteen minute recess.

* * *

I N D E X

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, CHARLOTTE MACIAS, Notary Public 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.

Witness my Hand and Seal this 11th day of December, 1968.

Charlotte Macias
NOTARY PUBLIC

My Commission Expires:

February 10, 1971.

12/20 3701/67

CHAMPLIN
PETROLEUM COMPANY

May 24, 1968

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

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

Champlin was notified by Coastal States Gas Producing Company of their intent to request permanent field rules which provide for 160-acre spacing and proration units with the assignment of 80-acre allowables for the Baum (Wolfcamp) Field, located in Township 13 and 14 South, Range 33 East, Lea County, New Mexico, at the hearing scheduled for May 22, 1968.

As an operator in the subject field, we do not oppose their proposal.

Sincerely,

CHAMPLIN PETROLEUM COMPANY

Pete Hoffman
Proration Coordinator

PH:dw
cc: Coastal States Gas Producing Co.

'68 MAY 28 PM 1

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. 3701
Order No. R-3368-A
NOMENCLATURE

APPLICATION OF COASTAL STATES GAS
PRODUCING COMPANY FOR AN AMENDMENT
TO ORDER NO. R-3368, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 8 a.m. on May 22, 1968, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 29th day of May, 1968, 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-3368, dated January 22, 1968, temporary Special Rules and Regulations were promulgated for the Baum-Wolfcamp Pool, Lea County, New Mexico, providing for 80-acre spacing units, limited well locations, and an 80-acre proportional factor of 4.77 for allowable purposes, and providing that said temporary rules be reconsidered at an examiner hearing in January, 1969.

(3) That the applicant, Coastal States Gas Producing Company, seeks amendment of the temporary Special Rules and Regulations promulgated by Order No. R-3368 to provide for 160-acre spacing units with the assignment of 80-acre allowables.

(4) That the applicant also seeks to have said rules and regulations, as proposed, made permanent.

(5) That a number of wells have been completed in the subject pool subsequent to the issuance of Order No. R-3368.

(6) That the additional evidence concerning the characteristics of the subject reservoir gained as a result of said completions establishes that one well in the pool can efficiently and economically drain and develop 160 acres.

(7) That the additional evidence presented indicates that the establishment of 160-acre spacing units and an 80-acre proportional factor of 4.77 for allowable purposes is warranted.

(8) That the Special Rules and Regulations promulgated by Order No. R-3368, as amended by this order, 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.

(9) 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-3368, as amended by this order, should be continued in full force and effect until further order of the Commission.

(10) That the aforementioned additional evidence also establishes that the subject pool is producing from the Upper Pennsylvanian formation rather than the Wolfcamp formation.

(11) That the subject pool should be redesignated the Baum-Upper Pennsylvanian Pool.

IT IS THEREFORE ORDERED:

(1) That, effective June 1, 1969, Order (a) of Order No. R-675-A, Order (a) of Order No. R-914, Order (c) of Order No. R-3367, and Order (a) of Order No. R-3389 are hereby amended by deleting therefrom the word "Wolfcamp" wherever it appears and substituting in lieu thereof the words "Upper Pennsylvanian."

(2) That the Special Rules and Regulations governing the Baum-Wolfcamp Pool, Lea County, New Mexico, promulgated by Order No. R-3368, are hereby amended to read in their entirety as follows, effective June 1, 1968:

SPECIAL RULES AND REGULATIONS
FOR THE
BAUM-UPPER PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the Baum-Upper Pennsylvanian Pool or in the Upper Pennsylvanian formation within one mile thereof, and not nearer to or within the limits of another designated Upper Pennsylvanian 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 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

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 consisting of less than 160 acres 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. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the 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. 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 (158 through 162 acres) shall be assigned an 80-acre proportional factor of 4.77 for allowable purposes, and in the event there is more than one well on a 160-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 160 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Baum-Upper Pennsylvanian Pool or in the Upper Pennsylvanian 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 June 1, 1968.

(2) That each well presently drilling to or completed in the Baum-Upper Pennsylvanian Pool or in the Upper Pennsylvanian formation within one mile thereof shall, after June 1, 1968, receive an allowable in the same proportion to a standard 160-acre allowable for the pool as the acreage presently dedicated to the well bears to 160 acres, until Form C-102 dedicating 160 acres to the well has been filed with the Commission, or until a non-standard unit containing less than 160 acres has been approved.

(3) That Order No. R-3368 entered by the Commission on January 22, 1968, is hereby superseded.

(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.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

ors/

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. 3701
Order No. R-3368

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 December 20, 1967, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 22nd day of January, 1968, 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 Baum-Wolfcamp Pool in Township 14 South, Range 33 East, NMPM, Lea County, New Mexico, including a provision for 160-acre spacing units.

(3) That the evidence, including some evidence of pressure decline in the area, fails to establish that one well in the Baum-Wolfcamp Pool can efficiently and economically drain and develop 160 acres, or that 160-acre spacing units, even on a temporary basis, would be in the interest of conservation.

(4) That the evidence presently available indicates the reservoir characteristics of the subject pool are similar to

those of other Permo-Pennsylvanian pools in which wells can efficiently and economically drain and develop 80 acres.

(5) That the applicant's request for 160-acre spacing units should be denied.

(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, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the Baum-Wolfcamp Pool.

(7) 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.

(8) 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.

(9) That this case should be reopened at an examiner hearing in January, 1969, at which time the operators in the subject pool should be prepared to appear and show cause why the Baum-Wolfcamp Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

(1) That the request of the applicant, Coastal States Gas Producing Company, for 160-acre spacing units in the Baum-Wolfcamp Pool is hereby denied.

(2) That temporary Special Rules and Regulations for the Baum-Wolfcamp Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
BAUM-WOLFCAMP POOL

RULE 1. Each well completed or recompleted in the Baum-Wolfcamp Pool or in the Wolfcamp formation within one mile thereof,

and not nearer to or within the limits of another designated Wolfcamp 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. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the 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. 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 4.77 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 Baum-Wolfcamp Pool or in the Wolfcamp 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 February 1, 1968.

(2) That each well presently drilling to or completed in the Baum-Wolfcamp Pool or in the Wolfcamp formation within one mile thereof shall receive a 40-acre allowable until a Form C-102 dedicating 80 acres to the well has been filed with the Commission.

(3) That this case shall be reopened at an examiner hearing in January, 1969, at which time the operators in the subject pool may appear and show cause why the Baum-Wolfcamp Pool should not be developed on 40-acre spacing units.

(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.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

esr/

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

May 29, 1968

Re: Case No. 3701
Order No. R-3368-A
Applicant:
Coastal States Gas Producing Co.

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

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

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

January 22, 1968

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

Re: Case No. 3701
Order No. R-3368
Applicant:
COASTAL STATES GAS PROD.

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

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other

DOCKET MAILED
Date 1-9-68

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.
MICHAEL R. WALLER

STUART D. SHANOR
C. D. MARTIN
PAUL J. KELLY, JR.

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

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

OF COUNSEL: HIRAM M. DOW

TELEPHONE (505) 622-6510
POST OFFICE BOX 10

May 16, 1968

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

'68 MAY 17 AM 8 [illegible]

Attention: Mr. Dan Nutter

Gentlemen:

There is enclosed herewith original and two copies of Application of Coastal States Gas Producing Company to reopen Case No. 3701 to consider the amendment of the temporary special pool rules for the Baum-Wolfcamp Pool, Lea County, New Mexico, to provide for 160 acre spacing and proration units with the assignment of 80 acre allowables.

This case has been advertised and set down for hearing on your Examiner's docket for May 22, 1968.

Yours sincerely,

HINKLE, BONDURANT & CHRISTY

Clarence E. Hinkle

CEH/ea
Enclosures

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

APPLICATION OF COASTAL STATES GAS PRODUCING COMPANY TO REOPEN CASE NO. 3701 TO CONSIDER AN AMENDMENT OF THE TEMPORARY SPECIAL POOL RULES FOR THE BAUM-WOLFCAMP POOL, LEA COUNTY, NEW MEXICO, TO PROVIDE FOR 160 ACRE SPACING AND PRORATION UNITS WITH THE ASSIGNMENT OF 80 ACRE ALLOWABLES.

No. 3701

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

'68 MAY 17 AM 8 40

Comes Coastal States Gas Producing Company, with offices at Midland, Texas, acting by and through the undersigned attorneys, and hereby makes application to reopen Case No. 3701 to consider the amendment of the temporary special pool rules for the Baum-Wolfcamp Pool, Lea County, New Mexico, to provide for 160 acre spacing and proration units with the assignment of 80 acre allowables, and in support thereof respectfully shows:

1. That Case No. 3701 was originally heard before the Commission on December 20, 1967, upon the application of Coastal States Gas Producing Company for special pool rules for the Baum-Wolfcamp Pool including a provision for 160 acre spacing and proration units. On January 22, 1968, Order No. R-3368 was entered in Case No. 3701 promulgating temporary special rules for the Baum-Wolfcamp Pool providing for 80 acre spacing and 80 acre allowables and denying the application as to 160 acre spacing and proration units.

2. That since the order was entered in Case No. 3701 providing for temporary special pool rules, applicant has drilled five additional wells which have been completed as producing wells from the Baum-Wolfcamp Pool and has also re-entered two old wells in the pool and completed the same as wells capable of producing in paying quantities from the Baum-Wolfcamp Pool. All of these wells, as well as the well

which applicant had completed prior to the promulgation of the temporary special pool rules, are located to conform with 160 acre well spacing units. In addition, since the original hearing, applicant has obtained extensive pressure information with respect to the producing wells in the Baum-Wolfcamp Pool, and from such pressure information, production history, and other information available to applicant, applicant believes that one well will effectively and efficiently drain more than 160 acres and that it would not be economically possible or feasible to drill and complete wells in the Baum-Wolfcamp Pool to a density of one well to each 80 acres of the known producing area.

3. That applicant requests that this matter be heard at the Examiner's hearing for May 22, 1968.

Respectfully submitted,

COASTAL STATES GAS PRODUCING COMPANY

By _____

Hinkle, Bondurant & Christy
Attorneys for Applicant
P. O. Box 10
Roswell, New Mexico

PLEASE NOTE THAT THIS HEARING WILL START AT 8 O'CLOCK A.M.

Docket No. 16-68

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 22, 1968

8 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 Elvis A. Utz, Alternate Examiner:

CASE 3769: Application of Texas Pacific Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Leonard (Queen) Unit Area comprising 640 acres, more or less, of Federal and Fee lands in Township 26 South, Range 37 East, Lea County, New Mexico.

CASE 3770: Application of Texas Pacific Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its South Leonard (Queen) Unit Area by the injection of water into the Queen formation through five wells located in Sections 13, 23, and 24, Township 26 South, Range 37 East, South Leonard-Queen Pool, Lea County, New Mexico.

CASE 3751: (Continued and readvertised from the April 24, 1968, Examiner Hearing):

Application of Pennzoil Company for a dual completion, tubing exception, and a non-standard gas well location or non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Hudson Federal 29 Well No. 1 located 660 feet from the North line and 1980 feet from the East line of Section 29, Township 18 South, Range 33 East, South Corbin Field, Lea County, New Mexico, in such a manner as to produce oil from the Wolfcamp formation through 1.38-inch ID

CASE 3751 CONTINUED FROM PAGE -1-

tubing and gas from the Morrow formation through 2-inch tubing. Applicant also seeks an exception to the tubing requirements of Commission Rule 107 in that said 1.38-inch tubing would be set more than 250 feet above the uppermost Wolfcamp perforation. Applicant further seeks approval for the non-standard location for said well in the South Corbin-Morrow Gas Pool if the E/2 of said Section 29 is dedicated to the well as proposed, or in the alternative, applicant seeks approval for a non-standard gas proration unit for the well comprising the E/2 NW/4 and the NE/4 of said Section 29.

CASE 3771: Application of Pennzoil Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the South Corbin-Wolfcamp Oil Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units.

CASE 3772: Application of George L. Buckles Company for three waterflood projects, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute three waterflood projects by the injection of water into the Queen Sand of the Langlie-Mattix Pool in Township 25 South, Range 37 East, Lea County, New Mexico, as follows:

A waterflood project comprising all of Section 3 and the E/2 NE/4 and NE/4 SE/4 of Section 4, with injection to be through eight wells located in Units A, F, J, L, M, O, & P of Section 3, and Unit H of Section 4;

A waterflood project comprising the S/2 S/2 of Section 10, the W/2 SW/4 of Section 11, the W/2 NW/4 of Section 14, and the NE/4 and NE/4 NW/4 of Section 15, with injection to be through ten wells located in Units M & O of Section 10, Unit M of Section 11, Unit D of Section 14, and Units A, B, C, G, and H of Section 15.

A waterflood project comprising the NE/4 of Section 22, with injection to be through three wells located in Units B, G, and H of Section 22;

Numerous of the above-described water injection wells are proposed to be located at unorthodox locations, often 5 to 15 feet from the corners and/or boundaries of their respective 40-acre tracts.

CASE 3773: Application of Mabee Royalties, Inc., and Yuronka and Chandler, for an amendment to Orders Nos. R-3263 and R-3388, Lea County, New Mexico. Applicants, in the above-styled cause, seek the amendment of Orders Nos. R-3263 and R-3388 to designate Mabee Royalties, Inc., as operators of the S/2 SW/4 and NE/4 SW/4 of Section 7, Township 22 South, Range 36 East, Lea County, New Mexico, rather than John Yuronka and Robert E. Chandler, who were originally designated as operators of said compulsorily pooled lands.

CASE 3774: Application of Ernest A. Hanson for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of his Max Gutman Well No. 5 located in Unit N of Section 19, Township 22 South, Range 38 East, Lea County, New Mexico, in such a manner as to permit the production of Drinkard and East Brunson-Granite Wash oil through parallel strings of tubing.

CASE 3775: Application of Cities Service Oil Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its State "AE" Well No. 2-Y at an unorthodox location 1420 feet from the South line and 990 feet from the West line of Section 36, Township 16 South, Range 36 East, Lovington-Abo Pool, Lea County, New Mexico. Said well will be bottomed no closer than 1420 feet to the South line nor farther than 990 feet from the West line of said Section 36, and will be drilled as a replacement for applicant's State "AE" Well No. 2 on the same 40-acre tract, which well must be abandoned due to a casing failure.

CASE 3776: Application of J. M. Huber Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Union-State Unit Area comprising 1360 acres, more or less, of State lands in Township 15 South, Range 32 East, Lea County, New Mexico.

CASE 3701 (Reopened):

In the matter of Case No. 3701 being reopened at the request of Coastal States Gas Producing Company to consider the amendment of the special pool rules for the Paum-Wolfcamp Pool, Lea County, New Mexico, to provide for 320-acre spacing and proration units with the assignment of 80 acre allowables.

May 13, 1968

Case 3701

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

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

The undersigned has been notified by Coastal States Gas Producing Company of their intent to request permanent field rules which provide for 160-acre spacing and proration units with the assignment of 80-acre allowables for the Baum (Wolfcamp) Field, located in Township 13 and 14 South, Range 33 East, Lea County, New Mexico, at the hearing scheduled for May 22, 1968. As an operator in the subject field, the undersigned supports this proposal by Coastal States Gas Producing Company's and strongly recommends adoption by the Commission.

Very truly yours,

For: Apache Corporation
1720 Wilco Building
Midland, Texas 79701

'68 MAY 17 AM 8

May 13, 1968

Case 370

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

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

The undersigned has been notified by Coastal States Gas Producing Company of their intent to request permanent field rules which provide for 160-acre spacing and proration units with the assignment of 80-acre allowables for the Baum (Wolfcamp) Field, located in Township 13 and 14 South, Range 33 East, Lea County, New Mexico, at the hearing scheduled for May 22, 1968. As an operator in the subject field, the undersigned supports this proposal by Coastal States Gas Producing Company's and strongly recommends adoption by the Commission.

Very truly yours,

Percy C. Quinn

For: Cabot Corporation
Box 4395
Midland, Texas 79701

'68 MAY 21 AM 8 57

MWJ PRODUCING COMPANY

★ PETROLEUM PRODUCERS ★

413 FIRST NATIONAL BANK BUILDING
MIDLAND, TEXAS 79701
TELEPHONE (915) MU 2-5216

May 17, 1968

Case 3701

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

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

The undersigned has been notified by Coastal States Gas Producing Company of their intent to request permanent field rules which provide for 160-acre spacing and proration units with the assignment of 80-acre allowables for the Baum (Wolfcamp) Field, located in Township 13 and 14 South, Range 33 East, Lea County, New Mexico, at the hearing scheduled for May 22, 1968. Coastal has also advised that their proposed field rules will provide for standard locations for development to be within 150 feet of the center of the NW/4 or the SE/4 of the 160-acre proration unit.

This is to advise that as an operator in the subject field planning the immediate commencement of two wells therein, we support the proposal by Coastal subject to the flexibility of well spacing cited above and strongly recommend its adoption by the Commission.

Very truly yours,

R. Ken Williams

RKW:pag
enclosure
cc: Coastal States Gas Producing Co.
P. O. Box 235
Midland, Texas
Attn: Mr. Joe R. Howard

'68 MAY 20 AM 8 13

Champlin Petroleum Company
P. O. BOX 9365
FORT WORTH, TEXAS 76107

December 16, 1967

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

Gentlemen:

Subject: Baum-Wolfcamp Pool
Lea County, New Mexico

We have been requested by Coastal States Gas Producing Company for a waiver in connection with their application for special field rules for the subject pool. It is our understanding that Coastal intends to request 160-acre spacing with proration rules similar to the Vada-Penn with the exception of the 6.77 allocation factor and the well location provision.

This is to inform you that Champlin does not intend to be at the hearing scheduled for December 20 in Santa Fe nor do we intend to object to the application.

Sincerely yours,

Pete Hoffman
Proration Coordinator

PH/sw

cc: Coastal States Gas Producing Company

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DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 20, 1967

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 Elvis A. Utz, Alternate Examiner:

CASE 3695 continued from the November 29, 1967, Examiner Hearing

Application of Tenneco Oil Company for Special Pool Rules, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the South Hospah Upper Sand Oil Pool and the South Hospah Lower Sand Oil Pool, McKinley County, New Mexico, to provide that wells drilled in said pools could be located anywhere on the 40-acre unit except that no well could be located closer than 330 feet to the outer boundary of the lease nor closer than 200 feet to another well producing from the same pool. Applicant further proposes that any existing well not located in accordance with the above requirements be granted an exception to said requirements.

CASE 3698: Application of H & S Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the approval of the West Artesia Grayburg Unit Area comprising 640 acres, more or less, of state and fee lands in Sections 7, 8, and 17, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

CASE 3699: Application of H & S Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its West Artesia Grayburg Unit by the injection of water into the Grayburg formation through 8 wells located in Sections 7, 8, and 17, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

CASE 3700: Application of Lone Star Producing Company for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation through the perforated interval from 4910 to 5015 feet in its Federal New Mexico "D" Well No. 1 located in Unit A of Section 29, Township 6 South, Range 36 East, South Prairie Field, Roosevelt County, New Mexico.

CASE 3701: 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 Baum Wolfcamp Pool in Township 14 South, Range 33 East, Lea County, New Mexico, including a provision for 160-acre spacing and proration units.

CASE 3702: Application of Coastal States Gas Producing Company for an exception to Order No. R-3221, Lea County, New Mexico. Applicant, in the above-styled cause, on its own behalf and as operator of the Flying "M" Unit Area, seeks an exception to the provision of Paragraph (6) of the Commission Order No. R-3221 which requires that certain unlined pits used for the disposal of produced water be filled, leveled, and compacted. Applicant proposes that said pits be left open in the Flying "M" San Andres Pool, Lea County, New Mexico, to permit their use for temporary emergency storage of produced water in connection with individual tank batteries connected to the Flying "M" San Andres Pressure Maintenance Project operated by Coastal States Gas Producing Company.

CASE 3703: Application of Texaco Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Abo formation in the perforated interval from 9013 to 9046 feet in its New Mexico "CW" State Well No. 2 located in Unit L of Section 18, Township 17 South, Range 37 East, Midway-Abo Pool, Lea County, New Mexico.

CASE 3704: Application of New Mexico Salt Water Disposal Company, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Bough "D" zone of the Pennsylvanian formation in the perforated interval from 9844 to 9875 feet in its Ainsworth Well No. 1 located in Unit H of Section 19, Township 9 South, Range 34 East, Vada-Pennsylvanian Pool, Lea County, New Mexico.

CASE 3705: Application of Midwest Oil Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Bough zone of the Pennsylvanian formation in the perforated interval from 9784 to 9810 feet in its Ainsworth State Well No. 1, formerly the Sunray DX State I Well No. 1, located in Unit N of Section 36, Township 9 South, Range 33 East, Lane-Pennsylvanian Pool, Lea County, New Mexico.

CASE 3706: Application of Major, Giebel & Forster for an amendment to Order No. R-3307, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3307 to designate Major, Giebel & Forster as operators of the NW/4 SW/4 of Section 6, Township 13 South, Range 38 East, West Bronco-Devonian Pool, Lea County, New Mexico, rather than Vasicek and Fullinwider dba V. F. Petroleum, who were originally designated as operators of said compulsorily pooled unit

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

APPLICATION OF COASTAL STATES GAS PRODUCING COMPANY FOR THE ADOPTION OF SPECIAL FIELD RULES FOR THE BAUM (WOLFCAMP) POOL SITUATED IN TOWNSHIP 14 SOUTH, RANGE 33 EAST, N.M.P.M. LEA COUNTY, NEW MEXICO, INCLUDING 160 ACRES SPACING AND PRORATION UNITS.

'67 Nov 29 AM 8 53

Oil Conservation Commission
Box 2088
Santa Fe, New Mexico

Comes Coastal States Gas Producing Company, with offices at Midland, Texas, acting by and through the undersigned attorneys, and hereby makes application for the promulgation of special field rules for the Baum (Wolfcamp) Pool situated in Township 14 South, Range 33 East N.M.P.M. Lea County, New Mexico and in support thereof respectfully shows:

1. That applicant has recently completed its State "6" No. 1 well located in the NW¼NE¼ Section 6, Township 14 South, Range 33 East, N.M.P.M. which has been completed as a well capable of producing oil and gas in paying quantities from the Baum (Wolfcamp) Pool. Applicant is also drilling a second well which is located in the SE¼NW¼ of said Section 6. That said wells are within the limits of the Baum (Wolfcamp) Pool as heretofore defined by the Oil Conservation Commission.

2. That to the best of applicant's knowledge and belief wells completed in the Baum (Wolfcamp) Pool will effectively and efficiently drain more than 160 acres. Applicant seeks an order providing for special field rules, including 160 acre spacing and proration units consisting of the governmental quarter section upon which each well is located.

3. That to the best of applicant's knowledge and belief the establishment of special field rules for the Baum (Wolfcamp) Pool will prevent the economic loss caused by the drilling of unnecessary

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Date

wells and will otherwise prevent waste and protect correlative rights and will be in the interest of conservation and the prevention of waste.

4. That applicant requests that this matter be heard at the examiner's hearing to be held on December 20, 1967.

Respectfully submitted,

COASTAL STATES GAS PRODUCING COMPANY

By _____

HINKLE, BONDURANT & CHRISTY
Attorneys for Applicant
Box 10
Roswell, New Mexico

[redacted] 6

BAUM PERMO-PENN FIELD
RESERVOIR DATA AND RESERVE ESTIMATES

Porosity	9.0%
Water Saturation	38.0%
Formation Volume Factor	1.45
Recovery Factor (estimate)	35%
Net Pay	9'

$$\text{Oil-In-Place} = \frac{7758 \times 0.09 \times 0.62}{1.45}$$

= 299 barrels per acre foot

Recoverable Reserves = 299 x 35%

= 105 barrels per acre foot

= 105 x 9'

= 945 barrels per acre

= 37,800 barrels per 40 acres

= 75,500 barrels per 80 acres

=151,000 barrels per 160 acres

Exhibit VIII

EXHIBIT 7

BAUM PERMO - PENN FIELD
ECONOMICS

Gross Income	$ 3.11 per bbl.
Trucking Charge	0.11 per bbl.
Mineral Interest Income at .8125	2.44 per bbl.
Operating Cost and Taxes	0.50 per bbl.
Net Working Interest Income	1.94 per bbl.

Estimated Recovery	40 Acres	80 Acres	160 Acres
	37,800	75,500	151,000
Total Net Income	$ 73,300	$146,000	$293,000
Development Cost per Well	$180,000	$180,000	$180,000
Ratio of Income to Investment	0.41	0.81	1.63

Exhibit VIII

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Exhibit NO.
CASE NO.

Exhibit IX

PROPOSED SPECIAL RULES AND REGULATIONS
FOR THE
BAUM PERMO-PENNSYLVANIAN POOL
LEA COUNTY, NEW MEXICO

RULE 1. Each well completed or recompleted in the Baum Permo-Pennsylvanian Pool of the Permo-Pennsylvanian formation within one mile thereof, and not nearer to or within the limits of another designated Pennsylvanian 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 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys; provided, however, that nothing contained herein shall be construed as prohibiting the drilling a well on each half of the quarter section or proportionate part thereof upon the receipt of written waivers from all offset operators and approval of the Secretary-Director.

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 consisting of less than 160 acres 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-Directory 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 shall be located in the NW/4 or SE/4 of a governmental quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the 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

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 9
CASE NO. 7

RULE 5. (cont'd)

to another horizon. 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 (158 through 162 acres) shall be assigned a proportional factor of 6.77 for allowable purposes, and in the event there is more than one well on a 160-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 160 acres.

CASE 3701: Application of COASTAL STATES GAS PRODUCING CO. for pool rules for the BAUM WOLFCAMP POOL.