

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

April 26, 1967

EXAMINER HEARING

IN THE MATTER OF:)

Application of Coastal States Gas)
Producing Company for a unit)
agreement, Lea County, New Mexico.)

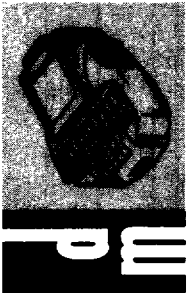
Case No. 3554

Application of Coastal States Gas)
Producing Company for a pressure)
maintenance expansion, Lea County,)
New Mexico.)

Case No. 3555

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING



NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

REGISTER

HEARING DATE

APRIL 26, 1967

TIME: 9 A.M.

NAME:	REPRESENTING:	LOCATION:
Joseph O Wooten	Woodmill Oil Co	Hobbs, N.M.
L. E. Thomas	Amerada	Midland, Tex
Edwin Heick	Coastal States Gas Prod Co	Rowell
Richard J. Martin	Montgomery, Francis & Linders	Santa Fe
D. A. FRAWLEY	SHELL OIL Co	MIDLAND TEX
Jay T. Loy	SKELLY OIL Co	HOBBS, N.M.
E FORBES GORDON	COASTAL STATES GAS PRODU	CORPUS CHRISTI TEX
Jack R McGraw	" " " "	Midland, TX
BP McCarley	" " "	" " "
W D Elliott	" " "	Corpus Christ, TEX
LOH Price	Maxwell Oil Co.	Ft Worth, Tex
Don Wolfberger	Phillips Petroleum Co	Midland Texas
C. H. Dutton	Phillips Pet. Co.	Midland Texas
	Phillips Pet Co.	Midland Texas
James W Kellaher	Kellaher & Fox	Santa Fe
J. P. Gwinn	SKELLY OIL Co.	TULSA, OKLA
W. J. Henry	Union Oil	Rowell, N.M.
	Rhone & Associates & Services	Albuquerque, N.M.

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICOREGISTERHEARING DATE APRIL 26, 1967 TIME: 9 A.M.

NAME:	REPRESENTING:	LOCATION:
John W. Self	Domar Industries, Inc	Dallas, Texas
Ken S. Cichowicz	Continental Oil Co.	Durango, Colo.
William & Kern	BTA Oil Producers	Midland, Texas
NINA DeHAYME	RW Byram	Santa Fe
Ralph L. Gray	Hudson & Hudson	Artesia, N.M.

MR. UTZ: Case 3554.

MR. HATCH: Application of Coastal States Gas Producing Company for a unit agreement, Lea County, New Mexico.

MR. HINKLE: Mr. Examiner, Clarence Hinkle, Hinkle, Bondurant and Christy, Roswell, appearing on behalf of Coastal States Gas Producing Company. We have three witnesses, and both of our witnesses, their testimony will relate to the first two Cases 3554 and 3555. The testimony is overlapping. These cases are very closely associated and I would like to move, if there's no objection, that these two cases be consolidated for the purpose of taking the testimony.

MR. UTZ: As I understand the situation, 3554 is for a unit agreement and the Case 3555 is for a pressure maintenance project within the bounds of the Unit Agreement for 3554, is that correct?

MR. HINKLE: That is correct.

MR. UTZ: The cases will be consolidated for purposes of testimony; separate orders will be written on the cases.

MR. HINKLE: We have three witnesses. I would like to have them all sworn at this time.

(Witnesses sworn.)

MR. UTZ: Do we have other appearances in this case?

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

You may proceed.

MR. HINKLE: Before proceeding with the testimony, I would like to make a very brief statement for the record and bring you up-to-date on these proceedings here. The Flying "M" San Andres Pool was discovered by Coastal States in February 1964. After eight wells had been drilled, and in July 1964, Coastal States made application to the Commission for the adoption of special field rules, including 80-acre spacing, and these were adopted in July 1964, and a year later, in July 1965, under Order R-2746, these rules were made permanent.

In January 1966, Coastal States made application to the Commission to initiate a pilot pressure maintenance project which has been in operation under Order 3033.

Case 3555 is for an expansion of that pressure maintenance project. Of course, Case 3554 is to unitize the area to make it more effective. It has been the objective of Coastal States from the very beginning to put into effect a pressure maintenance project to prevent pressure declines, and we thought by inaugurating this at an early date they will obtain the greatest ultimate recovery from the pool.

W. D. ELLIOTT

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

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name.

A W. D. Elliott.

Q By whom are you employed?

A By Coastal States Gas Producing Company.

Q In what capacity?

A I am Manager of Unitization Developing and Planning.

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

A Yes.

Q You did it in connection with the previous cases which I referred to?

A Yes, sir.

Q Have you continued to make a study of the Flying "M" San Andres Pool?

A Yes, I have continued.

Q Have you made an examination of all the well logs, all of the core analyses and generally all the information available?

A Yes, sir.

Q Are you familiar with the applications of Coastal States in these two cases, 3554 and 3555?

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A Yes.

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

A They have been prepared under my supervision.

(Whereupon, Coastal States' Exhibits 1 through 16 were marked for identification.)

Q Mr. Elliott, refer to Exhibit 1 and explain to the Commission what this is and what it shows.

A Exhibit 1 is the index map showing the surface location of the field in relationship to the other fields and to the towns in New Mexico.

Q It shows it's in the extreme Northwest Corner of Lea County?

A Lea County, correct.

Q Now, refer to Coastal States' Exhibit 2 and explain what it shows.

A Exhibit No. 2 is an ownership map and an outline of the unit area, proposed unit area. There are at least two miles on either side of the field showing the wells that have been drilled and the various wells surrounding the field that are dry holes. It should be noted that there are three present injection wells, they are marked with a triangle, with an arrow through them. There are four proposed injection wells, that are just marked with a triangle, and there are ten

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

wells around the periphery of the field that are either non-productive or nearly non-productive.

Q Does this exhibit also show the wells which have been completed in the San Andres and the Abo and the Bough "C" formation?

A Yes, all wells.

Q All wells in the area?

A Right.

Q The outline, as shown on this exhibit, conforms to the designation of the unit by the United States Geological Survey and as agreed upon with the Commissioner of Public Lands?

A That is correct.

Q Now refer to Coastal States' Exhibit No. 3 and explain what it shows.

A Exhibit No. 3 is a cross section through the field from the east portion of the field to the northwest portion of the field. If you'll note, there's a little map, insert map down in the bottom that shows this line of cross section.

Q That's A to A¹?

A Yes. LL&E No. 2 to FNB No. 3 Well. This exhibit shows the Slaughter zone of the San Andres formation is a continuous zone and the Flying "M" San Andres field is one reservoir.

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q The logs shown on the plat are reproduced electric logs of the wells that are on the cross section?

A They are gamma ray neutron logs.

Q Is your correlation good as far as the pay section is concerned?

A The correlation is excellent.

Q Does this show a continuity of the pay section through the entire pool?

A Yes, there is continuity through the entire pool.

Q You conclude from this exhibit that all of the lands in the proposed unit area are in the same pool?

A Yes.

Q Now, refer to Coastal States' Exhibit 4 and explain what it shows.

A Exhibit 4 is a structure map on top of the Slaughter zone of the San Andres dolomite. It is actually the top line on the previous cross section.

Q On Exhibit 3?

A On Exhibit 3. This shows the structural top. As you can see, the structure is a monoclinial feature. This means in order to have a trap it must be stratigraphic in nature and there is --

Q What do you mean by stratigraphic?

A It has to pinch out updip.

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q You mean the porosity and permeability pinches out?

A The porosity and permeability pinches out. The pore space is filled with anhydrite updip.

Q This also shows the same outlines of the proposed unit area as shown on Exhibit 2?

A That is correct. The outline of the unit area is shown in black on this exhibit.

Q Refer to Coastal States' Exhibit 5 and explain what it shows.

A Exhibit No. 5 is a cross section foot map or isopach map of the San Andres pay zone.

Q By foot map, you mean it shows the net thickness of the pay section?

A Net thickness of the pay section. This map was prepared mostly from cores in the field. We had cored over 50% of the wells and we chose a cutoff portion, cutoff porosity of 4% and oil footage above 4% was taken to prepare this map.

Q Was this plat or isopach map used in delineating the outlines of the proposed unit area?

A Yes. The outlines of this isopach map were used to find the productive acreage in the field and to delineate the unit area.

Q When was this plat prepared?

A This plat was prepared approximately one month ago.

Q At the time this was prepared did you have all of the information in connection with the well which is shown to be in the Northwest Quarter of the Southeast Quarter of Section 28?

A No, I did not have that information at that time.

Q What well is that?

A That is the Southland Royalty McCoy No. 1.

Q Was it completed as a producer?

A It was completed as a producing oil well.

Q In the Flying "M" field?

A In the Flying "M" field, that is correct.

Q In the San Andres. Did you have all of the information on it at the time this plat was prepared?

A No, I received all information on it yesterday afternoon.

Q Since receiving that information, would that change the contours of this plat any?

A Very, very little. It would bend them out very little.

Q Well, you mean it would bend the outside contour to include that well slightly?

A That is correct.

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q That's about the only difference it would make?

A That's the only difference it would make.

MR. UTZ: Let me be sure I understand where that well is. What section is that again?

MR. HINKLE: Section 28. It's in the Northwest of the Southwest of 28, Southeast rather, I said Southwest.

MR. UTZ: That would cause your -- Let's see, what is your outside contour?

A Fifteen foot gross outside line, which is really the productive limit of the field because, for instance, the Gonzales No. 4 down in Section 33 produced only a hundred barrels of oil before it was abandoned, so we used that as our cutoff feet.

MR. UTZ: That would cause the fifteen-foot contour to swing out?

A Swing out slightly around that well.

MR. UTZ: While we are discussing this, let me be sure I understand the meaning of this fifteen, or these contours, fifteen, thirty and so forth. Now, this is the gross pay above 4% porosity?

A Above 4% porosity, that is correct.

MR. UTZ: You may proceed.

Q (By Mr. Hinkle) Have the limits of the field, that is the Flying "M" San Andres field, been pretty well

defined by dry holes and marginal wells?

A Yes, they have, as was shown on Exhibit No. 2. We have marked in green the non-productive wells or the nearly non-productive wells around the periphery on the field.

Q That is on Exhibit No. 2?

A On Exhibit 2.

Q Would you point those out to the Examiner?

A Starting at the north side in Section 9, the Shell State 1 and 2 Abo Well in Section 15, the Southern Minerals 1-15 in Section 15, going clockwise, that is an injection well but it was non-productive. The Fee 2 in Section 22 was a marginal well and will become an injection well. Actually the Ainsworth No. 1 in Section 22 tested water in the San Andres zone.

MR. UTZ: That's the one in the Southeast Quarter?

A The one in the Southeast Quarter, that is correct. Going on further clockwise, the Gonzales No. 4, as mentioned before, made 100 barrels of oil before it was abandoned. That is a total of 100 barrels of oil. The Warren American well in Section 32 was a dry hole, the Sinclair State No. 2 in Section 20 produced some oil in the San Andres and was recompleted in the Santa Rosa as a water supply well.

MR. UTZ: The Sinclair 1?

A Sinclair 2.

MR. UTZ: That was dry in the San Andres?

A It actually produced some oil for a time and has since been recompleted as a water supply well. The Pan American well in Section 18 was a dry hole in the San Andres. The Redfern No. 2 well in the Northwest of Section 16 is a very, very poor producer. It was a proposed water injection well.

MR. UTZ: The No. 2 well?

A Yes.

Q (By Mr. Hinkle) That's all the wells then.

A Yes.

Q You then used these dry holes and marginal wells and the isopach map, Exhibit 5, to determine the boundaries of the proposed unit?

A Yes.

Q Was the volumetric study made in connection with the isopach map?

A Yes, it was.

Q That was also the purpose of delineating the proposed unit area?

A Yes.

Q In fixing the boundaries of the unit area as we have here, could there be any exceptions or is the information so definite that there's not likely to be any exceptions or any

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

acreage added to the unit?

A Of course, a field can always be extended beyond its present boundaries, that happens every day. Normally, though, this field is pretty well controlled by dry holes and I would not expect them to, in most areas of the field, to be extended.

Q You could possibly have a well, a producing well, outside the outer boundaries of your isopach map here which might cause you to expand the unit to take in that acreage if that proved to be the case?

A That is correct.

Q In determining the boundaries of the unit you have used all available information to make the boundaries as definite as you could under the circumstances with the information available with the object of protecting correlative rights?

A That is correct. We used every information that was at our disposal to make these boundaries.

Q Do you have anything else to add with respect to these exhibits you referred to?

A No, I do not.

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

MR. UTZ: I have some questions in regard to

productivity of some wells. Would you rather I refer them to another witness?

A I would rather refer them to Jack McGraw.

MR. HINKLE: We will have an engineering witness on.

MR. UTZ: You are the unitization man?

A Yes.

MR. UTZ: Would you state what percentage of this you had committed?

A We have another witness that will state that.

MR. HINKLE: Mr. Morton will testify to that as to the percentage committed.

MR. UTZ: Are there questions of the witness? He may be excused.

(Witness excused.)

EDGAR A. MORTON

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

DIRECT EXAMINATION

BY MR. HINKLE:

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

A My name is Edgar A. Morton; 634 Philomena, Corpus Christi, Texas; Staff Land Manager with Coastal States.

Q As Land Manager of Coastal States, have you handled

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

the matter of getting up the unit agreement, the unit operating agreement for the Flying "M" San Andres area?

A Yes, sir, it was under my supervision.

Q You are familiar with the ownership of all of the lands in the Flying "M" Pool?

A Right, sir.

Q You are familiar with the application of Coastal States in these two cases?

A I am.

Q Has this proposed unit area been approved by the Director of the United States Geological Survey?

A Yes, sir, we have with us, I believe it is Exhibit 6, a letter back from the United States Geological Survey showing their approval.

Q Exhibit 6 is the letter dated April 18, 1967 to Coastal States?

A That is right.

Q The area which is designated by the Director of the United States Geological Survey is the same as delineated on Exhibit 2 of Coastal States which has already been referred to?

A Yes.

Q Has the form of unit agreement been approved by the Director of the United States Geological Survey?

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A It has.

Q And it's also referred to in this letter of April the 18th, or Exhibit 6?

A Right.

Q This letter also refers to certain changes in the form that was filed. Have those changes been made?

A Those changes have been made, yes, sir.

Q They were really minor changes and did not --

A Right.

Q -- and did not change the substance of the agreement?

A They did not.

Q Had this form also been approved by the Commissioner of Public Lands?

A The form has been approved, they have not as of yet approved the minor changes. It has been submitted to the State for their acceptance.

Q You anticipate no difficulty?

A I anticipate no difficulty. The changes were not material.

Q Is the form of unit agreement substantially the same as has heretofore been used where federal, state and fee lands are involved?

A Yes, sir.

Q And which has heretofore been approved by the

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Director of the United States Geological Survey and the Commissioner of Public Lands?

A It is.

Q And also by the Commission?

A By the Commission, yes, sir.

Q Is this a form which is gotten up for the purpose of waterflood or pressure maintenance project?

A Yes, sir, it is covering both cases.

MR. HINKLE: We have heretofore filed with the application three copies of the unit agreement which are a matter of record, and I would like, Mr. Morton, for you to refer to the unit agreement and to point out certain features here.

Q Is this unit agreement limited to any particular formation?

A Yes, sir, it is limited to one formation and that is the San Andres-Slaughter zone.

Q Where is that found in the unit agreement?

A Section 2 in the definition.

Q On page 2?

A On page 2, sub G.

Q Which defines the unitized formation?

A Right.

Q So that limits the unit agreement to this

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

particular formation?

A Yes, sir.

Q On page 3 you have definitions of Phase 1 and Phase 2; why are they in the unit agreement?

A To define why are they in the agreement?

Q Yes.

A To define total or to show what, how much oil it will be and how this will be apportioned to the different tracts during certain periods of time.

Q For the participating or the allocation of the production to the working interest owners of the different tracts?

A That's right.

Q Is Coastal States designated as the unit operator in the agreement?

A Yes, sir, it is under Section 5, page 6.

Q Now refer to Section 11 on page 9. Does that provide for tract participation?

A Yes, sir, it does.

Q In that connection are the percentages of participation of the different tracts shown by Exhibit B?

A That it is specifically set out for each tract.

Q The percentages of participation as shown on Exhibit B are on the basis if all tracts are committed to the unit agreement?

A That is right.

Q In case some of the tracts are not committed, Exhibit B will be revised and provision is made for that?

A Revised, in the agreement, yes, sir.

Q To reflect the actual commitment to the unit agreement?

A That is right.

Q Now, is provision made for filing an initial plan of operation?

A Yes, sir, Section 10, page 8.

Q And it's contemplated that a plan of operation will be filed when the unit agreement is filed for final approval?

A Yes, sir.

Q Does the unit agreement contain a provision for expansion of the unit area?

A Yes, sir.

Q And also for subsequent joinder?

A That's right. Section 3 for the expansion and Section 31 for subsequent joinder.

Q So in the event there are any producing wells outside the boundaries of the unit, they could be brought in?

A Yes.

Q Or anyone that fails to join originally can

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

subsequently join?

A Yes.

Q Have you contacted on behalf of Coastal States all of the owners of the working interest and extended to them an invitation to join in the unit?

A That we have.

Q That constitutes all of the lease owners within the proposed boundaries of the unit?

A That is right.

Q What percentage do you anticipate will be committed to the unit agreement, that is of the working interest owners?

A 94.2.

Q Those that have refused to join so far, can you point or refer to any of those?

A Yes, sir; Southland Royalty owners of Tracts No. 24 and 25.

MR. UTZ: Do you have a map on the unit somewhere?

A Yes, sir, Exhibit A. It is right after page 26, right before Exhibit B.

MR. UTZ: What was that again?

A Tracts 24 and 25 owned by Southland Royalty. The working interests there have elected not to join. Also under Tract No. 2, Mr. Gonzales has elected not to join as a working interest owner, and in Tract 22 to the west-southwest--

dearnley-meier

Q That's in Section 29?

A In Section 29. -- Mr. Richardson with a small interest there. Those are the only working interests that have elected not to join.

Q And it so happens that all of those are on the edge of the unit?

A That is right.

Q In your opinion, will the failure of these parties to join actually interfere to any degree with the operation of the unit?

A No, sir.

MR. HINKLE: I believe that's all we have on direct of this witness.

CROSS EXAMINATION

BY MR. UTZ:

Q This unit agreement states a participation formula?

A Yes, it does.

Q Phase 1 and Phase 2, is there a difference in the participation formula in the two phases?

A Yes. I would prefer to leave that to the engineer to discuss in more detail.

MR. HINKLE: The next witness will discuss that better than this witness.

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

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

The witness 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, your residence and by whom you are employed.

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

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

A Yes, sir, I have.

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

A Yes, sir.

Q You have previously testified on behalf of Coastal States in connection with Case 3366, which was the application for a pilot pressure maintenance project?

A Yes, sir.

Q Since that time have you continued to make a study of the Flying "M" San Andres Pool?

A Yes, sir, I have. I have been in direct charge of operating the pilot project and gathering information for the full-scale project.

Q Have you prepared, or were there prepared under your direction, certain exhibits which you would like to refer to?

A Yes, sir.

Q Refer to Coastal States' Exhibit No. 7 and explain what that is and what it shows.

A Exhibit No. 7 is a plat of the field area showing our pilot project. It shows three injection wells starting in the upper right-hand corner. The injection well in Section 15 was commenced in July of 1965 as a salt water disposal well. At that time we asked for permission to inject this water into the oil column below the water-oil contact in this area. In January of 1966 we asked for permission to expand or to have a field-wide pilot project. When this was approved we converted the well in Section 33 in the south portion of the field to injection, in April of 1966.

The well in Section 17 was placed on injection in December 1966. We have injected to date 303,000 barrels of water in the well in Section 15, 154,000 barrels of water in the well in Section 33, and 48,000 barrels of water in the

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

well in Section 17.

MR. UTZ: How much was in Section 33 again?

A 33, 48,000 barrels. I am sorry, 154,000 barrels.

MR. UTZ: Okay.

Q (By Mr. Hinkle) Have you had any response from the injecting of the water in these wells?

A Yes, sir. The response has been very gratifying in the area near the well in Section 15 which has the most water injected to date. The two closest producing wells, the well Coastal States Redfern State No. 1 in the Southwest Quarter of the Northeast Quarter of Section 16 has increased from 870 barrels per month in January of '66 to 1380 barrels per month in June of '66. The producing well immediately south of that, the Coastal States Southern Minerals 16 No. 3 has increased from 1320 barrels a month in June '66 to 2650 barrels per month in October of '66.

Q These results have led Coastal States to believe that the pressure maintenance project for the entire area will be successful?

A That is right. We are very encouraged by the results received in this pilot project.

Q Now refer to Coastal States' Exhibit 8 and explain that to the Examiner.

A Exhibit 8 is a plat showing the location of all

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 249-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

of the proposed injection wells at this time. You will also note that the three present producing wells are shown, or present injection wells are shown on this plat and that we anticipate converting four additional wells to injection at this time. These four injection wells, starting in Section 22 on the east side of the field, are the Coastal States Gas Producing Company LL&E No. 2 located in the Northwest Quarter of the Southwest Quarter of Section 22; the Redfern State No. 2 well located in the Northwest Quarter of the Northwest Quarter of Section 16 in the north portion of the field; the Skelly State No. 5 well located in the Southeast Quarter of the Northwest Quarter of Section 20 and the Gonzales No. 1 located in the Northwest Quarter of the Northeast Quarter of Section 29.

Q In the original application I believe it was stated that there would be eight injection wells?

A Yes, sir, that's right.

Q You have only referred to seven of them.

A We had at that time expected Southland Royalty to commit their tracts to this unit and had anticipated having an injection well in the vicinity of Section 28, possibly in the Southeast of the Northeast.

Q Is that indicated by a little dotted circle which you have drawn?

A That is right.

Q So that well will be eliminated at least for the present?

A At this time, that is right.

Q Is there anything else that you wish to state in regard to this exhibit?

A I don't believe so.

Q Attached to the application were diagrammatic sketches of wells which you are going to convert into injection wells. Would you refer to these which have been marked as Exhibits 9 through 12 and explain those to the Commission?

A Yes. These are simply diagrammatic sketches of the method used to convert present producing wells to injection wells in this field. They are all very similar since a common practice was established in the field for drilling and completing the wells, they all have about the same amount of cement, same size casing string, same amount of surface pipe. The sketch does show that we intend to inject water through tubing with a packer set below the top of the cement. This tubing will be plastic-coated and the annular space will be filled with a non-corrosive fluid.

Q Do you think by completing these wells in the method you have explained will securely seal the water injection from other formations?

A Yes, sir, as well as can possibly be done.

MR. HINKLE: If the Examiner please, we received, or at least I received a copy of a letter of the State Engineer dated April 24, 1967 which is addressed to Mr. A. L. Porter, Secretary-Director of the Commission. In Paragraph 4 he says this, that "the diagrammatic sketch for the Redfern No. 2 well does not state what class of tubing will be used."

Q Mr. McGraw, will you explain to the Examiner what this is and what it means?

A Yes. That was inadvertently left off that sketch; the tubing to be used there will be 2-3/8ths-inch EUE plastic-coated 4.7 pounds per foot.

Q Have you noted that on Exhibit 9?

A Yes.

Q Is there anything else that you wish to refer to as far as the diagrammatic sketches are concerned, Exhibits 9 through 12?

A No, sir.

MR. UTZ: Did you explain all, away all of his objections there?

MR. HINKLE: We have another one that will come into the water analysis.

MR. UTZ: I see. Well, there were some others?

A Yes, sir, we'll cover that in a moment.

MR. UTZ: You covered the tubing and you covered the one injection well he couldn't find?

A Yes, sir.

MR. HINKLE: The others are all taken care of except the water analysis which we're going to get to right now.

Q (By Mr. Hinkle) Where does Coastal States propose to get its water supply for the injection of water in the Flying "M" formation?

A We have contacted a property owner in the Lea County underground water basin for possibility of him furnishing water for this project and it looks favorable that we will be able to get this water.

Q Is this potable water?

A Yes.

Q And from what formation?

A From the Ogallala.

Q And that's in one of the declared areas on the caprock?

A Yes, sir, it's just inside the Lea County underground water basin.

Q Will you also inject some produced water?

A We will inject, of course, all the produced water

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

that is produced and gathered in the field.

Q Have you prepared an exhibit to show the fill-up of the pool, or estimated fill-up?

A Yes, we have. Exhibit 13 shows our calculated fill-up volume for the field as of 1-1-67. This, of course, is not exactly accurate since we're running some approximately six months behind the date that we had anticipated getting this kicked off.

Q But it does give some idea of the water which is going to be required?

A That is right. The first column there is estimated volume of makeup water required, and at that time we estimated it would take about 8,251,000 barrels of makeup water. We would also produce about 7,000,000 barrels of water in the field, which would be returned to the reservoir, for a total water that would be handled of 15,283,000 barrels. This would restore the reservoir pressure to 1125 pounds in a period of approximately two years and then would be maintained at that rate for the remaining life of the project.

Q You furnished with the application a water analysis and a copy of the application and all of the exhibits were sent to the State Engineer, is that right?

A Yes, sir, we did.

Q Now, the State Engineer, in the letter which I have

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

previously referred to of April 24th, says in paragraph 5, "The analysis of Ogallala water by Martin Laboratories, which is numbered 66133, does not clearly state the source of the water sample." Can you give that source?

A Yes. If you will refer back to Exhibit 7, which was our pilot project, that plat also shows the source of our water for this pilot project, the fresh water supply Well No. 1 that is in the East Half of Section 21 is the well that this sample was taken from and this will continue to be used; however, it will not be the complete source of our water.

Q Now, since filing the application, have you had any further water analysis made?

A Yes, we have.

Q Including the Ogallala formation from which you propose to obtain the bulk of the water?

A Exhibit 14 is an analysis from Martin Water Laboratories of all the possible sources of water in this area. It's an analysis of Ogallala water from the well that we intend to use as our primary source of outside water. It also shows an analysis of the produced San Andres water from the Southern Minerals State tank battery. It also shows an analysis of the Bough "C", Pennsylvanian water which is available in the area in small quantities. It also shows an analysis of Bough "C" water that is produced in a rather,

a well about fifteen miles from the field, in rather large quantities.

Q You anticipate that the water supply is going to be adequate to take care of all the needs?

A Yes. The primary reason for selecting the Ogallala water was that it does offer us a completely adequate source of water at all times and will be adequate for our needs.

Q Now, Mr. McGraw, Mr. Morton, in his testimony, pointed out that the unit agreement provides for the filing of a plan of development at the time the unit agreement is filed for final approval. Do you have a copy of the plan of development which has been prepared?

A Yes. Exhibit 15 is a plan of operation which will be filed with the Supervisor, the Commission, and the Commissioner concurrently with the filing of this unit agreement. This plan of operation just briefly summarizes that as soon as the unit becomes effective we will exercise all diligence to obtain an outside source of water to construct the necessary injection facilities, convert additional injection wells, and it names the wells that we plan to convert at this time, lay the necessary injection lines, consolidate production facilities where it is possible and economical.

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

It says that we will keep accurate records at all times on the progress of the project and also says that we anticipate that one additional injection well will be needed at a later date. This additional injection well will be drilled at a location to be selected later or a present producing well will be converted to injection. This is if it is determined that we need this at a later date.

The total number of injection wells that we plan to use in this project will, of course, depend on our ability to get the required amount of water into the reservoir in the time that we have expected to restore the reservoir pressure to above the bubble point pressure. If it is determined at a later date that we need more injection wells, we do plan to ask for this permission and we'd like to put on injection as many wells as is needed in order to restore the reservoir pressure to above the bubble point pressure.

Q Would you like to have provision made in the order so that administrative approval can be had of any injection wells that you deem necessary?

A Yes, sir, we certainly would.

Q Are you requesting the Commission by this application to establish a project allowable?

A Yes, we are.

Q Do you have any particular rules that you would

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

like to propose in connection with this project?

A Yes.

Q Including the allowable?

A Exhibit 16 shows the rules that we propose the Commission adopt for governing the allowable and future operation of this project. These rules are, I understand, very standard for this type operation in that they have been adopted by the Commission for pressure maintenance projects in other fields in New Mexico.

Q Do you know of any field specifically that these rules have been adopted for?

A I believe they have been adopted in the Horseshoe-Gallup area.

Q That's in northwest --

A That's in northwest New Mexico.

Q Do you have any particular comments to make with regard to the proposed rules?

A No, sir, I don't.

Q These are substantially the same as those which were adopted by the Commission in the Horseshoe-Gallup Pool pressure maintenance project?

A Yes, sir.

Q Some mention was made in connection with Mr. Morton's testimony of the participating formula. Will you

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

state to the Examiner how this formula was arrived at?

A Yes. In November 1966, Coastal States prepared a list of parameters to be used in order to determine a formula for this field. These parameters were discussed with the field operators at that time and the ones that were recommended to us in the formula were the current rate parameter which was the current production from May through October of 1966, and the ultimate primary parameter and the productive acreage parameter.

Q Why were these parameters selected?

A These parameters were selected because they were the ones that were the least amount interpretive. They represented actual production information from the field and were not determined by interpretive means.

Q After considering all of the possibilities and use of various factors as parameters, were these selected as being the ones which would be most equitable and most nearly protect correlative rights?

A Yes, sir, that is right. The formula that was arrived at from these parameters was a two-phase formula, the first phase being 75% current rate, 25% productive acres. This first phase formula was to be in effect from the time of unitization until the cumulative production from the field reached three million barrels, the three million barrels being

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

the ultimate primary recovery as determined by field decline curves and material balance calculations.

Q So that's the reason the three million was used in Phase 1?

A Yes, sir. Phase 2, then, consists of 75% ultimate primary and 25% productive acres and this will be in effect, of course, following Phase 1 and to the end of the project.

Q Have you made any calculations or estimates as to what the total recovery might be through this pressure maintenance and secondary recovery project?

A We have made some estimates. We have estimated that the secondary recovery will be one times primary or three million barrels. The total production, then, from the field would be six million barrels.

Q If this unit agreement is approved and the pressure maintenance project is put into effect, in your opinion will it be in the interest of conservation and the prevention of waste?

A Yes, sir.

Q And it would also be in the interest of obtaining the greatest ultimate recovery?

A Yes, sir.

Q In your opinion will the unit agreement and the pressure maintenance project protect correlative rights?

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A Yes, sir.

MR. HINKLE: We would like to offer in evidence all of our exhibits, 1 through 16.

MR. UTZ: Without objection the Exhibits 1 through 16 will be entered into the record of this case.

(Whereupon, Coastal States' Exhibits 1 through 16 were offered and admitted in evidence.)

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

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. McGraw, in regards to your participation formula, how did you determine current rate?

A Current rate was the production that was reported to the Oil Conservation Commission, C-115 production for each lease in the field from the period May through October of 1966.

Q So actually the potential of the well would have nothing to do with it, then, it was actual production?

A That's right.

Q Actual production limited by allowables, is that right?

A That is right. This period of time, though, was chosen largely because it was unaffected by allowables or by

the effect of the pilot project in the area.

Q Now, in regard to ultimate recovery which was used only, as I understand, in Phase 2 --

A That is right.

Q -- and so current rate was not used at all in Phase 2?

A That is right.

Q Ultimate recovery would be considered what, reserves?

A Yes. And also would be indicative of the net feet of pay that each lease would contribute to the unit and, therefore, would be proportional to their amount of secondary oil that they would contribute. We think, therefore, that it is a very equitable parameter to use in a formula.

Q In your ultimate recovery figure would initial potential of the well or ability of the well to produce be involved in the ultimate recovery?

A On an individual lease basis it is somewhat in that it, as I stated before, the ultimate primary was determined by material balance calculations and field decline curves. The primary was also determined by individual lease decline curves and at that time it was noticed that the remaining primary for each lease was very close to their current rate percentage, and so in order to remove the interpretative nature,

dearnley-meier

then, of remaining primary by a lease decline basis, we presented to the operators their remaining primary based on their current rate parameter. In other words, their current rate percentage was multiplied times the field remaining primary and assigned to each lease and this was very acceptable to each operator. They felt that it was equitable to them in this case.

Q So this is really not a volumetric calculation?

A No, sir, it's a material balance calculation and also the field decline curves and lease decline curves show that it is within engineering accuracy.

Q I'm sure you know that we've had one objection to your formula which has promulgated some of my questions, and in all fairness to you, I will say that we have that objection at the present time and the subsequent questions will be in regard to that, and whatever fairness he might be deserving of just writing letters and not being here.

In regard to the Southwest Quarter of Section 24, I do note that you have a producing well in the Northwest Quarter, to the Southeast of the Northwest Quarter of Section 29. Now, what kind of a well is that?

A That well is a good producing well. It's a top allowable well. It makes its allowable. I might also point out the other wells south of it are not top allowable wells,

nor are they, two of them at least are not even commercial wells.

Q You are speaking of the two wells in the North Half of Section 32?

A Yes, sir, that is right.

Q Do you have any figures as to what those wells are producing at this time?

A Yes, sir. The well in the Southeast Quarter of the Northwest Quarter of Section 32 is producing four barrels of oil and six barrels of water per day. The well in the Northwest Quarter of the Northeast Quarter of 32 is producing four barrels of oil and nineteen barrels of water per day.

Q And your Well No. 5-29 in the Northwest of the Southeast, what kind of a well is that?

A That is a fair well. It makes 32 barrels of oil and no water and that's as high as it has ever made. It never was any better than that.

Q Do you have a lease on the Southwest Quarter--

A Yes.

Q -- of 29? Why did you decide not to drill that lease?

A That lease has not been drilled at this time because we are watching the performance of this well in the Southeast of the Northwest. We have run some pressure or obtained some

pressure information on this well to see if there is sufficient justification to drill another well in this area, but the well in the Southeast of the Northwest is not a very old well. It has not been drilled very long.

Q When was it completed?

A I would just have to guess at it. It's about six months old; September of last year. That would make it about eight months old.

Q Now, if that well looks like it has pretty good reserves under it, what would be Coastal States' attitude as far as drilling?

A Well, we would certainly drill the tract.

Q If it pops out pretty fast, then you --

A We wouldn't.

Q You wouldn't feel like spending the money, particularly in view of the two sorry wells down--

A That is right. And that is the reason for watching this well. We might also point out that the well to the northeast of that well is a very poor well. It's proposed as an injection well, it makes eight barrels of oil and ten barrels of water.

Q That's the 1-29?

A Yes, sir. So we have one good well in an area of very, very sorry wells and we, of course, want to determine

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

that we do have sufficient justification to drill a well.

Q How about 2-29 in Section 29?

A 2-29 makes 30 barrels of oil and seven barrels of water. 3-29 makes 28 barrels of oil and no water.

Q It is true that a tract without a well on it doesn't have much participation in the formula?

A That is right. We did not attribute a lot to productive acres. We couldn't do that. We didn't anticipate anyone committing a tract to the unit if they felt sure that they should or had sufficient justification for drilling a well.

Q In other words, the way this leaves this individual here is that if he thinks he has enough reserves there to drill for it, he's free to drill for it?

A That is right, and this in no way limits or prevents him from doing this.

Q Even though you have the lease?

A That is right.

Q Now, in arriving at your gross contours here you used electric logs, did you?

A You are talking about the exhibit--

Q Yes, your gross pay.

A That was mostly from core analyses.

Q How many wells were cored?

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A Greater than 50%, 30 --

Q 30%?

A No, 30 wells.

Q Out of how many?

A Out of 46.

Q That's an unusually high percentage of coring in any field, is it not?

A Yes, sir, it is.

Q This is a solution drive field?

A Yes.

Q Otherwise you wouldn't be making this application?

A That's right.

Q I believe you stated it was your intention to reinject all produced water?

A Yes, sir.

Q Is it my understanding that you would inject even produced water from the Bough "C" formation?

A Yes, sir.

Q We anticipate taking some produced water from the Bough "C" in this area. There's some that is available to us and we're planning to use all that we can of that water.

Q In other words, all produced water in all three zones of this area you will use?

A We will use it and reinject it.

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q That will save some fresh water, will it not?

A Yes, sir. It will save us from having to buy it.

Q In your proposed rules, in arriving at the Z factors here, was that from gas analysis or calculated?

A Yes, from gas analysis and correlations from this.

Q This is between the test points?

A Sir?

Q As between test points in your analysis?

A It was correlated from the gas gravity as determined by our gas analysis.

Q I see, so you just took the gravity?

A Yes, sir.

Q You didn't actually run a Z factor on it?

A No, sir.

Q I don't remember the name for it right now.

A No, it was from correlation curves using gas gravity.

MR. UTZ: Any other questions?

MR. HINKLE: If there are no other questions, I would like to make a very brief statement here in regard to the line of testimony concerning Mr. Richardson's protest. If there is any implication in his protest there that this lease hasn't been fully developed like it should have been by Coastal States, I think that's a matter of law to be

determined by a court and not by the Commission.

The approval of the unit agreement and of this pressure maintenance project will not in any way affect those rights, so this has nothing to do with any rights he may have there as against Coastal States for the reasonable development of that lease. That's entirely another matter, as I see it. I would like to point that out to the Commission.

MR. UTZ: Have you received copies of these letters?

MR. HINKLE: Yes, we have copies. At least one of them.

MR. UTZ: We have a wire and a letter. I believe the letter was written to you, so I think you are aware of what is in it.

MR. HINKLE: The royalty owners under this tract, of course, have not committed their interest.

MR. UTZ: None of them?

MR. HINKLE: That's right. Of course, that tract is not going to be effectively committed to this unit.

MR. UTZ: I would gather from his objections here he would like to be in the unit but not with this participating formula. Do we have other statements?

MR. HINKLE: I might also add this, that the United States Geological Survey scrutinized this formula very carefully and approved it as indicated by their letter which

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

has been introduced in evidence.

MR. HATCH: I would like to mention that the Commission has received a letter from the State Engineer's Office and that all of the points have been responded to, and that there is a telegram addressed to the Oil Conservation Commission dated April 25th, 1967 that I would like to read into the record.

"Reference Cases 3554 and 3555, Coastal States Flying "M" San Andres Unit. As a working interest owner under Tract 22 and on behalf of one-half of the fee royalty under Tract 21, I object to approval of the proposed unit and waterflood. The field not drilled and developed to the extent necessary to determine unit outline. Productive but under drilled acreage is severely penalized by the participation formula. Wells in West Half, Section 29, and in Section 32 lie outside peripheral of flood. The entire program based upon Coastal States' economics rather than equitable and sound geology and engineering. I do not feel that the rights of anyone except Coastal States will be protected. I urge the Commission to carefully examine and withhold the approval until the correlative rights of all parties are protected. R. M. Richardson."

That's all I have.

MR. UTZ: You did have a letter?

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

MR. HATCH: Yes, that's a copy of a letter that was sent to Mr. Hinkle. The Commission has received a copy of a letter sent to the Coastal States but I will not read that at this time.

MR. HINKLE: That's the same one that we received?

MR. HATCH: Yes.

MR. HINKLE: I might point out here that 88.86% of all of the royalty owners under the fee tracts have committed their interest to this unit. They have already signed the agreement.

MR. UTZ: Fee royalty interest?

MR. HINKLE: Fee royalty, 88.86%.

MR. UTZ: Are there other statements to be made in this case? The witness may be excused.

(Witness excused.)

MR. UTZ: If no further statements, the case will be taken under advisement.

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
W. D. ELLIOTT	
Direct Examination by Mr. Hinkle	4
EDGAR A. MORTON	
Direct Examination by Mr. Hinkle	14
Cross Examination by Mr. Utz	21
JACK MCGRAW	
Direct Examination by Mr. Hinkle	22
Cross Examination by Mr. Utz	36

EXHIBITMARKEDOFFERED AND
ADMITTED

Coastal States'		
Exhibits 1 through 16	5	36

dearnley-meier

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

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

