

Case Number
4562

Application

Transcripts

Small Exhibits

ETC.

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

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 30, 1971

EXAMINER HEARING

IN THE MATTER OF:)

Application of Texas Oil & Gas)
Corporation, for an unorthodox)
gas well location, Eddy County,)
New Mexico.)

) Case No. 4562

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

1 MR. UTZ: Case 4562.

2 MR. HATCH: Case 4562. Application of Texas Oil and
3 Gas Corporation, for an unorthodox gas well location, Eddy
4 County, New Mexico.

5 MR. LOSEE: A. J. Losee of Losee and Carson, Artesia,
6 New Mexico, appearing for the applicant. I have two witnesses
7 that I would like to be sworn at this time.

8 (Witnesses sworn)

9 MR. UTZ: Are there other appearances?

10 MR. LOPEZ: Owen Lopez, Montgomery, Federici,
11 Andrews, Hannahs & Morris, Santa Fe, for the protestant
12 Marathon Oil. Associated with us on this case is counsel for
13 Marathon from Houston, Jack McAdams, and we have one witness.

14 MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant,
15 Cox & Eaton, Roswell, representing the Western States Producing
16 Company. We will have one witness.

17 MR. KELLAHIN: Jason Kellahin, Kellahin & Fox, Santa
18 Fe, appearing on behalf of Chevron Oil Company. We will not
19 have a witness.

20 MR. UTZ: Are there other appearances? You may
21 proceed.

22 BRENT WATSON,
23 a witness, having been first duly sworn according to law, upon
24 his oath, testified as follows:

25 (Whereupon, Applicant's Exhibits 1 through 3 were marked

1 for identification.)

2 DIRECT EXAMINATION

3 BY MR. LOSEE:

4 Q Will you state your name, please?

5 A Brent Watson.

6 Q Where do you live, Mr. Watson?

7 A Midland, Texas.

8 Q What is your occupation?

9 A District Geologist for Texas Oil and Gas Corporation.

10 Q You have not previously testified before this oil
11 commission?

12 A That's correct.

13 Q Do you have any college degrees and, if so, what are
14 the degrees and where were they obtained?

15 A I have both Bachelor and Masters Degree from Texas
16 Christian University in Fort Worth.

17 Q In what subjects?

18 A In -- majoring in geology, minor in math-physics.

19 Q When did you graduate with your masters?

20 A 1961.

21 Q Since that time what has been your occupation?

22 A I was employed by Sinclair Oil & Gas Corporation out of
23 college, worked in Amarillo, Roswell and Midland. I
24 worked for Continental Oil Company after I left Sinclair
25 for slightly over one year and since that time I have been

1 with Texas Oil & Gas Corporation in Amarillo and Midland.

2 Q How long with Texas Oil and Gas?

3 A Five years.

4 Q Did you say what your capacity was with Texas Oil & Gas
5 in Midland?

6 A District Geologist.

7 Q During your period since graduation, have you attended
8 any seminars and, if so, on what subjects?

9 A I have attended several electrical logging skills and
10 drill stem testing skills, coring skills, plus I have been
11 on a three weeks clastic seminar with Continental Oil.

12 MR. LOSEE: Mr. Examiner, are Mr. Watson's
13 qualifications acceptable?

14 MR. UTZ: Yes, sir, they are.

15 Q (By Mr. Losee) Are you familiar with the application of
16 Texas Oil & Gas Corporation in this Case No. 4562?

17 A Yes, I am.

18 Q Would you relate briefly its purpose?

19 A The purpose of this application is to drill an unorthodox
20 location 990 from the north and west lines of Section 22,
21 Township 22 South, Range 23 East. The normal pool rules
22 are 1650 feet with 640-acre spacing.

23 Q Now, those are the pool rules for the Upper Pennsylvanian
24 Indian Basin Pool, are they not?

25 A Yes, that's correct.

1 Q What is the spacing for wells in the Indian Basin-Upper
2 Pennsylvanian Pool?

3 A 1650 feet.

4 Q No, the spacing.

5 A 640 acres.

6 Q Does Texas Oil & Gas Corporation hold a farm out on this
7 entire section?

8 A Yes, we do. This was a farm out from Gulf Oil Corporation
9 under one base lease.

10 Q Please refer to what has been marked as Exhibit 1 and
11 explain what is shown by this Exhibit?

12 A Exhibit 1 is a structure map contoured on top of the
13 Cisco Canyon Reef using a contour interval of 50 feet, the
14 scale being one inch equals 2,000 feet. This map will be
15 used to support some of our theories in Section 22 that for
16 the -- our reasoning behind the unorthodox location.

17 I feel that the two important things that are on
18 this particular map are two structural noses. There is one
19 structural nose moving -- trending and plunging southwest
20 across Sections 15, 14 and 23. This -- there has been a
21 new well drilled in the basin within the last two months,
22 the Monsano No. 1 Ralph Low located in Section 23
23 encountered a reef-type section at minus 3509.

24 This is a new point that I have introduced on this
25 map, as well as Mr. Mershon or Western States Producing

1 Company's well in Section 21. You will also notice there
2 is another southwest trending nose that I have mapped,
3 trending through Sections 16, 21 and 28. These two
4 noses, I think, are very important to this particular
5 case.

6 Also, on the south end of this particular map, I have
7 a dark dashed black line which indicates the limits of
8 porosity in the Cisco Canyon Reef. I will show you the
9 basis for this particular line on Exhibit 2 which I will
10 introduce next.

11 Q Now, how far away are the closest wells to your proposed
12 location, Mr. Watson?

13 A The closest well to our proposed location is the Western
14 States No. 1 Merston Gas Com which is 1,980 feet due west
15 of our well. This well was drilled on an unorthodox
16 location 990 from the north and east lines of Section 21.

17 The next closest well would be the Gulf No. 1 Helbing
18 Federal due north of our location from the people that we
19 have the farm out from Gulf Oil and it is 4,400 feet due
20 north of our proposed location.

21 The Standard of Texas No. 5 Bogle Flats Well is
22 located due northwest, is located 6,100 feet northwest of
23 our well and the Marathon Federal 1BB Gas Com is 7600
24 feet northeast of our proposed location.

25 Q Now, when was this Monsano Well in Section 23 completed?

1 A This well was drilled and logged on May 4, 1971. This
2 well was subsequently plugged later on in the month.

3 Q When was the Western States Well completed, approximately?

4 A Let's see.

5 Q Well, we don't need an exact date.

6 A It's been in about a year or so now.

7 Q Now, you have an area on this map colored in blue in
8 Section 22. Would you explain what that denotes?

9 A As I mentioned earlier, the two southeast trending noses
10 that I have mentioned are very important in the testimony
11 in that they form a synclinal area in Section 22. I have
12 a closure of a minus 3400 feet intersecting the zero
13 porosity line in the Cisco Canyon Reef.

14 These conditions are necessary to form the, what I
15 feel a trapped connate water in this particular well. This
16 well was drilled by Gulf Oil Corporation to a total depth
17 of 7828. A sonic log was run on this well. Induction
18 logs were run on this well in that they felt this was an
19 inside location and should have no problem and all they
20 needed was a log for correlation, a gamma ray sonic log.

21 They ran pipe, shot the well, acidized it with a
22 thousand gallons and have made nothing but water from this
23 well. This caused them to scratch their heads and bring
24 great puzzlement and what I would like to introduce is a
25 theory that I have for this particular water in this

1 section and this theory is that the close low at minus
2 3400 subsea closes against the zero contour line. The
3 hydrodynamic forces in this particular area that would
4 cause this situation were that the reef would have conate
5 water in the porosity in this particular reef as the gas
6 migrated updip into the west, the --

7 Q Now, your water was there years ago?

8 A Right, right. The conate water is indigenous to the
9 formation. As the gas invaded and came updip and was
10 coming updip to the west, then the hydrodynamic forces
11 pressed and caused a downward pushing of the water. This
12 water in all cases -- in most cases through this field
13 has been pushing down to a lower elevation of an
14 approximate gas-water contact in the field proper of a
15 minus 3750, yet at minus 3403 we have a well up here that
16 is making water, 100 percent water in fact, and the only
17 logical explanation that I can come up with or one logical
18 explanation that I can come up with is the trapped conate
19 water or sometimes called perched water in this particular
20 section.

21 The trapping of the 3400 foot contour line against
22 the zero isopach gives you a close low and in this
23 particular area the hydrodynamic forces would be pushing
24 down, out of Section 21, down into this low that would be
25 pushing south from 15 into Section 22 and, also, because of

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1 this particular nose that comes through Section 14, there
2 would be a southwesterly push causing the water to be
3 pushed down into this closed low and trapped.

4 At this particular location where Gulf drilled, they
5 encountered this particular interstitial water and this
6 is the basis that I have for the blue area on my map.

7 Q Now, Mr. Watson, what's your dashed line along the south
8 edge of this? Explain that again.

9 A Okay. The dashed line on the south edge of the field is
10 what I would consider is the two percent porosity limit.
11 In other words, anything south of that particular line
12 would have no porosity in the Cisco Canyon Reef greater
13 than two percent.

14 I will explain this two percent cutoff on my next
15 Exhibit when I introduce the isopach.

16 Q Why doesn't the water go through that line going to the
17 southeast?

18 A Because it's an impermeable barrier because you go from a
19 porous facies, porous dolomite and limestone facies, to the
20 north into a non-porous limestone and shale facies to the
21 south and it's an impermeable barrier with essentially no
22 porosity or permeability, so, therefore, it forms a
23 trapping agent for the 3400 foot close contour.

24 Q Now, you mentioned the gas-water contact in the field at
25 3750. How do you arrive at that subsea datum?

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1 A This was derived from studies done on drill stem tests and
2 production data in the field proper. Well, when you get
3 any lower than minus 3750 nearly all of the reef is
4 water productive.

5 In other words, this is a general. It could be 25
6 feet higher, 25 feet lower, but in general -- and this has
7 been introduced in various cases before and I think several
8 companies use this minus 3750 as an arbitrary gas-water
9 contact for the field, based on drill stem test and
10 production data.

11 Q That was the figure you testified to in the Western
12 Merston's Case in Section 21, is it not?

13 A That's correct.

14 Q Is one of your other Exhibits a cross section and, if so,
15 would you point out which wells on this structure map it
16 runs through?

17 A I have a cross section. If we go from west to east, the
18 first well on my cross section would be the Western
19 States No. 1 Merston Gas Com. Going then to my proposed
20 location in Section 22, then to the Gulf No. 2 Helbing
21 Well immediately east, then northwest to the Marathon
22 Federal 1BB Well which was encountered at a subsea of a
23 minus 3451. This will be introduced as Exhibit No. 3.

24 Q Mr. Watson, please refer to what's been marked as Exhibit
25 2 and explain what is shown by that Exhibit?

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1 A Exhibit No. 2 is an isopach map of the Cisco Canyon Reef
2 porosity greater than two percent. The two percent cutoff
3 was used for various reasons.

4 No. 1, in the field rules established by Marathon in
5 1967, they stated that two percent appeared to be a
6 reasonable cutoff. Also, in previous hearings before the
7 New Mexico Conservation Commission, the two percent porosity
8 figure has been used and testified to that porosity lower
9 than two percent would possibly have very small, poor
10 volume and therefore almost zero permeability, so I have
11 used this as my cutoff.

12 Q Where did you obtain the data for this isopach map?

13 A This isopach map was derived from electric logs that have
14 been run in the field proper, examination of those logs.
15 Basically sonic logs. Whenever possible I used the sonic
16 log so that the comparisons would be on the same type log.

17 Q Now, what is your contour through the Gulf Helbing No. 2
18 in Section 22?

19 A I have a 50 foot contour line running just north of the
20 Gulf No. 2 Helbing Federal.

21 Q Now, that well did not produce gas, did it?

22 A This well did not produce gas and I have this -- this is
23 not, as some people would refer to it, a net pay map.
24 This is a porosity isopach map dealing with the porosity
25 in the formation, irregardless of the fluid within the

1 formation, whether it be gas or water, and this well had
2 34 feet of this type porosity.

3 Q Now, how much porosity did you credit for the Western
4 States Well?

5 A I gave the Western States Well 25 feet of porosity greater
6 than two percent.

7 Q Now, this recently completed Monsano Well in Section 23,
8 how much porosity did you give it?

9 A I assigned it 3 feet. It had two foot in one zone and
10 another foot in another zone. The zone becomes rather
11 shallow in this area and I also used the gamma ray cutoof
12 as well as the porosity cutoff.

13 I used, I believe, 50 API gamma ray units as the
14 cutoff on this thing. Anything cleaner than five units
15 from the left-hand side of the log I considered as possibly
16 clean enough carbonate to be productive and then greater
17 than two percent and it had three feet. The zone
18 correlates very well with the reef pay in the field.

19 Q Mr. Watson, in your opinion, does this isopach fairly
20 represent porosity in the Cisco Canyon Reef?

21 A Yes, I think it does. I have tried to use a constant
22 thickening interval in this across the field and the rate
23 of thickening across the field, as far as porosity build-
24 up, appears to be between 200 and 250 feet, using a con-
25 stant rate of porosity build-up and decline and I have

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1 shown a thickening area pushing through Section 22 and
 2 I feel this map is representative of the reef.
 3 Q All right. Now, have you polemitered the area below your
 4 two percent porosity line in Section 22?
 5 A Yes, I have.
 6 Q How many acres were in that area?
 7 A I show 61 acres with less than two percent porosity.
 8 Q So this 579 acres would be above the two percent porosity
 9 line in Section 22?
 10 A That's correct.
 11 Q Now, let me ask you to refer back to your Exhibit 1 and
 12 ask if you have polemitered the area in the trapped water
 13 section colored in blue located in Section 22?
 14 A Yes, I have. There is one -- there are 139 acres within
 15 the perched water column.
 16 Q That still has the 61 acres below the zero line, is that
 17 correct?
 18 A That does not include the 61 acres. The total of the two
 19 would be 200 acres. That would be the total of the
 20 perched water plus the 61 non-porous acres.
 21 Q So that in Section 22, referring to your Exhibit 1, excluding
 22 that porosity less than two percent in the reef and
 23 excluding the perched water, trapped water area, there's
 24 440 acres, is that correct?
 25 A That is correct.

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1 Q Please refer to what has been marked as Exhibit 3 and
2 explain what is shown by this cross section?

3 A Exhibit 3, as I mentioned earlier, is an east-west cross
4 section across the field. The purpose of this cross
5 section is to show that wells both updip and downdip from
6 the Gulf No. 2 Helbing Federal are gas productive from the
7 Cisco Canyon Reef.

8 The Southwestern or now Western States Mershon Gas
9 No. 1 Gas Com was potentialized for an IPCAOF of 7,400,000
10 cubic feet of gas per day with a gas-liquid ratio of
11 197,200 to 1. This well, according to my structure map,
12 will be updip to the proposed location.

13 Then, coming through our proposed location downdip
14 we see the Gulf No. 2 Helbing Federal Well which I stated
15 earlier had been perforated in the Cisco Canyon Reef and
16 swabbed 115 barrels of water in 6 hours.

17 Then, coming downdip, the Gulf Helbing Well is at a
18 subsea of a minus 3403. At a subsea of a minus 3451 due
19 northeast of that in this would be the last well on my
20 cross section, the Marathon Oil Company Federal 1BB Com,
21 was completed for an IPCAOF of 15,187,000 cubic feet of
22 gas from a lower interval in the Cisco Canyon, perforations
23 being from 7543 to 7564.

24 Again, this again shows the anomalous condition
25 present in Section 22. We have updip gas, we have downdip

1 gas and in this particular area in Section 22 we have
2 water. This well is definitely anomalous.

3 Q In your Western States, what was your subsea datum on
4 that?

5 A It was a minus 3197, 205 feet.

6 Q Low to the Gulf Helbing No. 2?

7 A Right, it was high to the Gulf Helbing No. 2.

8 Q Yes, high. Then, further up the Marathon dip your subsea
9 was 3451?

10 A That's correct.

11 Q And so it was downdip from the Helbing about 50 feet?

12 A That is correct.

13 Q Were Exhibits 1 through 3 prepared by you or under your
14 supervision?

15 A Yes, they were.

16 MR. LOSEE: We move the introduction of Exhibits 1
17 through 3.

18 MR. UTZ: Without objection, Exhibits 1 through 3
19 will be entered in the record of this case. Are there any
20 questions of the witness?

21 CROSS EXAMINATION

22 BY MR. RAMEY:

23 Q Is this Western States Well, the one that you referred to
24 as Western States, the one you have labeled Southwestern
25 Natural Gas?

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1 A Yes, that's correct. It was drilled as Southwestern
2 Natural Gas.

3 Q But, it's the well in Section 21?

4 A Yes, that's correct.

5 CROSS EXAMINATION

6 BY MR. MCADAMS:

7 Q Jack McAdams of Marathon. Could you explain again to me
8 these noses that you say create this perched water table?

9 A The Marathon No. 1 Federal 1BB located in Section 14 has a
10 subsea of a minus 3451. The Monsano No. 1 Low located
11 in Section 23, almost two miles south, has a subsea of
12 minus 3509.

13 There's 50 feet of dip between those two wells and I
14 defy anyone to show me anywhere where the rate changes to
15 50 feet in a mile there. In other words, you would have
16 one contour between those 2 wells.

17 Also, in Section 15 you have a very high well coming
18 in at a subsea. This is the Gulf No. 2 or No. 1 Helbing
19 Federal comes in at a subsea of minus 3099, an extremely
20 high point, which gives us the high nose starting from up
21 here and I feel that the nose has to pull between these
22 two flat wells.

23 I have a high point here, two essentially flat points
24 here and I pull the nose through this particular area.

25 MR. LOSEE: You will have to explain to Mr. Utz.

1 THE WITNESS: Okay. I have the nose pulling from a
2 minus 3100 at the Gulf No. 1 Helbing Federal down to -- in
3 order to keep my contour interval that I have shown throughout
4 the map, I have to pull this nose down through Sections 14,
5 the south half of Sections 14 and the north half of Sections
6 23.

7 I feel that this is a legitimate sub-surface
8 interpretation.

9 Q (By Mr. McAdams) This is closing against a porosity
10 barrier here?

11 A Yes, the minus 3400 foot contour here, you see, intersects
12 the porosity barrier, it intersects the porosity barrier
13 here.

14 Q This is your two percent porosity cutoff?

15 A Right.

16 Q How do you determine the western extremities of this
17 perched water table?

18 A The western extremities? Again, this is a sub-surface
19 interpretation. The Southwestern well located in the
20 northeast quarter of Section 21 came in at a subsea of
21 minus 3197.

22 Using a constant rate of dip from 3200 to 3400, you
23 are coming from high here to a low in here, and using a
24 constant rate of dip that's -- I have to come up with this
25 interpretation here. You are coming from high down into

1 a low; you are coming from high down into a low.

2 MR. LOSEE: What you are referring to is you are
3 coming from a high in Western States Well down to the Helbing
4 and coming from a low up here in the Marathon -- or a high?

5 THE WITNESS: High up here, right, down to a low
6 here.

7 MR. LOSEE: High in the Gulf Federal Helbing No. 1.

8 Q (By Mr. McAdams) You have here a circle in Section 22
9 and at the proposed unorthodox location, is that right?

10 A That's correct.

11 Q This arrow pointing to it on Exhibit 1?

12 A That's correct.

13 Q What does this other little penciled in circle represent?

14 A This is the orthodox location, 1650.

15 Q Why do you need an unorthodox location if you are sure
16 this perched water is over that far?

17 A Again you will notice that the structural advantage is
18 very negligible coming from 1650 up to here. The reason
19 we need an unorthodox location is because of correlative
20 rights.

21 In this particular area, we have a well 990 off this
22 lease line which certainly we feel like we need correlative
23 rights to produce at least the same distance from the
24 western-most lease line as Western States. In other
25 words, they have a drainage advantage over us.

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1 Q Won't a well placed there protect you as much as one here?

2 A I would think that a well 990 is going to protect its
3 drainage rights certainly better than a normal location
4 at 1650 with a well that's unorthodox offsetting the
5 lease line.

6 In other words, if this is unorthodox, 990, and
7 again you can argue the drainage patterns backwards and
8 forwards, but if there's a well 990 off your lease line,
9 you cannot protect your rights. We are not interfering
10 with any of the wells to the north. That's not the
11 problem because they are all quite a ways from this
12 particular lease, but the well that we are interested in
13 is the well that's 990 off the particular Gulf farm out
14 that we have and we feel that we have to protect our
15 correlative rights by staying 990 off of this particular
16 lease line.

17 Q Don't you interfere with other people's correlative
18 rights?

19 A Well, in this particular case --

20 MR. LOSEE: Whose correlative rights?

21 THE WITNESS: I am 6100 feet from Standard of Texas
22 and 7,600 feet from Marathon.

23 Q (By Mr. McAdams) That's right.

24 A I am certainly not taking your gas, I don't think. I
25 may be.

1 Q You said you weren't familiar with the drainage patterns?

2 A Right. It may drain two miles.

3 Q This well here doesn't have a 990 location protecting it,
4 does it?

5 A That's correct.

6 MR. UTZ: Which well is that?

7 MR. McADAMS: The Bogle Flats in Section 16.

8 CROSS EXAMINATION

9 BY MR. LOPEZ:

10 Q Along these same lines, Mr. Watson, why do you suppose
11 the Mershon Well in Section 21 was granted an unorthodox
12 location and why was it necessarily applied for?

13 MR. LOSEE: I don't think the witness is capable of
14 answering.

15 THE WITNESS: I was not present at the hearing, so

16 I --

17 Q (By Mr. Lopez) Referring to your strong dotted line at
18 the bottom, which you have indicated is limits of porosity,
19 what control factors did you use in bringing that line so
20 far south under Section 22?

21 A The Gulf No. 1 Helbing Federal Well located immediately
22 north of our well has 137 feet of porosity greater than
23 two percent which is an anomalously thick area pulling
24 out in through here.

25 Using a normal rate of dip on my 25 foot contour

1 interval coming down, I feel like that there is a
2 definite thick trending in this direction. This, again,
3 is subject to interpretation. Someone might want to
4 fiddle with the contours and pull the zero line up a
5 little higher. Again, this is an interpretation based
6 on an extremely thick well due north of us.

7 In Section 16 the Standard of Texas No. 5 Bogle
8 Flats has 96 feet of porosity greater than two percent.
9 As we move one mile to the east to the Gulf No. 1 Helbing
10 Well, we have an increase up to 187 feet of porosity
11 greater than two percent.

12 Then, when we move due east of this well to the
13 Marathon No. 1 Federal BB, we again drop back to 75 per
14 cent. I feel like that there's a thick area setting up,
15 running down through Sections 15 and into Section 22
16 based on sub-surface interpretation.

17 Q Could you refresh my recollection and tell me how many
18 feet of porosity you found in that watered out well in
19 Section 22?

20 A 34 feet.

21 Q How did this justify your finding a thickness running
22 down through this area?

23 A Any time I get two low points and I have a high point
24 trending with it, I put the high point through this
25 thing. That's the way a good sub-surface geologist finds

1 oil is coming between two low areas trending it with a
2 high well and that's what I have done in this particular
3 area. I feel like that this is the interpretation that
4 best justifies this Section 22 and I feel like that we
5 are going to find it thick in this location.

6 We will not know until we drill it, but --

7 CROSS EXAMINATION

8 BY MR. KELLAHIN:

9 Q Along the same line, how much of that thickness did you
10 find in -- my map shows the Mershon Well in Section 21.

11 I believe you referred to it as Western States.

12 A That's right, the name has been changed.

13 Q What's the thickness there?

14 A I give 25 feet of porosity greater than two percent.

15 Q Then you come straight across and get 34 feet of porosity?

16 A That's correct.

17 Q Wouldn't it be just as logical to smooth out that line and
18 say the whole area was between 25 and 34 as to develop
19 that nose?

20 A If I pull my 25 contour through here, then I have to
21 change and make an anomalous condition on my rate of
22 thickening in this area. In other words, I would go from
23 187 to 25 in this space whereas all the rest of the area
24 I have been able to contour this very well with the 25
25 foot contour interval rate of dip of almost 200 feet per

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1 mile.

2 Q That would not be unusual to approach the end of the
3 field, would it?

4 A Again, we go from 182 -- we have some --

5 MR. LOSEE: Which wells, again?

6 THE WITNESS: The Pan American No. 1 USA Smith Gas
7 Unit has 203 feet of pay greater than two percent in Section
8 12. We move immediately south in Section 13 and we have 16
9 feet. But, again, the rate of dip I have used is approximately --
10 that's the 200 to 250 feet of per mile of thickening in the
11 porosity.

12 Q (By Mr. Kellahin) You said you were concerned about the
13 drainage from the Western States Well in Section 21.

14 A Yes.

15 Q Do you know what acreage is dedicated to that well?

16 A Yes. I believe that they received -- they can produce
17 with 56 and a quarter percent of their allowable. I
18 believe that's what they produce.

19 Q Weren't they given 320 acres?

20 A I believe they received 360.

21 Q What would you propose for your well in Section 22?

22 A Based on the perched water idea, 440 acres.

23 Q Is all that acreage productive in your opinion?

24 A I feel like that everything above minus 3375 above the
25 perched water has not been proven non-productive and I

1 can say that it could just as easily be productive as
2 non-productive and the isopach in here would show the
3 same thing. Again, this is highly interpretive and this
4 is my interpretation and I give the Southwestern Well
5 approximately what their penalty was, was about what it
6 comes up.

7 MR. KELLAHIN: Thank you.

8 CROSS EXAMINATION

9 BY MR. GIST:

10 Q What is your basis again for the closure there in the
11 southeast quarter of Section 21?

12 A The southeast quarter?

13 Q I think that interpretation is as critical as anything to
14 this.

15 A Monty, we have a point on the Ralph Low Marathon Federal
16 at minus 3322. We have a point in the Hannigan No. 1
17 Indian Federal in Section 21 of minus 3050, as well as the
18 Western States Well at 3197.

19 If we go ahead and close this 3100 foot off and close
20 the 3200 foot off, I can't get down to the 3322 well
21 without changing my rate of dip, so I have to pull some
22 sort of anomalous nose or pull-out in this area. In
23 other words, using my rate of dip, I would go 31, 32, 33,
24 34, I should encounter this well at minus 3400, 3450 and
25 I encountered it at minus 3322.

1 Q The structural interpretation is interpretive in this
2 case?

3 A It certainly is. This is my personal interpretation,
4 that's correct.

5 MR. UTZ: Are there other questions?

6 REDIRECT EXAMINATION

7 BY MR. LOSEE:

8 Q Now, I thought I asked you on direct examination as to
9 you polemetered above the perched water and above the
10 2 percent line, total of 440 acres, and I thought I
11 obtained your opinion as to whether it was probable that
12 all that area was productive of gas in the Upper Pennsylvani-
13 an.

14 A Yes.

15 Q Is that your opinion?

16 A This is my opinion that 440 acres, excluding the 61 acres
17 below 2 percent and the 139 acres within the perched
18 water, would be gas productive.

19 Q And that's in Section 22?

20 A Section 22.

21 MR. LOSEE: I have no further questions.

22 MR. LOPEZ: Mr. Examiner, just one question. Do you
23 think you should be penalized for the unorthodox location?

24 THE WITNESS: Certainly if this particular theory of
25 the perched water is accepted, deducting these two particular

1 footages, we certainly would have to be penalized for that
2 amount of acreage that's not productive.

3 MR. LOPEZ: You said you had 440 productive acres in
4 your opinion. Do you think that you should have an additional
5 penalty for the unorthodox location above the 440 and, if so,
6 what would you recommend?

7 MR. LOSEE: I don't know, Mr. Examiner, that Mr.
8 Watson is capable really of answering the question.

9 THE WITNESS: I am not familiar, being the first time
10 I have testified at the hearing, as to what kind of penalties
11 are normally assessed in these type hearings.

12 RECROSS EXAMINATION

13 BY MR. McADAMS:

14 Q Mr. Watson, you wouldn't contend that you would be
15 entitled to an allowable greater than the Mershon Well,
16 would you?

17 A In this particular case, I think that we should receive
18 an allowable slightly more than the Mershon Well. I
19 show that we have more productive acreage than they do,
20 slightly.

21 Q That's based on your interpretation?

22 A Yes, and the perched water table less the non-productive;
23 I show we have slightly more acreage. I think they
24 received 360 acres and I feel like we have at least 80
25 acres more, based on this interpretation, than they.

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1 Q Are you familiar with the history of the Hannigan Well
2 that was located, dry hole over in Section 21?

3 A Yes. I looked at that log and this well, of course, was
4 drilled before this other, before the Western States
5 Well was drilled, and again this was a point of
6 contention evidently in this hearing, which I am not
7 familiar with all the testimony, but evidently this well
8 was a point of contention and even though it was plugged --
9 if you want to, I could take -- we could take that out but
10 that would hurt Western States even more.

11 Q How many feet of pay did you give that well?

12 A I gave this well 23 feet of porosity greater than 2 per
13 cent. I really don't understand that well, I really don't.

14 MR. UTZ: You don't understand which well?

15 THE WITNESS: The Hannigan Well, with 23 feet, why
16 it was not productive, but that's not in our hearing, I don't
17 think. I think that's already been battled out in this other
18 hearing.

19 MR. UTZ: There was a little contention between that
20 well and the Mershon Well.

21 THE WITNESS: I see.

22 Q (By Mr. McAdams) That Hannigan Well is located well above
23 your zero porosity cutoff, isn't it?

24 A Yes, it certainly is. 23 feet of porosity, that's
25 correct.

1 MR. HATCH: How many productive acres have you
2 attributed to the Marshon Well?

3 THE WITNESS: Using a rough polemeter method on
4 their particular tract in there, I feel like they probably
5 had at least 400 productive acres based on this interpretation.

6 MR. UTZ: Your estimate is 400?

7 THE WITNESS: At 400, that's correct.

8 MR. UTZ: Are there other questions? The witness
9 may be excused.

10 THE WITNESS: Thank you.

11 GEORGE SUTPHEN,
12 a witness, having been first duly sworn according to law, upon
13 his oath, testified as follows:

14 (Whereupon, Applicant's Exhibit 4 was marked for
15 identification.)

16 DIRECT EXAMINATION

17 BY MR. LOSEE:

18 Q Would you state your name, please?

19 A George Sutphen, S-u-t-p-h-e-n.

20 Q Where do you live?

21 A Midland, Texas.

22 MR. UTZ: Would you spell that again?

23 MR. LOSEE: S-u-t-p-h-e-n. That's Dutch.

24 MR. UTZ: I gathered it might be.

25 Q (By Mr. Losee) What's your occupation?

1 A I am a Petroleum Engineer.

2 Q Employed by Texas Oil --

3 A Texas Oil and Gas Corporation.

4 Q Have you previously testified before this commission?

5 A No, sir, I have not.

6 Q Do you have any degrees and, if so, what are they and
7 from what schools were they obtained?

8 A Yes, sir, I have a degree in petroleum engineering, a
9 Bachelor of Science from Texas A & M University.

10 Q When did you obtain this degree?

11 A 1958.

12 Q Since that time, have you been employed as a petroleum
13 engineer?

14 A Yes, I have.

15 Q For what companies?

16 A For approximately ten years I was employed by Pan American
17 Petroleum Corporation as a petroleum engineer. About half
18 that time I spent in engineering assignments involving
19 drilling, production and evaluation of drilling prospects.
20 The other half of that ten-year span was spent in various
21 assignments in reservoir engineering. About two years of
22 that was in the supervisory capacity.

23 Q At what general areas during this ten-year period were
24 you --

25 A I was employed during that entire period in the Permian

1 Basin and Delaware Basin areas, Levelland, Monahans and
2 Midland.

3 Q After you left Pan American, by whom were you employed?

4 A I was -- I have been employed for approximately the last
5 year and a half by Texas Oil & Gas as the Midland District
6 Engineer.

7 Q Since your graduation from school, have you attended any
8 seminars?

9 A Yes, I have. I attended two Pan American seminars.

10 Q On what subjects?

11 A I attended approximately a six weeks seminar in gasoline
12 plant engineering and another six week seminar in
13 reservoir engineering in the company's general office in
14 Tulsa.

15 I also have attended numerous industry seminars in
16 logging, core analysis, drill stem testing and so forth.

17 MR. LOSEE: Are Mr. Sutphen's qualifications accept-
18 able?

19 MR. UTS: Yes, they are.

20 Q (By Mr. Losee) You have heard the discussion about the
21 Gulf Helbing Federal No. 2 located in Section 22. Would
22 you give a brief resume of the completion efforts made by
23 Gulf in drilling this well?

24 A Yes, I will. Gulf drilled the Helbing Federal No. 2 to a
25 depth of 7823. At that point they ran a gamma ray sonic

1 log. At this point I have discussed with Gulf personnel
2 the fact that all indicators were favorable; drilling time,
3 sample analysis, log analysis, structure position, every-
4 thing was favorable.

5 At that point Gulf went ahead and ran pipe without
6 further testing. Now, other than the use of centralizers
7 and scratchers on the casing, I find no record that Gulf
8 took any special precautions to insure that they had a good
9 cement bond either between the cement and the formation or
10 the cement and the pipe.

11 Q Would you, in a similar reef reservoir, take any pre-
12 cautions to insure a good cement job?

13 A Yes, sir, I would. I would take several extra precautions,
14 especially in any Pennsylvanian type formation.

15 Q What would those precautions be?

16 A First of all, we commonly use rusty or stripped pipe, pipe
17 that has the mill lacquer removed. We also quite commonly
18 use an abrasive type slurry to precede our main cement
19 slurry.

20 Q After they ran this pipe and cemented it, what did Gulf
21 do in their completion efforts?

22 A Gulf shot 12 holes over 6 different intervals in the reef
23 from 7684 to 7573 on a subsea basis. This is minus 3409
24 to a minus 3520. Now, this 3520 is 230 feet above the
25 water-oil contact in this general vicinity.

1 Q Which is at 3750?

2 A Yes, sir, at minus 3750.

3 Q Then, what happened in their --

4 A Then Gulf swabbed the well dry, natural, with no show;
5 swabbed clear to the seeding nipple. They then acidized
6 with a thousand gallons of acid and subsequently the
7 well made 100 percent water.

8 Q Please refer to what has been marked as Exhibit 4 and
9 explain what is shown by this Exhibit?

10 A As I said, the fact that the well made 100 percent water,
11 although all other indications had been favorable, caused
12 Gulf to run a radioactive tracer survey.

13 Now, before we get into the results and interpretation
14 of this survey, let me make a few brief statements about
15 how this survey is run. First of all, the well is placed
16 on injection, since normally it's difficult to establish
17 a producing rate, especially in this case with the well
18 having to be swabbed to produce anything.

19 They turned it around and put it on injection at the
20 rate of one barrel a minute on a vacuum. Then, the tracer
21 type survey is run in this manner. The tool is raised
22 above the zone of investigation and a small slug of liquid
23 radioactive material is ejected and naturally it's forced
24 down by the injecting fluid. The tool is then lowered
25 and logged back up through this downward moving radioactive

1 slug.

2 The second type of tracer is run with the tool in a
3 stationary position. The tool is composed of the ejection
4 ports at the top of the tool and generally one or two
5 detectors located near the bottom of the tool. Now, these
6 distances between the port and the radiation detectors
7 are, of course, known distances, so with the tool hung
8 stationary, the time required for the radioactive slug to
9 reach the radiation detectors can be measured.

10 Let's go now to the Gulf survey. The first time on
11 the tracer no. 1 the radiation tool --

12 Q Let me stop you here. Explain the log.

13 A Excuse me. Yes, let me explain this display. This is a
14 comparison of the sonic log of the Gulf Helbing Federal
15 No. 2 on the left and the results of the tracer survey
16 hung on depth scale on the right.

17 Now, the points A, B and C denote different places
18 where the radioactive material was ejected. The arrows
19 with small o's are the perforations. Now, tracer no. 1
20 was run with the injection -- pardon me, with the tracer
21 tool hung at a depth of 7520 which is point A. As you
22 can see, this is above all the perforations in the well.

23 At that time, the log was -- the tool was lowered
24 and logged back up through the moving slug. As you can
25 see on run no. two, which is run a minute -- almost two

1 minutes after ejection, we already have some indication
2 of channeling, that is radiation 20 feet below the main
3 slug. As time progressed, additional channeling was
4 indicated with radiation being detected clear down to a
5 depth of 7730 --

6 Q Below the lower most perforations?

7 A -- which is approximately 46 feet below the lowest
8 perforation in the well. On tracer no. -- pardon me, the
9 tracer no. 1 was not too definitive for this reason, by
10 the time the tool got to the slug on the first run, it had
11 already moved past the first perforation so we couldn't
12 tell -- as result of this, we couldn't tell whether there
13 was any fluid going in the first perforation.

14 They then ran tracer no. 2. Now, because they got
15 down a little faster, this tracer run is a little more
16 definitive and defines in the first 7 runs that
17 approximately -- in fact, virtually all, 100 percent of
18 the water is going into perforations no. 2, 3 and 4.
19 Now, this interpretation is made by polemitering the
20 size of these radioactive kicks after they passed certain
21 perforations.

22 In any event, the liquid was entering the perforations
23 no. 2, 3 and 4, very little fluid entering perforation
24 no. 1. The significant point in this survey, however, is
25 that again we have detected radiation, interpreted as

1 channeling, already below the main slug before it has
2 passed perforation no. 4.

3 As time progressed, and the tool was run lower,
4 logging back up through the radioactive slugs, we see
5 additional indications of channeling. By run no. 11, which
6 is 17 minutes after ejection, we see definite indications
7 of channeling, large radiation down to 7700 and by run no.
8 17, we can follow this diminishing radiation indicating
9 channeling down this time to 7710.

10 So, on two separate tracer runs and on separate
11 tracer surveys and on numerous runs, we have positive
12 indication of channeling as low as 7730, which is 40 feet
13 below our lowest perforation and at least 20 feet below
14 the base of the reef.

15 Now, we know this is channeling because of tracer
16 no. 3. Tracer no. 3 was run with the tool stationary and
17 hung at a depth where the ejection was just above perfora-
18 tion no. 5, right here at 7663 and a half. Now, that
19 perforation is at 64, 7664. With the tool hung there and
20 the detectors, of course, below that perforation as shown
21 on this Exhibit, 7668, and the detector no. 2 at 7673, no
22 radiation was detected, indicating that no fluid was moving
23 inside the pipe below perforation no. 5. Consequently,
24 any radiation detected at that point or below has to be
25 outside the pipe.

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1 Tracer no. 4 was run with the tool hung at a depth
2 of 7500 and was merely a packer check. We had tubing in
3 the hole with the packer set at about 7510. As you can
4 see, with the detectors hung inside the tubing, the birch
5 naturally passed the detectors and was never picked up
6 as a channel behind the pipe at the packer.

7 Q Now, Mr. Sutphen, do you have an opinion as to what caused
8 the water in the well bore and the Gulf Helbing Federal
9 No. 2 well?

10 A Yes, sir, I sure do. Obviously, we do not -- we cannot
11 tell exactly or precisely where the water came from. This
12 survey, which is run by the operator under the same
13 conditions, mechanical conditions that the well was in
14 when they slugged 100 percent water, indicated that a
15 channel did exist. They tell us that at least some of the
16 fluid that was produced on the swab test probably came from
17 a depth as low as and probably below 7730.

18 Now, since only one fluid was produced, the well
19 made 100 percent water, I would assume that all of the
20 water production came up this channel.

21 Q That's below the gas-water contact in this field, that
22 77 --

23 A No, sir. The water-oil contact would be below 7730, some-
24 where down there.

25 Q Yes, but it was below their lowest most perforation?

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1 A Yes, sir, and below the base of the Pennsylvanian.

2 Q Was Exhibit 4 prepared by you?

3 A Yes, sir, it was.

4 MR. LOSEE: We move its introduction.

5 MR. UTZ: Without objection, Exhibit 4 will be
6 introduced into the record.

7 Q (By Mr. Losee) Now, Mr. Sutphen, you heard the testimony
8 about the unorthodox location at 990 feet out of the
9 north and west corner and if I were to advise you that the
10 rules of the Oil Conservation Commission provide that if
11 an operator is given an unorthodox location, the Commission
12 can make an adjustment to offset the advantage obtained,
13 do you have a recommendation to the Commission in this
14 connection?

15 A Yes, sir, I sure do. On the theory and I think a justified
16 theory that the water production on the Gulf Helbing
17 Federal No. 2 came from a zone unknown, other than the
18 Pennsylvanian, this well does not condemn Section 22. On
19 that basis, all the acreage that we adjudge to be above
20 the two percent porosity cutoff would be net pay.

21 This amounts to 579 net acres. On the other hand,
22 since I admit that we are not certain that all the water
23 produced in the Gulf Well came from a zone other than the
24 reef, although we have no evidence on this log that any of
25 the fluid was going into or coming out of the reef, we feel

1 that there is a possibility that the perched water concept
2 applies which would give us 440 net acres above the two
3 percent cutoff and outside the perched water zone. I
4 feel that a reasonable compromise between the 440 net
5 acres and 579 net acres or a net acre assignment of 509
6 acres would be fair in this case.

7 MR. LOSEE: Mr. Examiner, I would move that you take
8 administrative notice of the evidence in the examiner and de
9 novo hearing, Case No. 4089 being the application of Paul
10 Mershon for the unorthodox location in Section 21.

11 MR. UTZ: Without objection, the examiner will take
12 administrative notice of the case and Order R-4089.

13 MR. LOSEE: That's case number, not order.

14 MR. UTZ: The case?

15 MR. LOSEE: Yes. I don't have the order. That's all
16 the direct examination of Mr. Sutphen that I have.

17 MR. UTZ: Mr. Losee, as far as Case 4089 is concerned
18 with this case would be as it relates to Section 22.

19 MR. LOSEE: Yes, surely.

20 MR. UTZ: Okay. Questions of the witness?

21 CROSS EXAMINATION

22 BY MR. HINKLE:

23 Q I have one question. Referring to your Exhibit 4 and these
24 tracer surveys --

25 A And these what, sir?

1 Q The tracer surveys that were made, shown by your Exhibit
2 No. 4, do they in any way indicate that there was any gas
3 in the formation, producing formation?

4 A There is no way that I know of that they can. This tool
5 is not a gas detection tool.

6 Q So far as you know, there was no evidence of any gas
7 whatsoever in the original test of the well?

8 A That's correct.

9 MR. HINKLE: That's all.

10 MR. UTZ: Are there other questions?

11 CROSS EXAMINATION

12 BY MR. GIST:

13 Q I have a question. In your survey there, your base
14 perforation is 77?

15 A It's 84.

16 Q 7684?

17 A 7684, yes.

18 Q Your tracer surveys, you say, indicate that your slug goes
19 down to a depth of 77 --

20 A 7730 was the lowest channel radiation indicated.

21 Q Could they not run their tool any lower than that?

22 A I tried -- no, they could run it lower and I wish to
23 goodness they had and I tried to contact the employee of
24 the tracer company that ran this and I was unable to do
25 so, but I don't know why they didn't run it any lower.

1 Q Indications are that your tracer tells you that you are
2 perhaps losing some or having some channeling down into
3 a shale section that comes in at approximately 7710?

4 A This doesn't indicate that the fluid is entering the shale
5 section. It merely indicates that the radioactive material
6 was opposite the shale section at the lowest point that
7 they ran the tool.

8 Q But, it does die out down in the shale section?

9 A No, sir, we don't see it die out on that particular run
10 at 7730. It is still a quite strong indication.

11 Q Point that out to me, if you will.

12 A At 7730 you can see we are still recording some radiation
13 to the right of the base line. This is the base line, this
14 dashed line.

15 Q But, your big slug is right here below your basal
16 perforation.

17 A The big kick is. Now, several things govern the magnitude
18 of that kick. One of them is dilution in the fluid you
19 are injecting, hole size, several different things, so
20 it's not completely interpretive.

21 The one thing it does prove is that there is
22 channeling.

23 Q At what rate were you injecting water?

24 A One barrel per minute.

25 Q On this survey over here, do you get an indication below

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1 7710?

2 A No, that's as low as we get, but as you can see, the depth

3 of the channel is increasing on these successive surveys,

4 so it's safe to assume, I think, that we would continue

5 to see it move down if it didn't become completely diluted.

6 Q What's the subsea TD of this well?

7 A I don't know.

8 Q Would it be 3659?

9 A That's correct.

10 Q Other than the perched water table that you carry at 3377,

11 the top of the gas-water --

12 A I would have to look at the Exhibit. Yes, I believe that's

13 correct.

14 Q Your perched water level is at 3377 and for the majority

15 of the field the water level is at minus 3750?

16 A Right.

17 Q TD of this well is at minus 3659?

18 A Right.

19 MR. UTZ: Are you through?

20 MR. GIST: Yes.

21 MR. UTZ: Mr. Kellahin.

22 CROSS EXAMINATION

23 BY MR. KELLAHIN:

24 Q The Exhibit you presented in no way indicates where the

25 water would be coming from in that well, would it?

- 1 A Unfortunately no, not a specific point.
- 2 Q Now, the perforations that were in that well bore would
- 3 have been within the gas zone had there been any gas
- 4 there, would they not?
- 5 A Yes, sir, the well was perforated in the gas zone.
- 6 Q Did it make any gas at all?
- 7 A No, sir.
- 8 Q If it had been perforated in the gas zone and was completed
- 9 below the water-gas contact, why wouldn't you have a two
- 10 phase flow, both gas and water?
- 11 A If fluid was coming out of the formation you probably
- 12 would have.
- 13 Q But, it didn't in this case?
- 14 A That's right.
- 15 Q That would indicate there's no gas there?
- 16 A No, sir, it just indicates the fluid was coming up the
- 17 channel.
- 18 Q Wouldn't the gas come out of the formation in a well of
- 19 that kind?
- 20 A It would not be improbable that no fluid would be produced
- 21 out of the formation if a bad enough channel existed.
- 22 Q Does this indicate that a bad enough channel did exist?
- 23 A It only indicates that a channel did exist. We would have
- 24 to have more tests run to determine how bad the channel
- 25 was, but the well was injecting 1440 barrels a day on a

1 vacuum and if it was all going down that channel it was a
2 pretty bad channel, yes, sir.

3 Q So any gas would not come out of the formation in that
4 case, is that your testimony?

5 A No, sir. I don't know why no gas was coming out of the
6 formation. I feel it should have.

7 Q But, it didn't?

8 A No, sir.

9 CROSS EXAMINATION

10 BY MR. LOPEZ:

11 Q Mr. Sutphen, along these same lines, if Gulf had agreed
12 with your interpretation, don't you believe they would
13 have squeezed off the well and reperforated it?

14 A Yes, I am confident they would have.

15 Q Do you know why they did not?

16 A Yes, I did. I inquired of Gulf why they did not and on the
17 original interpretation the fellow that ran it I feel mis-
18 interpreted the data and apparently the matter was not
19 delved into any deeper.

20 Q It's just as likely, though, he was convinced by the
21 questioning Mr. Kellahin brought out, since it was making
22 no gas there was probably no gas there?

23 A Yes, that's true.

24 MR. UTZ: It's your opinion, then, that Gulf was in
25 error?

1 THE WITNESS: Yes, sir.

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

3 MR. LOSEE: I have no further questions.

4 MR. UTZ: The witness may be excused. Who wishes
5 to go next?

6 MR. HINKLE: We have one witness to be sworn, Monty
7 Gist.

8 (Witness sworn)

9 MONTY GIST,
10 a witness, having been first duly sworn according to law, upon
11 his oath, testified as follows:

12 (Whereupon, Applicant's Exhibits 1 through 3 were marked
13 for identification.)

14 DIRECT EXAMINATION

15 BY MR. HINKLE:

16 Q State your name and your residence.

17 A I am Monty Gist. I represent Western States Producing
18 Company.

19 Q Reside at Midland?

20 A Reside at Midland, Texas.

21 Q Have you previously testified before the Oil Conservation
22 Commission --

23 A Yes, I have.

24 Q -- and qualified as a petroleum geologist?

25 A Yes.

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1 Q Your qualifications as geologist are a matter of record
2 with the Commission?
3 A They are.
4 MR. HINKLE: Qualifications sufficient?
5 MR. UTZ: Yes, sir.
6 Q (By Mr. Hinkle) Have you prepared or has there been
7 prepared under your direction three separate Exhibits for
8 introduction in this case?
9 A Yes, sir.
10 Q Refer to Exhibit No. 1 and explain what this is and what
11 it shows?
12 A Exhibit No. 1 is a structure map contoured on top of the
13 Pennsylvanian Reef. It is also showing an isopach of the
14 gross dolomite producing zone and the dashed contoured
15 line --
16 Q The isopach is shown by the dotted line?
17 A That is correct. There is a cross section index colored
18 in red labeled "A" to "B". Section 21 showing the loca-
19 tion of the Western State Producing Company No. 1 Merston
20 Gas Com.
21 It is also showing the 360 acres dedicated to the gas
22 well.
23 Q That is to your gas well?
24 A That is to Western States Producing Company's gas well.
25 It shows the proposed location of Texas Oil & Gas Well at

1 a 990 location.

2 Q That's in Section 22?

3 A Section 22. It shows the estimated gas-water contact in
4 the Gulf No. 2 Helbing in Section 22 and the minus 3750
5 gas-water contact that's carried for the remainder of the
6 field.

7 Q What acreage does Western States own and operate?

8 A Western States owns and operates most of the acreage in
9 Section 21 and all of the entire 360 acres is dedicated
10 to the well.

11 Q Have you made a study of the wells that have been drilled
12 in this area?

13 A Yes, sir, I have.

14 Q And of the Gulf Helbing Well and the way it was completed?

15 A Yes, sir, I have.

16 Q Do you agree with the testimony that has been given here
17 as to the manner in which it was completed?

18 A I agree that the well was perforated in the Pennsylvanian
19 Reef and acidized and swabbed water at the rate of 115
20 barrels in six hours.

21 Q And so far as you have been able to obtain, there is no
22 evidence of gas in the formation whatsoever?

23 A There is no reported trace.

24 Q At the time your well was drilled, did you have this same
25 structural map or substantially so?

1 A Yes. The contours had to be revised. Our well came in
2 approximately 140 feet lower than we had originally
3 anticipated, thus drawing the southeast flank of this
4 structure in tighter to our well.

5 Q Now, based upon the contours and your isopach indication
6 here which is the dotted lines, the dotted line across
7 Section 21, the north of that represents the 360 acres
8 that's dedicated to your well?

9 A Yes, sir.

10 Q Now, have you made a study to determine the probable
11 productive acres in Section 22?

12 A Yes, sir, I have.

13 Q Now, before getting into that, refer to Exhibit 2 and
14 explain what this is and what it shows?

15 A Exhibit 2 is a cross section that extends from Section 16,
16 the Standard of Texas No. 5 Bogle Flats unit, south to the
17 Hannigan No. 1 Indian Federal in 21, northeast to the
18 Western States No. 1 Mershon Gas Com, southeast to the
19 Gulf No. 2 Helbing Federal, northwest to the Gulf No. 1
20 Helbing Federal, then east to the Marathon No. 1BB Federal.

21 Q Does this show the structural position of these wells you
22 have mentioned?

23 A The cross section shows the top of the reef and the base
24 of the reef. It's hung on sea level, so you get relative
25 position here with respect to the gas-water contact at

1 which I am carrying in the well at 3401. It shows the
2 Gulf Well, the entire section of the Pennsylvanian Reef
3 to be below the gas-water contact.

4 Of course, the gas-water contact was based on this.
5 The entire producing section of the Western States Well
6 is above the top of the reef in the Gulf No. 2 Helbing.

7 Q What do you conclude by this Exhibit, if anything?

8 A I feel that the Gulf Well definitely tested formation
9 water. I agree with Mr. Watson's statement that we
10 probably are in a perched water table. However, I do not
11 think you can produce or swab water at the rate of about
12 19 barrels an hour from a conate situation.

13 In other words, I don't think this is conate water.

14 Q Do you think that could have been caused by channeling as
15 indicated by these tracer surveys?

16 A I do not suspect that.

17 Q Do you have any further comment with respect to Exhibit No.
18 2?

19 A No, sir.

20 Q Refer to Exhibit 3 and explain what it is and what it shows?

21 A Now, Exhibit 3 is just a copy of Exhibit 1 with the
22 exception of my estimated productive acres.

23 Q Now, how did you go about making this estimate?

24 A I made the estimate on the basis of a ten-acre grid
25 pattern.

1 Q This would indicate that all below the 360 acre line in
2 Section 21 is non-productive, would it not, considered
3 non-productive?

4 A Yes.

5 Q Have you extended that line, then, east?

6 A This map shows the southern limit of the Western States
7 productive acres as determined by the Oil Conservation
8 Commission.

9 The Conservation Commission drew the southern
10 boundary of our proration unit. Therefore, if the southern
11 portion of Section 21 was non-productive, I felt that the
12 southern half of Section 22 would also be non-productive.

13 That portion below the water table definitely and
14 because of water production in the portion above the
15 water table tied an impermeable --

16 Q Would be non-productive?

17 A -- would be non-productive.

18 Q That leaves outlined in red or orange there how many
19 acres?

20 A That leaves approximately 257 acres. Now, I will point
21 out that I did not have on this map the control of the
22 well in Section 23, the subsea value of which was 3509.

23 Now, in recontouring that and swinging the contour
24 lines around to meet that well, I can possibly give about
25 ten more productive acres to this.

1 Q So, possibly increase it to 267?

2 A Yes.

3 Q Now, if the Texas Oil & Gas Corporation drilled their
4 proposed well in Section 22, is it your recommendation that
5 the acreage to be dedicated to it not exceed 267 acres?

6 A That is correct.

7 Q Do you have any other recommendations to the Commission?

8 A No, sir, no other recommendations. I do feel that they are
9 very familiar with the proceedings relative to the Merston
10 Case, 4088. Basically, we are dealing with the identical
11 situation here.

12 They have been through a preponderance amount of
13 information. From that they arrived at a southern limit
14 of productive acreage in Section 21 and I feel nothing
15 has been offered to make them alter their decision as far
16 as 22 is concerned.

17 Q Do you have any comments to make with respect to the
18 Exhibits that were introduced by the applicant in this
19 case?

20 A No, sir.

21 MR. HINKLE: We offer in evidence Exhibits 1, 2 and
22 3.

23 MR. UTZ: Without objection, Exhibits 1, 2 and 3 will
24 be entered into the record of this case.

25 MR. HINKLE: That's all of our --

1 MR. UTZ: Mr. Gist, I will have to admit that I have
2 determined in my own mind that through these cases and my
3 experience with the other case that geology is not an exact
4 science.

5 Are there questions of the witness?

6 MR. LOSEE: Yes, I have questions.

7 CROSS EXAMINATION

8 BY MR. LOSEE:

9 Q Mr. Gist, your Exhibit 1 does not show the Monsano Well
10 in Section 23, does it?

11 A No, sir, it does not.

12 Q That location is 1680 from the south and east lines of the
13 section, is that correct?

14 A That is correct.

15 Q And if the reef came in in that well at a subsea datum of
16 3559, what would that do to your structure on the Upper
17 Pennsylvanian Reef? What do you show it at that point?

18 A At that point your 3500 foot contour would have to come
19 around to your location. It would be on the northwest
20 side of your location. You contour that out and bring
21 your minus 3400 where I carry the gas-water contact, you
22 swing that around more to the east, thereby picking up as
23 I mentioned in my testimony roughly probably ten more
24 acre feet, productive acres.

25 Q Let me ask you to spot that location on your map, would you,

1 and see where it comes in at 3559. Let me ask you to do
2 it on the one that's being introduced, I'm sorry.

3 What contour line are you closest to on your Exhibit?
4 This was 3559.

5 A Let me get that top again. What was your top?

6 Q 3559.

7 MR. RAMEY: This Exhibit says 3509.

8 MR. UTZ: Your Exhibit says 09.

9 MR. WATSON: Let me calculate it. It's actually minus
10 3559 is correct. That must be a drafting mistake.

11 MR. UTZ: Are you sure about that?

12 MR. WATSON: Let me check it. 59.

13 MR. UTZ: 3559?

14 MR. WATSON: Yes.

15 Q (By Mr. Losee) So, Mr. Gist, the contours around that
16 well, you have it coming in at 36, a little less than 50,
17 and those contours would have to move 100 feet to the
18 south and east, would they not?

19 A Yes, sir, to pick up that point, but you can't ignore the
20 3401 in the Gulf Helbing.

21 Q At least at the point of the Monsano Well they would have
22 to be 100 feet to the south and east as to what you have
23 them depicted on this Exhibit, would they not?

24 A Yes, sir, they would.

25 MR. UTZ: Excuse me just a minute, Jerry. Would you

1 draw your 3500 foot contour on that Exhibit and take into
2 account the Helbing Well at 3559?

3 MR. LOSEE: Monsano Well.

4 MR. UTZ: Monsano Well and swing back up to the Gulf
5 Helbing Well where you think it ought to be.

6 Q (By Mr. Losee) Now, Mr. Gist, with those redrafted contours
7 reflecting the Monsano Well, does that not give credence
8 to applicant's Exhibit 1 showing a nosing area to the
9 south and east through Sections 15 and 23?

10 A It bears a slight resemblance. It is not as prominent
11 as your Exhibit.

12 Q It does nose down that way, doesn't it?

13 A Yes.

14 Q Now, tell me what the zero line on your Exhibit 1 depicts?

15 A That is the interpretive limits of the isopach of the
16 dolomite producing zone.

17 Q Now, by the limits of dolomite, are you talking about the
18 two percent porosity in the reef? Is that your interpre-
19 tation of where the two percent porosity line is in the
20 reef?

21 A That's very similar, yes, because your porosity in most
22 cases is related to the dolomite position in your reservoir.

23 Q Now, you prepared this map after you completed your Mer-
24 shon Well in Section 21, did you not?

25 A Repeat that.

1 Q You prepared this map showing that zero line after your
2 completion of the Mershon No. 1 Well in Section 21, did
3 you not, using the data from that well, I suppose?

4 A Yes, sir.

5 Q So that after you have drilled that well and set your
6 zero line in Section 21, everything above it, I suppose
7 you would interpret would be productive of gas in the
8 Pennsylvanian Reef?

9 A It could be gas saturated.

10 Q Well, do you interpret that it is productive above that
11 zero line?

12 A That's a good question. It possibly could be.

13 Q In other words, all of Section 22 is above your zero line,
14 is it not?

15 A Yes, it is.

16 Q So on that basis, absent the water in that section wherever
17 it may be and wherever it may be coming from, it would all
18 be productive, would it not?

19 A Well, we can get off on this gross map. Contours are not
20 as meaningful productive-wise as is the net pay that you
21 have in this dolomite section. I don't have a net pay
22 map, as far as our net porosity map.

23 Q Actually, though, your map shows on its face that this
24 dotted line is the isopach of the gross dolomite producing
25 zone, doesn't it?

1 A Yes, it does.

2 Q Wouldn't it be a logical interpretation that everything
3 above zero, in preparing it, you would have interpreted
4 to be productive?

5 A It could be productive. The quality of the production
6 would be something else.

7 Q Do you like the term perched or trapped water? Which one
8 of those two terms do you like best?

9 A I prefer to just call this an abnormal water table, an
10 anomalous water table.

11 Q Why do you pick the cutoff of this water along the eastern
12 boundary of Section 22?

13 A Because I am not cert. in how far the eastern limits of
14 that water table is, as I have tried to indicate it there
15 by the hashed marks.

16 Q Let me ask you this. Are you aware of the fact that the
17 Monsano dry hole in Section 23 didn't have any water?

18 A It didn't have any porosity.

19 Q I think it had 3 feet, but I am asking you about water is
20 my question, that there was no water in the well.

21 A I will take your word for it.

22 Q So that we can assume that at least there's no water in
23 the eastern one-third of Section 23 based upon that well,
24 can we not?

25 A Yes, sir.

1 Q And when we go to the west, the first point at which we
2 get water is in this Helbing No. 2 to have any control,
3 is that correct?

4 A Going west from the Monsano? That's correct.

5 Q So, actually, your hashed marks could just as well have
6 been made directly east of the Helbing No. 2 Well as where
7 they are located on your map?

8 MR. UTZ: Indicating the end of the water?

9 MR. LOSEE: Yes. You could have put them right next
10 to the Helbing Well, could you not?

11 THE WITNESS: I could have.

12 Q (By Mr. Losee) Have you calculated the number of acres in
13 Section 22 with your redrafted contours above the zero
14 line?

15 A Above --

16 Q Your zero producing zone line.

17 A Yes, sir, I have. That would be approximately 348 feet.

18 Q 48 acres?

19 A I mean acres, pardon me.

20 Q Have you accounted for the change in the contours that you
21 now interpret with the Monsano Well?

22 A Yes, sir.

23 Q And in making that calculation, you don't account for the
24 fact that the conate water might be directly east of the
25 Helbing Well, do you, rather than at the end of the section

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1 as you give it?

2 A No, sir, because it's unlikely that it is.

3 Q You don't really know where the point is east of Helbing
4 except it's not in the Monsano, do you?

5 A That's correct, but by the same token we don't know how
6 far over the gas goes westward because there's no gas in
7 the Monsano Well.

8 MR. UTZ: What was your figure that you just gave,
9 342 or 48?

10 MR. LOSEE: 347.

11 THE WITNESS: 348, approximately.

12 MR. LOSEE: 348.

13 Q (By Mr. Losee) Now, do you have any evidence to support
14 your opinion that the channel didn't provide water in the
15 Helbing No. 2 Well?

16 A No, no concrete evidence.

17 Q Well, do you disagree with Mr. Sutphen's interpretation
18 of these tracer surveys?

19 A I think it's interpreted -- just as interpretive as the
20 geology in some of the areas here that we are looking at.

21 Q Have you had any special training in tracer survey work?

22 A I am not an expert at it, no, sir.

23 Q So that if Mr. Sutphen's theory of channeling water from
24 below the perforations in the Gulf Helbing Well is correct,
25 isn't it true that if the well bore were filled with

1 water from the channel that you could not produce any gas
2 through that loaded well bore?

3 A No. I don't think that if you are in a reservoir here
4 with supposedly 34 feet of porosity and you perforate it
5 and acidize it and swab it at the rate that they did, I
6 do not think that you would overlook gas in some form or
7 the other. This is my opinion.

8 Q Western States doesn't have any objection to the location
9 of our proposed well at 990 out of the corner to protect
10 our correlative rights, does it?

11 A No, sir.

12 MR. LOSEE: That's all the questions I have.

13 MR. HINKLE: I would like to ask, unless you have
14 some questions.

15 MR. UTZ: No, we don't have any questions at this
16 point.

17 REDIRECT EXAMINATION

18 BY MR. HINKLE:

19 Q Mr. Losee's cross examination referred to the water which
20 was encountered in the Gulf Helbing Well in Section 22 as
21 conate water. With the amount of water that was swabbed
22 there, does that indicate it was conate water or quite a
23 volume of water?

24 A It indicates it's quite a volume of water.

25 Q And, ordinarily, you wouldn't have that volume if it was

1 just conate water, would you?

2 A No, sir. That would be highly improbable.

3 MR. HINKLE: That's all.

4 MR. LOSEE: One other question. Would the high
5 volumes of water which you say can't be entirely conate indi-
6 cate channeling?

7 THE WITNESS: Yes, it would not indicate channeling,
8 but you could produce or swab water at that rate from a
9 channel providing you have an aquifer that will furnish the
10 water.

11 MR. LOSEE: That's all.

12 MR. UTZ: Mr. Gist, I am sure you are familiar with
13 Mr. Mershon's testimony in the previous two cases, I believe
14 it was, are you not?

15 THE WITNESS: Yes, sir.

16 MR. UTZ: Now, to the bitter end, he contended that
17 this area over here had a present water table. Are you dis-
18 agreeing with him?

19 THE WITNESS: No, sir.

20 MR. UTZ: Other questions of the witness? The witness
21 may be excused. You just had one witness?

22 MR. HINKLE: That's all.

23 MR. McADAMS: Mr. Examiner, we have hopefully a
24 short witness, real short. In the interest of brevity we are
25 going to cut it down.

(Witness sworn.)

CLYDE ALTON,

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

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

MR. McADAMS: I am Jack McAdams representing the protestant, Marathon Oil Company. I have one witness.

DIRECT EXAMINATION

BY MR. McADAMS:

Q Would you please state your name?

A My name is Clyde Alton.

Q By whom are you employed?

A I am employed by Marathon Oil Company.

Q What capacity?

A In the capacity of Senior Petroleum Engineer of the Division Engineer in Houston, Texas.

Q Have you testified before this commission before?

A I have.

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

MR. UTZ: Yes, they are, if you will spell your name again.

THE WITNESS: A-l-t-o-n.

Q (By Mr. McAdams) Mr. Alton, are you familiar with the

1 Indian Hills-Upper Pennsylvanian Pool?

2 A I am familiar with the Indian Basin-Upper Pennsylvanian
3 Pool, yes.

4 Q And with the Commission's special pool rules?

5 A Yes, sir.

6 Q Are you familiar with the application that's been filed
7 in this case?

8 A Yes, sir, I am.

9 Q What have you studied and reviewed in connection with
10 preparation for this case?

11 A I have studied many logs of the completed wells in the
12 area; also the core records of those wells that were cored
13 in the area.

14 Q Have you prepared an Exhibit for use in this case?

15 A Yes, sir, I have.

16 Q This has been identified as Marathon's Exhibit No. 1.
17 Would you explain what that Exhibit is and what it purports
18 to show?

19 A This is an isopach of net gas pay within this area of
20 interest, is contoured on a 20 foot interval. I have
21 shown in large numbers beside each of the wells in the
22 various sections the net feet of pay that I have given
23 these wells.

24 I have also shown two locations in Section 22, 22
25 south, 23 east on the applicant's proposed unorthodox

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1 location being 990 out of the north and west and another
2 location, a standard location, being 1650 out of the north
3 and west.

4 Q I notice on your Exhibit No. 1 that you have your zero
5 contour in Section 22 cutting through the Gulf Helbing
6 Well No. 2.

7 A This is true. We have no indication that there was any
8 gas ever produced from this well. Therefore, we have no
9 net pay in this well. It's a fact that we know that no
10 gas is at this location.

11 I might have moved my zero line a little bit north
12 but I don't know just how far north I could logically move
13 it, so I ran it right through the No. 2 Well.

14 Q You have heard the testimony here today from the applicant's
15 witness regarding the possibility of the water getting into
16 the well bore in this No. 2 Helbing by a channeling process
17 below the perforations in the reef zone?

18 A Yes, I have.

19 Q Do you have any opinion as to the validity of that?

20 A I am certainly not an expert on this type of tracer survey,
21 but I would think the people who ran it are experts and
22 I think I would have to take their opinion.

23 Q Apparently Gulf's opinion is the one that would be the
24 most valid in your point of view?

25 A Apparently this is true because Gulf didn't try to squeeze

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- 1 and reperforate and complete the well as a gas well.
- 2 Q In your preparation of this net pay isopach, did you study
- 3 well logs of the Mershon Well in Section 21?
- 4 A Yes, I did and the Exhibit I presented at the previous
- 5 hearing concerning the Mershon Well, prior to the drilling
- 6 of that well, I gave the Mershon Well 40 net feet of pay.
- 7 After examining the logs I shorted him five feet, so I have
- 8 to move that 40 foot contour line down just below the
- 9 Mershon Well.
- 10 Q Mr. Alton, based on your studies and your information,
- 11 how many acres in Section 22 would you consider to be
- 12 productive acreage from the Upper Pennsylvanian Pool?
- 13 A The acreage in Section 22 above my zero line is 260 acres.
- 14 Q So that you would say there's 260 net productive acres in
- 15 Section 22?
- 16 A That's correct.
- 17 Q Assuming that well was drilled at a standard location on
- 18 Section 22, what allowable would you recommend to the
- 19 commission, based solely on that productive acreage?
- 20 A I would recommend 260 acre allowable.
- 21 Q Now, on your Exhibit you have set out the unorthodox
- 22 location requested by the applicant in this case and you
- 23 have also set out what would be a standard location for
- 24 this well?
- 25 A Correct.

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1 Q What advantages will the applicant in this case obtain by
2 the unorthodox location?

3 A Well, from my Exhibit, it appears that he will go from
4 approximately 30 feet of net pay to between 50 and 55 feet
5 of net pay. He will also be moving away from the Gulf
6 Helbing Federal No. 2 an additional distance of 741 feet
7 over the standard location distance.

8 Q Do you feel that some adjustment in the allowable should be
9 made for these obvious advantages in addition to the net
10 productive acreage that you found?

11 A Yes, I do.

12 Q You wouldn't have any recommendation on that, though,
13 would you?

14 A I would rather leave that up to the discretion of the
15 commission.

16 Q Do you feel that the correlative rights of the other
17 operators in this field will be impaired if this well
18 drilled at this unorthodox location is granted an allowable
19 based on more than 260 net productive acres?

20 A That is correct. If the unorthodox location is granted
21 and the well is drilled and the well is assigned more
22 than 260 acres, I think correlative rights will be
23 impaired.

24 MR. McADAMS: That's all we have.

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

1 Mr. Losee, I don't suppose you have any?

2 MR. LOSEE: Yes, I do.

3 CROSS EXAMINATION

4 BY MR. LOSEE:

5 Q Mr. Alton, this net gas pay map is the same map that was
6 introduced in the Mershon Case in 4089?

7 A It's identical with the exception I have noted by moving
8 the 40, 20 and zero lines slightly further south to give
9 Mr. Mershon's wells an additional five feet of net pay.

10 Q Well, in that hearing you, I think, preferred to call
11 this the net porosity map rather than net gas pay?

12 A That is correct, but in this hearing I would prefer to
13 stick to net pay.

14 Q What makes you wish to change your nomenclature of the
15 map?

16 A I think it was the long hassel we got into, Mr. Losee.

17 MR. UTZ: You don't want to have to explain that
18 permeability any more, do you?

19 THE WITNESS: Right. Our main interest in it is in
20 pay and granted, the Gulf Well certainly has porosity.

21 Q (By Mr. Losee) Well, you say you examined logs in the
22 preparation of this. Have you looked at this Monsano
23 log that was drilled in Section 23?

24 A No, sir, I have not looked at that log. I spotted the
25 well on the map, but I didn't have a copy of the log.

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11 I am not sure if that is the case or not. I am not sure if that is the case or not.

12 I am not sure if that is the case or not. I am not sure if that is the case or not.

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25 I am not sure if that is the case or not. I am not sure if that is the case or not.

1 A I believe that's correct.

2 Q Again I want to call your attention to the Monsano Well
3 that you haven't looked at the log and ask you whether
4 or not your zero line should not swing down to accommodate
5 the information gathered from that well?

6 A Not when I consider net pay because this was a dry hole.

7 Q Well --

8 MR. UTZ: It produced no gas whatsoever?

9 THE WITNESS: I haven't heard. I don't believe the
10 well produced any gas. Now, I couldn't swear to that. Did
11 they test gas in the well?

12 MR. WATSON: They had a weak blow to surface but it
13 was an insignificant show, but it was --

14 THE WITNESS: Okay.

15 MR. UTZ: Sorry for the interruption, Mr. Losee.

16 MR. LOSEE: That's all right.

17 Q (By Mr. Losee) Has there been any additional knowledge
18 obtained on the use of these tracer surveys since 1966?

19 A I am not an expert in tracer surveys and I am not
20 qualified to answer that question.

21 Q You don't know whether there has or hasn't?

22 A No, sir.

23 Q You disagree with Mr. Sutphen's interpretation of these
24 tracer surveys as to the channeling?

25 A I would have to go along with the expert on them, myself

1 not having a lot of knowledge on these surveys.

2 Schlumberger certainly should, they're the people who
3 run them.

4 Q Did you talk to Schlumberger?

5 A No, sir.

6 Q Would you explain to me from looking at this survey why it
7 does not indicate channeling?

8 A Well, as I said, I am not familiar with this survey and
9 I can't comment on that.

10 Q You don't really know what the Schlumberger interpretation
11 of the survey was at the time it was run, do you?

12 A No, I do not, although I do know your witness disagreed
13 with his interpretation.

14 Q You don't know what the interpretation of present experts
15 reviewing this is, do you?

16 A Certainly not.

17 MR. LOSEE: Okay. I think that's all.

18 MR. UTZ: Are there other questions?

19 MR. STAMETS: R. L. Stamets.

20 CROSS EXAMINATION

21 BY MR. STAMETS:

22 Q Mr. Alton, in preparing this isopach of net gas pay, the
23 only thing that you are interested in is gas production,
24 right?

25 A Gas porosity in the gas zone, gas production.

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1 Q So, if a well is wholly productive of water or wholly
2 productive of oil or any other fluid with the exception
3 of gas, you would assign it a zero on this map, is that
4 right?

5 A Well, now, you threw me on that oil. Oil is pay as far
6 as I am concerned and I certainly wouldn't assign a well
7 that could produce oil in commercial quantities zero pay.

8 Q But, this is net gas pay, this is not a net pay map, this
9 is net gas pay.

10 A True, but oil wells do produce casinghead gas.

11 Q Anyhow, a well totally productive of water would show
12 zero net gas pay?

13 A That's true, as the Gulf Helbing Federal.

14 Q Do the various contours and wanderings of the formation
15 have anything to do with the way you draw this line,
16 this zero line?

17 A Actually, I feel like, in drawing a zero net pay line,
18 the Gulf Helbing Federal gives me a very good point. I
19 have two dry holes, one in Section 23 --

20 Q Would you repeat the start of your explanation, I missed
21 something there?

22 A This being a map of net gas pay --

23 Q Yes.

24 A -- I had a perfect point to draw a zero line through in
25 the Gulf No. 2 Helbing Federal. To my knowledge, this

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1 well produced no gas whatsoever.

2 Q Do you have a copy of applicant's Exhibit No. 1 handy
3 there somewhere?

4 A No, I do not.

5 Q I am sure the applicant can furnish you one with great
6 speed. Referring now to the applicant's interpretation
7 that this is a perched water table and assuming that his
8 contours are precise, accurate and correct, would you then
9 possibly redraw your contour of the zero porosity line as
10 you have shown it on your net gas pay map?

11 I am not asking you to accept this, but only that if
12 you did, would you redraw your line.

13 A Would I redraw what line?

14 Q Your zero net gas pay line.

15 A Okay. I don't feel like I could redraw it since the well
16 did never produce any gas.

17 MR. STAMETS: That's all the questions.

18 MR. UTZ: Your zero gas net pay swings to the west
19 through section 13 and then south down through section 14 and
20 south?

21 THE WITNESS: Yes, sir.

22 MR. UTZ: What is the reason for making that swing
23 to the north from the eastern edge of your map? In other words,
24 what control did you have there?

25 THE WITNESS: Let me see if I understand your

1 question, Mr. Utz. You say my zero net pay line does what,
2 now?

3 MR. UTZ: Well, from the eastern edge of your map
4 where you enter the area of the map --

5 THE WITNESS: Yes, sir.

6 MR. UTZ: -- it swings west and then swings south
7 down to the Helbing Well in question.

8 THE WITNESS: Okay.

9 MR. UTZ: I am just wondering what control you had
10 to swing to the north there instead of just cutting straight
11 across to the well.

12 THE WITNESS: Well, the only control that I had
13 there is the spacing of the net pay contours.

14 MR. UTZ: I see. Are there other questions? The
15 witness may be excused.

16 MR. LOSEE: One other question I had. You indicated
17 you wouldn't change your zero line if you were to accept the
18 perched water theory of conate water. Would you change it if
19 you accepted the channeling theory, so that your zero line
20 would then accommodate the Gulf Helbing Well?

21 THE WITNESS: I do not accept the channeling theory.

22 MR. LOSEE: I realize you don't, but assuming you do,
23 would you then change your contour?

24 THE WITNESS: If I accept the channeling theory, I
25 still contend there would have been some gas produced along with

1 this water and I would not move my zero line at all.

2 MR. LOSEE: Well, that's based upon your assumption
3 that there would be some gas produced. Let me ask you to
4 assume not only the channeling theory but, too, that the water
5 in the well bore prevented the production of gas. Would you
6 then move your zero line to accommodate it?

7 THE WITNESS: Would you repeat the question?

8 MR. LOSEE: I want you to assume two things that you
9 have already testified to that you don't believe are correct.
10 One is that channeling existed in the Gulf Helbing Well and
11 two, that that channeling prohibited, by filling up the well
12 bore with water, the production of gas.

13 Now, assuming those two facts to be true, would you
14 then move your line to accommodate for the 34 feet of reef
15 that the log showed in that well?

16 THE WITNESS: I would have to assume, then, that there
17 was gas in this well.

18 MR. LOSEE: Well, if you wish to to accommodate for
19 the name of your map, net gas pay over its prior name, net
20 porosity, yes.

21 THE WITNESS: If I make the assumption there is gas
22 in this well bore, then I would certainly have to do that.

23 MR. LOSEE: Okay, fine.

24 MR. UTZ: I think that's a good hypothetical answer
25 to a hypothetical question. Are there other questions? The

1 witness may be excused.

2 GEORGE SUTPHEN,

3 a witness, having been recalled, testified as follows:

4 (Whereupon, Applicant's Exhibits 5 & 6 were marked for
5 identification.)

6 REDIRECT EXAMINATION

7 BY MR. LOSEE:

8 Q You are the same Mr. Sutphen that testified on direct
9 examination, are you not?

10 A Yes, sir, I am.

11 Q I hand you what has been marked as Applicant's Exhibit
12 5 and ask you to state what that is.

13 A Yes, sir. That's a bore hole compensated acoustic log
14 on the Monsano Ralph Low Estate No. 1 in Section 23,
15 Township 22 South, Range 23 East.

16 Q That was recently drilled and plugged and abandoned?

17 A Yes, sir, in May of this year.

18 Q Has your company made an interpretation of how much reef
19 was present in this well --

20 A Yes, sir.

21 Q -- Upper Cisco Reef?

22 A Yes, sir, we have.

23 Q How much did you calculate?

24 A We find 3 feet of reef porosity greater than two percent.

25 Q Did the well test any gas?

1 A The well drill stem tested and had a weak blow. However,
2 they had considerable trouble with the drill stem test and
3 were not able to get initial pressures and had considerable
4 indications that the tool plugged on the drill stem test.

5 Q Another question. Have you consulted with any experts
6 with respect to the interpretation of channeling on these
7 tracer surveys?

8 A Yes, sir, I have. Within the past two weeks I consulted
9 with three Western Company experts and let me correct the
10 record that Western Company ran the tracer survey.

11 Q And, what opinion did they have with respect to this
12 tracer survey?

13 A They unanimously agree with my interpretation that we have
14 channeling at least as low as 7730.

15 Q I hand you what's been marked as Applicant's Exhibit 6,
16 being the Marathon Oil Company Exhibit 1, which shows in
17 pencil some new contours --

18 MR. McADAMS: Wait a minute, I object to him marking
19 that as an Exhibit. Are you planning on introducing this as
20 your Exhibit?

21 MR. LOSEE: Yes.

22 MR. McADAMS: We will waive the objection.

23 Q (By Mr. Losee) In doing so, have you accommodated for the
24 3 feet of pay in the Monsano Well?

25 A Yes, sir, we have.

1 MR. LOSEE: We move the introduction of Exhibits 5
2 and 6.

3 MR. UTZ: Is there an objection to the entering into
4 the record of Exhibits 5 and 6?

5 MR. LOPEZ: There is an objection, I think.

6 MR. UTZ: I hadn't heard it.

7 MR. LOPEZ: Now the objection is made.

8 MR. UTZ: Are you making the objection?

9 MR. LOPEZ: On behalf of Marathon, right.

10 MR. McADAMS: I think the Exhibit should be introduced
11 for what it is, what it stands for, his Exhibit, he is adopting
12 it.

13 MR. UTZ: I am inclined to agree with you. The
14 Exhibit was entered as a Marathon Exhibit. If he wants to
15 adopt it as his Exhibit, I think he is entitled to.

16 MR. McADAMS: I think in answer, he should communicate
17 these facts in the interest of good feelings, mutual relation-
18 ship; kind of surprising.

19 Can I ask a question, please?

20 MR. UTZ: Yes.

21 CROSS EXAMINATION

22 BY MR. McADAMS:

23 Q Was this gas that was produced from the Monsano Well
24 combustible?

25 A I have no record of that.

1 Q Then, it could have been air?

2 A Yes, sir.

3 Q What pressures did the well produce from?

4 A I don't have the pressures on hand, but as I say again,
5 they had considerable evidence that the tool plugged.

6 Q Who had this evidence? You didn't have personal knowledge
7 of it, though?

8 A No, sir.

9 Q You are talking about what somebody else says and told
10 you?

11 A No, sir, I am speaking from my recollection of the scout
12 ticket in the commission records.

13 Q So, you don't know whether this was gas, air, nitrogen or
14 what that came out of the well?

15 A That's right.

16 Q Well, this wouldn't affect Mr. Alton's drawing of this line
17 in any way, then, would it, the information you furnished
18 here?

19 A Of course, it would.

20 Q Not in his opinion.

21 A I can't speak for his opinion.

22 MR. McADAMS: Pass the witness.

23 MR. ALTON: If it were not gas, it would not affect
24 my drawing whatsoever, would it not?

25 THE WITNESS: If it were not a representative test

1 it sure would.

2 MR. LOSEE: Will you admit them now? I have no
3 further questions.

4 MR. UTZ: Exhibits 5 and 6 will be entered into the
5 record. Do we have statements in the case? Do you have a
6 statement, Mr. Hinkle?

7 MR. HINKLE: No, I have nothing more.

8 MR. UTZ: Does Marathon have a statement?

9 MR. LOPEZ: No, sir.

10 MR. McADAMS: No.

11 MR. UTZ: Mr. Kellahin.

12 MR. KELLAHIN: Since testimony in Case No. 4089 has
13 been introduced, I would like to call the attention of the
14 examiner to the testimony of John Cameron in that case in regard
15 to the perched water theory and his Exhibit showing some 14
16 anomalies in this pool and the testimony of Hugh Hannigan in
17 connection with the tests that were actually made on his well.

18 As I recall, there were two separate hearings in this
19 case but still the same case no., so I assume Mr. Losee has
20 introduced the entire record.

21 MR. LOSEE: Yes, sir, both of them.

22 MR. KELLAHIN: On behalf of Chevron Oil Company we
23 support the position of Marathon Oil Company and advocate that
24 not more than 260 acres be allocated to this well.

25 MR. UTZ: Mr. Losee.

1 MR. LOSEE: I guess referring to Mr. Cameron's
2 testimony, which I have reviewed this morning, I would point
3 out that in his testimony to explain the tilted table in some
4 14 of his wells that were serving as points, the wells were
5 originally drilled to a certain point and actually he had no
6 real water top in a number of wells.

7 I think the applicant in filing its application for
8 the unorthodox location recognizes that the commission should
9 offset the advantage obtained by this location by an adjustment
10 in the allowable for the well. We think the location is justi-
11 fied particularly in this case where its offset is a 990
12 location.

13 Our testimony on the perched water, removing it from
14 the section shows 440 acres. If the channeling theory is
15 accepted as the reason for the water in the well bore in the
16 Gulf Helbing, it's 579, and, as result, our recommendation is
17 half way in between the two is the reasonable provable reserves
18 under Section 22 and we ask that the allowable be reduced to
19 509, 6 40's.

20 I think that's all.

21 MR. UTZ: Any other statements? The case will be
22 taken under advisement. The hearing is adjourned.
23
24
25

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5
6 EXHIBITS7 TEXAS OIL & GASMARKEDOFFERED AND
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15 MARATHON

16 No. 1

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25

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1 STATE OF NEW MEXICO)
2 COUNTY OF BERNALILLO)

3 I, GLENDA BURKS, Court Reporter in and for the County of
4 Bernalillo, State of New Mexico, do hereby certify that the
5 foregoing and attached Transcript of Hearing before the New
6 Mexico Oil Conservation Commission was reported by me; and
7 that the same is a true and correct record of the said
8 proceedings to the best of my knowledge, skill and ability.

9 Glenda Burks
10 Court Reporter

11
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21
22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the Bernalillo hearing of Case No. 4562
25 heard by me on June 30, 1971.

New Mexico Oil Conservation Commission

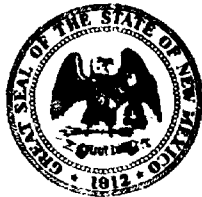
June 30, 1971

App. of Texas Oil & Gas Corp.
for an Gas well location
990 FNL & West Line

Sec 22, T 22S - 23E

Eddy -

Jerry
Hosel
Upper Penn - Indian Basin
Pool -



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

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

July 20, 1971

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Drawer 239
Artesia, New Mexico 88210

Re: Case No. 4562

Order No. R-4172

Applicant:

Texas Oil and Gas Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x

Artesia OCC x

Aztec OCC

Other Mr. Owen Lopez, Mr. Jack M. McAdams, Clarence Hinkle,
Jason Kellahin

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. 4362
Order No. R-4172

APPLICATION OF TEXAS OIL AND
GAS CORPORATION, FOR AN UN-
ORTHODOX GAS WELL LOCATION,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 30, 1971,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 19th day of July, 1971, the Commission, a
quorum being present, having considered the testimony, the
record, and the recommendations of the Examiner, and being
fully advised in the premises,

FINDS:

(1) That due public notice having been given as required
by law, the Commission has jurisdiction of this cause and the
subject matter thereof.

(2) That the applicant, Texas Oil and Gas Corporation,
seeks an exception to the Special Rules and Regulations for the
Indian Basin-Upper Pennsylvanian Gas Pool to drill a well at
an unorthodox location 990 feet from the North line and 990
feet from the West line of Section 22, Township 22 South,
Range 23 East, NMPM, Eddy County, New Mexico.

(3) That a standard location for the subject well would
require the well to be located no nearer than 1650 feet to the
outer boundary of the section and no nearer than 330 feet to
any governmental quarter-quarter section line.

-2-

CASE NO. 4562

Order No. R-4172

(4) That the evidence indicates that approximately 290 acres in the Southern and Eastern parts of said Section 22 is not productive of gas from the Upper Pennsylvanian formation.

(5) That the evidence indicates that approximately 350 acres in the northern and western parts of said Section 22 is probably productive of gas from the Upper Pennsylvanian formation.

(6) That there is evidence that a well at the proposed unorthodox location in said Section 22 would penetrate a thicker pay section and encounter it structurally higher than a well at an orthodox location.

(7) That the evidence indicates that a well at the proposed unorthodox location in said Section 22 should recover more gas than a well at an orthodox location.

(8) That to offset the advantage to be gained over some offset operators by the drilling of a well at the proposed non-standard location, the allowable for said well should be reduced.

(9) That approval of the proposed unorthodox location will afford the applicant the opportunity to produce his just and equitable share of the gas in the Indian Basin-Upper Pennsylvanian Gas Pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and otherwise prevent waste, provided the subject well receives no more than 55 percent of a standard allowable for the pool.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texas Oil and Gas Corporation, is hereby authorized to drill a gas well at an unorthodox gas well location in the Indian Basin-Upper Pennsylvanian Gas Pool 990 feet from the North line and 990 feet from the East line of Section 22, Township 22 South, Range 23 East, NMPM, Eddy County, New Mexico;

PROVIDED HOWEVER, that an acreage factor for proration purposes of 0.55 shall be assigned to said well.

-3-
CASE NO. 4562
Order No. R-4172

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

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

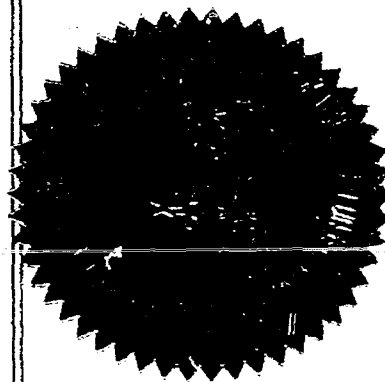
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

B. McKinn
BRUCE KING, Chairman

Alex J. Arrejo
ALEX J. ARREJO, Member

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

S E A L



dr/

Docket No. 13-71

DOCKET: EXAMINER HEARING - WEDNESDAY - JUNE 30, 1971

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

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

CASE 4352: (Reopened) (Continued from April 14, April 28, and May 19, 1971, Examiner Hearings)

In the matter of Case 4352 being reopened by the Oil Conservation Commission upon its own motion to give all interested persons an opportunity to appear and present evidence to whether the Double L-Queen and Suble-Queen Pools, Chaves County, New Mexico, are in fact separate reservoirs or one common reservoir. Further, in the event it is found that the two pools comprise one common reservoir, the Commission will consider the adoption of special rules and regulations to provide for the classification of oil and gas wells, spacing and well location requirements for oil and gas wells, and an allocation formula for withdrawals from the gas wells and oil wells.

CASE 4539: (Continued from the May 19, 1971, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Doanbuy Lease & Company, Inc., and all other interested persons to appear and show cause why its following described wells in Section 27, Township 14 South, Range 33 East, Saunders Pool, Lea County, New Mexico, should not be plugged and abandoned, in accordance with a Commission-approved plugging program:

| | | |
|-----------------------|------------|--------|
| Atlantic State AC - 1 | Well No. 1 | Unit N |
| Atlantic State AC - 2 | Well No. 2 | Unit M |
| Atlantic State AC - 2 | Well No. 3 | Unit O |
| Atlantic State AC - 3 | Well No. 4 | Unit L |
| Atlantic State AC - 3 | Well No. 5 | Unit J |
| Atlantic State AC - 4 | Well No. 6 | Unit P |
| Atlantic State AC - 4 | Well No. 7 | Unit I |

CASE 4556: Application of Tenneco Oil Company for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Queen formation in the perforated interval from 3154 feet to 3159 feet in its USA-Reno Well No. 1 located in Unit L of Section 3, Township 15 South, Range 31 East, Caprock-Queen Pool, Chaves County, New Mexico.

Examiner Hearing - June 30, 1971

-2-

Docket No. 13-71

- CASE 4557: Application of Continental Oil Company for transfer of allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to transfer allowable across the boundaries of the participating area and the leases outside said area but within the Maljamar Cooperative Area, MCA Unit Area, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico.
- CASE 4535: (Continued from the April 28, and the May 19, 1971, Examiner Hearings)
- Application of Continental Oil Company for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Monument-Tubb and Weir Drinkard oil production in the well-bore of its SEMU Well No. 70, located in Unit I of Section 15, Township 20 South, Range 37 East, Lea County, New Mexico.
- CASE 4558: Application of Midwest Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Little Inbe (Bough "C") Unit Area comprising 2,240 acres, more or less, of state lands in Sections 10, 11, 14 and 15 of Township 10 South, Range 33 East, Inbe Permo-Pennsylvanian Pool, Lea County, New Mexico.
- CASE 4559: Application of Midwest Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Little Inbe (Bough "C") Unit Area, Inbe Permo-Pennsylvanian Pool, Lea County, New Mexico, by the injection of water through three wells located in Sections 11 and 14 of Township 10 South, Range 33 East, Lea County, New Mexico.
- CASE 4560: Application of RiJan Oil Company, Inc. for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot pressure maintenance project in the Slick Rock-Dakota Pool by the injection of water into the Dakota formation through its RiJan Wells Nos. 10, 12, and 14 located, respectively, in Units F, L and K of Section 31, Township 30 North, Range 16 West, San Juan County, New Mexico.
- CASE 4561: Application of Great Plains Land Company for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seek an exception to

(Case 4561 continued)

Order No. R-3221, as amended, to dispose of water produced by its well located in the NW/4 NW/4 of Section 31, Township 18 South, Range 30 East, Shugart Field, Eddy County, New Mexico.

CASE 4562: Application of Texas Oil and Gas Corporation, for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the special rules and regulations governing the Indian Basin-Upper Pennsylvanian Gas Pool to permit the drilling of a well at an unorthodox gas well location 990 feet from the North and West lines of Section 22, Township 22 South, Range 23 East, Eddy County, New Mexico.

CASE 4563: Application of Corinne Grace for special gas-oil ratio limitation and pressure maintenance project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce her State Well No. 1 located in Unit A of Section 1, Township 15 South, Range 29 East, Double L-Queen Pool, Chaves County, New Mexico, with no gas-oil ratio limitation, strip the liquids, and institute a pressure maintenance project by the injection of all said gas back into the producing formation through her State Well No. 2 located in Unit B of said Section 1. Applicant further seeks to transfer an oil allowable from said Well No. 2 to said Well No. 1.

CASE 4564: Application of Penroe Oil Corporation for a non-standard oil proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an 80-acre non-standard oil proration unit comprising the SW/4 NE/4 and NW/4 SE/4 of Section 33, Township 18 South, Range 38 East, Hobbs-Drinkard Pool, Lea County, New Mexico, to be dedicated to its Conoco-State Well No. 1 located 1980 feet from the North line and 2130 feet from the East line of said Section 33.

CASE 4549: (Continued from the June 16, 1971, Examiner Hearing)

Application of Tom L. Ingram for unorthodox gas well location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox gas well location for his Light Well No. 21 located 1980 feet from the South line and 660 feet from the East line of Section 15, Township 8 South, Range 37 East, Bluit-San Andres Associated Pool, Roosevelt County, New Mexico, the S/2 of said Section 15 to be dedicated to the well.

Case 4562

Leard 6-28-71

Rec. 7-6-71

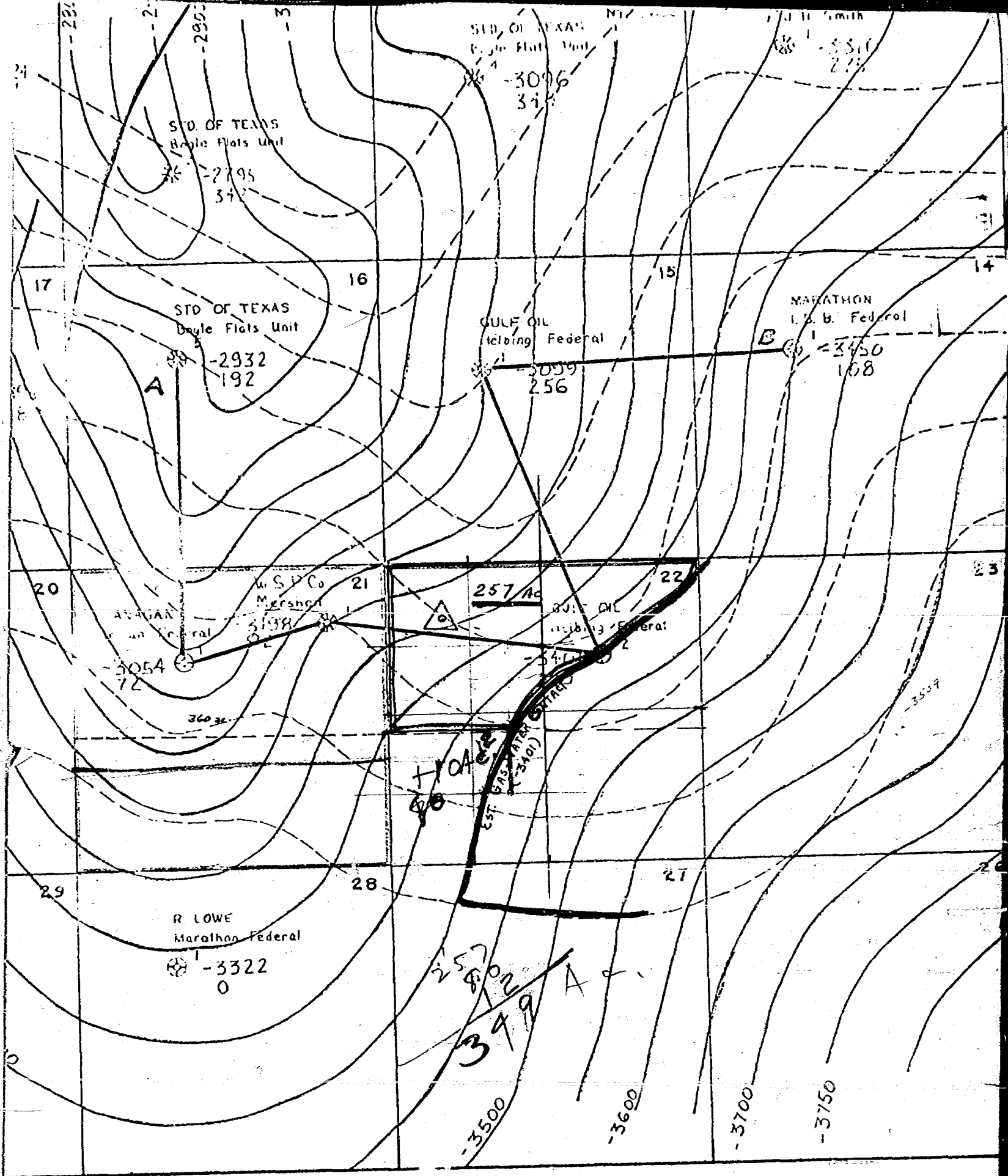
Grant Texas O & S. an N.S.L.
in the Indian Basin ~~Straw~~
+ Morrow. The well is to be
~~located~~ 990 from N & W line
of Sec. 22-22S-23E.

It appears to me that 350 Ae.
can be reasonably be as-
sumed to be productive.

The geology in the area is
quite controversial but I have
used the testimony of all 3
participants to arrive at this
figure.

The data shows me that
~~off~~ a portion of the NE 1/4
most of the NW 1/4 and a portion of
the SW 1/4 is productive.
The acreage factor for Proctor
purposes is then .55

640
350
—
290



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 5562

WESTERN STATES PROSPECTING COMPANY
Indian Basin Gas Field,
Eddy County, New Mexico

Upper Pennsylvanian Production
 Upper Pennsylvanian Penetration
 structure on Upper Pennsylvanian "257 A"
 isochronous line
 water production

Scale: 1" = 2,000'

285
 40
 2/7 125
 362.5

JOEL M. CARSON

LAW OFFICES
A. J. LOSEE
CARPER BUILDING - P. O. DRAWER 239
ARTESIA, NEW MEXICO 88210

10 June 1971

JUN 14 1971

AREA CODE 505
746-3508

Case 4562
JW

Mr. George Hatch, Attorney
Oil Conservation Commission
P. O. Box 2008
Santa Fe, New Mexico 87501

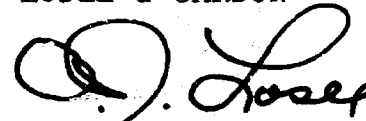
Dear Mr. Hatch:

Enclosed herewith, you will please find three copies of the application of Texas Oil & Gas Corp. for an unorthodox gas well location, Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico.

It is my understanding that this matter has been set for hearing before an examiner in Santa Fe on June 30, 1971.

Very truly yours,

LOSEE & CARSON


A. J. Losee

AJL:jw
Enclosures

cc: Mr. J. R. Morgan,
Texas Oil & Gas Corp. w/enclosure

DOCKET MAILED

Date 6-15-71

JUN 14 1962

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
TEXAS OIL & GAS CORP. FOR AN UNORTHODOX
GAS WELL LOCATION, INDIAN BASIN-UPPER
PENNSYLVANIAN GAS POOL, EDDY COUNTY,
NEW MEXICO

Case No. 4562

APPLICATION

COMES TEXAS OIL & GAS CORP. by its attorney, and
in support hereof, respectfully states:

1. That applicant is the operator of the Upper
Pennsylvanian formation underlying all of Section 22, Township
22 South, Range 23 East, N.M.P.M., and proposes to drill a
well to said formation at a location 990 feet from the North
line and 990 feet from the West line of said Section 22.

2. Applicant seeks an exception to the special
rules and regulations for the Indian Basin-Upper Pennsylvanian
Gas Pool promulgated by the Oil Conservation Commission of
New Mexico (the "Commission") Order Nos. R-2440 and R-2440-A,
to permit the drilling of the proposed well at an unorthodox
location.

3. That a standard 640-acre gas proration unit com-
prising all of said Section 22 should be dedicated to such well
or such lesser portion of said Section 22 as is reasonably
shown to be presumed to be productive of gas from said pool
should be dedicated to said well.

4. The approval of this application will afford
applicant the opportunity to produce its just and equitable
share of the gas in the Indian Basin-Upper Pennsylvanian Gas
Pool and will protect correlative rights.

WHEREFORE, applicant prays:

A. That this application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon hearing the Commission enter its order granting to applicant an exception to the special rules and regulations for the Indian Basin-Upper Pennsylvanian Gas Pool to permit the drilling of applicant's proposed well at an unorthodox location 990 feet from the North line and 990 feet from the West line of said Section 22 and dedicate that portion of said Section 22 which is reasonably presumed to be productive of gas from said pool.

C. And for such other relief as may be just in the premises.

TEXAS OIL & GAS CORP.

By: 

LOSEE & CARSON
P. O. Drawer 239
Artesia, New Mexico 88210

Attorneys for Applicant

DRAFT

GMH/dr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 4562

Order No. R- 4172

APPLICATION OF TEXAS OIL AND
GAS CORPORATION, FOR AN UN-
ORTHODOX GAS WELL LOCATION,
EDDY COUNTY, NEW MEXICO.
E

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 30, 1971,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this day of July, 1971, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

(1) That due public notice having been given as required by
law, the Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That the applicant, Texas Oil and Gas Corporation, seeks
an exception to the Special Rules and Regulations for the Indian
Basin-Upper Pennsylvanian Gas Pool to drill ~~xxx~~ a well at an
unorthodox location 990 feet from the North line and 990 feet
from the West line of Section 22, Township 22 South, Range 23
East, NMPM, Eddy County, New Mexico.

-2-

CASE NO. 4562

Order No. R-

(3) That a standard location for the subject well would require the well to be located no nearer than 1650 feet to the outer boundary of the section and no nearer than 330 feet to any governmental quarter-quarter section line.

(4) That the evidence indicates that approximately 290 acres in the Southern and eastern parts of said Section 22 is not productive of gas from the Upper Pennsylvanian formation.

(5) That the evidence indicates that approximately 350 acres in the northern and western parts of said Section 22 is probably productive of gas from the Upper Pennsylvanian formation.

(6) That there is evidence that a well at the proposed unorthodox location in said Section 22 would ^{penetrate} ~~encounter~~ a thicker pay section and encounter it structurally higher than a well at an orthodox location.

(7) That the evidence indicates that a well at the proposed unorthodox location in said Section 22 should recover more gas than a well at an orthodox location.

(8) That to offset the advantage to be gained over some offset operators by the drilling of a well at the proposed non-standard location, the allowable for said well should be reduced.

(9) That approval of the proposed unorthodox location will afford the applicant the opportunity to produce his just and equitable share of the gas in the Indian Basin-Upper Pennsylvanian

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Gas Pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and otherwise prevent waste, provided the subject well receives no more than 55 percent of a standard allowable for the pool.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texas Oil and Gas Corporation, is hereby authorized to drill a gas well at an unorthodox gas well location in the Indian Basin-Upper Pennsylvanian Gas Pool 990 feet from the North line and 990 feet from the East line of Section 22, Township 22 South, Range 23 East, NMPM, Eddy County, New Mexico;

PROVIDED HOWEVER, that as acreage factor for proration purposes of 0.55 shall be assigned to said well.

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

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