

CASE 5543: CITIES SERVICE OIL CO.
FOR COMPULSORY POOLING, EDDY
COUNTY, NEW MEXICO

915.683461

CASE NO.

5543

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS,
ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 27, 1975

EXAMINER HEARING

IN THE MATTER OF:

Application of Exxon Corporation for
compulsory pooling, Eddy County,
New Mexico.

CASE
5547

and

Application of Cities Service Oil
Company for compulsory pooling, Eddy
County, New Mexico.

CASE
5543

BEFORE: Richard L. Stamets, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission:	William F. Carr, Esq. Legal Counsel for the Commission State Land Office Building Santa Fe, New Mexico
For the Applicant, Exxon Corporation:	Clarence Hinkle, Esq. HINKLE, BONDURANT, COX & EATON Hinkle Building Roswell, New Mexico
For the Applicant, Cities Service Oil Co:	Jason Kellahin, Esq. KELLAHIN & FOX 500 Don Gaspar Santa Fe, New Mexico

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1 MR. STAMETS: We will call the next case, 5547.

2 MR. CARR: Case 5547, application of Exxon Corpora-
3 tion for compulsory pooling, Eddy County, New Mexico.

4 MR. HINKLE: Clarence Hinkle of Hinkle, Bondurant,
5 Cox and Eaton appearing on behalf of Exxon Corporation.

6 We have three witnesses and several exhibits.

7 Do you want to consolidate these cases?

8 MR. KELLAHIN: If the Examiner please, Jason Kellahin,
9 Kellahin and Fox, Santa Fe appearing on behalf of Cities
10 Service Oil Company.

11 We have a companion case of this involving compulsory
12 pooling of the same section and I would move that the two
13 cases be consolidated.

14 MR. STAMETS: Any objections?

15 MR. HINKLE: No objection.

16 MR. STAMETS: Would you call Case 5543, please?

17 MR. CARR: Case 5543, application of Cities Service
18 Oil Company for compulsory pooling, Eddy County, New Mexico.

19 MR. STAMETS: Case 5547 and Case 5543 will be
20 consolidated.

21 MR. KELLAHIN: We will have two witnesses.

22 MR. STAMETS: Will all of the witnesses stand and
23 be sworn at this time, please?

24 (THEREUPON, the witnesses were duly sworn.)
25

NORMAN K. REYNOLDS

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

DIRECT EXAMINATION

BY MR. HINKLE:

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

A I'm Norman K. Reynolds, I live in Midland, Texas and I'm employed by Exxon.

Q What is your position with Exxon?

A I am Mid-continent Division Unitization Geologist.

Q Have you previously testified before the Commission?

A No, sir.

Q State briefly your educational background and your experience as a geologist?

A I graduated from Penn. State University in 1949 with a Bachelor's Degree in geology and was employed by Exxon in July of that year in Utah and spent approximately two and a half years in the Rocky Mountain area, a very limited amount of time in the Illinois Basin and about twenty years in the mid-continent area and moved to Midland in my present assignment two years ago.

Q In your present assignment have you made a study

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1 of the area that is involved in this Case?

2 A. Yes, sir, I have.

3 MR. HINKLE: Are his qualifications sufficient?

4 MR. STAMETS: They are.

5 Q (Mr. Hinkle continuing.) Are you familiar with
6 the application of Exxon in this Case?

7 A. Yes, sir.

8 Q What is Exxon seeking to accomplish?

9 A. Exxon is seeking an order pooling all of the mineral
10 interests in the Pennsylvanian formation underlying the east
11 half of Section 16, Township 21 South, Range 27 East. This
12 is in the Burton Flats field area, Eddy County, New Mexico.
13 And this unit is to be for the purpose of drilling a eleven
14 thousand seven hundred foot Morrow test.

15 Q Have you prepared or has there been prepared under
16 your direction, certain exhibits for introduction in this
17 Case?

18 A. Yes, sir.

19 Q Refer to Exhibit One and explain what this is and
20 what it shows?

21 A. This is a Morrow structure map, contour interval
22 of fifty feet per mile, a horizontal scale of one inch
23 equals four thousand feet. The structural horizon is on the
24 base of a well-identifiable shale within the Morrow clastic
25 section.

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1 The unit for which we seek the pooling is outlined in
2 red, covering the east half of Section 16. Exxon's acreage
3 within Section 16 is colored in yellow and the location that
4 Exxon proposes to drill is shown by the green dot which is
5 nineteen hundred and eighty feet from the north line and six
6 hundred and sixty feet from the east line of Section 16.

7 Q And you propose to dedicate the east half to that
8 well?

9 A Yes, sir.

10 Q Does this also show the other wells that have been
11 drilled in the area?

12 A Yes, it shows all of the tests in this area that
13 have drilled to the Morrow formation. The structural datum
14 is shown in most cases below each well symbol, and the
15 structural contours are on a fifty foot per mile interval, or
16 fifty-foot intervals.

17 Q Does Exxon have any other interests in the area, in
18 wells?

19 A Yes, sir, we have interest, working interest, in
20 the Hamon Federal 4 well, in both wells of Section 4 of
21 Township 21 South, 27 East and we also have a working interest
22 in the Hamon Federal 9, which is in the north half of
23 Section 9. We have an interest in the Bass Bass State Number
24 1 which is in the west half of Section 15, and also we have
25 participating interest in the east half of Section 15 for the

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1 Cedar Hills Units, Number 1 and Number 2. In addition to
2 that, we have a three percent working interest which is in
3 the Monsanto operated Burton Flats Unit which lies immediately
4 to the north of this area.

5 Q Do you have any information as to the potential of
6 the wells surrounding the proposed east half unit, composed
7 of the east half of 16?

8 A Yes, I think the wells that are pertinent to our
9 proposal, and I would like to talk about each one individually
10 as to their initial completion and what they have done
11 production-wise according to the records that we have available
12 to us.

13 I would like first to talk about the Mobile Federal
14 QQ well which is located in the north half of Section 8,
15 which is diagonally northwest from Section 16. This well
16 was completed in September of 1973 for a calculated open flow
17 of seventy-three hundred and thirty-nine MCF per day.

18 Immediately to the south of that is Cities Service
19 CQ Number 1 well. It was completed in February of 1975. It
20 drilled to the Morrow. Drill stem tests in the Morrow
21 indicated gas and water production. The well was plugged
22 back and completed in the Bone Spring for a flowing potential
23 of seven hundred and twenty-five barrels per day, and it is
24 my understanding now that this well has been abandoned.

25 In Section 9 the Hamon Federal 9 Com Number 1, which

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1 is the well in the north half of the section, was completed
2 in April of '75 with a calculated open flow of forty-six
3 hundred and eighty-six MCF per day.

4 In the south half of the section is the Cities
5 Service State CP which was completed in September of '74 with
6 an absolute open flow of thirteen thousand six hundred and
7 seventy-four MCF per day.

8 Moving to the east the Coquina Oil Yates State well
9 in Section 10, the south half of Section 10, was completed
10 eight, one, seventy-three with a calculated open flow of
11 seventeen thousand six hundred and twenty-one MCF per day.

12 This was from the Morrow. The well was also completed in
13 the Strawn which is a shallower zone to the Morrow.

14 The last two wells I would like to talk about is
15 the Perry Bass Bass State Number 1 which is located in the
16 west half of Section 15. This well was initially tested in
17 the latter part of 1974 and had a productive test in both
18 the Strawn and the Morrow. The operator has recently four
19 pointed this well into the line with a calculated open flow
20 of five thousand seven hundred and ninety MCF per day from
21 the Morrow and twelve thousand one hundred and six MCF per
22 day from the Strawn.

23 The last well I would like to talk about is the
24 Cities Service Government AD well which is in the north
25 half of Section 21 immediately south of Section 16. I have

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1 definite scout data on this well, but newspaper reports
2 here indicate that within the last week or so that the well
3 was completed for a calculated open flow of four thousand
4 three hundred and seven MCF per day from the Morrow. On
5 the basis of the structure map, starting on the left-hand
6 side of the map, the structure is dipping to the southeast
7 into a low area which is bounded by northeast-southwest fault
8 as is shown on Exhibit Number One. This fault has throw on
9 it, varying from less than a hundred feet to upwards to two
10 hundred feet. The placement of the fault is done on the basis
11 of well control and also seismic information which will be
12 presented later on.

13 Immediately to the southeast of this fault, the
14 Strawn and Morrow zones are up thrown so that there is a more
15 favorable structural position in the east half of Section 16.
16 It is on the basis of this structural interpretation and
17 the direction that this fault cuts Section 16 that we feel
18 that the east half of the unit is an appropriate one for the
19 drilling of this Morrow test.

20 Q Did you find any uniformity in the porosity of
21 the wells you have testified to as to whether they were
22 producing water?

23 A There is varying porosity and varying development
24 of sand within the Morrow. We have indications that the
25 wells on the down-thrown side of this fault and associated

1 with the structural low do encounter water in the Morrow and
2 sometimes to the extent that any porosity within the Morrow
3 is watered out and commercial production cannot be established.

4 I would like to point out that the Cities Service
5 Government AD well which is in the north half of Section 21,
6 the information I have available to me is that the well was
7 originally perforated in the lower part, the very lower part
8 of the Morrow section, with the initial test being mostly
9 water, and from the reports that I have available, apparently
10 some of these lower sands have been blanked off by a bridge
11 plug set in the well and the well completed in upper
12 sands.

13 This is an indication that when you get low
14 structurally, even if you have the porosity developed in
15 the very lower-most sands in the Morrow they can become wet.
16 I think another well that is an example of this, although
17 it is on the up-thrown side of the fault, I would like to
18 refer to the Cities Service Tracy C Number 1 which is in the
19 east half of Section 32, right at the bottom of the Exhibit.
20 This well came in low on the up-thrown side of the fault and
21 based on the scout record on this well, it tested gas and
22 water from the Morrow sands and was completed as a dry hole.

23 A little closer to home, Cities Service State CP
24 well in the south half of Section 16. This well was
25 completed in the upper part of the Morrow section and there

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1 was no attempt to make any tests in the lower part of the
2 Morrow. There is some porosity developed in the lower part
3 of the Morrow in this well, but apparently the operator did
4 not feel that it justified a test and would not be productive.

5 What I feel that we are dealing with here is that
6 when you come into this fault from the northwest you keep
7 going low structurally and you stand a chance that some
8 Morrow sands, possibly all, depending upon the structural
9 position of the well, will be wet. Whereas, when you come
10 across onto the up-thrown block you are going to encounter the
11 Morrow at a high structural position, reducing the likelihood
12 that the sands are going to be water wet.

13 Q In your opinion, is the entire east half of Section
14 16 productive in the Morrow formation?

15 A I would have to say that the major portion of it
16 would be productive from the Morrow.

17 Q Is all of Section 16 State land?

18 A As far as I know it is.

19 Q Do you have any additional conclusions to be drawn
20 from Exhibit One?

21 A The only thing I would like to re-emphasize is
22 that to maintain high structural position in the Morrow, and
23 the same is true for the Strawn and a structure map drawn
24 on the Strawn here would be similar in character to what
25 we are looking at on Exhibit One. There would be minor

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1 differences. Any time you can put yourself in a high
2 structural position you enhance the possibility that you are
3 going to find more of the porosity that is developed
4 productive of gas in both of these formations.

5 MR. HINKLE: Our next exhibit is a large one and
6 it might be advisable to put it up on the wall.

7 Q (Mr. Hinkle continuing.) Refer to Exhibit Two
8 and explain what this is and what it shows?

9 A This is a northwest-southeast structural cross
10 section as shown here on the index map, the northwest end.
11 It starts at the Mobile Federal QQ well which is located in
12 the north half of Section 8. It then comes down and you
13 have a number of these locations along the cross section.
14 At Location Two is the projection of Cities Service State
15 CP well in the south half of Section 9, into the line of
16 cross section.

17 At Location Three I have projected in our interpre-
18 tation, or my interpretation, of where I feel that a location
19 that is proposed by Cities Service in the north half of
20 Section 16 would be located.

21 The fault that we depicted on Exhibit One is shown
22 at that position just east of Location Three or just southeast
23 of Location Three.

24 Location Four is the proposed location by Exxon.

25 Location Five is the Perry Pass Bass State Number

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1 One well in the west half of Section 15 and Location Six on
2 the southeast end is the Gates Cedar Hills Unit Number Two,
3 which is still in the process of testing.

4 I would like to start out -- first of all, let me
5 identify the structural mapping horizon that was shown on
6 Exhibit Number One.

7 This shale that I have colored in green, and this
8 is merely to highlight the shale as the structural datum on
9 which our Exhibit Number One was prepared.

10 The top of the Morrow clastic section is shown at
11 this point, and this does correspond to the Morrow clastic
12 section that was developed by the committee that made all
13 of the cross sections here in New Mexico.

14 Going further, or shallower in these wells, this is
15 the top of the Atoka as they depicted it on their cross
16 section and there is one cross section that runs very close
17 to this area. I believe it is a well in Section 28 here that
18 is on a line of the cross section.

19 The upper-most correlation, and I'm showing this
20 as a correlation on the top of the Strawn pay. This is
21 not the actual top of the Strawn as the committee depicted
22 it on their cross section, but it is the top of the lime
23 development that is productive in a number of wells on the
24 southeast up-thrown side of the fault.

25 Now, I would like to start with the Morrow and on

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1 the left-hand side of each log, which is the gamma curve side
2 of the log, I have used an arbitrary point on the log and
3 colored in the sands in yellow and that is merely to highlight
4 the cleaner sands against those that become more shaley.

5 Also on each log, in the center column on the left
6 side of the center column is the perforated interval and in
7 many cases this will be an overall interval rather than
8 specific sands. Many of the scout tickets don't give the
9 specific perforated intervals, so I have indicated an overall.

10 On the right-hand side of each of these logs, in
11 all cases these are a combination density, compensated
12 neutron, porosity type logs. I have depicted what I feel to
13 be the better porosity by coloring in the logs in red.

14 I think you can see from the Mobile QQ well on the
15 northwest end of the line of the cross section that it has
16 porosity developed down in the lower part of the Morrow clastic
17 section and it also has porosity developed in the upper part
18 of the clastic section. As you progress southeastward now
19 and looking at the Cities Service State CP well projected
20 into this line of cross section, the lower part of the Morrow,
21 and when I refer to the lower part of the Morrow I'm talking
22 about below this identifiable shale here about midway in the
23 Morrow clastic section.

24 There is a minor amount of porosity developed in
25 the first sand below the shale, very low porosity, down close

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1 to seven percent porosity in the lower sand. These are the
2 sands that I previously referred to that were not tested,
3 that the operator made his completion in the middle, about
4 the middle of the upper clastic section.

5 Now, this I think shows a very definite decrease
6 in the amount of porosity that you are seeing between these
7 two wells, and you are going in a down-structure position.
8 Now, by contrast when you come across onto the east side
9 of the fault on the Perry Bass Bass State well, here is the
10 identifiable shale, here are the cleaner sands as depicted on
11 the left-hand gamma ray log and the porosity as I have
12 interpreted it on the porosity log on the right-hand column
13 of the well.

14 You can see that well in these lower sands exhibiting
15 far more porosity than is on the State CP well which is on
16 the down-thrown side of the fault. Also there is porosity
17 developed in two spots in the sand above the shale marker. This
18 would be up comparable to the zones which the Cities Service
19 State CP well is completed in. But here again this well does
20 not have the amount of porosity that is in the Mobile QQ.

21 I think this is showing some of the variations that
22 you can find in the Morrow, but there is a definite decrease
23 in the amount of porosity as you go from the Mobile QQ to the
24 CP well, plus the fact that you are losing structural position.

25 It is my opinion that you come across onto the

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1 location on the east half of Section 16 that you have a
2 possibility of encountering far more porosity in the Morrow
3 at a higher structural position. This is showing, going to
4 the most southeastern well on the cross section, which is
5 the Cedar Hills Number 2 operated by Gates. There is porosity
6 developed down in the lower part of the Morrow below the
7 shale marker. There is porosity above that marker. The
8 well has been perforated in one zone, two zones below the
9 shale marker and two zones above the shale marker and this well
10 potentialed for five point eight million on a recent test.

11 Now, as to the Strawn, I point out that there are
12 no wells in this immediate area on the down-thrown side of
13 the fault which have been completed in the Strawn. All of
14 the Strawn completions in this immediate area to date have
15 been completed on wells on the up-thrown blocks, on the
16 higher structures.

17 The Cedar Hill Unit Number 2 has porosity as shown
18 on the porosity curves. The well has been perforated. They
19 are currently working towards taking a four point on the
20 Strawn zone, but officially the well is not completed.

21 The Perry Bass well which is that Location Five on
22 the cross section has been completed. This is the one that
23 I testified earlier has an open flow of twelve point one
24 million. We have no production data of any significance
25 on this well due to the recent connection into the line.

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1 I think what we are seeing here is that by forming
2 a Unit covering the east half of Section 16 we can maintain
3 a high structural position. We have wells that have indicated
4 more porosity indicated than the Cities Service State
5 CP well, but still less than the Mobile well. The Mobile
6 well is coming out of another, adjacent to another producing
7 area in the Morrow, which is Avalon Hills, which is this area
8 up in here, although we may be seeing a change going from one
9 major producing area into an in between so-so area, then back
10 into the main Burtons Flat producing trend.

11 Here again this is another means of predicting high
12 structural position, the fact that you don't get any porosity
13 that is developed in the lower part of the Morrow, up high
14 structurally where it would be gas productive.

15 Q Do you feel then, that you have a good chance in
16 this well to complete it in the two zones, the Strawn and
17 the Morrow?

18 A Yes, sir.

19 Q What would be the ownership of the acreage percentage
20 wise in the east half of Section 16?

21 A In the east half of Section 16, Exxon and Cities
22 Service each own fifty percent of the working interest.

23 Q Each would have fifty percent?

24 A Yes, sir.

25 Q In your opinion will the correlative rights of all

1 of the interest owners be better protected by drilling in
2 the proposed location of the east half?

3 A. In my opinion they will be.

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

6 A. I don't believe so.

7 MR. HINKLE: We would like to offer Exhibits
8 One and Two.

9 MR. STAMETS: They will be admitted.

10 MR. KELLAHIN: If the Examiner please, do I under-
11 stand there will be seismic information to support this?

12 MR. HINKLE: Yes.

13 MR. KELLAHIN: I would like the Examiner to withhold
14 the admission of the exhibits until that testimony has been
15 presented as supporting data for the two exhibits that are
16 now being offered.

17 MR. HINKLE: No objection.

18 MR. STAMETS: We will admit your exhibits at a
19 later point, Mr. Hinkle.

20 At this time we will take a recess until one
21 fifteen.

22

23

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AFTERNOON SESSION

MR. HINKLE: Mr. Examiner, I would like to ask Mr. Reynolds a couple more questions.

MR. STAMETS: The Hearing will come to order and you may ask him a couple of questions.

Q (Mr. Hinkle continuing.) Mr. Reynolds, I believe you testified that you have been doing geologic work for Exxon in New Mexico for several years?

A Yes, sir.

Q How long have you known about the fault that is portrayed on your Exhibit Number One?

Q This fault has been portrayed on the maps that were in use prior to my arrival in Midland which was two years ago tomorrow.

MR. HINKLE: Thank you. That's all of the questions.

MR. STAMETS: Are there questions of the witness?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q I assume, Mr. Reynolds, you are talking about the maps used by Exxon?

A Yes, sir.

Q Not those of other parties?

A No, sir, these are the maps used in the production department and our exploration department has also interpreted

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1 the fault in this area prior to this time.

2 Q In connection with that fault, what is the throw
3 of the fault?

4 A The throw on the fault will vary from area to area.
5 The fault that extends on to the north some distance, it also
6 is present at South Carlsbad which is fifteen or sixteen miles
7 to the south, as far as the Carlsbad Morrow production area.
8 It is immediately adjacent, just to the south of Exhibit One
9 here, some ten or fifteen miles.

10 Q And it is the same fault all the way?

11 A It is in the same trend, yes. Now, the throw on
12 this fault will vary from point to point along the trend of
13 the fault. The throw is not exactly the same in every place.

14 Q Has this fault been confirmed by anyone other than
15 Exxon's people?

16 A I am not aware of it.

17 Q You say the throw of the fault varies from place to
18 place, specifically in Section 16 what is the throw of the
19 fault?

20 A My interpretation indicates that the throw of the
21 fault is somewhere between one hundred and eighty and two
22 hundred feet.

23 Q Near the site of your well?

24 A Yes, sir, as shown on Exhibit Number Two, the
25 line of cross section.

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1 Q On your Exhibit Number One, what is the top that
2 you have contoured on?

3 A As I pointed out in my earlier testimony, this
4 map is drawn on the base of an identifiable shale within
5 the Morrow clastic section.

6 Q Now, do you designate these separate shales, not
7 shales, producing zones in the Morrow by any letter or by
8 any other definition?

9 A There have been various terminologies applied and
10 I think each company has their own designation. When you
11 get around to trying to correlate individual sands you run
12 into some problems due to the variability in the Morrow sand
13 development.

14 Q This is true throughout all the Morrow production
15 in this area?

16 A This is true in the Oklahoma and Texas Panhandles,
17 anyplace I have seen Morrows this is true.

18 Q So in connection with that I believe you testified
19 that the Bass well, for example, showed more porosity than
20 the Cities Service CP State Number 1?

21 A Yes, sir.

22 Q And also that the Mobile CQ, also showed greater
23 porosity?

24 A Yes, sir.

25 Q But neither of those wells is as good a well as

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1 the Cities Service well, are they?

2 A. I don't know how you are qualifying that, "as good
3 a well".

4 Q I'm talking about their deliverability, their open
5 flow or deliverability.

6 A Well, none of these wells have had a long history
7 of production.

8 Q How about initial potential then?

9 A Well, initial potentials, I would have to say that
10 neither one of those wells that you mentioned had a higher
11 open flow than the Cities Service well. Personally, I think
12 the rate that a well is capable of producing into the line
13 is more of a test over a long period of time than the initial
14 potential that you get.

15 Q Well, we don't have that information, do we?

16 A No, sir, we don't.

17 Q So on your exhibit or in your testimony I believe
18 you gave the calculated open flow on all of these wells?

19 A Yes, sir.

20 Q Do you consider that at least some indication of
21 the quality of the well?

22 A Yes, sir, some indication.

23 Q In each case the Cities Service well is better
24 than the other two wells you were referring to?

25 A This is true.

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1 Q Now, you said that the porosity is greater or
2 less, going from one well to the other, what do you mean
3 by higher or lower porosity, what are you figuring, what
4 figure are you using?

5 A What --

6 Q What figure are you using for your porosity? You
7 said that the porosity decreases from the Mobile to the Cities
8 Service well, what is the porosity of the Mobile well, what
9 figure did you use on that?

10 A As I have shown on Exhibit Number Two on the cross
11 section, the red-colored areas on the porosity curve is using
12 a seven percent cut off.

13 Q Did you use the same on the Cities Service?

14 A Yes, sir.

15 Q What is the average net pay on the Mobile well?

16 A On the Mobile well, this well has upward to sixty
17 to seventy feet of porosity developed in all of the Morrow
18 sands.

19 Q You are talking about seventy percent porosity?

20 A Yes, sir.

21 Q What is the average porosity over the sixty or
22 seventy feet?

23 A I don't have the exact figures here to say what
24 the average is.

25 Q Do you have it on the Cities Service well?

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1 A. Well --

2 Q. I'll withdraw the question, I think we will put it
 3 on direct --

4 A. No, I'll answer it if you will give me a little time
 5 to.

6 Q. I'll withdraw the question because we will put it
 7 on the direct case.

8 Do you know of any well that has cut that fault?

9 A. No, sir, I can't say that I do.

10 Q. At any point?

11 A. No, sir.

12 Q. On fifteen some odd miles that you are talking about?

13 A. No, sir, I haven't worked this entire fifteen miles
 14 in the detail that I have worked in this area. When I say
 15 that there is no fault, I can't find any well that actually
 16 cut this fault, I'm speaking in the area of Exhibit Number
 17 One.

18 Q. How do you confirm the fault then?

19 A. As I testified earlier, the fault is interpreted
 20 on the basis of the structural position of the various wells
 21 on one side of the fault versus the other, and also by the
 22 seismic data which will be testified to later.

23 Q. Now, I believe you testified that some of the wells
 24 made water?

25 A. Well, in fact, I think the wells that I specifically

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1 referred to was the Cities Service Government AD well which
2 is in the north half of Section 21. This is not by any
3 specific data that I have in my possession, but we met with
4 Cities Service to try to resolve our differences in the area
5 and I asked about the early testing on a well and I was told
6 the initial tests indicated all water. So I am basing my
7 statement on that well on that conversation and the scouting
8 record indicates that on the Cities Service Tracy C well in
9 Section 32, 21 South, 27 East, that this well on a drill stem
10 test over the Morrow sands tested water.

11 Q That was not completed in the Morrow, was it?

12 A No, sir, it was completed as a dry hole.

13 Q Are there any other wells that encountered water?

14 A The Mobile well in the north half of Section 8,
15 based on the commercial records, has been making somewhere
16 in the neighborhood of six hundred to seven hundred barrels
17 of water per month.

18 Q Which well is that; would you give the designation?

19 A It is in the northeast quarter of Section 8, the
20 Mobile Federal QQ.

21 Q Right. Now, I believe you testified that in your
22 opinion the east half of Section 16 is productive from the
23 Morrow?

24 A Yes, sir.

25 Q How about the west half?

1 A At this stage I would be very reluctant to say how
2 much if any of the west half is productive.

3 Q But you would not say that it is non-productive on
4 the basis of what you know now?

5 A Knowing the lenticularity of the Morrow sands, I
6 couldn't make that definite statement that it wasn't productive.

7 Q Well, knowing the lenticularity of the Morrow sands
8 how can you say that the east half is productive?

9 A I feel that I am close to known control, and that
10 I am high structurally, and my chances are far greater to
11 be productive in that position than moving to a location on
12 the west half of Section 16, which would be down dip from
13 any known existing production in the Morrow and the Strawn.

14 Q Well, don't you consider the Cities Service CP well
15 a known control?

16 A Yes, sir, but as I said, you are going down dip
17 from that well on the west side of that fault.

18 Q Isn't there some difference in going across the
19 contours, as would be indicated by your exhibit, or going
20 down the same contour interval from the CP well into the
21 adjoining section?

22 A Well, the dip is not uniform in every spot. There
23 is flattening and steepening of dip here and it doesn't
24 follow a set contour interval in every case.

25 Q Do you know of any other wells that are drilled as

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1 close as thirteen hundred and twenty feet in this area, any
2 producers?

3 A Not in this particular area, no, sir.

4 Q Now, on the basis of your exhibit, if we assume
5 the fault is there, it wouldn't really make much difference
6 if you dedicated the north half or the east half of that
7 section to the well, would it?

8 A Could you repeat your question?

9 Q It wouldn't really make any difference whether you
10 dedicate the north half of the section or the east half of
11 the section to a well to be drilled in the north half or in
12 the northeast quarter?

13 A In my opinion, correlative rights would not be
14 protected if the units were designated in an east-west
15 direction. In other words, a north-half unit and a south-
16 half unit. It appears to me that the logical division based
17 on the presence of the fault that the logical division is
18 in an east unit and a west unit.

19 MR. KELLAHIN: I believe that's all the questions
20 I have. Thank you, Mr. Reynolds.

21

22

CROSS EXAMINATION

23 BY MR. STAMETS:

24 Q Mr. Reynolds, the well in the southeast quarter of
25 Section 9 I believe that is the Cities Service CP well?

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1 A. Yes, sir.

2 Q. It is on the down-thrown side of the fault?

3 A. Yes, sir.

4 Q. And that apparently is a good well?

5 A. Yes, sir.

6 Q. And looking down towards the southern part of the
7 exhibit, the well in the northwest quarter of Section 21,
8 I believe you reported had water in the lower Morrow?

9 A. Yes, sir, in the lower part of the Morrow.

10 Q. That is on the up-thrown side of the fault?

11 A. Yes, sir.

12 Q. And the same thing could be said for the Cities
13 Service Tracy well in the northeast quarter of Section 32?

14 A. Yes, sir.

15 Q. You don't have to be on one side of the fault or
16 the other to contact water in the Morrow formation?

17 A. That is correct, and we know as you go off the
18 high structure, east of the fault in the up-thrown block, as
19 you go down dip to the southeast, you start picking up water,
20 so this re-emphasizes, no matter which side of the fault you
21 are on, you should try to maintain high structural position,
22 and this is what I don't think can be done by drilling in a
23 position where you may be on the down-thrown side of the fault.
24 It is my opinion that we should try to get in the highest
25 structural position possible so that we enhance the being able

1 to get as much of the Morrow porosity high on the structure
2 and, therefore, more gas reserves.

3 I used the wells on the east side or up-thrown
4 side of the fault to indicate that even on that part of the
5 structure, if you run low, you can get water.

6 Q Looking at the eighty-three hundred and fifty
7 foot contour in Section 29 -- what is the Township and Range,
8 21, 27?

9 A It is 21 South, 27 East.

10 Q Is there any reason that could not be drawn as a
11 continuous line across there with no throw on the fault.

12 A This is possible and if you recall my testimony that
13 the throw can vary on this fault and there are places along
14 it where you may not be able to visually see any throw at
15 all. In fact, it is probably more of a lateral movement
16 than an actual vertical displacement on this fault. So
17 you can get in a position where the throw on the fault becomes
18 obscure.

19 Q In the area of Section 16, which is under question
20 here today, could the structure be interpreted as steeply
21 dipping beds rather than a fault?

22 A Yes, sir, in fact, I have made such an interpre-
23 tation.

24 Q I presume you think this is the preferable
25

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1 interpretation?

2 A. Yes, I do.

3 Q. I believe that you said that you felt like the
4 correlative rights of the interest owners in the east half
5 of Section 16 would not be protected if you had a north-
6 half dedication? Are there any other drawbacks to a north-
7 half, south-half dedication that you can think of in the
8 line that the Commission is supposed to protect and
9 prevent, say for instance waste of resources?

10 A. I don't think you can put a well location in the
11 north half unit in the optimal structural position. This
12 is my main objection to a north-half, south-half split as
13 far as the three hundred and forty acre units that you are
14 required by the spacings to stay nineteen hundred and eighty
15 feet from the end lines of the units. Therefore, as far
16 as a north half unit, you would have to get as far east as
17 possible, you would have to drill either in the -- well, it
18 would have to be in the west eighty of the northeast quarter
19 of that section, and in both of those cases you are drilling
20 very close to the fault which we feel is present.

21 Q. A couple of hypothetical questions here. Assuming
22 that all of Section 16 is productive, if you had a north-half
23 and a south-half dedication, with wells located in the north-
24 east quarter and the southeast quarter, assuming that your
25 fault is in there as shown, would this situation lead to good

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1 drainage of the west half of the section?

2 A. No, sir, it wouldn't.

3 Q. Conversely, if we take this same situation and do
 4 away with your fault, and say that we have only steeply
 5 dipping beds, would the west half of this section then be
 6 drained, or subject to drainage?

7 A. There might be a question as to how effective
 8 the drainage into the west half -- if you have a well located
 9 if you assume that there is no fault and you have two wells
 10 on the east half of the section, but on the basis of east-
 11 west units, there could be a question as to whether the wells
 12 would drain clear to the west side of that section.

13 Q. But, in fact, these would be legal locations and
 14 without the disagreement we have here today this could be
 15 done?

16 A. Yes, sir.

17 MR. STAMETS: Are there any other questions of
 18 the witness?

19 MR. KELLAHIN: One more. Mr. Reynolds, do you
 20 know the interest of Exxon in the east half, what percentage
 21 would they own?

22 MR. REYNOLDS: Fifty percent.

23 MR. KELLAHIN: If the dedication was in the north
 24 half, what percent would they own?

25 MR. REYNOLDS: Twenty-five percent.

1 MR. KELLAHIN: That's all, thank you.

2 MR. STAMETS: Anything further?

3 MR. HINKLE: No, not of this witness.

4 MR. STAMETS: You may be excused.

5 MR. HINKLE: I would like to call Mr. Baird.

6 JOHN M. BAIRD

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

9
10 DIRECT EXAMINATION

11 BY MR. HINKLE:

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

14 A I'm John M. Baird, I'm employed by Exxon Corporation
15 in Midland, Texas.

16 Q What is your position with Exxon?

17 A I'm the exploitation geophysicist for the Mid-
18 continent Division.

19 Q What are your duties in that position?

20 A My duties are to do any and all geophysical work
21 that might be needed by the production department in the
22 Mid-continent Division.

23 Q Have you previously testified before the Commission?

24 A No, I haven't.

25 Q You might state briefly your educational background

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1 and your experience as a geophysicist.

2 A I graduated from Texas A & M in 1943 and joined
3 the old Humble company in 1946 and in the ensuing twenty-six
4 years I have been continuously and exclusively concerned with
5 geophysical explorations and interpretation work.

6 Q Have you done considerable work in New Mexico,
7 interpretations on the part of the production department?

8 A No, but up until three years ago I was interpreta-
9 tion supervisor for our exploration department and was con-
10 cerned with interpretation work in New Mexico.

11 Q Have you done any interpretation in connection
12 with the area that is involved here in this case?

13 A Yes, I remember helping in some of the interpre-
14 tations done by the people under me back four or five years
15 ago in this area, and I specifically remember when we
16 acquired some of the more recent data in here three years
17 ago consulting with the interpreter in the exploration
18 department on this particular area.

19 MR. HINKLE: Are the qualifications of the witness
20 acceptable?

21 MR. STAMETS: What was your degree in?

22 A My degree was a B.S. in geology.

23 MR. STAMETS: The witness is considered qualified.

24 Q (Mr. Hinkle continuing.) Have you prepared or
25 has there been prepared under your direction, certain

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1 exhibits for introduction in this Case which have been
2 marked Three, Four and Five?

3 A Yes, sir, I have three exhibits. I have Exhibit
4 Three which is a shot-point map of the area under considera-
5 tion and two seismic interpretation plats.

6 Q Refer to Exhibit Three and explain how this was
7 prepared and what it shows?

8 A Exhibit Three is one to four, one inch to four
9 thousand foot horizontal scale map of the area under
10 discussion, the Burton Flats area. This is from Exxon's
11 shot-point map which shows the locations of our seismic
12 controls in this area. On this insert here, Exhibit Three,
13 I have shown two of the seismic lines which I'm going to use
14 as further exhibits, namely -- incidentally they are high-
15 lighted in yellow and I have line number forty-nine ninety-
16 three which is a north-northwest, south-southeast line and
17 line number five oh oh one, which crosses Section 16.

18 I will show my interpretation of the structure on
19 those two lines.

20 In addition, this plat shows highlighted in green,
21 the velocity survey in the old Humble Cedar Hills well and
22 it is from the information in this velocity survey that I'm
23 able to predict the whereabouts on my seismic section of
24 the Morrow or --

25 Q You say there was a velocity survey run in that well?

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1 A. Yes, sir.

2 Q. How long ago was that?

3 A. I would have to look, it's in the last ten years.

4 Q. It's an old well, though?

5 A. Yes.

6 Q. Okay, go ahead.

7 A. To help you locate yourself I have outlined in
8 red the east half of Section 16. In addition, I have
9 shown in a heavy blue line the trace of the Morrow fault,
10 marked down on the west and up on the east. I have proposed
11 to justify putting this fault in this location by showing
12 Exhibits Four and Five which show where the seismic lines
13 on Exhibits Four and Five cut the fault. And then to the
14 south in Section 21, I have run the fault just to the west
15 of the well in Mark One dash AD, recently drilled, which
16 we interpret as being a high-side well.

17 Q. What section is that in?

18 A. Section 21.

19 Q. Okay.

20 A. And I run the fault just to the east of the Cities
21 Service 1-A Simpson well in Section 29, which we interpret
22 to be a low-side well.

23 Q. Now, in your explanation you may refer to Exhibits
24 Four and Five.

25 A. All right. One other word about these two seismic

1 lines, they were both group-shoot lines which were shot as
2 cooperative enterprises of a number of companies. The line
3 five oh oh one was a 1966 line, six-fold Dyno-seis line,
4 and I think that Exxon Corporation was a member of that group-
5 shoot and acquired that line when it was first shot.

6 In line four nine nine three we acquired by purchase
7 from the Geo Data Corporation of Tulsa, Oklahoma. Line
8 four nine nine three was shot in a group-shoot to which
9 Exxon did not belong at the time of shooting, but we were
10 able to purchase the line shortly thereafter. That line is
11 a twelve-fold CDP line Vibro-seis.

12 And I would like to go to my interpretation,
13 Exhibit Four, of line forty-nine ninety-three. This is an
14 interpretation, it is not the seismic line in its entirety.
15 I made this interpretation by laying a piece of acetate
16 overlay over the original seismic variable density section
17 and drawing heavy lines for the Morrow and Hunton reflections
18 labeled as such on this exhibit, plus a drawing, a little
19 bit lighter lines, over continuous reflections which are shown
20 here. And then a heavy line to represent my interpretation of
21 the fault. Now the velocity survey on this line falls between
22 well, I will explain the numbers at the top of the section,
23 from eight fifty to eight ninety-five or shot-point location
24 numbers which you may see on Exhibit Three, the shot-point
25 location map.

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1 And between the shot points eight ninety and eight
2 ninety-five, is the location of my velocity survey so I
3 feel that I have excellent control over location, the Morrow
4 reflections and the Hunton reflections which I have marked
5 here as the top of the Morrow and the top of the Hunton, and
6 these are the lines, horizontal lines, more or less horizontal
7 lines that you see here are continuous reflections which
8 are broken very abruptly at the fault and they have a
9 correlatable character to them which would indicate to me,
10 looking at the Morrow horizon now, that the location shown
11 here does drop down in a faulted manner at the location
12 shown here, namely, just immediately to the northwest of
13 shot-point eight seventy.

14 Q Did you make this interpretation or was this
15 interpretation known to you long before this Case was ever
16 filed?

17 A This fault was located exactly -- yes, it was
18 located exactly along the trace shown here before I was
19 called to refresh my memory, so to speak, to check on this
20 interpretation in making exhibits for this hearing.

21 Q And it was portrayed on company maps?

22 A Yes, it was on the exploration department maps
23 and I was the geophysicist for the production department and
24 I was asked to check on the interpretations, and I found
25 nothing to change in it and I, therefore, made up these

1 exhibits to show the whereabouts of the fault.

2 Q Do you have any comments with respect to these
3 exhibits?

4 A Not this one. I have one more to show, the exhibit
5 here of line five oh oh one.

6 Q That is Exhibit Five that you are referring to?

7 A Yes, this is Exhibit Five, it's line five oh oh one,
8 and this line goes from northwest to southeast and crosses
9 the northeast corner of Section 16 and goes on through our
10 velocity survey, a little further east from Section 16.

11 Incidentally this section and the last section
12 appear a little differently because unfortunately they are
13 both of different horizontal and vertical scales. I would
14 have found it very difficult to try to transpose them to
15 the same scale because this was purchased data and the
16 records, the original Digital in one case, and Analog records
17 were incompatible with Humble's processing equipment. We
18 saw nothing wrong with the processing that came with our
19 original sections that we received and so I copied my
20 interpretation and there is a difference in vertical and
21 horizontal scales in the two sections.

22 Back to Exhibit Five, this line crosses the fault
23 at a better angle possibly to show it, but this is countered
24 somewhat by the fact that this is an older vintage line and
25 it is not quite as good quality data as the first exhibit that

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1 I showed you, Number Four. So that accounts for the gap
2 in the reflection continuity which you see where I have
3 shown the fault. The reflection there is a zone, in other
4 words, on either side of the fault here without data. However
5 I can see what I think is the correlation which again throws
6 this Morrow down to the west across this zone and I offer
7 this exhibit as corroborative evidence of the existence of
8 the fault which is shown on Exhibit Three.

9 Q In your opinion, your interpretation of the
10 geophysical work that was available to you, definitely shows
11 a fault as portrayed on Exhibit Three?

12 A Yes, sir.

13 Q Do you have anything further with respect to these
14 exhibits?

15 A I don't believe so.

16 MR. HINKLE: That's all. We would like to offer
17 into evidence Exhibits Three, Four and Five.

18 MR. STAMETS: Any objection to the admission of
19 these exhibits?

20 MR. KELLAHIN: No objection.

21 MR. STAMETS: These will be admitted.

22 MR. HINKLE: We would like to renew our offer on
23 Exhibits One and Two.

24 MR. KELLAHIN: No objection.

25 MR. STAMETS: They will be admitted.

1 Are there any questions of the witness?

2 MR. KELLAHIN: Yes.

3 MR. STAMETS: Mr. Kellahin.

4
5 CROSS EXAMINATION

6 BY MR. KELLAHIN:

7 Q Mr. Baird, I trust you will be patient with me, I
8 really don't understand all of this.

9 The Exhibit Number Four at the top you have an item
10 "datum elevations", what does that mean?

11 A Both of these sections were created by firing or
12 vibrating or shaking the earth at the surface of the earth,
13 and there are many irregularities in the velocities near
14 the surface of the earth, so we try to surmise what those
15 variations are by certain methods at our disposal, and if
16 you will, we peel off that variable layer and hang the rest
17 of the information from a certain datum elevation, from
18 there down we hang it on that particular elevation, and
19 in this, I think the contract company that shot this and
20 processed this tried to be some four hundred feet below
21 the surface.

22 Q There is a variation in each one of these shot
23 points?

24 A It is a slanting datum, it probably roughly
25 follows the topography. It is not a perfect plane.

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1 Q You have two continuous lines shown on there, do
2 you know what those are? That is some formation, I assume.

3 A That is a continuous Strawn reflection and I
4 didn't try to identify it.

5 Q It shows no faulting in the Strawn?

6 A As far as I know about the whereabouts of the
7 Strawn, I think that it probably is.

8 Q You have not shown it on this?

9 A I have not, no.

10 Q Now, what is the next continuous formation?

11 A The only two reflections that I positively
12 identified was this Morrow and Hunton, the two above the
13 Morrow are undoubtedly in the Stawn.

14 Q There again you don't show any faulting in that
15 zone?

16 A The one section just above the reflection that
17 I have labeled the Morrow is possibly four hundred feet above
18 there which would put it in the Strawn.

19 Q Again I say, you don't show any faulting in that
20 zone?

21 A Well, I intended to show the reflection above the
22 Morrow reflection to be faulted down one cycle above, that
23 is faulted down also. Then it is overlain by one that seems
24 to have just a little flex in it and probably isn't broken.

25 Q Now, this top of the Hunton, is that a Devonian?

1 A I need a stratigrapher to tell me for sure. I
2 get a lot of this information from our geological people
3 that I recognize as the Hunton.

4 Q I hadn't heard of it, that is why I wondered what
5 it is.

6 A In my case I could have called it that erroneously.

7 Q On the top of the Morrow, is that a point picked
8 from the logs or is that related to the velocity?

9 A This particular top that I have here is the nearest
10 reflection to the calculated depth, to the accepted
11 structural Morrow Point that I have discussed later in some
12 past Commission work that has been done. I'll put it another
13 way, our exploration people picked what they called the top
14 of the Morrow and our Cedar Hills well at subsea seventy-
15 six oh one, and I believe that the preferred Morrow top is
16 seventy-eight fourteen in that well. This is the seventy-
17 six oh one, but it still is the closest reflector to the
18 accepted Morrow structural point.

19 Q Well, in regard to your Exhibit Number Five, what
20 is the distance between the shot points?

21 A I would have to scale it off, but let's see, I
22 can tell you pretty close. It looks roughly like three
23 thousand feet, yes, about three thousand feet.

24 Q And your fault as indicated on your Exhibit Number
25 Five appears to fall approximately midway between three

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1 sixty-four and three fifty-eight?

2 A Yes, sir, if you would get some right-angle
3 estimates and project up from where it cuts the Morrow
4 horizon, I think that you would find it slightly east of
5 the mid-point between those two points.

6 Q But it is between them?

7 A Yes, sir.

8 Q And what is the throw of the fault as indicated
9 on this exhibit?

10 A By the very nature of the data and the gap on
11 either side of the fault plane, it's an estimate, but I
12 would project it and say somewhere around two hundred
13 feet, a hundred and fifty to two hundred.

14 Q Actually in the distance of some three thousand
15 feet, that could be accounted for by a steeply dipping
16 formation, couldn't it?

17 A It could.

18 MR. KELLAHIN: That's all the questions that I
19 have. Thank you, Mr. Baird.

20 MR. STAMETS: Any other questions of this witness?

21 MR. HINKLE: None.

22 MR. STAMETS: He may be excused.

23 MR. HINKLE: We have one more witness.
24
25

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HARLEY REAVIS

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name and address and by whom you are employed?

A My name is Harley Reavis and I'm employed by Exxon Corporation in Midland, Texas as their Conservation Engineer.

Q Are you a graduate petroleum engineer?

A Yes, sir, I graduated from Texas A & M in 1940.

Q Have you previously testified before the Commission?

A Yes, sir.

Q Are your qualifications as a petroleum engineer a matter of record?

A Yes, sir.

Q Have you made a study of this area that is involved in this Case?

A Yes, sir.

MR. HINKLE: Are his qualifications acceptable?

MR. STAMETS: They are.

Q (Mr. Hinkle continuing.) Have you tried to determine what the cost of the proposed well in the east half of 16

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1 involved in this Case would be?

2 A. Yes, sir, I have. The cost estimates made up by
3 our drilling engineering group, there in Midland we have
4 a manager of drilling organizations who has several engineers
5 under him and they prepared what we normally call an AFE in
6 the oil business.

7 Q Refer to Exhibit Six, is that the AFE referred to?

8 A. Yes, sir, the AFE is dated August 6th, 1975 to
9 drill and complete a Burton Flat Com Number 11 to a proposed
10 depth of eleven thousand seven hundred feet in approximately
11 seventy-three days. The location of this well is in Section
12 16, T 21 South, R 27 East, Eddy County, New Mexico.

13 Q Is this for a dual completed well?

14 A. The cost estimate here shows a total for drilling
15 and completion of seven hundred and forty-four thousand,
16 three hundred dollars. This cost is for a dual Morrow and
17 Strawn well. Now, we have also made an estimate for a single
18 zone well for this particular location, and that estimate
19 was some six hundred and thirty-four thousand dollars.

20 Q Do you think these estimates are in line with the
21 going prices being paid for drilling of wells in this area?

22 A. Yes, sir. This estimate was made this month and
23 I would say it is about as good an estimate as you could
24 have at this time.

25 Q In your application you are asking for the actual

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1 operating costs and the cost for supervision, well super-
2 vision?

3 A Yes, sir.

4 Q Have you made an estimate on those?

5 A Yes, sir. Our estimate on the drilling supervision
6 of this well is twenty-two hundred and forty dollars per
7 month per well. This is based on using the combined fixed
8 rates and the current COPUS form that is currently being
9 used in this area, and in our normal handling of the COPUS
10 form, this is charging the drilling superintendent that is
11 actually on the job and also for the production superintendent
12 that is on the job, their costs would be charged directly,
13 is the normal way of handling that. We have also estimated
14 that our production supervision would be at a rate of two
15 thirty-four dollars per month per well.

16 Q Are you requesting that Exxon be the operator of
17 the proposed unit?

18 A Yes, sir, we are asking that Exxon be the operator
19 and I would like to say something about these costs.
20 Incidentally, with the increased rate of inflation we
21 have nowadays, the normal dealing, I believe, the recent
22 order that was issued in June of 1975 to Cities Service for
23 a pooling in this general area in Section 30, Township 21
24 South, Range 27 East, they got this same type of escalation
25 thing in their order, that's Order Number R-5052, Case

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1 Number 5476, where they were allowed to have an increase
2 according to escalation. I think this is a normal deal in
3 all of this type of COPUS.

4 Q If this is approved you would like to have that
5 escalation clause?

6 A Yes, sir, I would.

7 Q I believe you stated that Exxon would be the
8 operator?

9 A Yes, sir.

10 Q Now, what about the risk factor, are you requesting
11 any risk factor.

12 MR. KELLAHIN: I'm going to object to the
13 question, there has been no testimony as to any risk that
14 might be encountered in drilling this particular well. I
15 don't believe this witness is qualified to testify.

16 MR. HINKLE: I think he can testify as to the risk
17 involved.

18 MR. KELLAHIN: He's not a geologist and he's not
19 an engineer.

20 MR. STAMETS: It would appear, Mr. Hinkle, that
21 we would have to have a little testimony.

22 Q (Mr. Hinkle continuing.) We would like to put
23 Mr. Reynolds back on as to the risk being involved, but
24 would you like to give a factor if this is substantiated
25 by Mr. Reynolds?

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1 A Yes, sir. we are requesting a risk factor of one
2 hundred percent be assigned at this location, based primarily
3 on what risk factors have been issued in this general area
4 for wells drilled to the Morrow formation.

5 Q In your opinion would the approval of this appli-
6 cation be in the interests of conservation, prevention of
7 waste and protect the correlative rights?

8 A Yes, I think so.

9 MR. HINKLE: We would like to offer Exhibit Six.

10 MR. STAMETS: Any objection to Exhibit Six?

11 MR. KELLAHIN: No objection.

12 MR. STAMETS: It will be admitted.

13 MR. HINKLE: That is all of the direct of this
14 witness.

15 MR. STAMETS: Any questions of the witness?

16 Mr. Kellahin.

17
18 CROSS EXAMINATION

19 BY MR. KELLAHIN:

20 Q Mr. Reavis, you said that you proposed to make
21 a dual completion, or at least your AFE covers the dual
22 completion?

23 A Yes, sir.

24 Q How would it be completed then, would it be two
25 strings of tubing?

1 A Yes, sir, I made several estimates, three estimates
2 on that particular thing, Mr. Kellahin, and this completion
3 would start out with a thirteen and three-eighths at about
4 three hundred feet and a nine and five-eighths at about
5 three thousand feet, it was seven inch to total depth and
6 two strings of two and three-eighths inch tubing to total
7 depth. Now, with the single zone it will be five and a half
8 to total depth with a two and seven-eighths inch tubing. Now,
9 we also made an estimate of what it would be by having a casing
10 annulus, tubing casing annulus type completion.

11 Q What would that be?

12 A That cost around six hundred and sixty-seven
13 thousand dollars.

14 Q Do you object to a dual completion using a tubing
15 casing tubing annulus?

16 A I don't object to it because I have seen many of
17 them done. I understand -- I heard some testimony today
18 where they had some cross-over problems which is involved
19 with the Strawn. I think that is the reason our people are
20 going to the two tubing string setup instead of the single,
21 with a cross-over to get the Strawn production which I
22 understand has a higher liquid content and sometimes the
23 Commission even frowns on that.

24 I'm not trying to say what they approve or don't
25 approve, but our recommendation is two strings of tubing for

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1 this well.

2 MR. KELLAHIN: Thank you.

3 MR. STAMETS: Any further questions?

4 MR. KELLAHIN: That's all I have.

5 MR. STAMETS: The witness may be excused.

6 MR. HINKLE: I would like to call Mr. Reynolds for
7 one more question.

8 NORMAN K. REYNOLDS

9 (Recalled as a witness.)

10
11 REDIRECT EXAMINATION

12 BY MR. HINKLE:

13 Q Mr. Reynolds, you heard the testimony of Mr. Reavis
14 here in regard to the risk factor and he proposed a hundred
15 percent. In your opinion is there any risk involved in
16 drilling the proposed well in the east half of Section 16?

17 A Well, there is always risk in drilling any of
18 these wells. I think in this particular case by drilling
19 the location in the east half as Exxon proposed that
20 a hundred percent factor is appropriate.

21 Q You think the risk is less drilling in the east
22 half than the west half or getting over in the west half,
23 considerably?

24 A Yes, sir.

25 Q Is it risky with any Morrow well, has that been

1 your experience?

2 A Yes, sir, anytime you drill for the Morrow there
3 is a certain degree of risk involved.

4 MR. HINKLE: That's all I have.

5 MR. STAMETS: Any questions of the witness?

6

7

FURTHER CROSS EXAMINATION

8 BY MR. KELLAHIN:

9 Q Mr. Reynolds, what is the risk you are talking
10 about, the risk of getting a well?

11 A Well, there are a number of risks that are
12 involved, there is the risk of the structural position of
13 the well, there is the risk of the thickness of sand that
14 you encounter and also the risk as to the quality of porosity
15 and not only the porosity, but the permeability that you
16 encounter within the sands. These are the type of risks
17 that we are talking about.

18 Q In other words you are talking about the risk
19 of getting a good producer and not getting a good one?

20 A Yes, sir.

21 MR. KELLAHIN: That's all I have.

22 MR. STAMETS: Anything further of this witness?

23 MR. HINKLE: That's all we have in our case.

24 MR. STAMETS: You may be excused.

25

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E. E. TAYLOR

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

DIRECT EXAMINATION

BY Mr. Kellahin:

Q Would you state your name, please?

A E. E. Taylor.

Q By whom are you employed, Mr. Taylor?

A Cities Service Oil Company, Midland, Texas.

Q What is your position with Cities Service?

A I'm Southwest Region Exploitation Manager.

Q In connection with your work with Cities Service

Does the area involved in this application in the Burton
Flat Field come under your jurisdiction?

A Yes, sir.

Q Have you ever testified before the Oil Conservation
Commission and made your qualifications a matter of record?

A Yes, sir.

Q Are you an engineer?

A I'm a geologist.

Q You are a geologist?

A Yes, sir.

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

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1 MR. STAMETS: They are.

2 Q (Mr. Kellahin continuing.) Mr. Taylor are you
3 familiar with the applications presently before the Oil
4 Conservation Commission?

5 A Yes, sir.

6 Q Briefly what does Cities Service propose in its
7 application?

8 Q We propose to drill a well located six sixty from
9 the north line and nineteen eighty from the east line of
10 Section 16, 21, 27 East and the proration unit will be in
11 the proposed north half of Section 16.

12 Q Will it be an orthodox location for the proration
13 unit, consisting of the north half of Section 16?

14 A Yes, sir.

15 Q Now, referring to what has been marked as
16 Cities Service Exhibit Number One would you discuss that
17 exhibit, please?

18 A Yes, sir, this is a map, a structure map, drawn
19 on top of the Morrow B zone with a fifty foot contour
20 interval, and the B zone is a correlation point which is
21 actually on top of the Morrow clastics as we correlate them.
22 And also our legend is a little skimpy, it doesn't explain
23 the calculated open flow nomenclature, for instance, M
24 stands for Morrow, S is Strawn and W is Wolfcamp.

25 Q Before we get into that would you discuss the

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1 the various zones found in the Morrow in this area?

2 A We break or correlate the Morrow, or break it
3 down into two primary zones. We call the upper zone or
4 upper Morrow sands the B zone and the lower sands we call the
5 A zone. And the B zone -- well, it's my interpretation
6 that the depositional environment of the B zone sands is
7 that they are off-shore bars primarily and that the A zone,
8 the lower sands are deltaic in depositional environment or
9 channel fills within a delta, and they are much more
10 complicated than the upper sands to interpret.

11 Q Now, on what basis have you established these
12 contours, Mr. Taylor; what information have you utilized
13 to prepare this?

14 A We just used electric logs on all of the subject
15 wells and picked a correlation point.

16 Q And that is the Morrow clastic to which you refer?

17 A The Morrow clastic.

18 Q Is that a generally accepted marker in this
19 area?

20 Q I think so. The true top of the Morrow is in
21 carbonates and we use these same tops as Exxon mentioned
22 earlier. We had a member on the committee to determine the
23 top of the Morrow that the Commission would use.

24 Q So basically you are utilizing the same information
25 in that regard as Exxon has used?

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1 A. Yes, sir.

2 Q. Now, Cities Service completed the State CP well
3 Number 1, did it not?

4 A. Yes, sir.

5 Q. What zone is it completed in?

6 A. This is out of the B zone, the B zone sands.

7 Q. Would you discuss the characteristics of that well?

8 A. Well, the calculated open flow is there before you,
9 it was thirteen point six million, and our log analysis
10 shows that we have twenty-one feet of net pay in the
11 perforated interval of this well. The porosity is fourteen
12 point three percent. The well has been producing for eight
13 months and it has an accumulative production of slightly
14 over one billion cubic feet of gas and about thirteen hundred
15 thirty-two barrels of oil, and the July rate, which is the
16 last rate that I have showed production at five point nine
17 million per day, gas, plus six barrels of oil per day.

18 Q. Did it make any water?

19 A. Not that I'm aware of, if it does it is negligible.

20 Q. What is the cut-off point in figuring net pay?

21 A. We use about six percent on the Morrow sands.

22 Q. Now, has Cities Service relied on information
23 obtained from the CP State Number 1 in arriving at its
24 decision to drill in the north half of Section 16?

25 A. Yes, since our interpretation of the environment

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1 of this sand is that it is an off-shore bar, we feel that
2 the most likely place to find a similar well would be on
3 strike, on depositional strike, that is why we proposed
4 the location of our well where it will be on strike.

5 Q Would you compare this location with the proposed
6 location of Exxon?

7 A Well, Exxon's well, I mean the well that they are
8 going to offset, the Bass, Number 1 State Bass thirteen
9 hundred and twenty feet east of their proposed location, is
10 completed from the A sands, and I think it is quite likely
11 they will have a similar well as far as the Morrow is concerned.

12 I think they have a fair chance of that. However, the
13 deliverability has not been proven on the Bass well, I
14 understand it just started production and sounds fairly
15 good so far. It has got about five million a day, according
16 to the information we turned up from talking with Bass,
17 from the Morrow and the Strawn has started out at about
18 two million a day and about fifty barrels of oil per day
19 which sounds all right. It still doesn't mean anything
20 because we have had one Morrow, the Tracy A-1, I mean it
21 is a Strawn-Morrow dual, it is about two and a half miles
22 south of the area we are looking at and it's been mentioned
23 earlier and it is in Section 33 in this same Township and
24 Range. This Strawn well of ours, it calculated for eleven
25 point two million and it has only produced one hundred and

1 eighty-seven million from the Strawn and it's dead.

2 Q Over what period of time was this?

3 A Three months and the first month's production was
4 an average higher rate than the Bass well started out. I
5 guess what I'm getting around to saying is, the Strawn is
6 highly unpredictable, whether it is how much it is going
7 to produce, it is very unpredictable as to whether you can
8 find it sometimes even in a fairly close off-set to it, a
9 known Strawn producer.

10 Q Are there very many Strawn wells in this Area?

11 A On what I have referred to as the Morrow trend,
12 and this extends from south of the City of Carlsbad to
13 fifteen miles north of the town. We operate twenty-nine
14 wells and we have only been able to come up with three
15 Strawn producers, and only one of them is any good.

16 Q Did the other two show the rapid decline as you
17 discussed in the Tracy well?

18 A Yes, sir.

19 Q Would you anticipate that you would find the same
20 thing in this area at, say, Exxon's proposed location?

21 A I would think so. Well, for instance, the Strawn
22 porosity in the Bass well, from our log analysis, shows to
23 be ~~tv~~ four feet of pay in the Strawn in the Bass well,
24 and an average porosity of five point one. Our Tracy, it
25 had twenty-two feet of pay and our average porosity was five

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1 point zero. That's very similar. We had a slightly smaller
2 calculated open flow, but it would just be hard to predict
3 that they would have an excellent Strawn well, because
4 there are probably only two in the whole area that are
5 excellent.

6 Q Now, you heard Mr. Reynolds testimony earlier
7 to the effect that porosities seem to decline from the
8 Mobile well down to the Cities Service State CP well and
9 from the Bass well to the Cities Service well. Both of those
10 wells have higher porosity than the Cities Service well, do
11 you attach any significance to that?

12 A No, as a matter of fact, I don't agree with it
13 really. The average porosity in our State CP in the Morrow
14 is better than the average porosity in the Bass well. Its
15 average porosity is nine point two.

16 Q And what is the average porosity in the Mobile
17 well, do you recall?

18 A Unfortunately I don't. It is one that I have
19 left out. The main thing I remember about it, they were
20 thin sands and they perforated fairly well the complete
21 Morrow section of about every sand I can think of that they
22 could find to put a hole in, I believe. That well, actually,
23 is not a very good well. I don't know the age of it; I
24 don't know the age of the production, but I think -- well,
25 I don't know. But the rate is two point three million a day

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1 and it has made seven hundred and thirty-four million so
2 far. The rate is not half of what the deliverability of
3 our CP is right now after producing over a billion cubic
4 feet of gas.

5 Q You heard the testimony in regard to the possible
6 existence of a fault running along the approximate center
7 of Section 16, did you not?

8 A Yes, sir.

9 Q Do you agree with that?

10 A No, sir, I don't. I don't see that their interpre-
11 tation is much different than ours. I mean, both of us say
12 that the west half of Section 16 is going to be low
13 structurally as compared to the east half, but I don't
14 know, possibly there is a deep seated Devonian or deeper
15 fault in here and this is some sort of a draping of the
16 upper beds of the Morrow, but it hasn't in certain areas --
17 well, right in this area it doesn't prove that you can't
18 get a fairly decent well at the minus that we show in the
19 west half of 16.

20 For instance, the Cities Service 2-Y Elizando A
21 in the southwest quarter of Section 21. I would expect a
22 well in the west half of 16 to be as low as that well and
23 yet the well in five months has produced four hundred and
24 twelve million cubic feet of gas and its July rate was
25 three million a day, which is fairly decent.

1 The porosity in this lower well, we have twenty-
2 six feet of pay and the average porosity was nine nine which
3 is not bad.

4 Q Now, the difference in elevations on the east
5 side and the west side which Exxon attributes to the fault,
6 would that be possible that is due simply to the steeply
7 dipping formations?

8 A Yes, sir.

9 Q In your opinion, is that what has happened here?

10 A Yes, sir.

11 Q So if you drilled a well in the east half of

12 Section 16, in your opinion would it effectively drain the
13 west half of the unit?

14 A I would think it would.

15 Q You don't see any barrier in there that would
16 prevent it from draining?

17 A No.

18 Q Now, has Cities Service any plans for the develop-
19 ment of Section 16, that is the full development of the
20 section?

21 A We had tentative plans at the time we proposed
22 the drilling of the well in the north half. I mean, where
23 the proration unit would be in the north half. We had
24 in mind drilling a well, if this first well comes in all
25 right, on strike with it, down nineteen eighty from the

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1 south and east line of Section 16, the second well.

2 Q And then that would fully develop the section?

3 A Yes, it would, and we would have approximately
4 equal interest in each well.

5 Q Was Exhibit Number One prepared by you or under
6 your supervision?

7 A Yes, sir.

8 MR. KELLAHIN: At this time I would like to offer
9 Exhibit Number One.

10 MR. STAMETS: Any objection? The exhibit will
11 be admitted.

12 MR. KELLAHIN: That is all I have on direct.

13 MR. STAMETS: Any questions of this witness?

14 MR. HINKLE: Mr. Examiner, I wonder if I can have
15 just about five minutes here so I can talk to the geologist
16 before we start the cross examination.

17 MR. STAMETS: This might be a good time to take
18 about a five-minute break.

19 (THEREUPON, a short recess was taken.)

20 MR. STAMETS: The Hearing will come to order,
21 please?

22 Are there any questions of the witness?

23 MR. HINKLE: Yes, I have a few.
24
25

CROSS EXAMINATION

BY MR. HINKLE:

Q Mr. Taylor, referring to your Exhibit Number One, the way I interpret that you show a syncline over in the west half of Section 16, is that correct?

A Yes, sir.

Q In your opinion, if you drilled a well at your proposed location, would the entire north half of Section 16 be considered as productive in the Morrow formations?

A Yes, sir.

Q Even in the fact that the northwest quarter is in the syncline?

A Yes, sir.

Q What about the south half of Section 16, is it productive, in your opinion, all productive in the Morrow?

A Yes, sir.

Q Does your answer apply to what you have referred to as both the A and the B zones of the Morrow as being productive in the west half?

A I couldn't say that positively, no.

Q Well, is it your opinion that in the lower A zone it might not be productive?

A It's possible.

Q Now, are the lower zones in your CSO Number 1 in Section 9 and your CSO in Section 21 productive?

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1 A. Excuse me, I was daydreaming about my last
2 answer, I didn't comprehend.

3 Q. What is it you want?

4 A. Would you restate the question?

5 Q. Are the lower zones in your CSO Number 1 in
6 Section 9 and the CSO in Section 21 productive in the lower
7 zone?

8 A. You said the CSO, you mean the State CP 1?

9 Q. Well, you've got it marked CSO, I just referred
10 to the way you've got it here. State CP 1, I see, in 9,
11 and the 1 Government AD in 21.

12 A. The A and the B are both productive in the AD.

13 Q. In both of those wells?

14 A. No, only in the AD.

15 Q. And that is this one here, both zones are productive
16 there?

17 A. Yes, sir.

18 Q. There is no water being produced in the lower
19 zone?

20 A. I think we had about twenty barrels of water, I think,
21 with the calculated open flow. I'm not even sure whether
22 it is formation or load water.

23 Q. What did the original perforations in the lower zone
24 test?

25 A. Water.

1 Q And isn't it a fact that you plugged the well back
2 then and produced from the upper zone?

3 A But a little bit of the upper part of the lower
4 zone, in other words, a small portion of the A zone. I
5 couldn't say how much of it without the log in front of me,
6 but part of it is productive. I would say primarily it is
7 the B zone, though.

8 Q I believe you testified that the Bass well in the
9 west half of Section 15 was producing from the lower A sand
10 zone, is that right?

11 A Yes, sir.

12 Q Now, isn't it a fact that the electrical log shows
13 a good porosity in the B, but it was not perforated?

14 A The B zone in the Bass well has, if I recall, some
15 fairly decent porosity in one sand which may be productive,
16 I don't know whether they intend to --

17 Q But it was not perforated?

18 A No.

19 Q Now, let's draw an imaginary line up through the
20 center of Section 16 in this whole Exhibit One, which
21 segregates, you might say, the west half of Section 16 and
22 all west of that, and all of the east half of Section 16
23 and all east of that. Now, I believe you testified that
24 there are only a couple of wells that were productive in
25 the Strawn, is that correct?

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1 A. A couple of wells?

2 Q. You said there were only two wells of any consequence,
3 or something to that effect.

4 MR. KELLAHIN: If the Examiner please, I think
5 the testimony was that Cities Service had three wells, two
6 of which were fairly good and one of which isn't any good
7 now, if my recollection is correct. You are talking about
8 Cities Service wells?

9 MR. STAMETS: Is that what is meant?

10 MR. HINKLE: Well, I won't make a point of that,
11 I'll withdraw that question.

12 Q. (Mr. Hinkle continuing.) Now, refer to your State
13 CP in 9, there is no Strawn production in that?

14 A. No, sir.

15 Q. And what about your 2 Elizando in 21?

16 A. No, sir.

17 Q. There is no Strawn production there?

18 A. No, sir.

19 Q. And what about the 1 Government AD in Section 21
20 in the northwest quarter, is there Strawn production there?

21 A. No Strawn production.

22 Q. Now, let's go east of that imaginary line, and, I
23 believe your plat indicates that both of the wells, Gulf
24 and Coquina in Section 10 are productive in both the Morrow
25 and the Strawn, is that right?

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1 A. The Gulf and the Coquina, both of them was
2 productive in the Morrow and Strawn, but one of them is dead.

3 Q. You do have them marked on your plat as Morrow and
4 Strawn?

5 A. Yes, sir, completions.

6 Q. And on Section 11, the Monsanto and the Coquina,
7 you have both of those marked Strawn, do you not?

8 A. Yes, sir.

9 Q. And in Section 15 in the Bass well you have Morrow
10 and Strawn?

11 A. Yes, sir.

12 Q. Now, isn't it a fact that the Yates and the well
13 in the northeast quarter are in the process of testing at
14 the present time in the Strawn formation?

15 A. You are saying on the Yates 2 Cedar Hills?

16 Q. Yes.

17 A. I wasn't aware of it, if you say they are I will
18 agree with you.

19 Q. How do you account for the fact that that imaginary
20 line is about the position of the fault which we have
21 portrayed and on the down throw side you do not have any
22 Strawn production and on the up throw side you do have
23 Strawn production?

24 A. I think that really has nothing to do with it,
25 it is purely a coincidence.

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1 Q Is that just a coincidence?

2 A I would say so, because for one thing -- no, I'm
3 not going to get into the discussion of your fault. Well, I
4 will a little bit. I think I recall that Mr. Baird said the
5 Strawn is not cut by that fault and it is a matter of, like
6 a lot of production, the porosity and the development in the
7 Strawn is one of the most unpredictable formations to determine
8 where the porosity is going to pop in and out of it.

9 Q Did Cities Service have any information or access
10 to the seismic work that was shown on our Exhibit Number One?

11 A Prior to --

12 Q It's Exhibit Number Three.

13 A We may belong to a group shoot that shot one of
14 those lines.

15 Q You did participate in those lines?

16 A We did participate in some New Mexico group shoots,
17 one or two of them.

18 Q So you may have had access to them?

19 A We may have had access to the information, yes.

20 Q Now, I believe that you testified as to the
21 accumulative production in the Mobile well Number 1 Federal
22 QQ in Section 8?

23 A Yes, sir.

24 Q And it was seven hundred and thirty-five MCF as
25 of June the first, 1975?

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1 A. Possibly it might have been May, I don't think I
2 said. On Cities Service's wells we had accumulative up to
3 July, but these other wells that I spoke of I think it was
4 through May.

5 MR. KELLAHIN: It was seven hundred and thirty-five
6 million MCF.

7 MR. HINKLE: I thought he said million. Seven
8 hundred and thirty-five million he said.

9 Now, what was the production as of that same date,
10 as you have testified as to the Mobile and the 1 State
11 of your well in 9, the southeast quarter of 9?

12 A I think I remember saying that I didn't know for
13 sure how long the QQ had been producing, but I remember at
14 the time we were getting ready to drill the State CP the
15 QQ was not producing at that time. I guess the answer to
16 your question is I don't know the --

17 Q Just repeat what your testimony was with regard
18 to the 1 State CP.

19 A About accumulative production and time?

20 Q Yes.

21 A I said that it had an accumulative production of
22 slightly over eight billion in eight months.

23 Q To what date is that?

24 A It is through July because I gave the July rate
25 as being five point nine million per day, average.

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1 Q So you are figuring two and a half months longer
2 on the production on yours than the Mobile, is that right?

3 A If you know that the Mobile well has been producing
4 six months, I guess so.

5 Q Now, I believe that you stated that if you split
6 Section 16 into a north and south unit that the interest of
7 Exxon and Cities Service would be about equal?

8 A No, I don't think I said that.

9 Q What would be the interest of Exxon in the north
10 half?

11 A In the north half, twenty-five percent.

12 Q And what about the interest of Exxon in the south
13 half?

14 A One half.

15 Q If you take the south half?

16 A The south half, I miscounted one forty, three-eighths.

17 Q Thirty-seven and a half percent. What would Cities
18 Service's interest be in the north half?

19 A In the north half, if the proration unit was the
20 north half?

21 Q Yes, the north half.

22 A Sixty-eight point seventy-five percent.

23 Q And what would their interest be in the south half?

24 A Sixty-two and a half percent.

25 Q Now, you are proposing that both wells be in the

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1 east half of Section 16?

2 A. Yes, at this point.

3 Q. And at this point Cities Service and Exxon both
 4 have an equal amount of acreage, each have fifty percent
 5 in the east half?

6 A. Yes, sir.

7 Q. If you split this in the north half and the south
 8 half, Cities Service ends up with sixty-eight percent and
 9 sixty-two percent compared with Exxon's twenty-five percent
 10 and three-eighths? Isn't that right, so doesn't that give
 11 Cities Service an undue advantage?

12 A. An undue advantage, I don't think so. I wasn't
 13 trying to do that anyway, because I feel that these two --
 14 well, the first well location we are talking about is going
 15 to be a very good well and the second one, hopefully, and
 16 if you take it as a whole you can't have any more interest
 17 than you have got in the whole section regardless of where
 18 the wells are.

19 Q. Your testimony is to the effect that most if not
 20 all of the west half of Section 16 could be productive, is
 21 that right, in the Morrow?

22 A. Yes, sir.

23 Q. Possibly in the upper formation?

24 A. Possibly. It is real hard to, you really get out
 25 on a limb saying what the Morrow is going to do.

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1 Q You are also seeking the advantage of moving that
2 east so that you get production in both the A and the B
3 zones, is that right? When you do not have any production
4 in the A zone, according to your testimony, in the west half?

5 A Did I say that there would be no production out of
6 the A zone in the west half of Section 16?

7 Q You said possibly, I think.

8 A I think there would be some, but I don't know
9 how much.

10 Q All factors considered, isn't it a fact that it
11 would be desirable to drill as high structurally as possible?

12 A In a lot of cases I would think so, but in the
13 Morrow I wouldn't agree. I think as far as I'm concerned, I
14 feel that the well, like our CP, if we can get a well like
15 that that both of us would have a better producer.

16 Q In most instances you get water in the lower zone
17 if you are structurally low, do you not?

18 A I would say there is a likelihood that structural
19 position might have some influence on water production on
20 the A zone.

21 MR. HINKLE: I believe that's all I have.

22

23

CROSS EXAMINATION

24 BY MR. STAMETS:

25

Q What is the strike of the B zone sands, Mr. Taylor?

1 A Sort of north-northeast in this local area. I
2 think in general the trend is sort of northeast-southwest.

3 Q Is there any reason you would not wish to dedicate
4 the west half and drill a well on, say, the B zone strike
5 somewhere in the southwest quarter?

6 A No.

7 Q What zone or zones is the Elizando Number 2-Y
8 producing from?

9 A The A and B.

10 Q Those two wells, the Elizando and the State CP
11 Number 1 are a pretty good indication that both of those zones
12 are productive, in that structural position at least?

13 A Yes, sir.

14 Q How long has the Elizando well been on the line?

15 A Five months.

16 Q What is the current rate of production?

17 A Three million a day was July's production average.

18 Q I wish you would just kind of summarize, just
19 briefly, for me why Cities Service prefers a north half
20 dedication to a west half dedication in this area?

21 A The primary reason would be that I think we can
22 get a well comparable to the State CP 1 by drilling on
23 strike and reasonably close to the State CP 1, on depositional
24 strike and I think that is our best shot for the best well
25 in this section, the best producer.

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1 Q In the proximity of a standard location for a
2 north-half spacing is a desirable feature?

3 A Yes, sir.

4 MR. STAMETS: Are there any other questions of this
5 witness?

6 MR. HINKLE: Just one other question.

7 Has Mr. Huber, or whoever owns that acreage in the
8 southeast of the northwest of 16, agreed to join with Cities
9 Service in the north unit?

10 MR. TAYLOR: No, sir.

11 MR. HINKLE: Has he expressed any reason why they
12 do not wish to join?

13 MR. TAYLOR: Yes, his well costs. They didn't know
14 who they had been mistreated most by, Exxon or Cities Service.

15 MR. HINKLE: That's all.

16 MR. STAMETS: Any further questions of this
17 witness? He may be excused.

18 E. F. MOTTER

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

21

22 DIRECT EXAMINATION

23 BY MR. KELLAHIN:

24 Q Would you state your name, please?

25 A E. F. Motter, M-o-t-t-e-r.

1 Q By whom are you employed and in what position,
2 Mr. Motter?

3 A Cities Service Oil Company, Southwest Region,
4 Midland, Texas and I'm engineering manager.

5 Q Are you a petroleum engineer?

6 A No, sir, I'm a mechanical engineer, but I have
7 taken the written petroleum exam in New Mexico and successfully
8 passed it. I have a number of geology and petroleum
9 reservoir courses to add to my curriculum.

10 Q You are admitted as a petroleum engineer in the
11 State of New Mexico?

12 A I'm registered as a petroleum engineer.

13 Q Have you qualified before this Commission?

14 A Many times.

15 MR. KELLAHIN: Are the witness's qualifications
16 acceptable?

17 MR. STAMETS: They are.

18 Q (Mr. Kellahin continuing.) Mr. Motter, have you
19 made any study of well costs for the well that is being
20 proposed by Cities Service Oil Company?

21 A Yes, I think that is our Exhibit Number Two. This
22 is for a total cost of five hundred and sixty-one thousand
23 three hundred and five dollars. If I may, I would like to
24 make a comment or two about this particular price due to
25 the fact that we have submitted correspondence to Huber and

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1 Humble or Exxon, excuse me, previously and had a somewhat
2 higher cost. However, when we furnished the detailed
3 electment to these parties we put in the normal statement,
4 "Due to the shortage of material and equipment we find that
5 the desired materials are not always readily available and
6 sometimes the previous price and et cetera." We have seen
7 a pretty drastic change in just the last few months in
8 drilling in this area. For example, our State CS well
9 which is waiting on a completion unit right now, our
10 Government AD down to the south, down in the city limits
11 of Carlsbad, we are drilling a couple of wells in there
12 right now, or one well and one right north of town. At
13 the time the earlier AFE was prepared it was practically
14 impossible to get a footage contract, they all went on day
15 rates and also at that time tubulars, especially some particular
16 weights and grades were a premium price, so to try and give
17 a realistic figure we used one and a half times mill price
18 on tubulars, and we have revised this now since tubulars
19 have become released somewhat, and this is mill price plus
20 about five percent which takes care of handling and trans-
21 portation and so if you will note, we do have a figure
22 down there of twelve dollars and thirty cents a foot which is
23 the last four contracts we have signed now in probably about
24 the last sixty days out there.

25 As a result, we originally submitted this for

1 six hundred and sixty-eight thousand, four hundred and
2 nineteen thousand dollars and it has now been reduced to
3 five sixty-one, three oh five. I think this is an extremely
4 realistic figure due to experience and also what we have seen,
5 some of the changes the last few months.

6 I might also point out, this well -- there is
7 enough money in it for a dual in the event that Strawn
8 production is encountered. However, we do not plan to use
9 two strings of tubing. We have used one string quite
10 successfully and brought the Strawn production up the tubing
11 when necessary.

12 we have also typed in above there that possible
13 abnormal pressures may occur in the casing and the program
14 may have to be changed. The State CP well encountered a
15 rather high pressure zone and we had to run seven inch in
16 there where we had planned on five and a half and then run
17 a liner on down.

18 So, just a brief statement. Some of the parties
19 here -- Exxon has had copies of our detailed well estimate
20 as early as, I believe it was May.

21 Q So this is your present estimate for what you
22 think you can complete the well for?

23 A Yes, sir, this was made on August the fifteenth.

24 Q If you do make a dual in the Strawn would that add
25 materially to the cost?

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1 A No, sir, we think there is enough contingency
2 money in here to take care of it.

3 Q Have you made any study of the economics of your
4 proposed location?

5 A Well, our analyst has made a study and it is based
6 very much on the completion of a well very similar to State
7 CP. We contemplate that on that particular well that it
8 would take reserves, there would be around six billion
9 cubic feet, and at the going FPC area rate it would probably
10 require about two billion for pay out.

11 Q Now, does Cities Service ask to be designated as
12 the operator?

13 A Yes, we do.

14 Q And what is your combined fixed rate that you
15 propose for this well?

16 A We would require or ask I should say, and this is
17 our company rate throughout the southwest region for wells of
18 all depths, that the supervision of drilling be seventeen
19 ninety-three per month, our production overhead is two fifty-
20 two per month, that is combined fixed rate down to and
21 including the production foreman. This would be any direct
22 supervision on the drill site, would be included in this
23 price.

24 Q Would that be adjusted according to the cost of
25 living index?

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1 A Yes, sir, the normal phraseology, or whatever you
2 might call it, we have asked for similar hearings of this
3 nature, also that Exxon has proposed, we would ask we go
4 along with the El Paso form, the county form, I should say.

5 Q Mr. Motter, Cities Service has drilled a number
6 of Morrow wells, has it not?

7 A Yes, we have drilled quite a few wells in Eddy
8 County, twenty some.

9 Q In your opinion, are there any risks involved in
10 drilling a Morrow well?

11 A Well, yes, there are risks involved. We try to
12 take into consideration the geology, which we try to get
13 information from Mr. Taylor and his group, in building up
14 and establishing a risk factor we try to take into considera-
15 tion the problems involved, whether it's a small track, so
16 on and so forth, and some of the problems that may be encountered
17 as far as if there is a high pressure zone or anything like
18 that in trying to establish a risk factor.

19 Q Have you arrived at what you consider a fair
20 risk factor for your proposed well?

21 A Yes, sir.

22 Q What is that?

23 A We are going to ask for twenty-five percent for
24 a risk factor on this well. This is what we asked for on
25 our State CP immediately north and we got along reasonably well.

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1 on that.

2 Q Was Exhibit Number Two prepared by you or under
3 your supervision?

4 A Yes, it was.

5 MR. KELLAHIN: I would like to offer into evidence
6 Exhibit Number Two.

7 MR. STAMETS: Without objection the exhibit will
8 be admitted.

9 MR. KELLAHIN: Do you have anything to add,
10 Mr. Motter?

11 MR. MOTTER: No, I believe not.

12 MR. KELLAHIN: That's all I have of the witness.

13 MR. STAMETS: Any questions of the witness?

14 MR. HINKLE: There is no cross examination.

15 MR. STAMETS: Any other questions?

16 MR. HINKLE: We would like to put on a rebuttal.

17 MR. STAMETS: This witness may be excused.

18 MR. KELLAHIN: That is all of the testimony we have.

19 HARLEY REAVIS

20 (Recalled as a witness.)

21
22 REDIRECT EXAMINATION

23 BY MR. HINKLE:

24 Q Mr. Reavis, you have heard the testimony of
25 Mr. Motter in regard to their estimate of well costs for

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1 drilling a well in Section 16, do you have any comment with
2 respect to this?

3 A Yes, I think that Mr. Motter has come up with some
4 later numbers on his drilling and our numbers were figured
5 up not too long ago, but we haven't investigated actually
6 what the going rate probably is in the area and I feel that
7 if Cities Service can get this kind of drilling costs that
8 we can probably get something in the same general
9 neighborhood.

10 We go out for bids, I imagine very similar to
11 these people on cost estimates and I think that our costs
12 can probably be as competitive as theirs. Primarily your
13 cost is based on what the driller has run their cost at,
14 and like he says, I think costs have changed in the --

15 Q And you would obtain bids?

16 A Yes, sir, we would. We have not done that as yet.

17 Q What about the risk factor?

18 A Our people are not very strong on the risk factor.

19 We have taken a hundred percent because we felt that this
20 was a going rate that everybody asked for in this type of
21 operation, where the Morrow is sometimes unpredictable and
22 I don't think they would have an objection for lowering it.
23 I don't know what they would lower it to.

24 Q But, you would be willing to go along with anything
25 reasonable by the Commission?

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1 A. Yes, sir, I think Exxon would go along with anything
2 reasonable.

3 Q. Do you have any further comments?

4 A. No, sir. I think their costs are probably about
5 the same otherwise.

6 MR. STAMETS: Any questions of this witness?

7 MR. HINKLE: That's all we have.

8 MR. KELLAHIN: I would like to ask Mr. Motter just
9 one more question in light of the testimony just given.

10 MR. STAMETS: Mr. Reavis may be excused.

12 REDIRECT EXAMINATION

13 BY MR. KELLAHIN:

14 Q. Mr. Motter, you heard the testimony of Mr. Reavis
15 in regard to the well costs and particularly the cost of
16 the drilling rig, do you have any comment on that?

17 A. Well, yes, in lieu of his comment I might say
18 that we may be getting a little bit of a break out there,
19 and I feel that we are, because we have had the same two
20 rigs for about three years. We have investigated other
21 rigs moving into the area and when you do this you are
22 talking about a tremendous mobilization cost. In fact,
23 in our earlier AFE we had thought that we might have to
24 move another rig in, and I think that it was only a short
25 move from Lea County over there and it was about twenty-five

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1 thousand dollars. We also feel that due to the fact that
2 we have kept these rigs going probably means maybe a
3 speculation, oh, near a dollar or a dollar and a half a foot
4 better well prices.

5 That is mainly the only comment I have, simply
6 because we have kept this rig going we are getting a good
7 benefit, we think, in the price.

8 MR. STAMETS: Any further questions?

9 MR. HINKLE: That's all we have.

10 MR. STAMETS: Any closing comments? Anything
11 further in this Case?

12 MR. HINKLE: I'll waive it if you will.

13 MR. KELLAHIN: We will.

14 MR. STAMETS: If there is nothing further we will
15 take the Case under advisement and the Hearing is adjourned.
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State of New Mexico)
County of Santa Fe) ss.

I, SIDNEY F. MORRISH, a court reporter, do hereby
certify that the foregoing and attached Transcript of Hearing
before the New Mexico Oil Conservation Commission was reported
by me, and the same is a true and correct record of the said
proceedings to the best of my knowledge, skill and ability.

Sidney F. Morrish
Sidney F. Morrish, Court Reporter

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 5572/5543
heard by me on 8-29-75.
Richard A. Ham, Examiner
New Mexico Oil Conservation Commission

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CITIES SERVICE OIL COMPANY

Box 1919
Midland, Texas 79701
Telephone (915) 684-7131

March 15, 1976

*Stannets
Examiner*

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

*Case 5543
+ 5547*

Attention: Mr. Joe D. Ramey

Re: New Mexico Oil Conservation Commission
Order R-5096 - Compulsory Pooling
Eddy County, New Mexico

Gentlemen:

New Mexico Oil Conservation Commission Order R-5096 dated September 23, 1975 pooled all mineral interests in the Pennsylvanian formation underlying N/2 Section 16, T-21-S, R-27-E, NMPM, Burton Flats Field, Eddy County, New Mexico. Cities Service Oil Company was named operator and drilled the State-CR No. 1 660' FNL and 1980' FEL, Section 16-21S-27E. The well was spudded on November 19, 1975 and drilled to a total depth of 11,721 feet. Order R-5096 requires the operator to furnish the Commission and each known working interest owner an itemized schedule of actual well costs within ninety days following completion of the well.

This is to advise subject well was found non-commercial in all Pennsylvanian zones. Cities initiated plugging on February 19, 1976 and casing is now being pulled. Costs of drilling the State-CR No. 1 would not be applicable to those parties compulsory pooled.

If you have any questions on this matter, please advise.

Very truly yours,

E. F. Motter
Engineering Manager
Southwest Region
E & P Division

EFM:mfg

cc: Exxon Company, U.S.A. - Midland, Texas
J. M. Huber Corporation - Midland, Texas

OIL CONSERVATION COMMISSION

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



DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO
September 23, 1975

STATE GEOLOGIST
EMERY C. ARNOLD

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 5543 and 5547
ORDER NO. R-5096

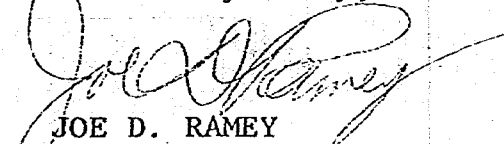
Applicant:

Cities Service Oil Company
and Exxon Corporation

Dear Sir:

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

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Clarence Hinkle

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:

CASES NOS. 5543 AND 5547
Order No. R-5096

APPLICATION OF CITIES SERVICE OIL
COMPANY FOR COMPULSORY POOLING,
EDDY COUNTY, NEW MEXICO.

APPLICATION OF EXXON CORPORATION
FOR COMPULSORY POOLING, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 27, 1975,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 23rd day of September, 1975, 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 in Case No. 5543, the applicant, Cities Service
Oil Company, seeks an order pooling all mineral interests in
the Pennsylvanian formation underlying the N/2 of Section 16,
Township 21 South, Range 27 East, NMPM, Burton Flats Field,
Eddy County, New Mexico.

(3) That in Case No. 5547, the applicant, Exxon Corpora-
tion, seeks an order pooling all mineral interests in the
Pennsylvanian formation underlying the E/2 of Section 16,
Township 21 South, Range 27 East, NMPM, Burton Flats Field,
Eddy County, New Mexico.

(4) That both applicants, Cities Service Oil Company and
Exxon Corporation, seek to be named the operator of the unit
each seeks to have pooled.

(5) That Cases Nos. 5543 and 5547 were consolidated as
both cases involve some common acreage and the granting of
one application would result in a denial of the other.

-2-

Cases Nos. 5543 and 5547
Order No. R-5096

(6) That Cities Service Oil Company has the right to drill and proposes to drill a well at an orthodox location for its proposed unit to test the Pennsylvanian formation underlying said unit.

(7) That Exxon Corporation has the right to drill and proposes to drill a well at an orthodox location for its proposed unit to test the Pennsylvanian formation underlying said unit.

(8) That Exxon Corporation based its application primarily upon a fault inferred to divide said Section 16 into approximately equal East and West half sections, and to effectively prevent drainage of gas between such half sections.

(9) That the evidence presented did not establish the existence of such fault or drainage separation.

(10) That there are interest owners in both proposed proration units who have not agreed to pool their interests.

(11) That the evidence indicates that the entire N/2 of the above-described Section 16 can be efficiently and economically drained and developed by a well located at an orthodox location within the N/2 of said Section 16.

(12) That there is a reasonable expectation that the entire S/2 of the above-described Section 16 could be efficiently and economically drained and developed by a well located at an orthodox location within the S/2 of said Section 16.

(13) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool, the application of Cities Service Oil Company should be approved by pooling all mineral interests, whatever they may be, in the Pennsylvanian formation underlying the N/2 of Section 16, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location for said unit.

(14) That the application of Exxon Corporation for an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 16, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, should be denied.

Cases Nos. 5543 and 5547
Order No. R-5096

(15) That the applicant Cities Service Oil Company should be designated the operator of the well and unit described in Finding No. (13) above.

(16) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(17) That any non-consenting working interest owner that does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 25 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(18) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(19) That following determination of reasonable well costs, any non-consenting working interest owner that has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(20) That \$1793.00 per month while drilling and \$252.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates), provided that the production rate shall be adjusted on the first day of April of each year following the effective date of this order based on the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers as shown by "The Index of Average Weekly Earnings of Crude Petroleum and Gas Production Workers" as published by the United States Department of Labor, Bureau of Labor Statistics; that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(21) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

-4-

Cases Nos. 5543 and 5547
Order No. R-5096

(22) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before December 31, 1975, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That the application of Exxon Corporation for an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 16, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, is hereby denied.

(2) That all mineral interests, whatever they may be, in the Pennsylvanian formation underlying the N/2 of Section 16, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, are hereby pooled to form a standard 320-acre gas spacing and proration unit to be dedicated to a well to be drilled at an orthodox location for said unit.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the 31st day of December, 1975, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the 31st day of December, 1975, Order (2) of this order shall be null and void and of no effect whatsoever;

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Commission and show cause why Order (2) of this order should not be rescinded.

(3) That Cities Service Oil Company is hereby designated the operator of the subject well and unit.

(4) That after the effective date of this order and within 30 days prior to commencing said well, the operator shall furnish the Commission and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(5) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

-5-

Cases Nos. 5543 and 5547
Order No. R-5096

(6) That the operator shall furnish the Commission and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Commission and the Commission has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period the Commission will determine reasonable well costs after public notice and hearing.

(7) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner that has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(8) That the operator is hereby authorized to withhold the following costs and charges from production:

- (A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.
- (B) As a charge for the risk involved in the drilling of the well, 25 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(9) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(10) That \$1793.00 per month while drilling and \$252.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates), provided that the rate for a producing well shall be adjusted on the first day of April of each year following the effective date of this order; that the adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last

-6-

Cases Nos. 5543 and 5547
Order No. R-5096

calendar year compared to the preceding calendar year as shown by "The Index of Average Weekly Earnings of Crude Petroleum and Gas Production Workers" as published by the United States Department of Labor, Bureau of Labor Statistics, and the adjusted rate shall be the rates currently in use, plus or minus the computed adjustment; that the operator is hereby authorized to withhold from production the proportionate share of such supervision charge attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(11) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(12) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(13) That all proceeds from production from the subject well which are not disbursed for any reason shall be placed in escrow in Eddy County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Commission of the name and address of said escrow agent within 90 days from the date of this order.

(14) 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

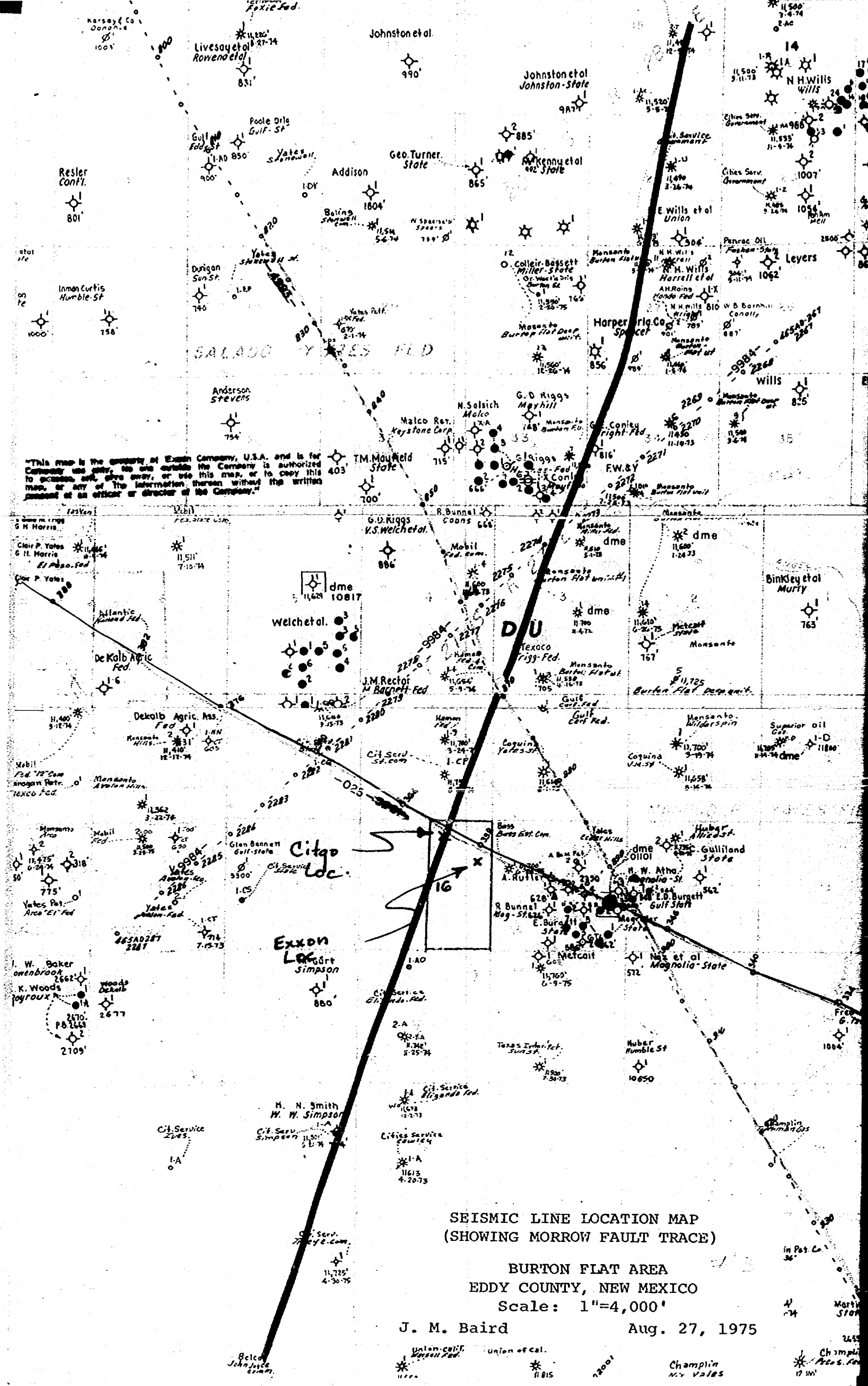
PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

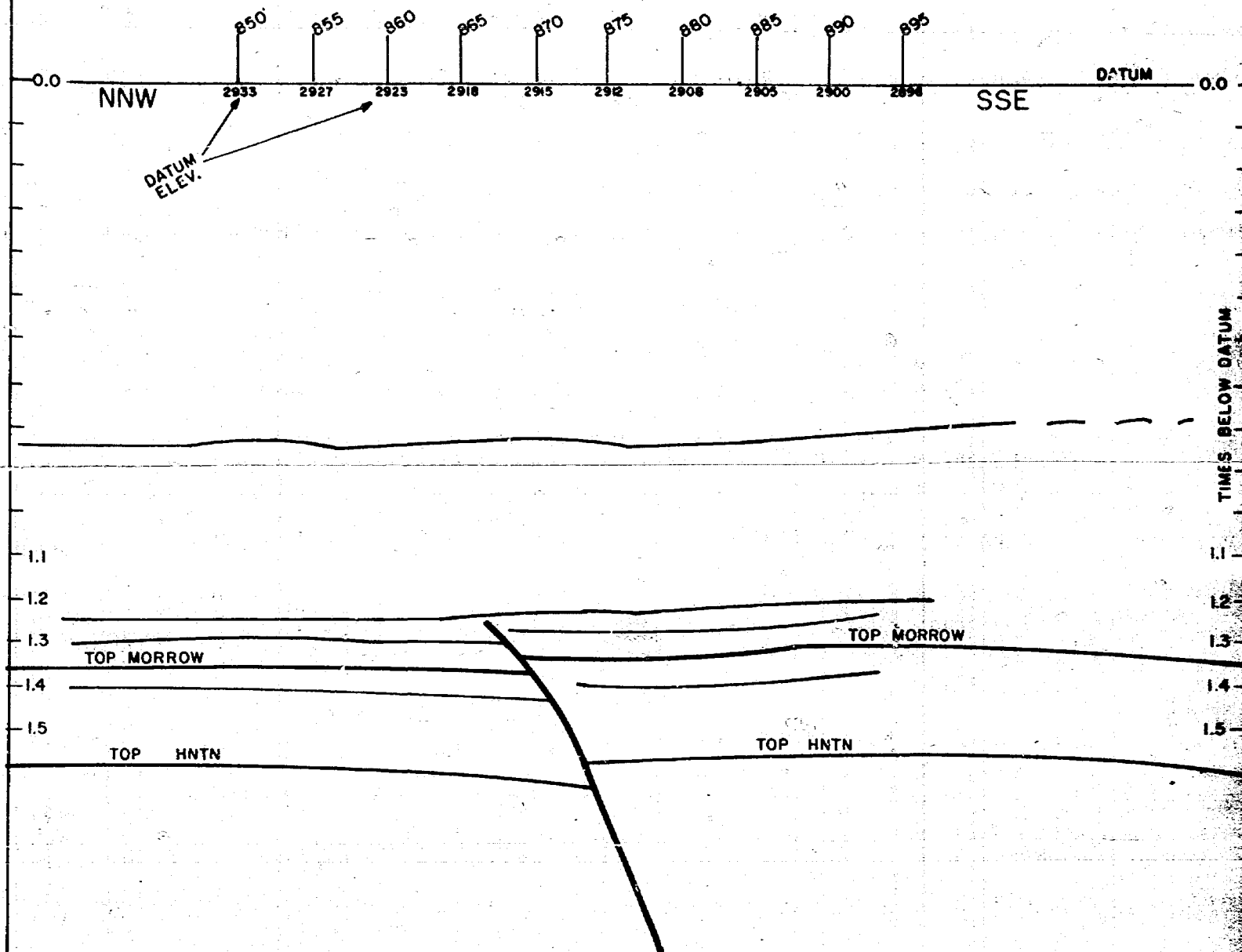
JOE D. RAMEY, Member & Secretary

S E A L

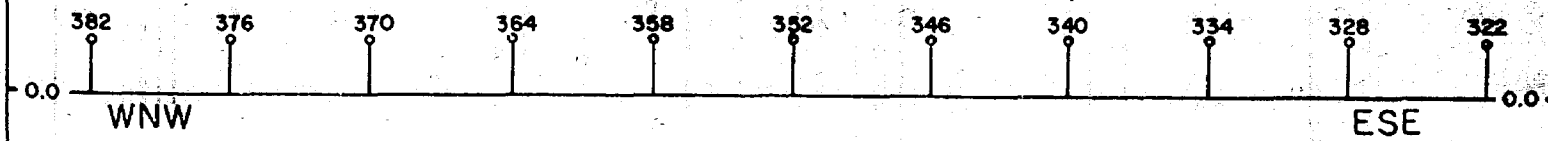
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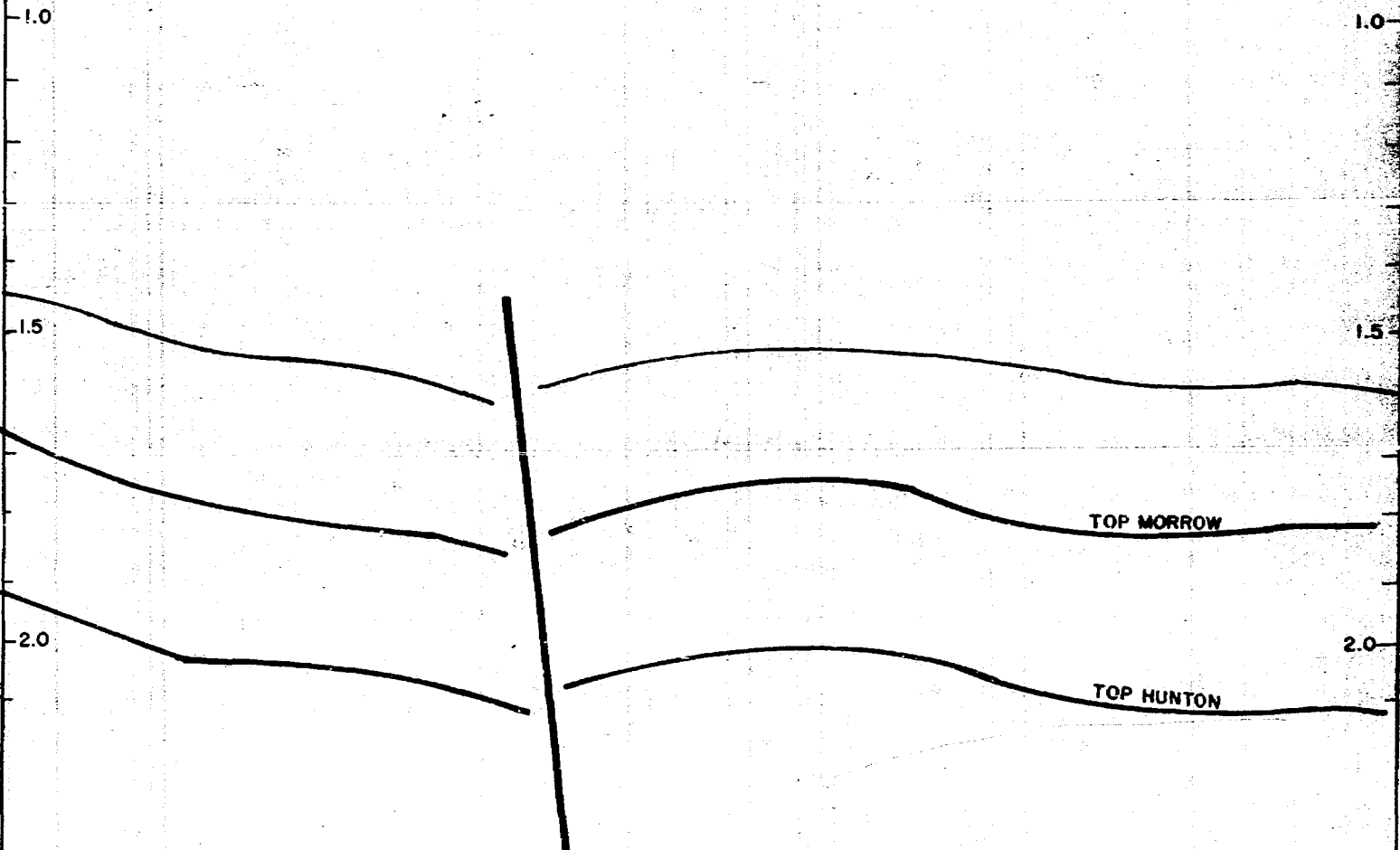
BURTON FLAT AREA
EDDY CO., N. MEXICO
LINE NO. 4993
HORIZ. SCALE APPROX. 1" = 4000'



BURTON FLAT AREA
EDDY CO., N. MEXICO
LINE NO. 5001
HORIZ. SCALE APPROX. 1"=5000'

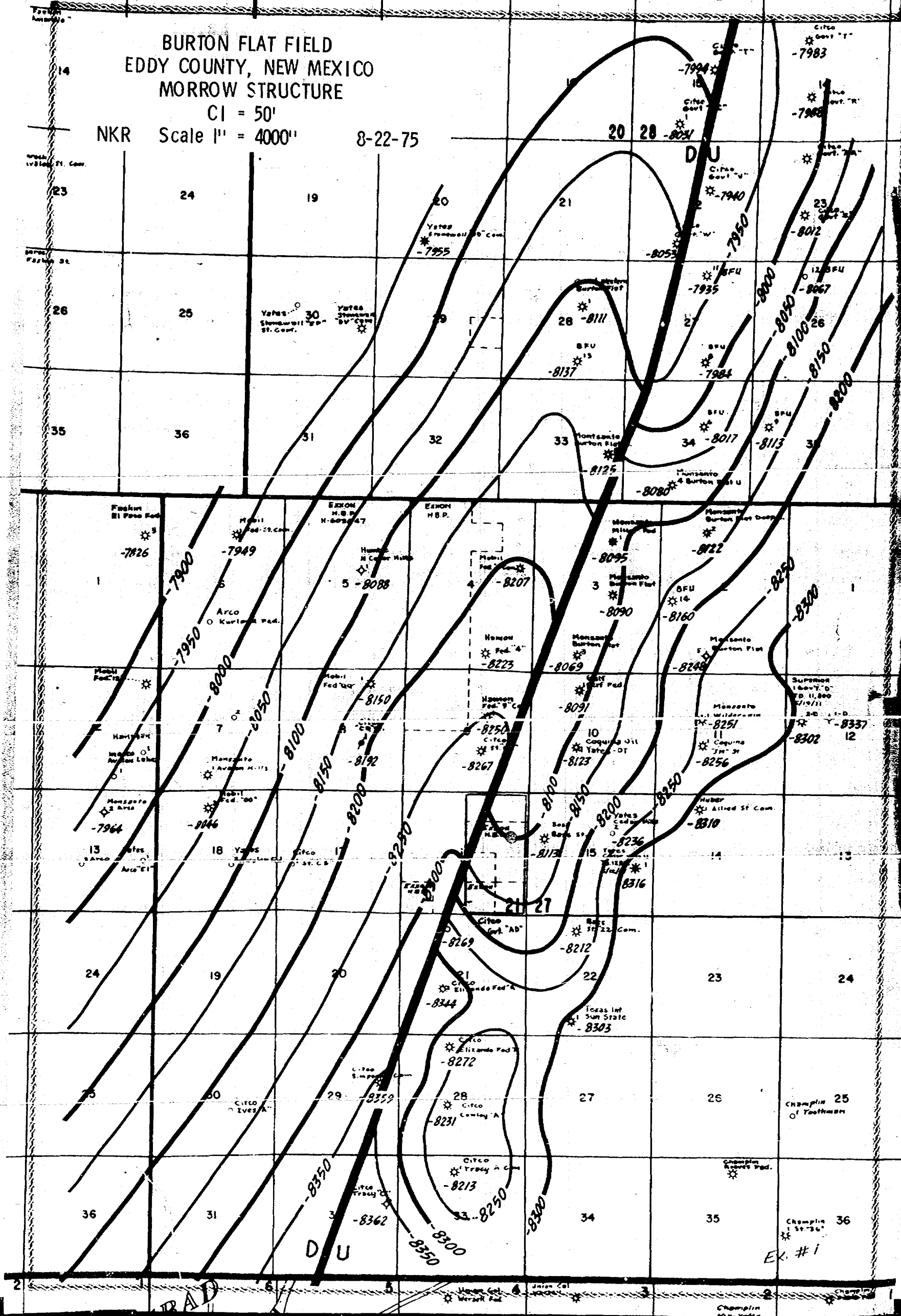


SECTION FLATTENED AT .700" ON DEL. MT.



NKR Scale 1" = 4000'
CI = 50'

8-22-75



OP 69

#2- CASE 5543
CITIES SERVICE

DETAILED WELL ESTIMATE

Revised by: Mike Daniel

WELL NUMBER _____ LEASE State CR
 CONTRACTOR _____ LOCATION 600' FNL, 1980' FEL
 DATE 8-15-75 SECTION 16-T2IS-R27E
 J. O. NO. _____ DEPTH 11,750' COUNTY Eddy STATE New Mexico
 Possible abnormal pressure in Strawn - Csg program designed accordingly.

DESCRIPTION	GRADE	SIZE	QUAN.	W	ESTIMATE PRODUCER	ESTIMATE DRY HOLE	REVISED ESTIMATE	ACTUAL COST
TANGIBLES								
Casing								
13-3/8" 48# H-40 ST&C	A		400		4893	4893		
9-5/8" 36# K-55 ST&C	A		3000		26366	26366		
5-1/2" 17# N-80 Butt	A		1600		9509			
5-1/2" 17# N-80 LT&C	A		8400		46746			
5-1/2" 20# N-80 LT&C	A		1750		11448			
Well head connections	A				15000	3500		
Tubing 2-7/8" 6.5# N-80 AB-mod.	A		11200		39200			
Sucker rods								
Bottom hole pump								
Packer & accessories	A				2500			
Engine or motor								
Pumping unit								
Electrical equip. inc. Labor & Trans.								
Line pipe, fittings in xxxxxxxx & xxxxxxx					2000			
TANK BATTERY								
Stock tanks	A	300	2		11000			
G. B., settler, free water K. O. tank								
Separator, heater treater, etc.	A		1		19000			
Cost to install T. B.					5000			
Total tangibles prod=187662 DH = 34759								
INTANGIBLES								
Contract Drlg. labor (footage) \$12.30/ft					144525	144525		
Rotary day work 5 days @ \$2750					13750	13750		
Cable tool work								
Subsurface casing equipment					6500	3000		
D. S. T., electric logs, etc.					25000	25000		
Acidizing, fracing					7500			
Perforating					3000			
Completion unit 14 days @ \$650					9100			
Misc. company and contract labor					10000	10000		
Road building, location					15000	15000		
Cement & cementing service					17500	15000		
Cement squeeze jobs								
Drilling mud, chemicals					30000	30000		
Drilling bits, coreheads, reamers								
Mud logging unit 20 days @ \$265					5300	5300		
Rental of miscellaneous equip.					10000	6000		
Company, contract hauling					7500	5000		
Water, fuel					25000	20000		
Miscellaneous incidentals					5000	4000		
Contingencies					33968	29658		
Total estimated cost - 100%					561305	360992		
Total estimate C. S.				%				

DISTRICT ANDREWS DISTRICT
MIDLAND DRILLING ORGANIZATION

FIELD

Burton - 308

DATE

August 6, 1975

To drill and complete Burton Flat Com. No. 1-1 to a proposed depth of 11,700 feet in approximately 73 days.

LOCATION: Section 16, T-21-S, R-27-E, Eddy County, New Mexico.

PROJECT #2346

CHARGE - LEASE OR FACILITY	JA	LC	F	B	DV	DST	AFE (UNIT)	W-1	MEMO LC
NAME Burton Flat Com. 1-1	7	452		X	AC	308	60431	101	
CLEARANCE DISTRIBUTION									
DRILLING DETAIL		ESTIMATED COST							
F-425 - SITE COST	13,000								
F-426 - TRANSPORTATION	25,000								
F-427 - DRILLING OPERATIONS - OTHER	81,800								
F-428 - DRILLING RIG	165,000								
F-429 - SUPERVISION & OVERHEAD	8,200								
F-430 - DRILLING FLUID CONTROL	43,000								
F-431 - FORMATION EVALUATION	22,000								
F-432 - PRIMARY CASING CEMENTING	22,000								
DRILLING SUB TOTAL	380,000								
COMPLETION DETAIL									
F-435 - COMPLETION RIG OPERATIONS	45,000								
F-436 - PERFORATING	-								
F-437 - SQUEEZE CEMENTING	-								
F-438 - FORMATION FRACTURING	-								
F-439 - FORMATION STIMULATION	40,800								
F-440 - SAND CONSOLIDATION	-								
F-441 - OTHER COMPLETION COSTS	44,000								
F-442 - COMPLETION FLUID CONTROL	2,000								
F-443 - FORMATION EVALUATION	500								
F-445 - TRANSPORTATION	-								
F-446 - WELL SUPPLIES	-								
F-448 - SUPERVISION & OVERHEAD	2,700								
COMPLETION INTANGIBLE SUB TOTAL	135,000								
F-464 - TANGIBLE WELL EQUIPMENT - DETAILED	-								
F-465 - TANGIBLE WELL EQUIPMENT - CASING & TUBING	204,300								
F-467 - TANGIBLE WELL EQUIPMENT - UNDETAILED	25,000								
COMPLETION TANGIBLE SUB TOTAL	229,300								
COMPLETION SUB TOTAL	364,300								
TOTAL DRILLING AND COMPLETION	744,300								

JOINT INTEREST INFORMATION

EXXON'S INT. 50% NONOPERATOR APPROVAL REQUIRED: YES ☒ NO ☐

NONOPERATOR APPROVAL RECEIVED: YES ☐ NO ☐

COMPANY NAME _____

APPROVED _____ DATE _____

BUDGET APPLICATION

TOTAL CURRENT EST. EXPENDITURES, CURRENT YEAR: 744,300

* DRY HOLE ESTIMATE: 744,300

BUDGET: 1975 (DATE)

APPROVAL RECOMMENDED

INITIAL FOR	ENG.	GEOL.	OPER.	ACCTG.
DIST.	JAB			
DIV.				

PREPARED BY W. H. Nelson W. H. Nelson

APPROVED W. K. Wardlaw 8-6-75
XXXXXXXXXXXXX DIV. DRILLING

APPROVED _____ DATE _____

APPROVED B. W. Boudon 8-6-75
DIV. OPERATIONS MGR. DIV. MANAGER

APPROVED _____ DATE _____

APPROVED _____ DATE _____
HQ. DEPT./OPERATIONS MGR.

AFE COMPLETION DATE _____ REPORT NO. _____

* COMPLETE ON OUTPOST, WILDCAT, AND FIELD WILDCAT DRILLING WELLS.

CASE 5542: Application of Exxon Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 16, Township 21 South, Range 27 East, Burton Flats Field, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location for said unit. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of the applicant as the operator of the well and a charge for the risk involved in drilling said well.

CASE 5543: Application of Cities Service Oil Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the N/2 of Section 16, Township 21 South, Range 27 East, Burton Flats Field, Eddy County, New Mexico, to be dedicated to a well to be drilled at an orthodox location for said unit. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of the applicant as the operator of the well and a charge for the risk involved in drilling said well.

BEFORE THE
OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF CITIES SERVICE OIL COMPANY,
FOR COMPULSORY POOLING, EDDY COUNTY,
NEW MEXICO

A P P L I C A T I O N

COMES NOW, CITIES SERVICE OIL COMPANY, as provided by Section 65-31-4, New Mexico Statutes, 1953, as amended, and applies to the Oil Conservation Commission of New Mexico for an order pooling all the mineral interest in and under the N/2 of Section 16, Township 21 South, Range 27 East, Undesignated Morrow Pool, Eddy County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the owner of the right to drill and develop the following described acreage: N/2 of Section 16, T21S, R27E, N.M.P.M., Eddy County, New Mexico.

2. Applicant has obtained voluntary agreement for pooling from all but the persons named below, whose address and interest owned according to the applicant's information and belief are as follows:

J. M Huber Corporation
1900 Wilco Bldg.
Midland Texas 79701
(with a 6.25% interest)

Exxon Company
Box 1600
Midland, Texas 79701
(with a 25% interest)

3. As required by the provisions of Commission Rule 104, applicant proposes to dedicate the N/2 of Section 16 to a well to be drilled 660 feet from the North line and

1980 feet from the East line of said Section.

4. Applicant proposes to drill said well, to test the Morrow formation at a depth of 11,700 feet.

5. Applicant requests that it be designated the operator of the pooled unit requested above.

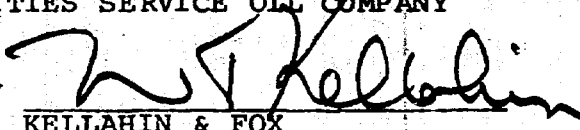
6. Applicant has been unable to obtain voluntary agreement for the pooling of the unpooled interest indicated in paragraph 2 above, and in order to avoid the drilling of unnecessary wells, to protect correlative rights, and to prevent waste, the Commission should pool all interest in the spacing or proration unit as a unit.

WHEREFORE, applicant respectfully requests that the Commission set this matter for hearing before the Commission's duly appointed examiner, and that after notice and hearing as required by law, the Commission enter its order pooling all interest underlying the N/2 of Section 16, T21S, R27E, N.M.P.M., Eddy County, New Mexico, and designating applicant operator of the pooled unit, together with provisions for applicant to recover its costs out of production including a risk factor to be determined by the Commission and with provisions for the payment of operating costs and costs of supervision out of production to be allocated among the owners as their interest may appear and for further orders as may be proper in the premises.

Respectfully submitted,

CITIES SERVICE OIL COMPANY

BY


KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico

ATTORNEYS FOR APPLICANT

DOCKET MAILED

Date 8/19/75

BEFORE THE
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IN THE MATTER OF THE APPLICATION
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FOR COMPULSORY POOLING, EDDY COUNTY,
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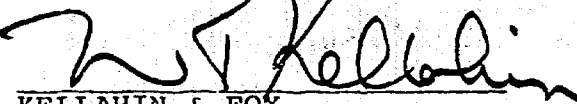
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Respectfully submitted,

CITIES SERVICE OIL COMPANY

BY


KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico

ATTORNEYS FOR APPLICANT

BEFORE THE
OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF CITIES SERVICE OIL COMPANY,
FOR COMPULSORY POOLING, EDDY COUNTY,
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A P P L I C A T I O N

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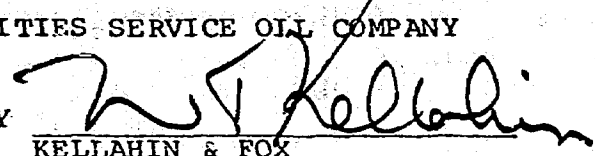
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Respectfully submitted,

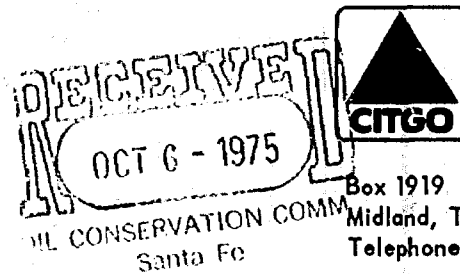
CITIES SERVICE OIL COMPANY

BY


KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico

ATTORNEYS FOR APPLICANT

CITIES SERVICE OIL COMPANY



Box 1919
Midland, Texas 79701
Telephone: 915 684-7131

October 2, 1975

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

Attention: Mr. Joe D. Ramey

Gentlemen:

Re: NMOC Order R5096 - Pooling All
Mineral Interests in the Pennsylvanian
Formation underlying N/E Section 16,
T21S, R27E, Burton Flat Field, Eddy
County, New Mexico

As requested by New Mexico Oil Conservation Commission Order R5096, Cities Service Oil Company, Operator of the State CR No. 1 to be drilled at an orthodox location in N/E Section 16, T21S, R27E, Burton Flat Field, Eddy County, New Mexico, herein submits an itemized schedule of well costs. The attached Detailed Well Estimate is the same as submitted at the hearing of Case No. 5543 on August 27, 1975.

It is our present plan to commence drilling the State CR No. 1 about November 20, 1975.

If you have any questions on this matter, please advise.

Yours very truly,

A handwritten signature in dark ink, appearing to read "E. F. Motter".

E. F. Motter
Engineering Manager
Southwest Region
E & P Division

EFM/lis

Attachment

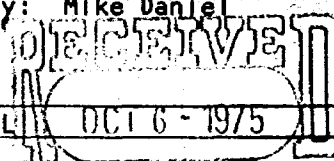
cc: Exxon Company, U.S.A. - Midland, Texas
J. M. Huber Corporation - Midland, Texas

*File
Case 5543*

OP 63

DETAILED WELL ESTIMATE

Revised by: Mike Daniel



WELL NUMBER 1 LEASE State CR
 CONTRACTOR _____ LOCATION 600' FNL, 1980' FEL
 DATE 8-15-75 SECTION 16-T21S-R27E
 J. O. NO. _____ DEPTH 11,750' COUNTY Eddy STATE NEW MEXICO
 Possible abnormal pressure in Strawn - Csg program designed accordingly. Santa Fe

DESCRIPTION	GRADE	SIZE	QUAN.	W	ESTIMATE PRODUCER	ESTIMATE DRY HOLE	REVISED ESTIMATE	ACTUAL COST
TANGIBLES								
Casing								
13-3/8" 48# H-40 ST&C	A		400		4893	4893		
9-5/8" 36# K-55 ST&C	A		3000		26366	26366		
5-1/2" 17# N-80 Butt	A		1600		9509			
5-1/2" 17# N-80 LT&C	A		8400		46746			
5-1/2" 20# N-80 LT&C	A		1750		11448			
Well head connections	A				15000	3500		
Tubing 2-7/8" 6.5# N-80 AB-mod.	A		11200		39200			
Sucker rods								
Bottom hole pump								
Packer & accessories	A				2500			
Engine or motor								
Pumping unit								
Electrical equip. Inc. Labor & Trans.								
Line pipe, fittings xxxxxx					2000			
TANK BATTERY								
Stock tanks	A	300	2		11000			
G. B., settler, free water K. O. tank								
Separator, heater treater, etc.	A		1		19000			
Cost to install T. B.					5000			
Total tangibles prod=187662 DH = 34759								
INTANGIBLES								
Contract Drlg. labor (footage) \$12.30/ft					144525	144525		
Rotary day work 5 days @ \$2750					13750	13750		
Cable tool work								
Subsurface casing equipment					6500	3000		
D. S. T., electric logs, etc.					25000	25000		
Acidizing, fracing					7500			
Perforating					3000			
Completion unit 14 days @ \$650					9100			
Misc. company and contract labor					10000	10000		
Road building, location					15000	15000		
Cement & cementing service					17500	15000		
Cement squeeze jobs								
Drilling mud, chemicals					30000	30000		
Drilling bits, coreheads, reamers								
Mud logging unit 20 days @ \$265					5300	5300		
Rental of miscellaneous equip.					10000	6000		
Company, contract hauling					7500	5000		
Water, fuel					25000	20000		
Miscellaneous incidentals					5000	4000		
Contingencies					33968	29658		
Total estimated cost - 100%					561305	360992		
Total estimate C. S. %								