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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
May 5, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Penasco Corporation
for a unit agreement, Eddy County,
New Mexico.

a n d

Application of Penasco Corporation
for a waterflood project, Eddy
County, New Mexico.

CASE NO. 4699

CASE NO. 4700

BEFORE: Elvis A. Utz
Examiner

TRANSCRIPT OF HEARING

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1 MR. UTZ: Case 4699.

2 MR. HATCH: Application of Penasco Corporation for
3 a unit agreement, Eddy County, New Mexico.

4 MR. LOSEE: A. J. Losee, of Artesia, New Mexico,
5 appearing on behalf of the Applicant.

6 MR. UTZ: Any other appearances in this Case?

7 (No response.)

8 MR. HATCH: Did you wish to consolidate the two
9 Cases?

10 MR. LOSEE: Yes.

11 MR. HATCH: Case 4700 is the Application of Penasco
12 Corporation for a waterflood project, Eddy County, New Mexico.

13 MR. LOSEE: A. J. Losee, appearing also on behalf
14 of the Applicant in Case 4700. We have one witness.

15 RALPH GRAY,
16 was called as a witness and, after being duly sworn, testified
17 as follows:

18 MR. LOSEE: Before commencing, Mr. Hatch, I would
19 like to amend the Application in Case 4700. The publication
20 notice was correct in listing the correct description, but
21 paragraph F of the Application, in describing the location
22 of one of the injection wells, described it as being located
23 in Section 2 and it should be in Section 17. The publication
24 notice is correct.

25 MR. UTZ: That is in your Application?

1 MR. LOSEE: Yes, paragraph 3, the last well in
2 Section 17.

3 DIRECT EXAMINATION

4 BY MR. LOSEE:

5 Q Will you state your name and residence, and occupation?

6 A Ralph Gray, Artesia, New Mexico. I am a consulting
7 Engineer.

8 Q Have you previously testified before this Commission
9 and had your qualifications made part of the record?

10 A Yes, sir.

11 Q Would you state the purpose of the Application in Case
12 4699?

13 A Case 4699 requests authorization for Unit agreement.

14 Q What is the purpose of Case 4700?

15 A Case 4700 requests authorization to conduct a waterflood
16 project and inject water.

17 MR. LOSEE: Mr. Examiner, in examining Exhibit 2,
18 which is the Unit agreement, we would like to send you a
19 copy of the Exhibit the first part of the week by mail.

20 We will deliver it to you.

21 Q (By Mr. Losee) Please refer to what has been marked
22 as Exhibit 1, Mr. Gray, and explain what is shown on
23 this Exhibit.

24 A Exhibit 1 shows the general area in the proposed Unit.
25 The boundary line for the proposed Unit is shown by

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1 cross hash lines.

2 This Exhibit shows the proposed injection wells.
3 I would like to comment a little bit further on the
4 injection wells shown in the south half of the SE/4
5 of Section 8.

6 At the time this map was prepared the Applicant
7 was considering obtaining approval to convert either
8 Well Number 1, or Well Number 3 for injection and, at
9 that time, it wasn't known just which one would be
10 used.

11 But, since that time, the Applicant has decided
12 on Well Number 1.

13 MR. UTZ: What location?

14 THE WITNESS: Three hundred thirty feet from the
15 south line and 1,650 feet from the east line of Section 8.

16 A (Continuing) So the Applicant is requesting permission
17 to use, at this time, four injection wells. One well
18 is to be located in the SW/4 of the NW/4 of Section 16;
19 one well is to be located in the SW/4 of the NE/4 of
20 Section 17; one well to be located in the SW/4 of the
21 SE/4 of Section 8 and the fourth well to be located in
22 the SE/4 of the SW/4 of Section 9.

23 Q Please refer to what has been marked as Exhibit 1-A and
24 explain what is shown on Exhibit 1-A.

25 A Exhibit 1-A is a map showing a larger area than is

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- 1 covered in Exhibit 1 and the purpose of this Exhibit
2 is to show wells within a two mile radius which is
3 requested by the Rules and Regulations of the Commission.
- 4 Q Out of this 320 acre proposed unit, Mr. Gray, how many
5 acres is State land and how many acres are Federal land?
- 6 A There are 400 acres of Federal land and 120 acres of
7 State land.
- 8 Q And that is made up of five tracts?
- 9 A Yes, sir.
- 10 Q Please refer to the unit agreement which has been
11 marked as Exhibit 2, and explain what formations are
12 unitized under this agreement.
- 13 A The Queen formation is the formation which is unitized
14 under this agreement.
- 15 Q It is paragraph 2-G, page 3, if you wish to elaborate.
- 16 A In order that this could be more closely identified,
17 the formation occurring in the Grayburg Number 1 Well
18 located 330 feet from the south and 1,650 feet from the
19 east line in Section 8, Township 17 South, Range 31 East,
20 at a depth of 3,110 to 3,162 as recorded in the Well's
21 neutron log dated December 4, 1957.
- 22 Q Mr. Gray, Section 13, -20, paragraph 15 of the unit
23 agreement established a tract and the basis for tract
24 participation, what formula was utilized?
- 25 A The formula utilized is primarily oil recovery, in fact,

1 it is 100 percent primary recovery.

2 Q Let me ask you whether or not all the interested owners
3 and both the working and overriding royalty interests
4 have ratified this unit agreement?

5 A Yes, it is my understanding that they have all ratified
6 the agreement.

7 Q So there is actually 100 percent commitment in the
8 unitized areas?

9 A Yes, sir.

10 Q Under Section 22, -1A, when will your unit agreement
11 become effective?

12 A The agreement will become effective when the working
13 interest owners, with combined unit participation, have
14 at least eighty-five percent ratification and the
15 combined unit has sixty-five percent of the royalty
16 interests in the unit area.

17 Q And also approval of the supervisor of the U.S.G.S. and
18 the Land Commissioner of the State of New Mexico?

19 A Yes.

20 Q Has the State given its tentative approval to the form
21 of the agreement and the proposed area?

22 A Yes.

23 Q On what date?

24 A That was given on December 16, 1971.

25 Q Has the Commissioner of Public Land of the State of

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1 New Mexico approved the form of the unit agreement?

2 A Yes, they approved it on December 27, 1971.

3 Q Mr. Gray, do you have an opinion as to whether or
4 not the method of allocation of production in the
5 various tracts in the unitized area is fair and
6 equitable?

7 A Yes, I think all the wells are marginal and as they
8 reach the economic limits, you might say that 100 percent
9 primary should be equitable.

10 Q Please refer to what has been marked Exhibit 3 and
11 explain what is shown on this Exhibit.

12 A Exhibit 3 is a table showing the various well data for
13 each of the wells located within the proposed unit
14 area.

15 This also shows the studies of the area and
16 also shows the status of the primary recovery for
17 each well, as of January 1, 1971.

18 A portion of these wells were completed with
19 pipe set above the pay and they have open hole.

20 Q There are fifteen wells in the unitized area; are
21 there not?

22 A That's right.

23 Q How many of those are plugged and abandoned, at this
24 point?

25 A Six are plugged and abandoned.

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- 1 Q How many are shut-in?
- 2 A Two.
- 3 Q And the remainder are producing?
- 4 A Seven are producing, I believe.
- 5 Q Does your Exhibit show the accumulative production of
- 6 these wells?
- 7 A Yes, and the total accumulative production for the
- 8 entire area is approximately 500,000 barrels.
- 9 Q Please refer to what has been marked as Exhibit 4 and
- 10 explain what is shown by this Table.
- 11 A Exhibit 4 is a Table showing recent production for
- 12 each of the producing wells. It will be noted that
- 13 the Grayburg "A" wells are producing approximately
- 14 one barrel of oil a day and the wells on the Panako
- 15 State Lease are producing around three and one-half or
- 16 four barrels per day.
- 17 Q So that these wells are in the late stages of
- 18 completion?
- 19 A Yes, sir.
- 20 Q Please refer to what has been marked as Exhibit 5 and
- 21 explain what is shown on this Exhibit.
- 22 A Exhibit 5 is a radioactive log of the Penasco-Grayburg
- 23 Number 1 Well. This is located in Section 8 and the
- 24 perforations are indicated on the log and further identified
- 25 by the yellow coloring. It shows the portion of the

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1 Queen Sand that is considered to be oil pay.

2 Q Referring to Exhibit 5-A, explain what is shown on
 3 Exhibit 5-A.

4 A Exhibit 5-A is a radioactive log of the Penasco State
 5 Number 1 Well and that log also is identified by the
 6 perforated interval and the pay section shown by the
 7 yellow coloring.

8 Q Are these two logs the only electric logs available
 9 on any of the wells in the unit?

10 A Yes, they are.

11 Q Please refer to Exhibits 6, 6-A, 6-B and 6-C, and
 12 explain what is shown by these Exhibits.

13 A All four of these Exhibits are diagrammatic sketches
 14 of the proposed injection wells.

15 Exhibit 6 shows the Penasco-Magnolian State Number
 16 1 Well in this case, five and one-half inch casing is
 17 set to the bottom of the pay zone and it is perforated
 18 from 3,180 to 3,212.

19 In the case of Exhibit 6-A, it is a diagrammatic
 20 sketch of the Penasco Number 2 Well in this Case. Seven
 21 inch casing was set above the pay. All these Exhibits
 22 also show the surface casing and the estimated top
 23 cement line.

24 Exhibit 6-B shows the Penasco-Grayburg Number 1
 25 Well in this Case. The casing has been set through the

1 pay.

2 Exhibit 6-C shows the Grayburg Number 2 Well.

3 This well is open hole.

4 Q Mr. Gray, how does the Applicant propose to complete
5 these wells for injection?

6 A These wells will be cleaned out and the Applicant
7 wishes approval to have the option of either injecting
8 down the casing or run tubing with a Packer, which
9 would be set above the pay zone.

10 If approval is given for injecting the water
11 down the casing, the Applicant agrees to pressure test
12 each casing string up to 2,000 pounds per square inch
13 before injecting through it.

14 Q Mr. Gray, have you made a study in this particular
15 area, to determine whether or not there is any water
16 bearing zones, shallow water bearing zones?

17 A Yes, we don't have any indication that there are any
18 fresh water zones, commercial zones, in the shallow
19 formations.

20 Q What will be the injection rate proposed by the
21 Applicant?

22 A Well, the Applicant estimates that the rate will be
23 up to approximately 400 barrels of water per day and
24 possibly with a maximum pressure of 1,800 pounds per
25 square inch.

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1 Q Does the Applicant have an opinion as to the life
2 of this flood?

3 A Well, I think we have a good indication by the good
4 Atlantic Richfield flood in the Shugart area and the
5 particular flood I am referring to is in Section 14,
6 of Township 18 South, Range 31 East.

7 This is approximately two and one-half miles
8 east of the proposed unit area.

9 Atlantic Richfield conducted a flood which, at
10 the present time, is essentially plugged out, but
11 their flood was for approximately five years duration.
12 So, I think that is a pretty good estimate on what to
13 expect as to our flood life.

14 Q Mr. Gray, taking into consideration the lack of fresh
15 water bearing zones in the area, when you pressure tested
16 the casing and the limited life of the flood, plus, I
17 suppose the economics of it, do you feel that injecting
18 down the casing is a satisfactory method, under these
19 circumstances?

20 A Yes, I think it is a very reasonable approach, under
21 these circumstances.

22 Q Where will the water be obtained from to use in the
23 flood?

24 A This water will be purchased from the Double Eagle
25 Water Company as fresh water.

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1 Q Does the Applicant propose to reinject the produced
2 water?

3 A Yes, sir.

4 Q Do you have an opinion as to the ratio of secondary
5 oil as to primary oil that will be recovered in the
6 project?

7 A Well, the Hudson flood, which was the closest flood
8 to the proposed unit area, this flood is located
9 approximately one mile from the proposed unit and,
10 up to the present time, that flood has recovered 2.3
11 of primary recovery and it has some way to go yet.

12 I would say that roughly, approximately one to
13 one of secondary primary will be obtained in the flood
14 and I consider these two areas similar.

15 Q And that 500,000 barrels of secondary oil would not
16 otherwise be recovered?

17 A That is correct.

18 Q Were Exhibits 1 through 6 and all the sub-numbers,
19 except the unit agreement, prepared by you or under
20 your supervision?

21 A Yes.

22 MR. LOSEE: We move for the introduction of
23 Exhibits 1 through 6 with the sub-numbers.

24 MR. UTZ: Exhibits 1 through 6, including the
25 sub-numbers, will be entered into the record of this Case.

1 (Whereupon, the aforementioned Exhibits were
2 admitted in evidence.)

3 MR. LOSEE: Mr. Examiner, that is all I have
4 on Direct. I would like to bring to the Commission's
5 attention that one of the purposes of the Application was to
6 ask for Administrative Procedure to convert additional wells
7 for injection in the event the Applicant proposes to change
8 its pattern, at a later date.

9 MR. UTZ: Does that complete your Case?

10 MR. LOSEE: Yes.

11 CROSS-EXAMINATION

12 BY MR. UTZ:

13 Q Mr. Gray, what will be the deciding factor in whether
14 you inject through tubing or casing?

15 A Well, I suppose that the Applicant probably hasn't
16 gotten to the point where he has made a definite
17 decision. Just about everything in regard to the
18 waterflood will be done, in fact, there is the further
19 possibility of maybe using water from these other
20 areas.

21 There are a lot of aspects to this thing that you
22 usually decide when you get closer to the time.

23 It may have something to do with what materials
24 might be available. I really can't say what will be
25 decided finally, but I think in either Case, that this

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1 method will be a satisfactory way of conducting the
 2 waterflood.

3 One thing which we haven't mentioned is this oil
 4 production is coming from the Queen Sand which is a
 5 sweet type of crude sand formation and it is not
 6 corrosive, there is very little water produced by the
 7 primary method from this sand and over the great
 8 number of years that we have been operating in the
 9 field, we have never seen any indication of corrosion
 10 by the primary operation.

11 So you would expect a casing in these wells to
 12 be just like new.

13 Q You haven't noticed corrosion either internally or
 14 externally?

15 A No, sir.

16 MR. UTZ: Any other questions?

17 CROSS-EXAMINATION

18 BY MR. STAMETS:

19 Q These other floods you mentioned in the area, do you
 20 know if these used tubing or Packers, or whether they
 21 injected by casing?

22 A I am not able to answer in the case of the Atlantic
 23 Richfield flood.

24 In the Hudson Marathon flood, the operator injected
 25 down tubing in that case.

1 MR. STAMETS: That's all I have.

2 MR. UTZ: Any further questions?

3 (No response.)

4 MR. UTZ: If not, the witness may be excused.

5 (Witness excused.)

6 MR. UTZ: Any statements in this Case?

7 (No response.)

8 MR. UTZ: The Case will be taken under advisement --
9 the Cases will be taken under advisement.

10 Let the record show, and I think it already does,
11 that these Cases were consolidated, but separate Orders will
12 be written.

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1 STATE OF NEW MEXICO)
) ss
 2 COUNTY OF BERNALILLO)

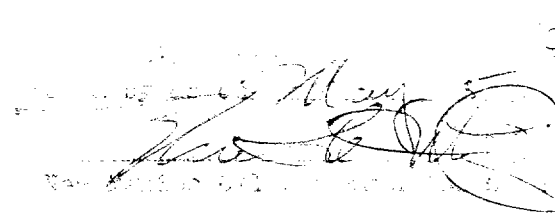
3 I, RICHARD E. McCORMICK, a Certified Shorthand Reporter,
 4 in and for the County of Bernalillo, State of New Mexico,
 5 do hereby certify that the foregoing and attached Transcript
 6 of Hearing before the New Mexico Oil Conservation Commission
 7 was reported by me; and that the same is a true and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

10 
 11 CERTIFIED SHORTHAND REPORTER

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I N D E XWITNESS:PAGERALPH GRAY

Direct Examination by Mr. Losee	4
Cross-Examination by Mr. Utz	13
Cross-Examination by Mr. Stamets	14

E X H I B I T SAPPLICANT'S (Penasco)OFFEREDADMITTED

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