

Case Number

5995

Application

Transcripts.

Small Exhibits

ETC.

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
1000 RIO BRAZOS RD. - AZTEC

87410

LAND COMMISSIONER
PHIL R. LUCERO

RECTOR
D. RAMEY



STATE GEOLOGIST
EMERY C. ARNOLD

*Examiner
stamps*

October 14, 1977

Mr. Brad W. Fischer
Tenneco Oil Company
Lincoln Tower Building, Suite 1200
Denver, Colorado 80203

OCT 17 1977

File RLS

Re: New Mexico Oil Conservation Commission Case No. 5995, Order R-5506

Dear Brad:

Based on the data you have supplied regarding other injection wells in the South Hospah Upper Sand Oil Pool, the fracture gradient of 0.92 appears reasonable.

Therefore, the wellhead pressure limit shall be 816 psig until such time as better information is available and a new determination is made.

If there are further questions, please contact us.

Yours very truly,

A. R. Kendrick

A. R. Kendrick
Supervisor, District #3

cc: OCC, Santa Fe
W. Thomas Kellahin
U.S.G.S., Farmington

ARK:no

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
20 July 1977

EXAMINER HEARING

IN THE MATTER OF:

Application of Tenneco Oil Company for dual) CASE
completions and waterflood expansions,) 5995
McKinley County, New Mexico.)

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Lynn Teschendorf, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

For The Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & FOX
500 Don Gaspar
Santa Fe, New Mexico

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General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212

I N D E X

BRAD W. FISCHER

Direct Examination by Mr. Kellahin	3
Cross Examination by Mr. Stamets	10

E X H I B I T S

Applicant Exhibit Number One, Plat	9
Applicant Exhibit Number Two, Schematic	9
Applicant Exhibit Number Three, Schematic	9
Applicant Exhibit Number Four, Water Analysis	9
Applicant Exhibit Number Five, Water Analysis	9
Applicant Exhibit Number Seven, Water Analysis	9

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1 MR. STAMETS: Call Case Number 5995.

2 MS. TESCHENDORF: Case 5995. Application of Tenneco
3 Oil Company for dual completions and waterflood expansions,
4 McKinley County, New Mexico.

5 MR. KELLAHIN: Tom Kellahin of Kellahin and Fox,
6 Santa Fe, New Mexico, appearing on behalf of the applicant and
7 I have one witness to be sworn.

8 (Witness sworn.)

9
10 BRAD W. FISCHER

11 being called as a witness and being duly sworn upon his oath,
12 testified as follows, to-wit:

13
14 DIRECT EXAMINATION

15 BY MR. KELLAHIN:

16 Q Would you please state your name, by whom you're
17 employed, and in what capacity?

18 A My name is Brad Fischer. I'm employed by Tenneco
19 as a Senior Production Engineer.

20 Q Mr. Fischer, have you previously testified before
21 the Commission and had your qualifications as an expert wit-
22 ness accepted and made a matter of record?

23 A No, I have not, and no, they have not.

24 Q All right. Would you state briefly for the benefit
25 of the Examiner when and where you obtained your degree?

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1 A. I receive a Bachelor of Science in Mechanical En-
2 gineering from the University of Nebraska in 1972.

3 Q. Since graduation where have you been employed and
4 in what capacity?

5 A. I've been employed by Texaco, Incorporated, in their
6 domestic producing department in California as a Petroleum
7 Engineer and an Area Engineer, and more recently I've been
8 employed by Tenneco Rocky Mountain Division in Denver, Colorado
9 as a Senior Production Engineer.

10 Q. In your capacity as a Senior Production Engineer,
11 have you made a study of and are you familiar with the facts
12 surrounding this particular application?

13 A. Yes, I have, and I am familiar with the case.

14 MR. KELLAHIN: If the Examiner please, are the
15 witness' qualifications acceptable?

16 MR. STAMETS: They are.

17 Q. (Mr. Kellahin continuing.) Mr. Fischer, would you
18 refer to what I've marked as Applicant Exhibit Number One.

19 Would you identify that plat for me, please, sir?

20 A. This is a plat of the Hospah, South Hospah, and Lone
21 Pine Fields in McKinley County, New Mexico.

22 Q. Would you locate for me the Hospah Unit Wells 58 and
23 59?

24 A. These wells are located in Section 12 of Township
25 17 North, Range 9 West; they're in Blocks F and G.

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1 Q What is Tenneco seeking by this application?

2 A We are seeking permission to dually complete Wells
 3 58 and 59 in the Upper and Lower Hospah Formation so that we
 4 might better improve our overall injection in the south central
 5 portion of the Upper Hospah Sand on our property. The wells
 6 are presently single completion water injection wells in the
 7 Lower Hospah-Gallup Formation.

8 Q What is the date and Order Number authorizing this
 9 waterflood project?

10 A The original order number authorizing this waterflood
 11 in the Upper Hospah Formation is R-3325 and the date is the
 12 4th of October, 1967.

13 Q All right, sir. Would you continue by identifying
 14 what I have marked as Tenneco Exhibit Number Two?

15 A Exhibit Number Two is a schematic of the mechanical
 16 condition as we propose to complete water injection well
 17 Number 58. It shows an open hole completion in the Lower
 18 Hospah Formation. It shows proposed perforated interval of
 19 1598 to 1618 feet, which is the Upper Hospah Sand. It also
 20 shows a method of conducting water yo these perforations; that
 21 is, we would have two separate strings of tubing and we would
 22 isolate the injecting intervals with the use of mechanical
 23 packers.

24 Q Okay, I show you what is marked as Applicant Exhibit
 25 Number Three, and ask you to identify that.

1 A Exhibit Number Three is essentially the same drawing
2 with pertinent information for Well Number 59 superimposed.
3 Again it shows that we're conducting injected water to the
4 formation of interest with separate tubular strings and me-
5 chanical packers.

6 Q What would be the source of the water to be injected
7 into the Upper Hospah?

8 A The source of water to be injected in the Upper
9 Hospah is produced water from the Upper Hospah Formation and
10 also from the Lower Hospah Formation. This water is produced
11 separately and it's commingled at our water injection plant
12 as it goes into the suction of our water injection pumps. It
13 is then carried by separate systems to the individual wells
14 the injection wells in the Upper or the Lower system.

15 Q Would you identify what I have marked as Applicant
16 Exhibit Number Four and explain what information it contains?

17 A Exhibit Number Four is a water analysis; there is
18 actually water analysis of the Upper produced water and the
19 Lower produced water. There are essentially no conflicts that
20 I can see and our production history suggests that there's
21 no adverse affects of commingling these waters, either in the
22 form of mechanical difficulties related to scale or damage to
23 the formation in the -- such as damage to the clay swelling,
24 or this sort of thing in the reservoir itself.

25 Q I show you what is marked as Applicant Exhibit Number

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1 Five and ask you to identify that.

2 A. This is actually the analysis of the Upper Zone, and
3 it tells you basically the same thing as the Lower Zone.

4 Q. All right, and Exhibit Number Seven, then?

5 A. Number Seven is the analysis of the commingled water
6 at the water plant.

7 Q. What do you anticipate to be the volume of water to
8 be injected into the Upper Hospah Zone?

9 A. This volume will be determined by the injection
10 pressures we experience at the wellhead. Past experience
11 would suggest between 500 and 1000 barrels per day rate and
12 the pressures would be, perhaps, 750 to 850 pounds at the
13 wellhead on an Upper Hospah injector.

14 Q. Have you made any calculations of the fractured
15 gradient for the Upper Hospah Formation?

16 A. Yes, I have. The fracture gradient throughout the
17 Upper Hospah Field on Section 12 has averaged 1.0 psi per foot
18 with a variation of about .05 psi throughout the area. This
19 is an abnormally high gradient, I believe but it is representa-
20 tive of our findings in the area.

21 MR. STAMETS: You said plus or minus .05?

22 A. Yes. In other words, from approximately .95 to ap-
23 proximately 1.05 psi per foot.

24 Q. Will your maximum injection pressure be below the
25 fracture gradient?

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1 A. Yes, it will.

2 Q. Would you describe for the Examiner where, if any,
3 are the fresh water zones in these particular wells?

4 A. I do not have an electrical log available with me;
5 however, I believe from my knowledge of this area that they
6 are limited to around 500 foot in depth from the surface.
7 This would be nearly 1000 foot above our proposed injection
8 interval.

9 Q. What is the depth of your proposed injection interval?

10 A. This would be approximately 1600 feet in each case
11 to the top of the Upper Hospah Formation.

12 Q. What is the quality of the cementing job that was
13 done in Wells 58 and 59?

14 A. My examination of our records suggests that we had
15 a good cement job to the surface and I would expect that we
16 would have good cement bonding and that we would therefore
17 have a good barrier between the proposed injection interval
18 and horizons above that interval.

19 Q. In your opinion, Mr. Fischer, is there any potential
20 contamination to the fresh water sources in the area?

21 A. No, sir, I do not believe so. We are using two
22 strings of tubulars between the zone and our produced water.
23 We're having a competent cement zone outside our pipe and I
24 do not believe there's a likelihood of contamination of surface
25 waters.

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1 Q Were Exhibits One through Five prepared at your
2 direction and under your supervision?

3 A Yes, they were.

4 Q In your opinion, Mr. Fischer, will approval of this
5 application be in the best interests of conservation, the
6 prevention of waste and the protection of correlative rights?

7 A Yes, I do.

8 MR. KELLAHIN: If the Examiner please, our advertise-
9 ment in this case did not set forth a request for administrative
10 approval for further expansion or increase in the waterflood
11 project that is often allowed by other similar Commission or-
12 ders. We would like the opportunity to have this case re-
13 advertised or take the necessary action to include an admini-
14 strative procedure so that we might avoid coming back for a
15 hearing in the event we incur the need to drill additional
16 wells for the waterflood project.

17 That concludes our case and we move the introduction
18 of Exhibits One through Five.

19 MR. STAMETS: These exhibits will be admitted.
20 Primarily what you would be interested in would be a procedure
21 which would allow you to complete these wells in unorthodox
22 locations.

23 MR. KELLAHIN: That's correct, to avoid us coming
24 back for another hearing in the event we have this problem.
25 It may require re-advertisement, I don't know.

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CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Fischer, will the tubing that you propose to use here be internally coated or in some other way protected from corrosion?

A No, sir, it will not. We have not experienced corrosion in our existing wells, although they are internally coated in some instances. We have no evidence of corrosive waters here and we would not wish to incur the additional expense at this time.

Q Okay. Now, do you propose to load the annulus, engage the surface, or leave the surface open to detect for leaks?

A It would be my desire to leave the surface open and another way of saying that would be not load the annulus.

Q But to leave it open at the surface so that you could --

A Yes, we could see if it was a leak; it would start to flow out the casing.

Q On your map here how have you identified injection wells?

A Injection wells in the Upper Hospah are identified with a circle and a diagonal line. This is in the legend at the bottom of the map and in the Lower Hospah injectors have

1 the same symbol with the addition of the square around the
2 entire arrangement.

3 I would call your attention then to the red arrow
4 marking Wells 58 and 59. These would be the symbolology for
5 a Lower Hospah water injector, and also -- I'm sorry, Mr.
6 Examiner, I think I've confused myself here on this question.

7 We have a symbol for an Upper injector of a circle
8 with a diagonal line, and in these Lower injectors we have
9 the same symbol with a square. We do not have a symbol here
10 representing a dual situation, which I guess would require
11 another symbol.

12 Q Well Number 23 in the southwest quarter of Section
13 12, is that an injection well?

14 A Yes, this is also a different type of a situation
15 altogether. It's listed -- you'll see the subscript $K_{DA,B,D}$
16 This is a Dakota completion, a gas well, which is --

17 Q That's a dual completion with one zone injection, is
18 that correct?

19 A I believe that is correct, yes. This would be out-
20 side of the concept of what I would like to talk about. What
21 we actually have on this map are Dakota wells and Gallup wells
22 plotted on a common map to show the surface location of all
23 wells, wellbores, within a two-mile radius of the proposed
24 wells 58 and 59.

25 MR. STAMETS: Any other questions of the witness?

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1 Mr. Ramey?

2 MR. RAMEY: Mr. Fischer, when you said your method
3 of injection wouldn't affect surface waters, I assume you
4 meant ground waters, also?

5 A. I actually would mean ground waters, yes.

6 MR. STAMETS: Any other questions of the witness?
7 He may be excused.

8 Mr. Fischer, what we were talking about here, the
9 new Federal Underground Injection Control Program Regulations
10 that we expect to come out any day, require a summary of
11 all the wells -- this is off the record.

12 (There followed a discussion off the record.)

13 (Hearing concluded.)
14
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REPORTER'S CERTIFICATE

I, Sally Walton Boyd, a Certified Shorthand 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.

Sally Walton Boyd
Sally Walton Boyd, C. S. R.

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I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 5995
heard by me on 7-28-1977
Richard L. Thomas, Examiner
New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

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

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO
August 12, 1977



STATE GEOLOGIST
EMERY C. ARNOLD

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

Re: CASE NO. 5995
ORDER NO. R-5506

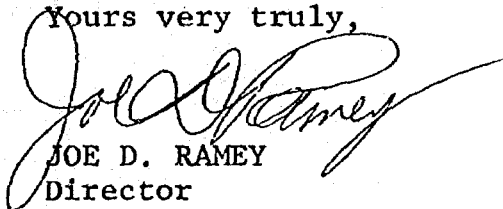
Applicant:

Tenneco Oil Company

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	<u>X</u>
Artesia OCC	<u>X</u>
Aztec OCC	<u>X</u>

Other _____

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5995
Order No. R-5506

APPLICATION OF TENNECO OIL COMPANY
FOR DUAL COMPLETIONS AND WATERFLOOD
EXPANSIONS, MCKINLEY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 20, 1977,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 9th day of August, 1977, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

- (1) That due public notice having been given as required
by law, the Commission has jurisdiction of this cause and the
subject matter thereof.
- (2) That the applicant, Tenneco Oil Company, seeks authority
to expand its South Hospah-Upper Sand and South Hospah-Lower
Sand Waterflood Projects by dually completing its Hospah Unit
Wells Nos. 58 and 59, located in Units F and G, respectively,
of Section 12, Township 17 North, Range 9 West, McKinley County,
New Mexico, in such a manner as to permit water injection into
each of said zones through parallel strings of tubing.
- (3) That the applicant proposes to complete said Hospah
Unit Wells Nos. 58 and 59 with parallel strings of tubing,
packers set immediately above the injection intervals, and
provide for testing to determine any leakage of the tubing,
casing or upper packers.
- (4) That the mechanics of the proposed dual completions
are feasible and in accordance with good conservation practices.
- (5) That before injection into either of said wells should
begin, the applicant should consult with the supervisor of the
Commission's district office at Aztec to determine an injection
pressure limitation such as to preclude fracturing of the
confining strata.

-2-

Case No. 5995
Order No. R-5506

(6) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(7) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby granted authority to expand its South Hospah-Upper Sand and South Hospah-Lower Sand Waterflood Projects by dually completing its Hospah Unit Wells Nos. 58 and 59, located in Units F and G, respectively, of Section 12, Township 17 North, Range 9 West, NMPM, McKinley County, New Mexico, in such a manner as to permit water injection into each of said zones.

PROVIDED HOWEVER, that each of said wells shall be equipped with parallel strings of 2 1/16-inch tubing, packers set immediately above each injection zone, and that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That prior to commencing injection into either of the subject wells, the operator shall consult with the supervisor of the Commission's district office at Aztec to determine an injection pressure limitation such as to preclude fracturing of the confining strata in said projects.

(3) That the injection wells or systems shall be equipped with pop-off valves or acceptable substitutes which will limit the wellhead pressure on the injection wells to a pressure no higher than that determined pursuant to Order No. (2) above.

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

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

JCE D. RAMEY, Member & Secretary

SEAL
jr/

Dockets Nos. 25-77 and 26-77 are tentatively set for hearing on August 3 and August 17, 1977. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 20, 1977

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Hutter, Alternate Examiner:

- ALLOWABLE:** (1) Consideration of the allowable production of gas for August, 1977, from fifteen prorated pools in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.
- (2) Consideration of the allowable production of gas for August, 1977, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.
- CASE 5982:** Application of Sam H. Snoddy for directional drilling and a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the directional drilling of two 14,000-foot Morrow gas wells in Unit P of Section 25, Township 20 South, Range 32 East, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, one of which would be vertically drilled to a depth of 4000 feet from a surface location 660 feet from the South line and 760 feet from the East line of said Section 25, then directionally drilled in a North-Northwesterly direction and bottomed in the approximate center of the NE/4 of said Section 25, the N/2 of the section being dedicated to the well; the other well would be vertically drilled to a depth of 4000 feet from a surface location 760 feet from the South line and 660 feet from the East line of said Section 25, then directionally drilled in a West-Northwesterly direction and bottomed in the approximate center of the SW/4 of said Section 25, which would be a 160-acre non-standard unit for said well.
- CASE 5983:** Application of Yates Petroleum Corporation for the amendment of Order No. R-5445, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5445 to provide for a 200 percent risk factor for drilling the unit well rather than 20 percent. Said order pooled the N/2 of Section 19, Township 20 South, Range 25 East, Eddy County, New Mexico.
- CASE 5984:** Application of Morris R. Antweil for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in and underlying the N/2 of Section 20, Township 18 South, Range 25 East, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. 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 applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 5985:** Application of Orla Petco, Inc., for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its B. K. Morrison Well No. 1 to be located 1980 feet from the South line and 660 feet from the West line of Section 5, Township 19 South, Range 26 East, Eddy County, New Mexico, the S/2 of said Section 5 to be dedicated to the well.
- CASE 5986:** Application of J. Gregory Merrion for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Devils Fork-Gallup and Mesaverde production in the wellbore of his Edna Well No. 2 located in Unit O of Section 7, Township 24 North, Range 6 West, Rio Arriba County, New Mexico.
- CASE 5987:** Application of Getty Oil Company for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Gallup, Mesaverde, and Dakota production in the wellbore of its C. W. Roberts Well No. 5, located in Unit F of Section 17, Township 25 North, Range 3 West, Rio Arriba County, New Mexico. Applicant also seeks approval for the reopening of its C. W. Roberts Wells Nos. 3 and 4 and its Lydia Rentz Well No. 4 to commingle Dakota, Mesaverde, and possibly Gallup production within the wellbores of the above-described wells located in Units O, M, and A of Sections 18, 17, and 19, respectively, of the same township.
- CASE 5988:** Application of Continental Oil Company for three unorthodox locations, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 2-A of the Blanco-Mesaverde Gas Pool Rules, to permit the drilling of its AXI Apache "N" Wells Nos. 12 and 14 in the NW/4 of Sections 11 and 1, respectively, and its AXI Apache "O" Well No. 10 in the SE/4 of Section 3, all in Township 25 North, Range 4 West, Rio Arriba County, New Mexico. Each of said wells is the first Mesaverde well on its proration unit.

- CASE 5989: Application of Continental Oil Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Marshall Well No. 8 to be located 2600 feet from the South line and 1230 feet from the West line of Section 19, Township 23 South, Range 33 East, Cruz-Delaware Pool, Lea County, New Mexico.
- CASE 5990: Application of Continental Oil Company for an unorthodox location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its AXI Apache "D" Well No. 5 to be located 2310 feet from the North line and 990 feet from the West line of Section 19, Township 24 North, Range 4 West, Ballard-Pictured Cliffs Pool, Rio Arriba County, New Mexico.
- CASE 5991: Application of Continental Oil Company for capacity allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a capacity allowable for its Pearl "B" Well No. 4 located 330 feet from the South line and 2310 feet from the West line of Section 25, Township 17 South, Range 32 East, Maljarar Grayburg-San Andres Pool, Lea County, New Mexico.
- CASE 5992: Application of Burleson & Huff for compulsory pooling and a non-standard unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the SE/4 NW/4 of Section 14, Township 24 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to form a non-standard 40-acre gas proration unit to be dedicated to applicant's Cooper Well No. 1 located in Unit F of said Section 14, or in the alternative to drill another well at a standard location thereon. Also to be considered will be the cost of recompletion or of drilling and completing the unit 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 applicant as operator of the well and a charge for risk involved in recompleting or drilling said well.
- CASE 5993: Application of Lively Exploration Company for an exception to the provisions of Order No. R-5459, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the provisions of Order No. R-5459 to exclude its Chacra Well No. 7Y in Unit E of Section 35, Township 30 North, Range 8 West, San Juan County, New Mexico, from the vertical limits of the Blanco-Mesaverde Pool as defined by said order.
- CASE 5994: Application of Tenneco Oil Company for an exception to the provisions of Order No. R-5459, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the provisions of Order No. R-5459 to exclude its Florence Well No. 29-A in Unit F of Section 25, and its Northeast Blanco Unit Well No. 64 in Unit P of Section 24, both in Township 30 North, Range 8 West, San Juan County, New Mexico, from the vertical limits of the Blanco-Mesaverde Pool.
- CASE 5995: Application of Tenneco Oil Company for dual completions and waterflood expansions, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its South Hospah-Upper Sand and -Lower Sand Waterflood Projects by dually completing its Hospah Unit Wells Nos. 58 and 59, located in Units F and G, respectively, of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico, in such a manner as to permit water injection into each of said zones thru parallel strings of tubing.
- CASE 5996: Application of Petroleum Corporation of Texas for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Abo formation through the perforated interval from 6852 feet to 6877 feet in its Dexter Federal Well No. 3 located in Unit I of Section 22, Township 17 South, Range 30 East, Jackson Abo Pool, Eddy County, New Mexico.
- CASE 5997: Application of Atlantic Richfield Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for its East Drinkard Unit Area comprising 3080 acres, more or less, of Federal and fee lands in Sections 11, 12, 13, 14, 23 and 24, Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 5998: Application of Atlantic Richfield Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its East Drinkard Unit Area, Lea County, New Mexico, by the injection of water into the Drinkard formation through 30 wells.
- CASE 5999: Application of Atlantic Richfield Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for its East Blinebry Unit Area comprising 3080 acres, more or less, of Federal and fee lands in Sections 11, 12, 13, 14, 23, and 24, Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 6000: Application of Atlantic Richfield Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its East Blinebry Unit Area, Lea County, New Mexico, by the injection of water into the Blinebry formation through 38 wells.

K.B. Elev. 7039'

Location:

2580' FNL-1640' FEL
Sec. 12, T17N, R9W
McKinley County,
New Mexico

88'

8 5/8" Csg. 24# K-55
Cmt'd. to Surface w/75 Sks
"B" Cmt.

2 1/16" 3.25# I J Tubing

1570

Baker Model "B" Snap Tension
Dual Packer at

DST 1598' to 1618'

2 1/16" 3.25 I J Tubing

1630'

Baker Model 45B Lok-Set
Packer at

1634'

5 1/2" Csg. 15.5# K-55
Cmt'd. to Surface w/
Sks. "A" Cmt. and 2%
CaCl₂

TD 1679'

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION

Tenneco EXHIBIT NO. 2

CASE NO. 5995

Submitted by

Hearing Date

All Measurements Based On K.B. Elev.

TENNECO OIL COMPANY

SUBSIDIARY OF TENNECO INC.

SOUTH HOSPAH FIELD
McKINLEY COUNTY, NEW MEXICO

SCHEMATIC DIAGRAM OF
PROPOSED WATER INJECTION WELL

NO. 58

SCALE IN FEET
NONE

K.B. Elev. 7007'

Location:

2340'FNL-2500'FEL
Sec.12, T17 N, R9 W
McKinley County,
New Mexico

89'

8 5/8" Csg. 24# K-55
Cmt'd. to Surface w/75 Sks
"B" Cmt.

2 1/16" 3.25# I J Tubing

1560'

DST 1566' to 1596'
4 SPF

Baker Model "B" Snap Tension
Dual Packer at

2 1/16" 3.25 I J Tubing

1620'

DST 1631' to 1641'
2 SPF

Baker Model 45B Lok-Set
Packer at

5 1/2" Csg. 15.5# K-55
Cmt'd. to Surface w/
Sks. "A" Cmt. and 2%
CaCl₂

PBTD 1653'
TD 1657'

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION

Tenneco. EXHIBIT NO. 3

CASE NO. 5995

Submitted by

Heating Date

All Measurements Based On K.B. Elev.

TENNECO OIL COMPANY

PROPERTY OF TENNECO OIL

SOUTH HOSPAH FIELD
McKINLEY COUNTY, NEW MEXICO

SCHEMATIC DIAGRAM OF
PROPOSED WATER INJECTION WELL

NO. 59

SCALE IN FEET
NONE

CARDINAL
ANALYTICAL SERVICE
LABORATORY

33435
03-29-77

COMPANY TENNECO OIL CO.
ADDRESS FARMINGTON, N.M.
ATTENTION
RECENT TREATMENT

COUNTY SAN JUAN
FIELD
FORMATION
DATE - -
SAMPLED

LEASE HOSPAH
WELL NO. LOWER
DEPTH
SAMPLE
SOURCE

WATER ANALYSIS

SPECIFIC GRAVITY	1.0000 AT 75F	PH	9.30		
	MG/L	MEQ		MG/L	MEQ
CHLORIDE	500.00	14.08	CALCIUM	16.00	0.80
BICARBONATE	649.04	10.64	MAGNESIUM	163.00	14.00
SULFATE	880.00	18.33	DISS. IRON	0.00	0.00
SULFIDE	PRESENT		SODIUM	649.93	28.26
TOTAL HARDNESS	1100.00		TOTAL DISSOLVED SOLIDS	2862.97	86.12
RESISTIVITY	7.000 OHM METERS AT 75F				

SCALING TENDENCIES

CALCIUM CARBONATE		CALCIUM SULFATE			
STABILITY INDEX	TEMP.	CON.	SOL.	TEMP.	INDX.
3.93	60F	0.80	13.26	50F	-12.46
3.93	99F	0.80	15.43	95F	-14.63
3.93	140F	0.80	15.26	122F	-14.46
3.93	180F	0.80	12.05	176F	-11.25

INDICES GREATER THAN ZERO INDICATE POSITIVE SCALING TENDENCIES
STABILITY INDEX LESS THAN ZERO INDICATES POSITIVE CORROSION TENDENCIES
ERROR IN STABILITY INDEX IS DIRECTLY PROPORTIONAL TO THE
LOSS OF ANY ACID GASES FROM SAMPLE WHILE IN TRANSIT TO LAB

REMARKS

ANALYST STEVENS
REPRESENTATIVE BROOKS

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
TRAW EXHIBIT NO. 4
CASE NO. 5995
Submitted by _____
Hearing Date _____

CARDINAL
ANALYTICAL SERVICE
LABORATORY

33434
03-29-77

COMPANY TENNECO OIL CO.
ADDRESS FARMINGTON, N.M.
ATTENTION
RECENT TREATMENT

COUNTY SAN JUAN
FIELD
FORMATION
DATE - -
SAMPLED

LEASE HOSPAH
WELL NO. UPPER
DEPTH
SAMPLE
SOURCE

WATER ANALYSIS

SPECIFIC GRAVITY	1.0000 AT 75F	PH	9.60		
	MG/L	MEQ		MG/L	MEQ
CHLORIDE	1400.00	39.44	CALCIUM	440.00	22.00
BICARBONATE	912.56	14.96	MAGNESIUM	72.00	6.00
SULFATE	450.00	9.38	DISS. IRON	0.00	0.00
SULFIDE	PRESENT		SODIUM	822.75	35.77
TOTAL HARDNESS	1400.00		TOTAL DISSOLVED SOLIDS	4097.31	127.54
RESISTIVITY	7.000 OHM METERS AT 75F				

CALCIUM CARBONATE		SCALING TENDENCIES		CALCIUM SULFATE		
STABILITY INDEX	TEMP.	CON.	SOL.	TEMP.	INDX.	
5.82	60F	9.38	14.84	50F	-5.47	
5.82	99F	9.38	17.09	95F	-7.71	
5.82	140F	9.38	16.92	122F	-7.54	
5.82	180F	9.38	13.58	176F	-4.20	

INDICES GREATER THAN ZERO INDICATE POSITIVE SCALING TENDENCIES
STABILITY INDEX LESS THAN ZERO INDICATES POSITIVE CORROSION TENDENCIES
ERROR IN STABILITY INDEX IS DIRECTLY PROPORTIONAL TO THE
LOSS OF ANY ACID GASES FROM SAMPLE WHILE IN TRANSIT TO LAB

REMARKS

ANALYST STEVENS
REPRESENTATIVE BROOKS

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Tenneco EXHIBIT NO. 5
CASE NO. 5995
Submitted by _____
Hearing Date _____



ANALYTICAL SERVICE LABORATORY REPORT WATER ANALYSIS

Company: TENNECO OIL COMPANY
FARMINGTON, NEW MEXICO
DISTRICT 15

Date Printed 1-Mar-77
Analysis No. 77V326
Date Sampled 2-1-77
Date Received 2-22-77

Sample Marked: HOSPANFIELD IN. PUMP

WATER ANALYSIS			
DISSOLVED SOLIDS			RESULTS AS COMPOUNDS
CATIONS	mg/l	meq/l	mg/l
Sodium, Na (calc.)	2830.	125.	
Calcium, Ca	15.2	.8	as CaCO ₃ 38.0
Magnesium, Mg	3.9	.3	as CaCO ₃ 16.0
Barium, Ba	2.4	.0	as BaSO ₄ 4.0
Sum of Cations	2900.	126.	
ANIONS			
Chloride, Cl	3040.	85.5	as NaCl 5000.
Sulfate, SO ₄	395.	8.2	as Na ₂ SO ₄ 585.
Carbonate, CO ₃			as CaCO ₃
Bicarbonate, HCO ₃	1930.	32.4	as CaCO ₃ 1620.
Sum of Anions	5410.	126.	
TDS CALCULATED	8300.		
Total Iron, Fe		TRACE	as Fe
Acid to Phen, CO ₂	4.4	.1	as CaCO ₃ 10.0
Sulfide, H ₂ S	219.		
OTHER PROPERTIES		CaCO ₃ STABILITY	CaSO ₄ SOLUBILITY
		(Index)	(meq/l)
pH (units)	7.5	-0.0	8 70F
Spec Gravity	N.D.	.6	9 120F
Turbidity (Jtu)	.0 N.D.	1.0	10 170F

Remarks: ALL ANALYSIS RUN IN FIELD

R. A. GILSON (3)
D. G. MORSE
H. E. KLEIN

P. O. BOX 87 • SUGAR LAND, TEXAS 77478



Trademarks of Nalco Chemical Company.

NALCO CHEMICAL COMPANY
REGIONAL ANALYTICAL LABORATORIES

Box 127

Anaheim, CA 92805

6216 W. 66th Place

Chicago, Illinois 60638

Box 16A

Paulsboro, NJ 08066

Box 87

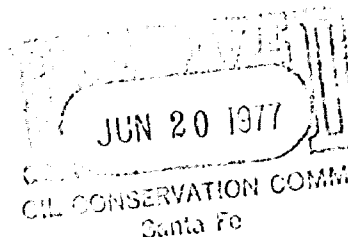
Sugar Land, TX 77478

Tenneco Oil
A Tenneco Company

Suite 1200
Lincoln Tower Building
Denver, Colorado 80203
(303) 292-9920



June 10, 1977



State of New Mexico
Oil & Gas Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Re: Application for Multiple Completion -
Section C, Rule 112-A - Tenneco Oil
Company Hospah Well Nos. 32, 58 and
59.

Gentlemen:

We are attaching in duplicate our Applications for Multiple Completion (Form C-107), diagrammatic sketch, well location plat, and copies of the producing pay zones of the Formation Density Logs or Gamma Ray Logs for the above captioned wells in order to secure permits to dually produce our Hospah No. 32 well and dually inject into our Hospah Well Nos. 58 and 59.

Our Hospah No. 32 is the only well having an offset operator other than Tenneco. We have submitted a copy of our application for this well to Tesoro Petroleum Company and are requesting that they submit the waiver letter direct to your office.

If any further information is needed, please contact our office.

Yours very truly,

TENNECO OIL COMPANY

DDM/TFD/jf
Attachments
cc; NMOGCC, Aztec, New Mexico

Letter of Waiver

Tesoro Petroleum Co. hereby waives any objections to Tenneco Oil Company proposed dual completion of Hospah No. 32 in the Upper and Lower zones.

Name _____
Title _____
Tesoro Petroleum Company

*ret # 58 & 59
for hearing
do # 32 administrative
note to DD Myers 6/21*

Case 5995

OIL CONSERVATION COMMISSION
DISTRICT

JUN 23 1977
OIL CONSERVATION COMM.
Santa Fe

OIL CONSERVATION COMMISSION
BOX 2088
SANTA FE, NEW MEXICO

DATE 6-20-77

RE: Proposed MC ☒
Proposed DHC _____
Proposed NSL _____
Proposed SWD _____
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated 6-20-77
for the TENNIS OIL CO HOSPITAL # 221 F-12-17M-9W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

APPROVE

Yours very truly,

W. E. Hapner

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
APPLICATION FOR MULTIPLE COMPLETION

Case
Form C-107
5-1441
JUN 23 1977
5995
OIL CONSERVATION COMMISSION
SANTA FE

Operator Tenneco Oil Company		County McKinley	Date 6-10-77
Address 1860 Lincoln, Suite 1200, Denver, Co. 80295		Lease NM-081208	Well No. Hospah #58
Location of Well F	Unit 12	Township 17 North	Range 9 West

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES ☒ NO ☐ **Tenneco Oil Company**
2. If answer is yes, identify one such instance: Order No. **R-3943**; Operator Lease, and Well No.: **Hospah #37X**

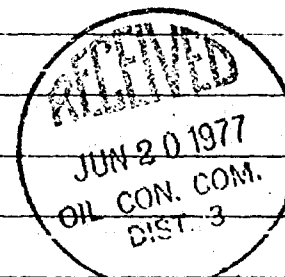
3. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Upper Hospah		Lower Hospah
b. Top and Bottom of Pay Section (Perforations)	4 JSPF 1598' - 1618'		1656' - 1679' Open hole
c. Type of production (Oil or Gas)	Injection		Injection
d. Method of Production (Flowing or Artificial Lift)	Injection		Injection

4. The following are attached. (Please check YES or NO)

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.) |

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

There are no adjacent offset operators on this well. Tenneco has the surrounding acreage.



6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES ☐ NO ☐ . If answer is yes, give date of such notification **None needed.**

CERTIFICATE: I, the undersigned, state that I am the **Div. Production Manager** of the **Tenneco Oil Company** (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

A.D. Myers
Signature

*Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard perforation unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

copy
Memo

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

6/21

From
D. S. NUTTER
CHIEF ENGINEER

To D. D. Myers, Tennesse-Denver
Inasmuch as your application
for dual completion of your
Hospah Nos. 58 and 59 are for
dual injection, it will be
necessary to set these wells
for hearing. The # 32 is
a conventional oil/oil dual
so we can handle it adminis-
tratively without hearing.
Next available hearing date is
July 20. I will place # 58 & 59
on that docket unless I hear
from you to the contrary
by June 29. *He*

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
APPLICATION FOR MULTIPLE COMPLETION

Case 5995

Form C-107
5-1-61

Operator Tenneco Oil Company		County McKinley	Date 6-10-77
Address 1860 Lincoln, Suite 1200, Denver, Co. 80295		Lease NM-081208	Well No. Hospah #58
Location of Well F	Unit 12	Section 17 North	Range 9 West

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES ☒ NO ☐ **Tenneco Oil Company**
2. If answer is yes, identify one such instance: Order No. **R-3943**; Operator Lease, and Well No.: **Hospah #37X**

2 oil-oil dual

3. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Upper Hospah		Lower Hospah
b. Top and Bottom of Pay Section (Perforations)	4 JSPF 1598' - 1618'		1656' - 1679' Open hole
c. Type of production (Oil or Gas)	Injection		Injection
d. Method of Production (Flowing or Artificial Lift)	Injection		Injection

4. The following are attached. (Please check YES or NO)

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.) |

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

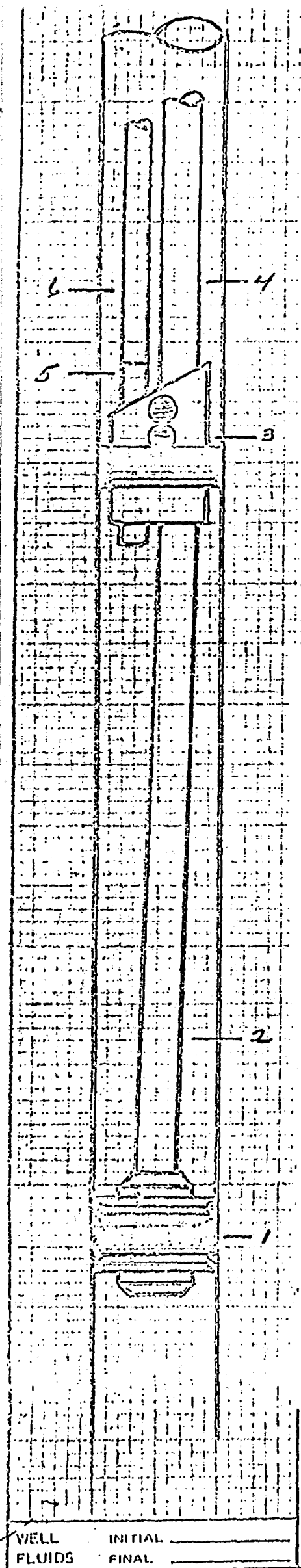
There are no adjacent offset operators on this well. Tenneco has the surrounding acreage.

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES ☐ NO ☐ . If answer is yes, give date of such notification **None needed.**

CERTIFICATE: I, the undersigned, state that I am the **Div. Production Manager** of the **Tenneco Oil Company** (company), and that I am authorized by said company to make this report, and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

L.A. Myers
Signature

*Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.










OPERATOR Tenneco
 WELL # through 58
 FIELD _____
 COUNTY McKinley
 STATE N.m.
 DATE 3/9/77
☐ NEW COMPLETION ☒ WORKOVER







Case 5995



	CASING	LINER	Case 5995		
			1	2	3
SIZE <u>5 1/2</u>			<u>2 1/2</u>	<u>2 1/2</u>	
WEIGHT <u>15.5</u>					
GRADE <u>K-55</u>					
THREAD _____			<u>1028</u>	<u>1028</u>	
DEPTH _____			<u>7.5</u>	<u>7.5</u>	

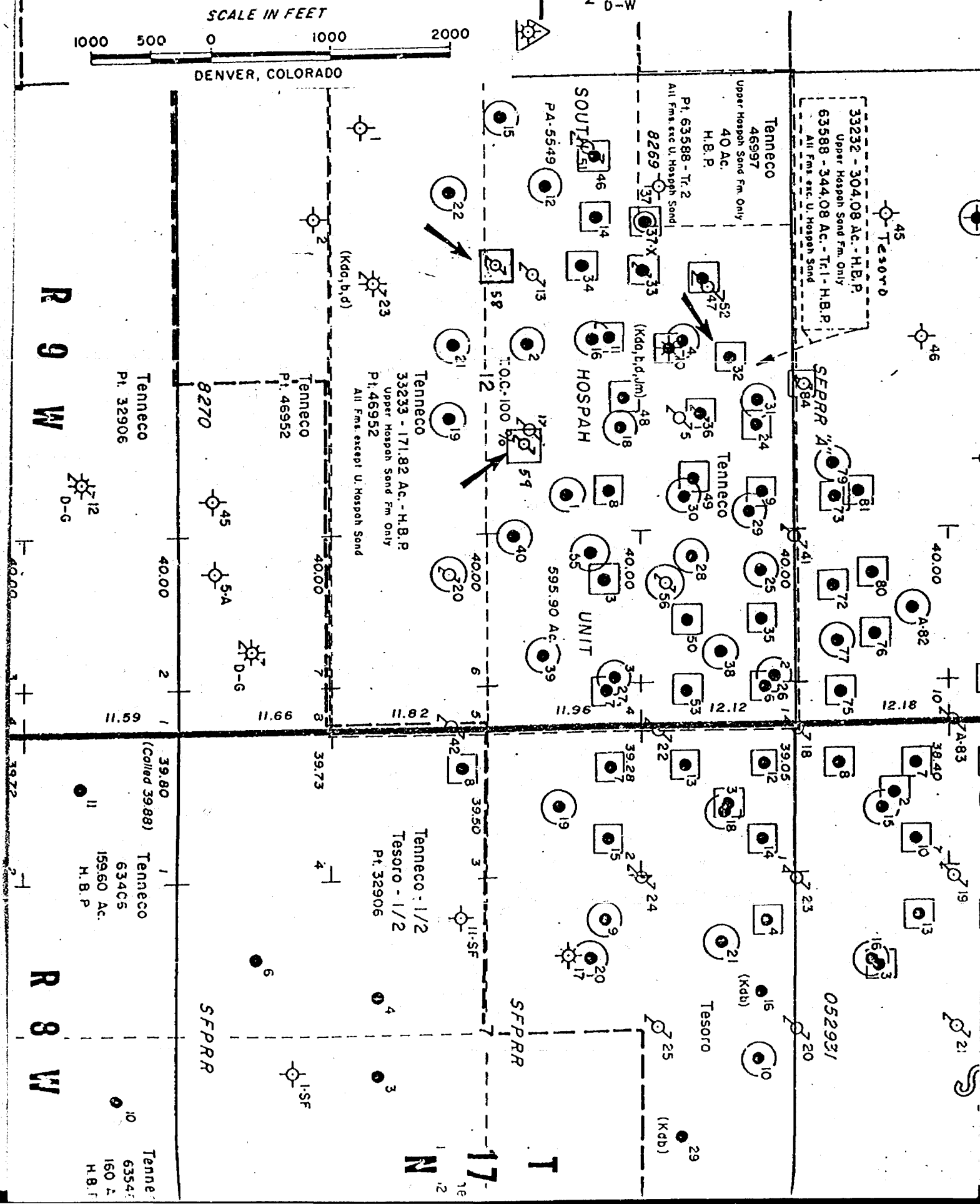
ITEM NO.	EQUIPMENT AND SERVICES	ESTIMATE
1	<u>H.S.P. Lat-Sol Retractable Casing</u> <u>Reamer of 2.062 I.D. Box & Pin</u>	<u>1471.00</u>
2	<u>2.062 I.D. Tubing</u>	
3	<u>45AL 1.900 x 1.877 Model "B" Snap</u> <u>Snap Dual Tension Reamer of</u> <u>2.062 I.D. Box & Pin L.S.</u>	<u>1811.00</u>
4	<u>2.062 I.D. Tubing</u>	
5	<u>1.877 Model "C" Selective "3" Reamer</u> <u>Seal Nipple of 2.062 I.D. Box</u>	<u>331.00</u>
6	<u>2.062 I.D. Tubing</u>	

WELL INITIAL _____
 FLUIDS FINAL _____

-  Location - Drlg., Testing, or TA
-  Oil Well - Dakota "D" Zone
-  Gas Well - Dakota "D" Zone
-  Oil Well - Upper Hospah Zone
-  Water Injection Well - Upper Hospah Zone
-  Oil Well - Lower Hospah Zone
-  Dual Oil Well - Upper & Lower Hospah Zones

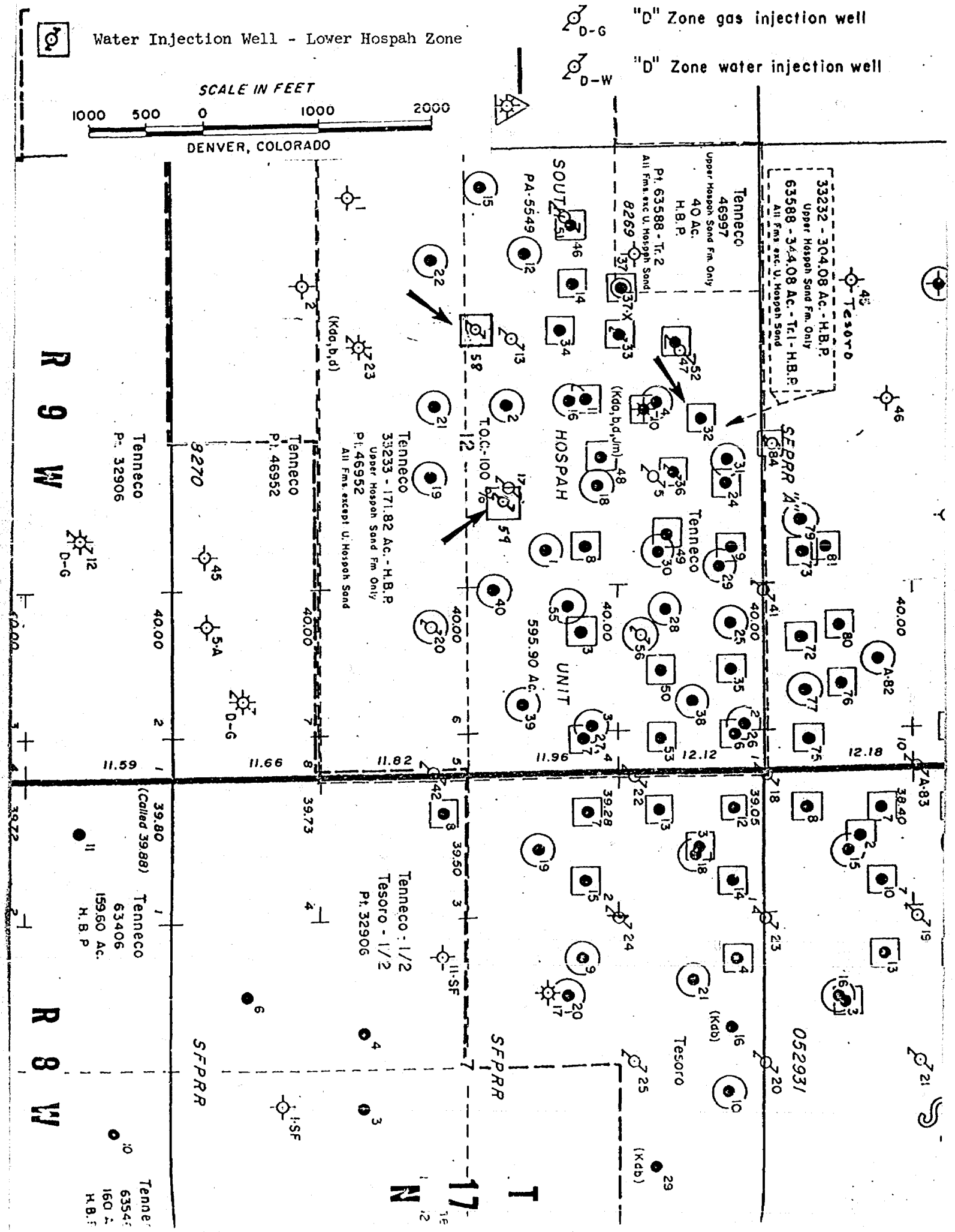
- Cone 599
- | | |
|--|---|
|  | Dual Well - Lower Hospah Oil & Dakota Gas |
|  | Oil Well - Dakota "A" Zone |
|  | Gas Well - Dakota "A" Zone |
| 
(Kdb) | Oil Well - Dakota "B" Zone |
|  | Dry Hole |
|  | Unit Outline |

-  "D" Zone gas injection well
 "D" Zone water injection well



- Location - Drilling, Testing, or TA
- Oil Well - Dakota "D" Zone
- Gas Well - Dakota "D" Zone
- Oil Well - Upper Hospah Zone
- Water Injection Well - Upper Hospah Zone
- Oil Well - Lower Hospah Zone
- Dual Oil Well - Upper & Lower Hospah Zones

- Dual Well - Lower Hospah Zone & Dakota Gas
- Oil Well - Dakota "A" Zone
- Gas Well - Dakota "A" Zone
- Oil Well - Dakota "B" Zone
- (Kdb)
- Dry Hole
- Unit Outline
- "D" Zone gas injection well
- "D" Zone water injection well



NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
APPLICATION FOR MULTIPLE COMPLETION

Case 5995
Form C-107
5-1-61

Operator Tenneco Oil Company		County McKinley		Date 6-10-77
Address 1860 Lincoln, Suite 1200, Denver, Co. 80295		Lease NM-081208		Well No. Hospah #58
Location of Well	Unit F	Section 12	Township 17 North	Range 9 West

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES ☒ NO ☐
2. If answer is yes, identify one such instance: Order No. R-3943; Operator Lease, and Well No.: Tenneco Oil Company Hospah #37X

3. The following facts are submitted:

	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Upper Hospah		Lower Hospah
b. Top and Bottom of Pay Section (Perforations)	4 JSPF 1598' - 1618'		1656' - 1679' Open hole
c. Type of production (Oil or Gas)	Injection		Injection
d. Method of Production (Flowing or Artificial Lift)	Injection		Injection

4. The following are attached. (Please check YES or NO)

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.) |

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

There are no adjacent offset operators on this well. Tenneco has the surrounding acreage.

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES ☐ NO ☐. If answer is yes, give date of such notification None needed.

CERTIFICATE: I, the undersigned, state that I am the Div. Production Manager of the Tenneco Oil Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

A. D. Myers
Signature

*Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard perforation unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3660
Order No. R-3325

APPLICATION OF TENNECO OIL COMPANY
FOR A WATERFLOOD PROJECT AND FOR AN
EXCEPTION TO RULE 104 C I, MCKINLEY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 27, 1967,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of October, 1967, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That the applicant, Tenneco Oil Company, seeks an
exception to Rule 104 C I of the Commission Rules and Regulations
to permit the drilling of more than one well per 40-acre tract,
said wells being located closer than 660 feet to each other
and each 40-acre tract subject to a single 40-acre allowable.

(3) That the applicant requests the above-described
exception apply to both the South Hospah Upper Sand Oil Pool
and the South Hospah Lower Sand Oil Pool and be applicable to
Tenneco's leases comprising all of Section 12, Township 17 North,
Range 9 West, NMPM, McKinley County, New Mexico.

(4) That in order to allow Walker Brothers Oil Company and
Tesoro Petroleum Corporation, operators in the subject pools, the

opportunity to produce their just and equitable share of the oil in the aforesaid pools without damage to the reservoir through excessive water coning, Walker Brothers Oil Company and Tesoro Petroleum Corporation were authorized by Order No. R-3270 to develop the S/2 of Section 6, the N/2 and SW/4 of Section 7, both in Township 17 North, Range 8 West, and the SE/4 of Section 1, Township 17 North, Range 9 West, NMPM, South Hospah Lower Sand Oil Pool and South Hospah Upper Sand Oil Pool, McKinley County, New Mexico, to a density of more than one well per 40-acre tract.

(5) That in order to prevent waste and protect correlative rights, the applicant, Tenneco Oil Company, an operator in the subject pools, should be allowed the opportunity to develop its leases in the subject pools to the same density as the Walker Brothers Oil Company's and Tesoro Petroleum Corporation's leases.

(6) That the applicant also seeks permission to institute a waterflood project by the injection of water into the Upper Sand of the South Hospah Upper Sand Oil Pool on its Hospah and Hospah "A" Leases through five wells located in Units A, B, F, G, and H of Section 12, Township 17 North, Range 9 West, NMPM, McKinley County, New Mexico.

(7) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(8) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(9) That the subject waterflood project should be approved, and that the waterflood project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to develop its Hospah and Hospah "A" Leases comprising all of Section 12, Township 17 North, Range 9 West, NMPM, South Hospah Upper Sand Oil Pool and South Hospah Lower Sand Oil Pool, McKinley County, New Mexico, to a density of more than one well per 40-acre tract;

PROVIDED HOWEVER, that no well shall be drilled nearer than 330 feet to the outer boundary of said tract and no nearer than

CASE No. 3660
Order No. R-3325

200 feet to another well drilling to or capable of producing from the same pool;

PROVIDED FURTHER, that a 40-acre proration unit in the South Hospah Upper Sand Oil Pool or the South Hospah Lower Sand Oil Pool shall be subject to a 40-acre unit allowable for wells in the South Hospah Upper Sand Oil Pool or South Hospah Lower Sand Oil Pool, whichever is applicable, regardless of the number of wells on the unit.

(2) That the applicant is hereby authorized to institute a waterflood project in the South Hospah Upper Sand Oil Pool on its Hospah and Hospah "A" Leases by the injection of water into the Upper Sand through the following-described wells in Section 12, Township 17 North, Range 9 West, NMPM, McKinley County, New Mexico:

OPERATOR	LEASE	WELL NO.	LOCATION
Tenneco	Hospah	To be drilled	SW/4 NE/4 NE/4
Tenneco	Hospah	5	SW/4 NW/4 NE/4
Tenneco	Hospah	To be drilled	SW/4 SE/4 NW/4
Tenneco	Hospah	To be drilled	SW/4 SW/4 NE/4
Tenneco	Hospah	To be drilled	SW/4 SE/4 NE/4

(3) That the subject waterflood project is hereby designated the Tenneco South Upper Hospah Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

S E A L

esr/

DRAFT

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5995

Order No. R-_____

Application of Tenneco Oil Company for dual completions and waterflood expansions, McKinley County, New Mexico.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on _____,
19____, at Santa Fe, New Mexico, before Examiner _____.

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

FINDS:

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

(2) That the applicant, Tenneco Oil Company,

seeks authority to expand its South Hospah-Upper Sand and -Lower Sand Waterflood Projects by dually completing its Hospah Unit Wells Nos. 58 and 59, located in Units F and G, respectively, of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico, in such a manner as to permit water injection into each of said zones thru parallel strings of tubing.

(3) That the applicant proposes to complete said Hospah Unit Wells Nos. 58 and 59 with parallel strings of tubing, packers set immediately above the injection intervals, and provide for testing to determine any leakage of the tubing, casing or upper packers.

(4) That the mechanics of the proposed dual completions ^{feasible and} are in accordance with good conservation practices.

(5) That before injection into either of said wells should begin, the applicant should consult with the supervisor of the Commission's district office at Altec to determine ~~the~~ an injection pressure limitation such as to preclude fracturing of the confining strata.

(6) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(7) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

It Is Therefore Ordered:

(1) That the applicant, ~~Robert~~ ^{granted authority} ~~Tennessee~~ Oil Company, is hereby ~~granted authority~~ to expand its South Hospah - Upper Sand and Lower Sand Water Flood Projects by dually completing its Hospah Unit Wells Nos. 58 and 59, located in Units F and G, respectively, of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico in such a manner as to permit water injection into each of said zones.

Provided However: That each of said wells shall be equipped with parallel strings of 2 1/16-inch tubing, packers set immediately above ~~the injection~~ each injection zone, ~~at the~~

that the casing-tubing annulus shall be filled with an inert fluid, and that a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That prior to commencing injection into either of the subject wells, the operator shall consult with the supervisor of the Commission's district office at Harte to determine an injection pressure limitation such as to preclude fracturing of the confining strata in said projects.

(3) That the injection well or system shall be equipped ~~with a~~ pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to ~~no~~

~~than the~~
a pressure no higher than that determined pursuant to Order No. (2) above.

(4) Jurisdiction

DRAFT

dr/

in

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5995

Order No. R- 5506

APPLICATION OF TENNECO OIL COMPANY
FOR DUAL COMPLETIONS AND WATERFLOOD
EXPANSIONS, MCKINLEY COUNTY, NEW MEXICO. *JD*

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 20,
19 77, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this day of August, 1977, the Commission,
a quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That the applicant, Tenneco Oil Company, seeks authority
to expand its ^{South Hospah} South Hospah-Upper Sand and -Lower Sand Waterflood
Projects by dually completing its Hospah Unit Wells Nos. 58 and
59, located in Units F and G, respectively, of Section 12,
Township 17 North, Range 9 West, McKinley County, New Mexico, in
such a manner as to permit water injection into each of said
zones through parallel strings of tubing.

(3) That the applicant proposes to complete said Hospah Unit Wells Nos. 58 and 59 with parallel strings of tubing, packers set immediately above the injection intervals, and provide for testing to determine any leakage of the tubing, casing or upper packers.

(4) That the mechanics of the proposed dual completions are feasible and in accordance with good conservation practices.

(5) That before injection into either of said wells should begin, the applicant should consult with the supervisor of the Commission's district office at Aztec to determine an injection pressure limitation such as to preclude fracturing of the confining strata.

(6) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(7) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby granted authority to expend its South Hospah-Upper Sand and *South* *Hospah*-Lower Sand Waterflood Projects by dually completing its Hospah Unit Wells Nos. 58 and 59, located in Units F and G, respectively, of Section 12, Township 17 North, Range 9 West, NMPM, McKinley County, New Mexico, in such a manner as to permit water injection into each of said zones.

PROVIDED HOWEVER, that each of said wells shall be equipped with parallel strings of 2 1/16-inch tubing, packers set immediately above each injection zone, ^{and} that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That prior to commencing injection into either of the subject wells, the operator shall consult with the supervisor of the Commission's district office at Aztec to determine an injection pressure limitation such as to preclude fracturing of the confining strata in said projects.

(3) That the injection wells or system shall be equipped with pop-off valves or acceptable substitutes which will limit the wellhead pressure on the injection wells to a pressure no higher than that determined pursuant to Order No. (2) above.

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

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

