

4584

Application
Transcripts.

Small Exhibits

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

September 1, 1971

IN THE MATTER OF:)
)
)
)

Application of Tenneco Oil)
Company for gas injection,)
McKinley County, New Mexico.)
)

Case No. 4584

BEFORE: ELVIS A. UTZ, EXAMINER

TRANSCRIPT OF HEARING

1 MR. UTZ: Case 4584.

2 MR. HATCH: Case 4584. Application of Tenneco Oil
3 Company for gas injection, McKinley County, New Mexico.

4 MR. KELLY: Booker Kelly of White, Gilbert, Koch,
5 Kelly and McCarthy, appearing on behalf of the applicant. We
6 have one witness, and I would ask that he be sworn.

7 (Witness sworn)

8 MR. KELLY: Could I ask for other appearances?

9 MR. UTZ: Are there other appearances?

10 MR. STEVENS: Don Stevens, with McDermott, Connelly
11 and Stevens, representing Alan Antweil and overriding royalty
12 owners in the field. We have no witnesses.

13 MR. UTZ: Are there others?

14 (Whereupon, Tenneco's Exhibits A through G were
15 marked for identification.)

16 WILLIAM MELNAR

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

19 DIRECT EXAMINATION

20 BY MR. KELLY:

21 Q Would you state your name, by whom employed and position,
22 please?

23 A My name is William Melnar. I am the District Petroleum
24 Engineer for Tenneco Oil Company, located in Denver,
25 Colorado.

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1 Q And have you previously qualified as an expert witness
2 in the field of petroleum engineering before this
3 commission?

4 A Yes, I have.

5 Q Would you state what Tenneco seeks by this application?

6 A Tenneco seeks permission to temporarily restore casinghead
7 gas produced from wells located in the Lone Pine-dakota
8 "D" Pool, McKinley County, New Mexico, by injecting the
9 gas into the Dakota "A" zone through perforations from
10 2547 to 2562 feet, and at Santa Fe Pacific Railroad Well
11 No. 2.

12 This well is located in the NW/4 SW/4 of Section 13,
13 Township 17 North, Range 9 West.

14 Q Now, referring to what has been marked Exhibit A, which is
15 a structure map of the "D" Pool, would you go over that
16 with the examiner?

17 A Okay. Exhibit A is a structure map on top of sixteen
18 percent porosity of the Dakota "D" sand.

19 This particular pool is bounded on the north by
20 faults, primary fault A, which has a throw of 165 to 175
21 feet, and to the west, south and east, by an all-water
22 contact.

23 The operators in this pool are -- there are four
24 operators, Tenneco, Tesoro, Gil Oil, and Beard Oil Company.
25 Tenneco operates the Santa Fe Pacific Railroad leases. I

1 will start it with Township 17 North and Range 9 West.
2 They operate Section 13, Section 24, and in Township 17
3 North, Range 8 West.

4 They operate the SE/4 of Section 7, the NW/4 NE/4
5 and SE/4 of Section 18.

6 Tesoro operates the SW/4 of Section 7, Santa Fe
7 Pacific Railroad lease. Gil Oil operates the SW/4 of
8 Section 18 which is a Baji lease and Beard Oil Company
9 operates the SW/4 and NW/4. I'll take that back. Operates
10 the SW/4 of Section 8 and the NW/4 of Section 17.

11 Q Now, as I understand it, the "D" zone is an oil pool,
12 right?

13 A Yes, sir, it is.

14 Q And you are currently flaring this gas?

15 A Yes. The gas that is produced with the oil is being
16 currently flared.

17 Q And the storing project is preliminary to the formation
18 of a unit for pressure maintenance or secondary recovery
19 project in the "D" zone?

20 A By reinjecting this produced gas back into the "D" zone.

21 Q I see. Now, referring to what has been marked Exhibit B,
22 would you go through that for the examiner?

23 A Exhibit B is your estimated casinghead gas production
24 from the Lone Pine-dakota "D" pool, and this gas
25 production is shown by lease, by operator, and has been

1 calculated based on the gas oil ratios taken in July 1971.

2 We can see by looking at the second page, at the
3 bottom, that the field total is approximately 3.4 million
4 cubic feet per day of the casinghead gas.

5 Q Now, has that rate increased substantially over the life
6 of this pool?

7 A It has increased from approximately two, two and a half
8 million initially or since full development to the present
9 3.4 million a day. It has increased slightly.

10 Q Now, this figure, the 3.4, would be your -- assuming no
11 more increase, would be your maximum, then, injection
12 volume?

13 A Be the maximum injection volume now.

14 Q And actually, there would probably be some of the gas that
15 is used for lease purposes; isn't that correct?

16 A Right. Some of this is being used for lease use, so
17 actual gas flaring may be somewhat less in this.

18 Q How many wells will be participating in this injection
19 program?

20 A There is a maximum of twenty-two wells.

21 Q Are you aware of any other wells that would be planned?

22 A There is a possibility that Beard Oil Company will drill
23 a well, a replacement well in the NW/4 of Section 17,
24 Township 17 North, Range 8 West.

25 Q But you are asking that any well in the Lone Pine-dakota

1 "D" pool would be able to participate in this injection
2 program?

3 A Yes, I do.

4 Q Now, what is the status of getting this system together?

5 A The status of this gas storage project, we have all the
6 working interest owners in the Dakota "D" pool, have
7 approved this project, and in fact, have authorized the
8 expenditure, \$350,000 to implement the program.

9 Tenneco has begun the actual construction, gathering
10 system constructions to implement this, and as of this
11 morning, our ditching is about ten percent complete. Our
12 installation of compressor facilities to compress gas is
13 twenty-five percent complete.

14 We estimate that we will have a complete project,
15 could be completed by November 1, 1971.

16 Q Now, referring to what has been marked Exhibit C, which is
17 the plan of the gathering system itself, would you explain
18 how it works?

19 A Exhibit C is a plan. It shows our plan of measuring and
20 gathering the casinghead gas from the Dakota "D" zone
21 prior to storage in the Dakota "A" zone. It shows that
22 well, the gas from each lease independently. Take this
23 gas to a central point, which will be on the Santa Fe
24 lease in Section 13, Township 17 North, Range 9 West.

25 At this point we will compress it to sufficient pres-

1 sure to inject it into Santa Fe Pacific Railroad Well No. 2.

2 Prior to injection of this well we will meter the
3 total volume of gas through a master meter, and our plan
4 is to then use this master meter as an official gas volume
5 allocated back to the lease based on the individual meter
6 volumes on each lease.

7 Q Now, as far as the "D" zone is concerned, what is the
8 royalty interest situation there?

9 A We have the fee tracts which are owned by Santa Fe Pacific
10 Railroad. We have the Don Ne Pah, the Yazzie, the Baji,
11 Kagoso, Toledo, and Dosh E Pi Henio leases that are Indian
12 leases. Those are the only leases which now produce
13 casinghead gas.

14 Q And you have been in contact with the U. S. G. S. as far
15 as the Indian leases; is that correct?

16 A Yes, we have.

17 Q Have you got a basic agreement with them worked out?

18 A Yes. We have discussed this project with the U. S. G. S.,
19 and we have agreed to pay royalty on the gas, casinghead
20 gas taken from the Indian leases at the time we begin
21 storage of this gas.

22 Q And what sort of proposal would you have with Santa Fe?

23 A We have proposed to the other royalty owners that they
24 be paid royalty on their gas at the time that the gas is
25 sold from the Dakota "D" pool at blowdown.

1 Q After you got a purchaser?

2 A After we got a purchaser from the lease, yes.

3 Q All right. Now, let's go over to the "A" zone and the
4 structure map shown on Exhibit D. Does the "A" zone
5 basically overlie the "D" zone?

6 A The "A" zone overlies the "D" zone only on the western
7 portion of the field, and as shown on Exhibit D, which is
8 a structure map on top of the sixteen percent porosity of
9 the Dakota "A" zone, this reservoir is bounded on the north
10 by a fault. It is bounded on the northeast and southwest
11 by a strand line or a boundary of no sand, and on the
12 northeast and southeast by a gas water contact.

13 Q Now, are you convinced that the "A" zone is a separate
14 isolated zone from the "D" zone?

15 A Yes, I am.

16 Q You have an exhibit showing the reservoir data of the "A"
17 zone, don't you?

18 A Yes, I have. Exhibit E is the tabulation of reservoir data
19 on the Dakota "A" zone, and I will just mention a few of
20 them.

21 The original reservoir pressure, our current reservoir
22 pressure, is 964 P. S. I. G. The gas, original gas in
23 place is 3, 373 million standard cubic feet, and we now
24 have two completions in the pool.

25 Q Now, let's go back to Exhibit D. Would you locate those

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1 wells?

2 A The two completions in the Dakota "A" zone are the Santa
3 Fe Pacific Railroad Well A-1 which is located in the
4 NW/4 of the NE/4 of Section 23, Township 17 North, Range
5 9 West. The other well is the Santa Fe Pacific Railroad
6 Well No. 2 located in the NW/4 of the SW/4 of Section 13,
7 Township 17 North, Range 9 West, and they are indicated
8 on the map by a red colored triangle.

9 Q And it is the No. 2 well that is a proposed injection well?

10 A Yes, it is.

11 Q What is the status of those wells now?

12 A Both wells are currently shut in.

13 Q And they are completed only in the "A" zone?

14 A Yes.

15 Q Now, you have previously testified you will be injecting
16 at high or higher than in the 3406, I think, mcf per day.

17 Do you have any alternate plans if that Well No. 2 won't
18 take this gas in that volume?

19 A Yes. If we cannot inject this gas, all this gas in the
20 Well No. 2, we would probably complete Well No. 8 which
21 is located in the NW/4 of the NW/4 of Section 24 as a gas
22 injection well or possibly drill other wells through that
23 zone.

24 MR. KELLY: Well, Mr. Examiner, we are requesting,
25 then, that the application or the order granted have a provision

1 which would state administrative approval of the additional
2 injection wells, if they should be necessary.

3 Q (Mr. Kelly continuing) Now, assuming your November 1 date,
4 you are only going to be injecting for two months -- no.
5 You are going to get it in by November 1. When do you
6 think you will get your unit?

7 A The Dakota "D" unit approved?

8 Q Yes.

9 A It should be somewhere within I'll say four to six months
10 from now or another -- say another four to five months
11 after the 1st of November.

12 Q So you will be injecting possibly for as long as six
13 months?

14 A I would say five is probably more of a maximum.

15 Q How do you stand on the unit? Do you anticipate any
16 problems getting that formed?

17 A The Dakota "D" unit, we have presented engineering data to
18 all the operators. The operators have agreed on a
19 participation formula. We have discussed the unit with
20 the U. S. G. S. in Roswell, and are in fair agreement.
21 We should be submitting the unit agreement and asking for
22 approval for this unit, mailing out this material this
23 week, so we are, I think, progressing well, and it should
24 be a matter of paperwork and various approvals now.

25 Q Well, assuming a five month injection period, what would

1 be the total gas roughly that would be injected into the
2 "A" zone?

3 A If you assume 3.4 million a day as an average for five
4 months it would be approximately five hundred million.
5 If the gas should increase you may be looking at six,
6 seven hundred.

7 Q Do you feel that the "A" zone will be capable of taking
8 that much gas?

9 A Yes, I do. There shouldn't be any problem in injecting
10 this quantity of gas in this reservoir.

11 Q What will be your injection pressure?

12 A We estimate that the pressure at the surface will be
13 approximately 1500 pounds.

14 Q Now, you have a log of the proposed injection wells which
15 is marked Exhibit F?

16 A Exhibit F is an induction electrical log on the proposed
17 gas injection well, and if we will turn to the bottom of
18 the log, approximately 2500 feet, we have marked the
19 Dakota "A" section. You can see that the top of the "A"
20 zone is at 2548 feet or at a sub-sea elevation of +4424.

21 The perforations in the well are 2549 to 54 and 2560
22 to 64. The well was completed through these perforations
23 and tested a calculated absolute open flow of 4.35 million
24 cubic feet per day.

25 Q Now, let's go to the diagrammatic sketch of your injection

1 well and explain the casing program to the examiner.

2 A The Exhibit G is a schematic diagram of the proposed
3 injection well, the Santa Fe Pacific Railroad Well No. 2.
4 It shows that we have set five and a half inch casing
5 at 2805 and cemented this with 300 sacks of cement.

6 The estimated top of the cement is at approximately
7 1500 feet. We proposed to inject the gas into this well
8 down to two and three-eighths inch tubing and under a
9 packer set at approximately 2515 feet, and through the
10 perforations at 2547 through 62.

11 We would have some sort of treated fluid in the
12 casing tubing annulus, and, of course, we would also have
13 a pressure gauge on the annulus to monitor the pressure
14 on it.

15 Q Do you anticipate any corrosion problems with it?

16 A We do not anticipate any problems.

17 Q In your opinion, would the injection as shown on Exhibit G
18 assure that the gas would be isolated to the "A" Zone?

19 A Yes, it would. We have taken pressures, of course, in the
20 "A" Zone, and it is definitely less than it was in the
21 "D" Zone, so we do have a good isolated completion in this
22 well.

23 Q Now, what efforts has Tenneco made to find a buyer for this
24 gas?

25 A Well, Tenneco has had some shut-in gas wells in this area

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- 1 for several years now, and over the years we have made
- 2 efforts to sell this gas, and we have contacted the
- 3 various -- tried to find companies in the area, and the
- 4 problem is that the lines are located -- the closest line
- 5 is twenty miles away, and there is insufficient reserves
- 6 to justify laying a line, and at the present time there is
- 7 no market for this, for any gas in this Hospah unit.
- 8 Q So there is really the only feasible solution to store the
- 9 gas so you can put it to beneficial use at a later time?
- 10 A Yes, it is.
- 11 Q Now, what is the ownership pattern as far as the "A" zone
- 12 is concerned?
- 13 A The ownership of the "A" zone gas, based on acre feet is
- 14 Tenneco owns 98 1/2 percent of the reservoir and Gil Oil
- 15 1.5 percent of the reservoir.
- 16 Q And how about royalty?
- 17 A The royalty in this reservoir is Santa Fe Pacific Railroad
- 18 has 97.6 percent, Indian leases have 2.1 percent, and the
- 19 other leases, which are federal, have .3 percent of the
- 20 acre feet.
- 21 Q And I assume that no royalty would be paid until the
- 22 volumes injected had been reduced? In other words, the
- 23 "D" zone gas had been reduced?
- 24 A Reduced, that's correct.
- 25 Q Now, in your opinion, would the granting of this application

1 protect the correlative rights of all parties in these
2 two pools, their zones and prevent waste?

3 A It certainly would.

4 Q Now, were Exhibits A through G prepared by you or someone
5 under your supervision?

6 A Yes, they were.

7 MR. KELLY: At this time we move the introduction
8 of Tenneco's Exhibits A through G.

9 MR. UTZ: Without objection, Tenneco's Exhibits A
10 through G will be entered into the record of this case.

11 MR. KELLY: That completes our direct examination.

12 MR. UTZ: Are there other questions?

13 MR. STEVENS: Mr. Examiner, could I direct some
14 questions of the witness?

15 MR. UTZ: Yes.

16 MR. STEVENS: Don Stevens with McDermott, Connelly
17 and Stevens, representing Alan Antweil and overriding royalty
18 owners.

19 CROSS-EXAMINATION

20 BY MR. STEVENS:

21 Q You spoke of blowdown that no royalty would be paid to
22 Santa Fe until a blowdown. When did you anticipate
23 blowdown? Do you plan to put it back into the "D" zone
24 reservoir?

25 A Yes, we would take this gas that we have injected in the

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1 "A" zone, and as soon as we got our unit put together and
2 started operations we would take this gas out first and
3 put it in the "D", and then it would be used in the "D"
4 zone pressure maintenance project, probably cycled for
5 several years and blowdown would occur in approximately
6 seven or eight years.

7 Now, this number is in the engineering report, which
8 Mr. Antweil does have a copy of it.

9 Q In other words, the blowdown, wherein you will start
10 selling this gas back out of the "D" zone reservoir?

11 A Right, to a purchaser.

12 Q Will be after basically the oil is depleted?

13 A Yes.

14 Q Or generally speaking --

15 A Yes. At that point we would pay royalty on this gas first
16 and any other gas that would be left.

17 Q You are not asking for an increase in allowable based upon
18 your beneficial use of this gas to the regular allowable
19 of 200 barrels per day?

20 A No. We are not.

21 Q Could you give us your reasons for not so asking?

22 A We feel like that it will be four to five months before
23 we have the unit approved and can start reinjection of
24 this gas into the "D" zone, and we feel like that if we
25 were to go to a double allowable we would, of course, lower

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1 our pressure considerably more in the reservoir, and this
2 could damage the overall performance of the reservoir.

3 Q Do you think possibly by the additional gas and oil coming
4 out of the reservoir during this interim period, then,
5 you might ultimately recover less oil?

6 A If this is possible, yes. It would also take a
7 considerable more amount of gas to repressure the
8 reservoir back to the original conditions which we
9 propose to in secondary recovery projects.

10 Q Now, you do plan to take gas from all the well currently
11 located in the field; is that correct?

12 A Yes.

13 Q In the event of mechanical problems or the possibility
14 that the well can't take the full amount of gas being
15 produced by the field, do you have any system for
16 proration among the wells or --

17 A No. As I testified earlier, we probably recomplete the
18 Santa Fe Pacific Well No. 8 or even drill additional
19 wells to get it into the ground in the "A" zone.

20 Q But a short interim period, would you contemplate shutting
21 down all the wells in the field if you couldn't take the
22 gas for a temporary period?

23 A I haven't really considered this possibility because we
24 really feel like that this well will take this amount of
25 gas, and we do have the wells in the Dakota "A" reservoir,

1 and it could be -- either have them now or could be
2 completed to take all this gas.

3 MR. STEVENS: I have no further questions, Mr.
4 Examiner.

5 MR. TRAYWICK: I would like to ask a question,
6 Mr. Examiner, if I may. I am Carl Traywick, Deputy Supervisor,
7 U. S. G. S., Roswell.

8 CROSS-EXAMINATION

9 BY MR. TRAYWICK:

10 Q Mr. Melnar, on this allowable schedule, Exhibit B, Santa
11 Fe Pacific Railroad No. 3 and No. 5 have allowables
12 greater than a hundred barrels a day. Why is that? I am
13 not familiar with the field rules.

14 A These two wells have a proration unit that is in excess of
15 eighty acres.

16 Q I see.

17 A There is some out lots along the east side of the section,
18 and this causes them to have a greater allowable.

19 Q And then the Don Ne Pah No. 1 has a smaller allowable?

20 A Yes. This well was penalized due to excessive ratio.

21 Q I see.

22 MR. TRAYWICK: Okay. Thank you.

23 MR. UTZ: Mr. Arnold?

24 CROSS-EXAMINATION

25 BY MR. ARNOLD:

1 Q If the allowable were reduced to, say, 50 barrels a day
2 during a construction period, how much gas do you estimate
3 would be saved or how much less gas produced on a --
4 do you think that it would be about --

5 A I would estimate over the next two months that you would
6 be looking at saving approximately a hundred million cubic
7 feet.

8 Q Do you think that if you reduce the oil allowable by half
9 you would approximately reduce the gas about half?

10 A That is what I am estimating.

11 Q That actually calculates about a hundred eighty million,
12 doesn't it, if you --

13 A Well, I am just saying 3.4 million a day times 30 is
14 approximately a hundred million, and so --

15 Q No. That is a hundred eighty million, three million a day
16 for --

17 A For sixty days. Yes. I am saying it is two hundred,
18 approximately, instead of a hundred eighty, so taking
19 half of that, it would be roughly a hundred million.

20 Q Well, would that be in the order of \$12, \$13,000 dollars
21 worth of gas or --

22 A Yes. Total gross volume.

23 Q Well, I was just wondering if possibly it wouldn't be a
24 good idea to try to save that \$15,000 on it.

25 A Well, I think Tenneco would protest reducing the

1 allowable to 50 barrels a day, and for the reason that we
2 have tried over the years to get a market for the gas
3 there is no market.

4 Once the Field A, the Ian Padeco pool was developed,
5 we immediately started to try to unitize the field and
6 reinject the gas, and then in the interim now we are
7 proposing a method to store this gas, and I don't feel
8 like we should be penalized for these next two months.

9 Q Are you being penalized if you lose \$15,000 worth of gas,
10 though? I mean what is the --

11 A We would be penalized as far as revenue from the field,
12 oil revenue.

13 Q Well, you won't eventually -- you mean current income --

14 A Current income, present worth income, I think we would be
15 definitely penalized if you were to discount this.

16 MR. ARNOLD: That's all, I believe.

17 CROSS-EXAMINATION

18 BY MR. HATCH:

19 Q Mr. Melnar, all of the wells shown on Exhibit A have
20 penetrated the "A" zone?

21 A Yes.

22 Q Have they been only completed in a manner that would
23 prevent the loss of this gas from the "A" zone?

24 A I would say yes because as far as my knowledge is
25 concerned, they have all been completed approximately in

1 the same manner, essentially the same size casing, the
2 same volume of cement, and I feel like that there
3 should be isolation between zones, and there is several --
4 there is a couple of hundred feet between the two zones
5 vertically.

6 Q I don't think you have testified as to what percent of
7 the injected gas you would recover.

8 A Well, we are proposing, I believe, to recover a hundred
9 percent of the gas.

10 MR. KELLY: You will treat it that way as far as
11 royalty?

12 THE WITNESS: Yes. We would pay royalty on this gas
13 as measured and we would recover the single amount of gas.

14 Q (Mr. Hatch continuing) There was a little confusion earlier.
15 I think this gas will be metered before it leaves each
16 "A" lease?

17 A Yes.

18 MR. KENDRICK: Well, I think according to this map,
19 not necessarily before it leaves the lease but before it is
20 commingled with any of the other gas from other leases.

21 MR. KELLY: Some of these are on this lease, but they
22 are all separate, so there would be no commingling.

23 THE WITNESS: Each lease's gas production will be
24 metered.

25 Q (Mr. Hatch continuing) But not necessarily on the lease?

1 A Not necessarily physically on that lease, for the matter
2 of convenience, and some of these meters will be grouped
3 together in one area as shown on the map.

4 Q Okay.

5 MR. KENDRICK: That is on Section C it shows you
6 meter the location?

7 THE WITNESS: Yes. We have in some occasions
8 already.

9 We have off-lease separation facility, and so this
10 meter would be next to those facilities. In other cases we
11 are proposing that the metering devices be off-lease for again
12 convenience in reading and changing charts and so forth.

13 MR. UTZ: Are these your meters or the operators'
14 meters?

15 THE WITNESS: These would be owned by all the
16 operators. Each operator will have a share in the system with
17 Tenneco operating system.

18 MR. KELLY: You will have a written agreement
19 covering the storage system and preliminary to your unit
20 agreement; is that correct?

21 THE WITNESS: That's correct.

22 MR. UTZ: I think what Mr. Stevens was getting at,
23 I don't believe you got a direct answer. If he did, I didn't
24 understand it. If some portion of this system was to
25 malfunction, break down, or whatever you want to call it, say a

1 meter or even the well or the operator itself, how would you
2 propose to handle that situation where you couldn't take this
3 casinghead gas?

4 THE WITNESS: If we could not take all of the
5 casinghead gas?

6 MR. UTZ: Yes.

7 THE WITNESS: Or none of it?

8 MR. UTZ: All or any part of it.

9 THE WITNESS: As I have mentioned, we haven't
10 really considered this, but I would assume we would have to
11 prorate this in some manner, either this or have the authority
12 to flare this gas until the system is back in operation.

13 MR. UTZ: Well, now, this might be just for a few
14 hours or --

15 THE WITNESS: That's correct.

16 MR. UTZ: -- or a day or two?

17 THE WITNESS: That would probably be the best
18 solution.

19 MR. UTZ: Now, after your system is in operation,
20 well, I would assume that our order will read that it will be
21 legal to flare any gas whatsoever. On an instance like this
22 you would propose to get verbal approval to flare from a
23 district office or something of that nature?

24 THE WITNESS: I think that would be probably a good
25 way to handle it.

1 MR. UTZ: In other words, this operator of this
2 unit on the effective day of this no-flare, you as operator
3 of the unit will not flare any gas. Is that my understanding,
4 unless you have authority?

5 THE WITNESS: Well, now, of course, Tenneco will not
6 be an operator of a unit.

7 MR. UTZ: I mean operator of the system.

8 THE WITNESS: Of the system? Okay. Well, I may
9 point out one other thing is that if the system had to be
10 shut down for a few hours or a day or so, I think that the
11 wells are capable of making up this gas, so you could shut the
12 field in and still be making up your production.

13 MR. UTZ: Will make up the gas as well as the oil?

14 THE WITNESS: Yes. And oil, yes.

15 MR. UTZ: Now, if you need two injection wells, you
16 have proposed a No. 8 in Section 24? You are not sure you are
17 going to need that well?

18 THE WITNESS: No. We are not. Really, we can't --
19 won't know for sure till we start injecting in the No. 2. I
20 feel like the well will take the present amount of gas with
21 the pressure we propose.

22 However, I feel that we do have a well No. 8 cased
23 and temporarily abandoned. It is at the present time completed
24 in the "D" zone, but it could be squeezed in the "D" zone and
25 recompleted in the "A" zone in just a couple of days or so.

1 It is available for that purpose, if need be, and it
2 also can be at some future date -- it would be a withdrawal
3 point from that reservoir.

4 MR. UTZ: Would there be anything the matter with
5 approving this well at this time and this order? And you
6 wouldn't have to use it, I suppose --

7 THE WITNESS: That would be all right.

8 MR. UTZ: In other words, the maximum injection wells
9 will be the two? Is that correct? You don't anticipate any
10 more than that?

11 THE WITNESS: Well, I wouldn't say that. I would
12 think that the two would be sufficient, but we did say earlier
13 that we felt like if we needed others for any reason that we
14 could take steps to get additional wells drilled into the "A"
15 zone.

16 MR. KELLY: Perhaps we could specify in the order
17 if the application is approved, specifically allow those two
18 injection wells and then have a paragraph of some
19 administrative procedure for any additional wells.

20 MR. UTZ: In regard to an answer you gave Mr. Arnold,
21 relative to current income, any time you flare a cubic foot of
22 gas you are being deprived of current income, aren't you?

23 THE WITNESS: Well, at the present time you are not,
24 because there is no sales for this gas.

25 MR. UTZ: Well, there is a potential sale for it,

1 isn't there?

2 THE WITNESS: Later on, yes, could be.

3 MR. UTZ: You don't, by any stretch of your
4 imagination, presume that you never will be able to sell this,
5 do you?

6 THE WITNESS: Well, no, sir. We definitely think
7 that --

8 MR. UTZ: So what you have saved is income?

9 THE WITNESS: Yes. Future income, deferred income.

10 MR. UTZ: Could be?

11 THE WITNESS: Yes.

12 MR. UTZ: Are there any other questions?

13 MR. PORTER: I have a question. A. L. Porter with
14 the Commission, Mr. Examiner.

15 CROSS-EXAMINATION

16 BY MR. PORTER:

17 Q Mr. Melnar, you indicated -- I believe that your word was
18 that Tenneco would protest a reduction to fifty barrels a
19 day. Approximately what is the cost of a well in this
20 pool?

21 A \$50,000.

22 Q That would be what, close to a year's payout at fifty
23 barrels a day?

24 A I would imagine that you could pay out a well in a year at
25 fifty barrels a day.

1 Q And you estimate that it would take you a couple of months
2 to have your system ready for the injection of this gas
3 into this other zone where you proposed storage?

4 A Yes, sir.

5 Q Well, at fifty barrels a day will be just a heap better
6 than none at all, wouldn't it?

7 A Sure would.

8 Q If the Commission decided to shut the fields in.

9 A No doubt about it.

10 MR. PORTER: That's all the questions I have.

11 MR. UTZ: Other questions? No further questions, the
12 witness may be excused.

13 (Witness excused)

14 MR. UTZ: Statements in the case?

15 MR. KENDRICK: Mr. Examiner, I would like to present
16 a photograph of the compressor, compression foundation being
17 constructed, which I took in the field last Friday and testify
18 or state that I have witnessed that ditching is under way and
19 that construction is under way.

20 MR. UTZ: Okay.

21 MR. TRAYWICK: I would like to make a short statement,
22 Mr. Examiner. Carl Traywick, U. S. G. S. I would just like to
23 admit responsibility for part of this four to six month delay
24 in the unitization that Mr. Melnar testified to. A lot of it
25 is going to be due to our procedural steps to get a unit

dearnley-meier reporting service

1 approved which includes both Indian and federal lands and
2 involves sending to Washington for approval of the director,
3 preliminary approval and acceptance of the language, and at
4 such time it has to also be approved by the Bureau of Indian
5 Affairs as to the language and any addition they want to
6 include, and then when it comes back to us at Washington it
7 has to be executed by all -- or all hopefully, of basic royalty
8 owners, ending a lot of it with the Santa Fe Railroad, and I
9 don't know how many Indian lot fees are involved, but I would
10 guess quite a few, which is going to be time-consuming, and
11 after it is completed and the final unit filed, then we will
12 have to send it to the area director at Window Rock for final
13 approval as to the Indian land, land committed the Indian
14 interest and then it is approved by our office, so these
15 procedural steps are time-consuming and we are responsible for
16 a major part of the four to six months interim period that
17 Mr. Melnar stated.

18 Now, the major part of the unitization by the working
19 interest owners has been completed, as for work has been done
20 and equities established and accepted by the working interest
21 owners, who, the rest of trader work is mostly procedural work
22 in which there is certain delays which are involved in our
23 system for which the unit operators working interest owners
24 have no control other than securing execution of the final
25 agreement formed by the necessary parties.

1 Thank you.

2 MR. UTZ: Name for it is government red tape.

3 MR. TRAYWICK: Yes, sir. If it was all federal unit,
4 we would expedite, but being as it is federal and Indian, it is
5 complicated.

6 MR. UTZ: Have another statement?

7 MR. PORTER: I would like to ask Mr. Traywick a
8 question, please.

9 MR. UTZ: Okay.

10 MR. PORTER: Would the U. S. G. S. care to take a
11 position, any further extension of flaring or any reduction in
12 allowable, Mr. Traywick, or are you prepared to say at this
13 time?

14 MR. TRAYWICK: Well, I didn't come prepared to take
15 a position, because we didn't -- couldn't anticipate that this
16 question would arise, but I agree with what Mr. Emory Arnold
17 said, that gas is money, and during this interim period, till
18 we get injection started in the "D" zone, we are going to be
19 continuing to waste a valuable resource that is getting more
20 valuable all the time, and which I would not care to take an
21 official U. S. G. S. position.

22 My personal opinion is that anything we can do to
23 reduce gas waste would be conservation, and then reduction in
24 allowable would reduce gas waste.

25 MR. PORTER: The record will reflect, of course, that

1 this is just your personal opinion.

2 MR. TRAYWICK: Yes, sir, it is personal.

3 MR. PORTER: And not an official U. S. G. S. --

4 MR. TRAYWICK: Personal, and not official opinion,
5 yes, sir.

6 MR. PORTER: That's all.

7 MR. UTZ: Do we have a statement from someone over
8 here?

9 MR. STEVENS: Mr. Examiner, Don Stevens, representing
10 Alan Antweil and overriding royalty in the field. Mr. Antweil
11 joins Tenneco in urging the approval of this application,
12 feeling that it will prevent waste and protect correlative
13 rights. We also urge the Commission to retain the present
14 100 barrel per day per well allowable based on the premise
15 that Tenneco and the other operators in the field have not been,
16 in our opinion, dilatory. I think they should be commended for
17 the speed in which they have tried to unitize this field and
18 for their current effort to save a valuable natural resource
19 by storing it in a rather unusual and fairly expensive
20 procedure just to save this gas.

21 The contention that money will be lost by flaring
22 this gas, I think, might on a proper economic analysis be
23 argued with in that, by the time this gas will be sold some
24 seven or eight years later, that might be saved by the lower
25 allowable, by the time that money is discounted down to present

1 worth, though, I don't know. I think there is a possibility
2 there would be a distinct economic loss to the owner and
3 operator and royalty owners in the field, plus the fact the
4 current income has been allocated on the basis of the current
5 allowable to lower it even for an interim period, I think,
6 would have a dilatorious effect upon the various operators and
7 royalty owners in the field.

8 MR. UTZ: Mr. Stevens, it wouldn't make too much
9 difference to the royalty owners, would it, since they don't
10 have money invested?

11 MR. STEVENS: No. However, they had money invested
12 in lease-hold costs. Of course, well, I am speaking of
13 overriding royalty owners in my particular case, my client,
14 and, of course, the turn has been projected for the man. I am
15 sure balances have been made for the current income as it
16 accrues.

17 MR. UTZ: Are there other statements?

18 MR. PORTER: Mr. Examiner, I want to make it clear
19 that my question certainly didn't imply any dilatory attitude
20 on the part of Tenneco or any other operators in the pool. I
21 just wanted to be sure that all aspects of conservation are
22 considered and that this question will be put into the record.

23 MR. UTZ: I think that is well understood, Mr.
24 Porter. If you hadn't brought it up, I would have.

25 MR. KELLY: I have no doubt of -- that all aspects

1 of controversy are going to be considered in this case.

2 MR. HATCH: Mr. Melnar, are there leases in this
3 pool that have all wells -- were completed on that lease prior
4 to January 1, 1971?

5 THE WITNESS: I don't know that all wells on a lease
6 may have been completed prior to that date. There is some
7 wells that have been, but I don't know the breakdown.

8 MR. HATCH: I wonder if Mr. Arnold could answer
9 that question.

10 MR. ARNOLD: How was the question again.

11 MR. HATCH: Are there leases in this pool that have
12 all the wells on the lease were completed prior to January 1,
13 1971?

14 MR. ARNOLD: Yes, there are.

15 THE WITNESS: Those leases are listed on Exhibit B,
16 the one there in front of you there.

17 MR. ARNOLD: Well, these don't have the completion
18 dates on them.

19 MR. HATCH: Do you have it?

20 MR. UTZ: Well, did you just want to know, Mr. Hatch,
21 whether there was any, or do you know -- or do you want to
22 know which wells?

23 MR. HATCH: I just wanted something in the record.

24 MR. ARNOLD: Actually, about -- I believe there are
25 three leases which were completed prior to January 1, 1971.

1 MR. UTZ: Are there other questions?

2 MR. PORTER: Mr. Melnar, if I might impose on you a
3 little bit more, I wasn't in here at the start of the hearing.
4 How much work has been done out there?

5 THE WITNESS: In the field itself?

6 MR. PORTER: Yes. As far as you know, laying pipe
7 or digging the ditches or whatever is necessary.

8 THE WITNESS: Okay. We have ripped all the right-of-
9 ways, are starting ditching operations today, and estimate
10 that we have got about ten percent of this done, of the ditching
11 and so forth. As far as compressor facilities, we have set the
12 forms for the compressors.

13 We are pouring concrete today. The compressors are
14 being dismantled now and are almost completely dismantled and
15 should be on there within a few days to the field, and we would
16 estimate that this compressor facility, as of today, is
17 twenty-five percent complete, and we would say that our
18 gathering facilities would be complete by the 20th of this
19 month, the gathering facilities, but the compressor should be
20 on location by the 15th of this month, so the time from this,
21 from the 20th on to the first of November, we are allowing this
22 time to set compressors or get them all hooked together and get
23 them all running properly.

24 MR. PORTER: With good weather do you think there is
25 a possibility that you might complete this earlier than

1 November 1?

2 THE WITNESS: I would say there is a very good
3 possibility of completing this possibly two weeks earlier, or --

4 MR. PORTER: Or three?

5 THE WITNESS: But knowing that you are going to have
6 problems like you always do with machinery, and we have set
7 this November 1 deadline so that we would be sure we could
8 meet it.

9 MR. PORTER: Thank you.

10 MR. UTZ: Other questions?

11 MR. KELLY: Mr. Examiner, I would just like to make
12 one brief statement in closing that the proposed application
13 here is a fairly novel way that Tenneco has come up with saving
14 this gas, and it is not an inexpensive method, and, of course,
15 the \$350,000, substantially a portion of that can be used in
16 the proposed secondary recovery or pressure maintenance
17 project, but there will be costs that are allocated strictly to
18 storage of the gas, and as far as balancing those costs against
19 what would be lost from income of flaring a portion of this gas
20 over the next two months, I think you will find that probably
21 on that basis the operator and the other operators in the field
22 are going to come out with an economic loss on the project,
23 and I feel that consideration should be given to the operator
24 here for coming up with a project which is going to save gas
25 and put it to a beneficial use and allow the pool to be properly

1 developed during the time that it is going to take to form
2 this unit.

3 I would also point out that Tenneco has been
4 attempting to get this gathering system put together, as you
5 are aware, for some time. This application was originally
6 filed some time ago, and again, there are difficulties with
7 royalty interests and getting other people together with the
8 thing, so there was some delay that was not properly laid at
9 Tenneco's feet in getting this thing off the ground.

10 MR. UTZ: Mr. Kelly, the gas has been flared for
11 quite a period of time, though, has it not, like about a year?

12 MR. KELLY: Yes.

13 MR. UTZ: Other statements? Case will be taken
14 under advisement. We will have a short recess.

15 (Whereupon, a recess was held.)
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I N D E X

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Cross-Examination by Mr. Porter	25

E X H I B I T S

Applicant's A through G

MARKED

2

ENTERED

Applicant's A through G

14

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

4 I, LINDA MALONE, Court Reporter, do hereby certify that
5 the foregoing and attached Transcript of Hearing before the
6 New Mexico Oil Conservation Commission was reported by me; that
7 the same is a true and correct record of the said proceedings,
8 to the best of my knowledge, skill and ability.
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Linda Malone
Court Reporter

I hereby certify that the foregoing is a true and correct record of the proceedings in the Bernalillo hearing of Case No. 45,84, heard by me on Sept 1, 1971.
Theresa Q. Mc... Examiner
New Mexico Oil Conservation Commission



October 18, 1971 RECEIVED

JAN 10 1972

CONSERVATION COMM.
SANTA FE

see Case 4584

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
State of New Mexico
Post Office Box 871
Santa Fe, New Mexico 87501

re: Application by Tenneco Oil Company
to Inject Casinghead Gas from the
Dakota "D" zone to the Dakota "A"
zone through the SFPRR No. 8
Lone Pine Dakota "D" Field
McKinley County, New Mexico

Dear Sir:

Under terms of Commission Order R-4192, I, William M. Board
representing _____ waive objection to the injection
of Dakota "D" zone gas into the Dakota "A" zone through the SFPRR
No. 8. I have been supplied a copy of the application made by
Tenneco Oil Company to the Commission.

Respectfully submitted,

William M. Board

WER/bjs

WHITE, GILBERT, KOCH & KELLY
(GILBERT, WHITE AND GILBERT)

ATTORNEYS AND COUNSELORS AT LAW

LINCOLN BUILDING

SANTA FE, NEW MEXICO 87501

CARL H. GILBERT (1891-1963)

L. C. WHITE

WILLIAM W. GILBERT

SUMNER S. KOCH

WILLIAM BOOKER KELLY

JOHN F. MCCARTHY, JR.

KENNETH BATEMAN

BENJAMIN PHILLIPS

August 6, 1971

PCST OFFICE BOX 787

TELEPHONE 982-4301
(AREA CODE 505)

RECEIVED
AUG 9 1971
OIL CONSERVATION COMM

Case 45-84

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Application of Tenneco to store gas
Lone Pine Field, McKinley County, New Mexico

Dear Mr. Porter:

You may recall that on April 28, 1971, I sent you a letter Application wherein Tenneco was asking permission to store gas produced from the Lone Pine Field, McKinley County, New Mexico. Later, we requested that that Application be dismissed. By this letter I am requesting that the Application once again be set down for hearing, and in support thereof submit the following information.

Texaco seeks permission to store solution natural gas produced from certain wells of the Dakota D Zone in the Lone Pine Field, McKinley County, New Mexico. The gas will be temporarily stored in the Santa Fe Pacific Railroad Well No. 2, located in the NW 1/4 of the SW 1/4 Section 13, Township 17 North, Range 9 West, McKinley County, New Mexico. The gas will be injected into the Dakota A Zone through perforations set at 2547 to 2552 and 2558 to 2562.

The purpose of the storage project is to save and conserve gas that is presently being flared preliminary to a planned unitization and institution of a pressure maintenance project in the D Zone. The stored gas will then be reinjected into the D Zone as part of the pressure maintenance project.

DOCKET MAILED

Date 8-19-71

WHITE, GILBERT, KOCH & KELLY

-2-

Tenneco asks that this application be set down for the public hearing scheduled for September 1st, 1971. As you will recall exhibits were presented with our application filed April 28, 1971. The log of the proposed injection well and the diagramatic sketch showing the casing program for the injection well may be considered exhibits in this case. In addition, I will in the near future, furnish the Commission with a new plat showing the location of the injection well and the other wells that will be tied in to this storage system.

If you need any further information, please advise.

Sincerely yours,


W. B. KELLY

WBK:cc

cc: Mr. J. A. Simmons
Tenneco Oil Company
P. O. Box 2410
Denver, Colorado 80201

Mr. Millard Carr
Division Attorney
Tenneco Oil Company
P. O. Box 2410
Denver, Colorado 80201



OIL CONSERVATION COMMISSION

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

September 8, 1971

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

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

Mr. Booker Kelly
White, Gilbert, Koch & Kelly
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

Re: Case No. 4584
Order No. R-4192
Applicant:
Tenneco Oil Company

Dear Sir:

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

Very truly yours,

A. L. PORTER, JR.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC X

Artesia OCC

Aztec OCC X

Other Mr. Don Stevens

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. 4584
Order No. R-4192

APPLICATION OF TENNECO OIL
COMPANY FOR GAS INJECTION,
MCKINLEY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 1, 1971, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 8th day of September, 1971, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Tenneco Oil Company, is an operator of certain wells and leases in the Lone Pine-Dakota "D" Oil Pool, McKinley County, New Mexico.
- (3) That the applicant seeks authority to inject casinghead gas produced by all wells in said pool into the Dakota "A" zone through perforations from 2,547 feet to 2,562 feet in its Santa Fe Pacific Railroad Well No. 2 located in the NW/ 4 SW/4 of Section 13, Township 17 North, Range 9 West, Lone Pine-Dakota Field.
- (4) That the applicant proposes to inject said gas for storage purposes pending the institution of a pressure maintenance project in the Lone Pine-Dakota "D" Oil Pool, at which time the gas would be withdrawn from the storage area and re-injected into the Lone Pine-Dakota "D" Oil Pool.

-2-

CASE NO. 4584

Order No. R-4192

(5) That the applicant further seeks the establishment of a procedure whereby an additional well may be approved for said injection, if necessary, administratively.

(6) That the subject casinghead gas is presently being flared.

(7) That essentially all the casinghead gas injected for storage purposes will be recovered from the storage zone and will be put to a beneficial use.

(8) That the proposed method of injection for storage purposes is mechanically feasible and is in the interest of conservation as it should result in a greater ultimate recovery and beneficial use of oil and gas from the subject pool, thereby preventing waste, and will not violate correlative rights.

(9) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to institute a casinghead gas storage project in the Lone Pine-Dakota Field by the injection of gas produced by wells in the Lone Pine Dakota "D" Oil Pool, McKinley County, New Mexico, into the Dakota "A" zone through perforations from 2,547 feet to 2,562 feet in its Santa Fe Pacific Railroad Well No. 2 located in the NW/4 SW/4 of Section 13, Township 17 North, Range 9 West, Lone Pine-Dakota Field.

(2) That the Secretary-Director of the Commission is hereby authorized to approve additional injection wells in the area of the above-described Santa Fe Pacific Railroad Well No. 2 and to authorize the injection of casinghead gas into the Dakota "A" zone of the Lone Pine-Dakota Field through such wells. To obtain such approval, the project operator shall file proper application with the Commission, which application shall include the following:

- (a) A plat showing the location of the proposed injection well, all wells within a radius of one mile of the proposed injection well, and offset operators.
- (b) A schematic drawing of the proposed injection well which fully describes the casing, tubing,

-3-

CASE NO. 4584

Order No. R-4192

perforated interval, and depth showing that the injection casinghead gas will be confined to the "A" zone of the Dakota formation.

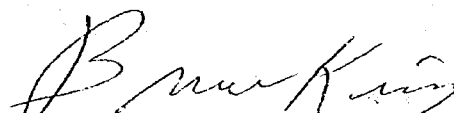
- (c) A letter stating that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 20 days after receiving the application, no objection to the proposal has been received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

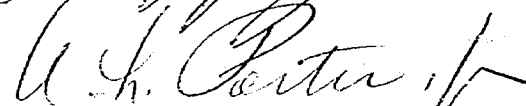
(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

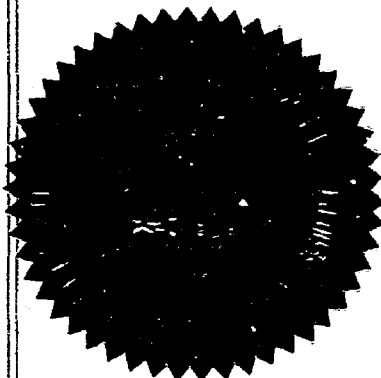
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


BRUCE KING, Chairman


ALEX J. ARRIJO, Member


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



S E A L

dr/

Memo

From
EMERY ARNOLD

To George

for your information

SA

Completion Dates - LONE PINE DAKOTA D POOL

Gil Oil & Gas

Maxwell Bahe #1 12-17-70 -
Maxwell Bahe #2 12-18-70 -

Tenneco

Donepah #1 6-8-70 -
Donepah #2 11-10-70 -
Kagosa #1 8-5-70 -
Kagosa #2 3-11-71 -
SFPRR #1 8-1-70 -
SFPRR #3 10-15-70 -
SFPRR #5 11-6-70 -
SFPRR #7 11-29-70 -
SFPRR #9 1-1-71 -
SFPRR #11 2-23-71 -
SFPRR #13 3-9-71 -
SFPRR #14 3-9-71 -
SFPRR #15 4-17-71 -

Yazzie #1 11-25-70 -
Yazzie #2 12-2-70 -

Tesoro

SFRR #26 2-17-71 -
SFRR #27 3-20-71 -

Beard Oil Co.

Joe Toledo #1 1-19-71 -
Joe Toledo #2 2-16-71 -
Dosh e ple Henlo #1 2-12-71 -

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AUG 26 1971

III CONSERVATION COM

Diff
file
Case 4584

11 1970
11 1971

Case 4584

Decd 9-1-71

Rec 9-2-71

Grant Jerneco permission to convert their Santa Fe Railroad Pacific Railroad #2 L 13-9~~W~~N-17N. to a gas injection well in the Dakota 'A' Sand. Such injection to be the gas produced from the Lk. 'D' Bone Pine oil pool. Also grant Administration procedures for additional gas injection wells.

In view of the fact that the gas in this pool has been flared for about a year and no real effort to save the gas was made until the Community calling their attention to this. I recommend that the allowable be cut to 50 Bpd. until the gas is stored or sold.

I would not object to skimming in the pool if the Director feels this appropriate.

— [Signature]



Gas Compressor Foundation
Being Constructed
8-27-71

Lone Pine Dakota Oil Pool
Sec 13-17N-9W

Santa Fe Pacific Railroad Company

OFFICE OF LAND COMMISSIONER

4549 Produce Plaza

Los Angeles, California 90058

D. J. WALSH
LAND COMMISSIONER

August 30, 1971

Lands in McKinley County, New
Mexico

Oil and Gas Lease with Tenneco
Oil Company

Secretary's No. SFP-9750

Air Mail

Tenneco Oil Company
Suite 1200 - Lincoln Tower Bldg.
Denver, Colorado 80203

Attention: Mr. W. C. Melnor

Gentlemen:

Reference is made to recent discussions relating to your proposal for the injection of Dakota "D" zone gas from certain lands in Township 17N, Ranges 8 and 9W, McKinley County, New Mexico, and the temporary storage thereof in the Dakota "A" zone reservoir to avoid unnecessary loss of production until completion of a proposed unit plan of development in this same area.

Please be advised that the Santa Fe Pacific Railroad Company concurs in your proposed injection of Dakota "D" zone gas and temporary storage thereof in the Dakota "A" zone reservoir.

SANTA FE PACIFIC RAILROAD COMPANY

By D. J. Walsh
Land Commissioner

cc: Mr. William Booker Kelly
White, Gilbert, Koch & Kelly
Lincoln Building - P.O. Box 787
Santa Fe, New Mexico 87501

Mr. C. W. Nance
District Production Supt.
Tenneco Oil Company

APPLICATION OF TENNECO OIL COMPANY
FOR GAS INJECTION, MCKINLEY COUNTY,
NEW MEXICO.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION COMMISSION

Under the provisions of Order R-4192, Tenneco Oil Company, has made application to the Commission for permission to inject casinghead gas produced by wells located in the Lone Pine-Dakota "D" Oil Pool, into the Dakota "A" zone through perforations from 2676 feet to 2693 feet in its Santa Fe Pacific Railroad Well No. 8 located in Unit D of Section 24, Township 17 North, Range 9 West, Lone Pine Dakota Field, McKinley County, New Mexico.

NOW, on this 3rd day of November, 1971, the Secretary-Director finds:

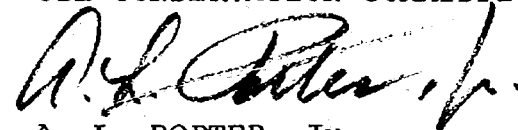
1. That application has been filed in due form.
2. That satisfactory information has been provided that all offset operators have been duly notified of the application.
3. That no objection has been received by offsetting operators.
4. That the proposed injection well is eligible for conversion to casinghead gas injection under the terms of Order R-4192.
5. That the proposed casinghead gas injection for storage purposes will not cause waste nor impair correlative rights.
6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Tenneco Oil Company, is hereby authorized to expand its casinghead gas storage project in the Lone Pine-Dakota Field by the injection of casinghead gas produced by wells located in the Lone Pine Dakota "D" Oil Pool, McKinley County, New Mexico, into the Dakota "A" zone through perforations from 2676 feet to 2693 feet in its Santa Fe Pacific Railroad Well No. 8 located in Unit D of Section 24, Township 17 North, Range 9 West, NMPM, Lone Pine Dakota Field, McKinley County, New Mexico.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


A. L. PORTER, Jr.
Secretary-Director

S E A L

dr/

APPLICATION OF TENNECO OIL COMPANY
FOR GAS INJECTION, MCKINLEY COUNTY,
NEW MEXICO.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION COMMISSION

Under the provisions of Order R-4192, Tenneco Oil Company,
has made application to the Commission on ~~_____~~
for permission to inject casinghead gas ^{produced by wells located} in the Lone Pine-Dakota
"D" Oil Pool, into the Dakota "A" zone through perforations from
2676 feet to ²⁶⁹³ ~~2685~~ feet in its Santa Fe Pacific Railroad Well No. 8
^{located} in Unit D of Section 24, Township 17 North, Range 9 West,
^{Lone Pine} ~~Undesignated~~ Dakota Field, McKinley County, New Mexico.

NOW, on this 3 day of November, 1971, the Secretary-
Director finds:

1. That application has been filed in due form.
2. That satisfactory information has been provided that all
offset operators have been duly notified of the application.
3. That no objection has been received by offsetting
operators.
4. That the proposed ~~gas injection~~ ^{injection} well is eligible for
^{casinghead} conversion to gas injection under the terms of Order R-4192.
5. That the proposed ^{casinghead} gas injection ^{for storage purposes} will not cause waste nor
impair correlative rights.
6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Tenneco Oil Company, is hereby authorized
^{expand its} to ~~institute a~~ casinghead gas storage project in the Lone Pine-

at Sanibel
Dakota Field by the injection of gas produced by ~~its Santa Fe~~
wells located
~~Pacific Railroad Well No. 8~~ in the Lone Pine Dakota "D" Oil Pool,
McKinley County, New Mexico, into the Dakota "A" zone through
perforations from 2676 feet to ²⁶⁹³~~2685~~ feet in its Santa Fe Pacific
Railroad Well No. 8 located in ~~the~~ *Unit D* of Section 24,
Township 17 North, Range 9 West, ~~Indesignated~~ *Lone Pine* Dakota Field,
McKinley County, New Mexico.

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

Docket No. 19-71

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 1, 1971

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

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

- CASE 4558: (Continued from the July 28, 1971, Examiner Hearing)
Application of Midwest Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Little Inbe (Bough "C") Unit Area comprising 2,240 acres, more or less, of state lands in Sections 10, 11, 14 and 15 of Township 10 South, Range 33 East, Inbe Permo-Pennsylvanian Pool, Lea County, New Mexico.
- CASE 4559: (Continued from the July 28, 1971, Examiner Hearing)
Application of Midwest Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Little Inbe (Bough "C") Unit Area, Inbe Permo-Pennsylvanian Pool, Lea County, New Mexico, by the injection of water through three wells located in Sections 11 and 14 of Township 10 South, Range 33 East, Lea County, New Mexico.
- CASE 4586: Application of Mobil Oil Corporation for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill an oil well as an infill well in its Humphrey Queen Unit Area at an unorthodox location 1325 feet from the South line and 2450 feet from the East line of Section 3, Township 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.
- CASE 4574: (Continued from the July 28, 1971 Examiner Hearing)
In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Tenneco Oil Company to appear and show cause why it should not take immediate action to repair the production casing in its Bolack "B" Well No. 5 located in Unit J of Section 31, Township 27 North, Range 8 West, Basin-Dakota Pool, San Juan County, New Mexico.
- CASE 4584: Application of Tenneco Oil Company for gas injection, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to inject casinghead gas

Examiner Hearing
September 1, 1971
-2-

Docket No. 19-71

produced by certain wells located in the Lone Pine-Dakota "D" Pool, McKinley County, New Mexico, into the Dakota "A" zone through perforations from 2547 feet to 2562 feet in its Santa Fe Pacific Railroad Well No. 2 located in the NW/4 SW/4 of Section 13, Township 17 North, Range 9 West, South Hospah Field. The gas is to be injected for storage purposes awaiting the institution of a pressure maintenance project in the Lone Pine-Dakota "D" Pool.

CASE 4539: (Continued from the August 18, 1971 Examiner Hearing)
In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Doanbuy Lease & Company, Inc., and all other interested persons to appear and show cause why its following described wells in Section 27, Township 14 South, Range 33 East, Saunders Pool, Lea County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 4587: Application of Wolfson Oil Company for a non-standard gas proration unit, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the W/2 NE/4 and E/2 NW/4 of Section 12, Township 15 South, Range 29 East, Double L-Queen Associated Pool, Chaves County, New Mexico, to be dedicated to its Amerada "C" Federal Well No. 1 located 330 feet from the North line and 1650 feet from the East line of said Section 12.

CASE 4585: Application of Pennzoil United, Inc. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 104 of the Commission Rules and Regulations to permit the drilling of a well at an unorthodox gas well location 1980 feet from the South line and 990 feet from the West line of Section 6, Township 23 South, Range 27 East, South Carlsbad-Strawn Gas Pool, Eddy County, New Mexico, the S/2 of said Section 6 to be dedicated to the well.

CALCULATION OF CASINGHEAD GAS TO BE INJECTED
Based on July, 1971 Allowable

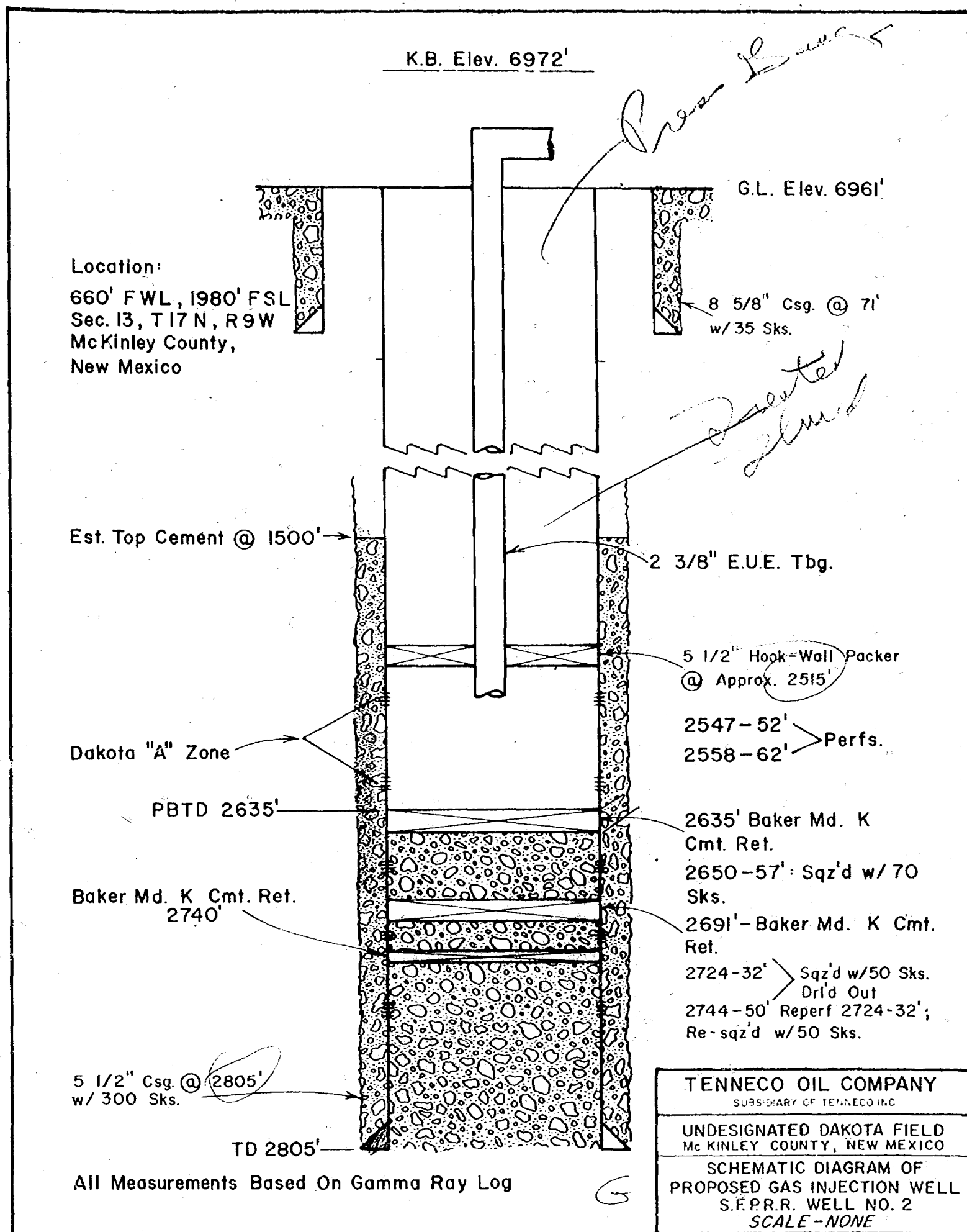
KDA ZONE SOUTH
HOSPAH UNDESIGNATED DAKOTA
MCKINLEY COUNTY, NEW MEXICO

<u>Company</u> <u>Lease</u>	<u>Daily</u> <u>Allowable</u>	<u>GOR*</u> <u>SCF/STB</u>	<u>Daily</u> <u>Gas, MCF</u>
Tenneco Oil Company			
Don Ne Pah #1	87	1944	169
Don Ne Pah #2	<u>100</u>	<u>550</u>	<u>55</u>
Lease Total	187	1198	224
Kagoso #1	100	260	26
Kagoso #2	<u>100</u>	<u>730</u>	<u>73</u>
Lease Total	200	495	99
Yazzie #1	100	1950	195
Yazzie #2	<u>100</u>	<u>200</u>	<u>20</u>
Lease Total	200	1075	215
SFPRR #1	100	1916	192
SFPRR #3	114	495	56
SFPRR #5	128	917	117
SFPRR #7	100	1690	169
SFPRR #9	100	6862	686
SFPRR #11	100	1691	169
SFPRR #13	100	1926	193
SFPRR #14	100	1786	179
SFPRR #15	<u>100</u>	<u>1922</u>	<u>192</u>
Lease Total	942	2073	1953
Operator Total	1529	1857	2491

CALCULATION OF CASINGHEAD GAS TO BE INJECTED
Based on July, 1971 Allowable

KDA ZONE SOUTH
HOSPAH UNDESIGNATED DAKOTA
MCKINLEY COUNTY, NEW MEXICO

<u>Company</u> <u>Lease</u>	<u>Daily</u> <u>Allowable</u>	<u>GOR*</u> <u>SCF/STB</u>	<u>Daily</u> <u>Gas, MCF</u>
Gil Oil & Gas Co.			
Bah E #1	100	1083	108
Bah E #2	<u>100</u>	<u>895</u>	<u>90</u>
Lease Total	200	990	198
	—	—	—
Operator Total	200	990	198
Beard Oil Co.			
Joe Toledo #1	100	971	97
Joe Toledo #2	<u>100</u>	<u>1340</u>	<u>134</u>
Lease Total	200	1155	231
Dosh E Pl Henio #1	100	1218	122
Lease Total	<u>100</u>	<u>1218</u>	<u>122</u>
	—	—	—
Operator Total	300	1177	353
Tesoro Petroleum Co.			
SFPRR #26	100	1815	182
SFPRR #27	<u>100 (est.)</u>	<u>1815 (est.)</u>	<u>182</u>
Lease Total	200	1815	364
	—	—	—
Operator Total	200	1815	364
 Field Total	 <u>2229</u>	 <u>1528</u>	 <u>3406</u>



TENNECO OIL COMPANY A Tenneco Company

SUITE 1200 • LINCOLN TOWER BUILDING • DENVER, COLORADO 80203



October 8, 1971

RECEIVED

OCT 10 1971

OIL CONSERVATION COMM.
SANTA FE

Mr. A. L. Porter, Jr.,
Secretary-Director
New Mexico Oil Conservation Commission
Post Office Box 871
Santa Fe, New Mexico 87501

Re: Casinghead Gas Injection - SFPRR #8
Section 24, T-17-N, R-9-W
Undesignated Dakota Field
McKinley County, New Mexico

Dear Sir:

Under terms of Commission Order R-4192, Tenneco Oil Company respectfully submits application for administrative approval to inject casinghead gas from the Lone Pine Dakota "D" Field into the Dakota "A" Zone through the Santa Fe and Pacific Railroad Well No. 8. In support of this request, we are enclosing the following:

1. An "A" Zone Structure Map showing the proposed injection well and all wells within a radius of one mile.
2. A schematic of the proposed injection well.
3. An induction-electrical log section showing the proposed perforations.

All offset operators have been notified of the intention to inject casinghead gas into the Dakota "A" Zone through the SFPRR No. 8.

Your prompt attention will be appreciated.

Respectfully submitted,

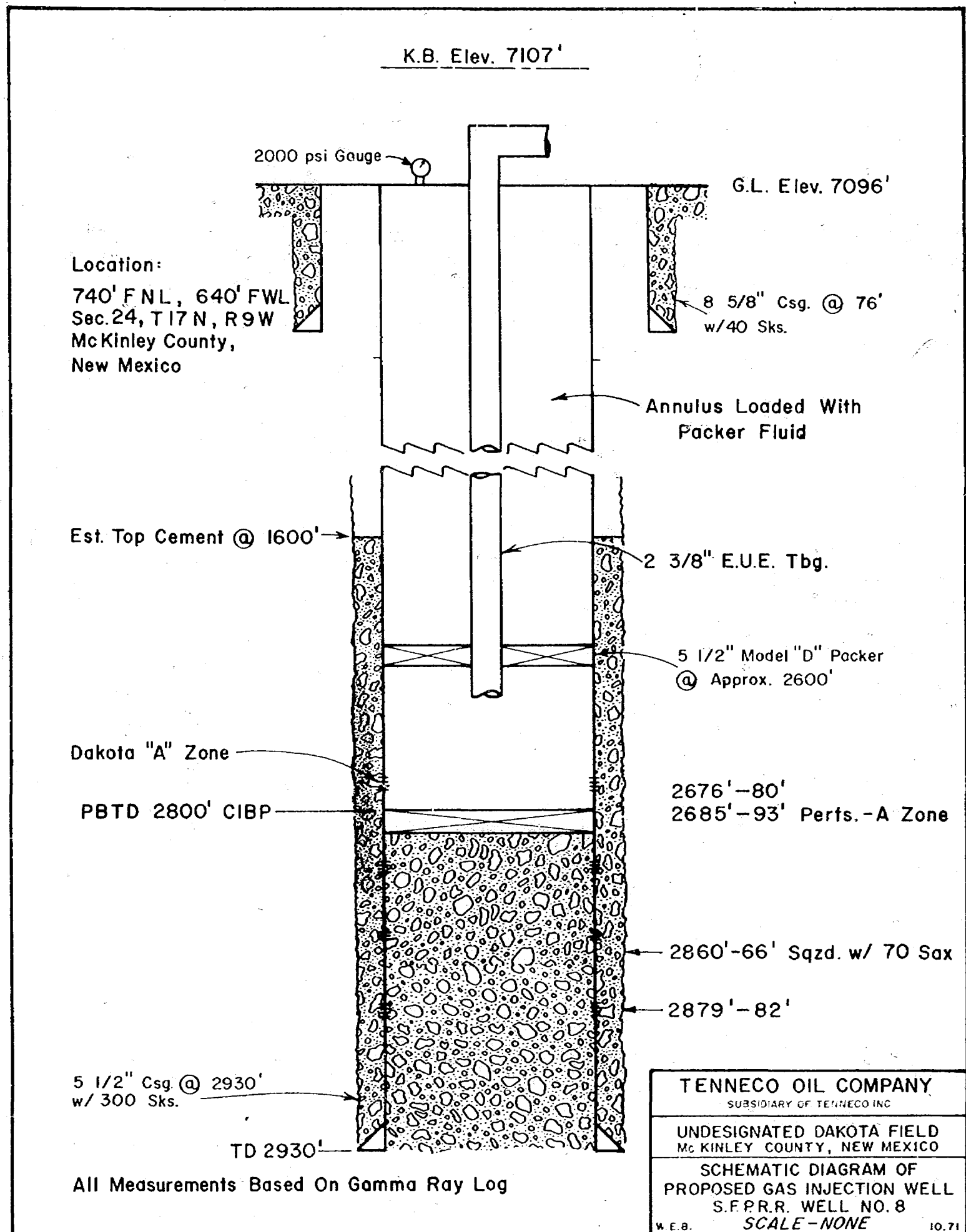
TENNECO OIL COMPANY


R. A. Williford
District Production Manager

WEB/bjs

Attachments

cc: All Working Interest Owners



SFPRR #8
Dakota Section

Top of 16% Porosity

Kda

Perfs 2676-80

Base of 16% porosity

Perfs 2685'-93'

2700

Base of Sand

Kdb

Top of Sand

2800

Top of Sand

Kdd

Base of Sand

Perfs 2860'-66' Squeezed 12/70

Perfs 2879'-82' Squeezed 10/71

Base of Sand

TENNECO OIL COMPANY A Tenneco Company
SUITE 1200 • LINCOLN TOWER BUILDING • DENVER, COLORADO 80203



October 18, 1971

RECEIVED

OCT 20 1971

OIL CONSERVATION COMM.
SANTA FE

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
State of New Mexico
Post Office Box 871
Santa Fe, New Mexico 87501

re: Application by Tenneco Oil Company
to Inject Casinghead Gas from the
Dakota "D" zone to the Dakota "A"
zone through the SFPRR No. 8
Lone Pine Dakota "D" Field
McKinley County, New Mexico

Dear Sir:

Under terms of Commission Order R-4192, I, Gilbert S. Maxwell,
representing Gil Oil & Gas Co. waive objection to the injection
of Dakota "D" zone gas into the Dakota "A" zone through the SFPRR
No. 8. I have been supplied a copy of the application made by
Tenneco Oil Company to the Commission.

Respectfully submitted,

GIL OIL & GAS COMPANY

By Gilbert S. Maxwell

WEB/bjs

TESORO PETROLEUM CORPORATION

8520 CROWNHILL

512-824-0261

SAN ANTONIO, TEXAS 78209

R. BRUCE MILLER
VICE PRESIDENT

RECEIVED

October 20, 1971

OCT 27 1971

OIL CONSERVATION COMM.
SANTA FE

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
State of New Mexico
Post Office Box 871
Santa Fe, New Mexico 87501

Re: Application by Tenneco Oil Company
to Inject Casinghead Gas from the
Dakota "D" zone to the Dakota "A"
zone through the SFPRR No. 8
One Pine Dakota "D" Field
McKinley County, New Mexico

Dear Sir:

Under terms of Commission Order R-4192, I, R. B. Miller,
representing Tesoro Petroleum Corp. waive objection to the injection of
Dakota "D" zone gas into the Dakota "A" zone through the SFPRR No. 8.
I have been supplied a copy of the application made by Tenneco Oil Company
to the Commission.

Respectfully submitted,


R. B. Miller

RBM:dp

TENNECO OIL COMPANY A Tenneco Company

SUITE 1200 • LINCOLN TOWER BUILDING • DENVER, COLORADO 80203



October 18, 1971

RECEIVED
OCT 25 1971

OIL CONSERVATION COMMISSION

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
State of New Mexico
Post Office Box 871
Santa Fe, New Mexico 87501

re: Application by Tenneco Oil Company
to Inject Casinghead Gas from the
Dakota "D" zone to the Dakota "A"
zone through the SFPRR No. 8
Lone Pine Dakota "D" Field
McKinley County, New Mexico

Dear Sir:

Under terms of Commission Order R-4192, I, W. M. Beard,
representing Beard Oil Company waive objection to the injection
of Dakota "D" zone gas into the Dakota "A" zone through the SFPRR
No. 8. I have been supplied a copy of the application made by
Tenneco Oil Company to the Commission.

Respectfully submitted,

W M Beard

WEB/bjs

DRAFT

GMH/dr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

[Signature]
CASE No. 4584

Order No. R- *4192*

APPLICATION OF TENNECO OIL COMPANY
FOR GAS INJECTION, MCKINLEY COUNTY,
NEW MEXICO.

[Signature]
ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 1, 1971,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

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

FINDS:

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

(2) That the applicant, Tenneco Oil Company, is an operator of
certain wells and leases in the Lone Pine-Dakota "^{oil}D" Pool, McKinley
County, New Mexico.

(3) That the applicant seeks authority to inject casinghead gas
produced by all wells in said pool into the Dakota "A" Zone through
perforations from 2,547 feet to 2,562 feet in its Santa Fe Pacific Railroad
Well No. 2 located in the NW/4 SW/4 of Section 13, Township 17 North,
Range 9 West, *Lone Pine - Dakota Field*
~~South Hesperia Field~~

(4) That the applicant proposes to inject said gas for storage purposes pending the institution of a pressure maintenance project in the Lone Pine-Dakota "D"^{oil} Pool, at which time the gas would be withdrawn from the storage area and reinjected into the Lone Pine-Dakota "D"^{oil} Pool.

(5) That the applicant further seeks the establishment of a procedure whereby an additional well may be approved for said injection, if necessary, administratively.

(6) That the subject casinghead gas is presently being flared.

X (7) That ^{essentially all} ~~100%~~ of the casinghead gas injected for storage purposes will be recovered from the storage zone and will be put to a beneficial use.

(8) That the proposed method of injection for storage purposes is mechanically feasible and is in the interest of conservation as it should result in a greater ultimate recovery and beneficial use of oil and gas from the subject pool, thereby preventing waste, and will not violate correlative rights.

(9) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to institute a casinghead gas storage project in the ^{Lone Pine - Dakota} ~~South Hoopah~~ Field, by the injection of gas produced by wells in the Lone Pine Dakota "D"^{oil} Pool, McKinley County, New Mexico, into the Dakota "A" Zone through perforations from 2,547 feet to 2,562 feet in its Santa Fe Pacific Railroad Well No. 2 located in the NW/4 SW/4 of Section 13, Township 17 North, Range 9 West, ^{Lone Pine - Dakota} ~~South Hoopah~~ Field.

(2) That the Secretary-Director of the Commission is hereby authorized to approve additional injection wells in the area of the above-described Santa Fe Pacific Railroad Well No. 2 and to authorize the injection of ~~water, air, or gas~~ ^{casinghead gas} into the Dakota "A" zone of the Lone Pine-Dakota ^{Field} ~~"D" Pool~~ through such wells. To obtain such approval, the

-3-
CASE NO. 4584
Order No. R-

project operator shall file proper application with the Commission, which application shall include the following:

- (a) A plat showing the location of the proposed injection well, all wells within a radius of one mile of the proposed injection well, and offset operators.
- (b) A schematic drawing of the proposed injection well which fully describes the casing, tubing, perforated interval, and depth showing that the injection of ~~water or air or~~ ^{carbon dioxide} gas will be confined to the ~~Dakota~~ "A" zone of the Ogallala formation.
- (c) A letter stating that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 20 days after receiving the application, no objection to the proposal has been received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

(3) 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.

RESERVOIR DATA SUMMARY

KDA ZONE SOUTH
UNDESIGNATED DAKOTA FIELD
MCKINLEY COUNTY, NEW MEXICO

Reservoir Temperature	-	107°F
Original Reservoir Pressure	-	964 psig
Gas Gravity	-	.758 (air = 1)
Gas Formation Volume Factor @ Original Conditions	-	72.58 $\frac{\text{SCF}}{\text{ft}^3}$
Porosity	-	18.5%
Permeability Index	-	82.6 md
Water Saturation	-	38.7%
Areal Extent	-	1419.62 Acres
Gross Volume	-	9421.7 Ac-Ft.
Original Gas-in-place	-	3,373 MMSCF
Recoverable Gas	-	3,053 MMSCF
Number of Completions	-	2
Average Depth	-	2750'

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<i>Lemeco</i>	EXHIBIT NO. <i>E</i>
CASE NO.	<i>4584</i>