

CASE 5434: AMOCO PRODUCTION COMPANY FOR
A PILOT PRESSURE MAINTENANCE PROJECT,
SAN JUAN COUNTY, NEW MEXICO.

Also See
Case No. 5525

CASE No.

5434

Application,

Transcripts,

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
March 5, 1975

EXAMINER HEARING

IN THE MATTER OF:

Application of Amoco Production Com-
pany for a pilot pressure maintenance
project, San Juan County, New Mexico.

Case No.
5434

BEFORE: Richard L. Stamets, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil
Conservation Commission:

William Carr, Esq.
Legal Counsel for the
Commission
State Land Office Bldg.
Santa Fe, New Mexico

For the Applicant:

James E. Sperling
MODRALL, SPERLING, ROEHL,
HARRIS & SISK
8th Floor
Public Service Bldg.
Albuquerque, New Mexico

Oscar Swan, Esq.
House Counsel
AMOCO PRODUCTION COMPANY
Denver, Colorado

I N D E X

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R.B. GILES

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E X H I B I T S

Marked

Admitted

Amoco's Exhibits Nos. 1,
2, and 3

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MR. STAMETS: Call the next case, 5434.

MR. CARR: Case 5434. Application of Amoco Production Company for a pilot pressure maintenance project, San Juan County, New Mexico.

MR. STAMETS: Call for appearances in this case.

MR. COOTER: Paul Cooter with Atwood and Malone in Roswell, Mr. Examiner, appearing on behalf of Amoco Production Company. The presentation of the case itself will be handled by Oscar Swan, Amoco's House Counsel in Denver and a member of the Colorado Bar Association.

MR. STAMETS: Are there other appearances in this case?

MR. SPERLING: James E. Sperling, Albuquerque, appearing on behalf Mobil. We will have no testimony; we don't anticipate any testimony but simply would like to ask a few questions.

MR. STAMETS: Are there any witnesses to be sworn at this time?

MR. COOTER: Yes.

(Witness sworn.)

MR. SWAN: Mr. Examiner, before commencing with the testimony, this is perhaps getting into some fancy semantics, but actually what we are seeking to do here

doesn't quite reach the stature of a pilot pressure maintenance program; I think it is included in that, but we're not going even that far. It is a necessary preliminary; I think the notice is certainly adequate to cover it; it covers a lot more than we are asking for approval of at this point, and with that, may I put on the Witness; I think he can explain what it is we are trying to do.

R.B. GILES

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

DIRECT EXAMINATION

BY MR. SWAN:

Q Would you state your name, please?

A R.B. Giles.

Q By whom are you employed and what is your position?

A Amoco Production Company in its Denver Division, as a Senior Staff Engineer.

Q Have you testified previously before this Commission and had your qualifications as an engineering witness admitted?

A Yes, on both counts.

MR. SWAN: May his qualifications be admitted?

MR. STAMETS: The Witness is qualified.

BY MR. SWAN:

Q I think perhaps, Mr. Giles, at this point would you explain to the Commission just what it is that we are asking approval for at this time?

A Amoco is requesting approval to conduct, as Mr. Swan said, a limited gas injection test in the Pennsylvanian D Formation in Tocito Dome Field. We propose to reinject produced gas into the Penn D Formation for a 30-day period to determine at what rates and at what pressures the formation will accept injected gas. We must emphasize once again that this is not a pressure maintenance project; it is simply a feasibility study for gas injection using our current compression facilities. We really need to determine whether or not the present compressors are capable of gas reinjection at existing reservoir pressures. I would like to refer to our Exhibit No. 1. This is a structure contour map on the Penn D Zone with contour intervals of 10 feet. The minor fault on the left, on the west of the Exhibit is just that, a minor fault with perhaps 200 feet of displacement. The major fault running along the east side of the Penn D Pool is a major fault with 2000 foot throw.

The stipled or dashed lines on the map represent where ownership changes as between lessees. Basically it shows that Texaco has the south end of the pool and we have the middle and Mobil is up on the north side. This Exhibit shows that two arrows indicating the well or wells that we will want approval to inject produced gas into on the Amoco U Lease. What we are going to do is take the produced gas from the P, the N, the U, and Z leases of Amocds and for a short term gas injection test we'll take the gas from these oil wells. All wells on these leases produce from the Penn D Formation and we tentatively are looking at injection from two to five MMCFD, but this, of course, is dependent on what we can actually inject with our current compression facilities.

Use of one of the five existing gas compressors is all we expect to need for this short-term injectivity test and we can go up to 1500 psi with this sales compressor.

Initially U-3 in the Southwest Southwest of Section 15, 26 North, 18 West, will be used as a test injection well. Why did we select that one? Well, because as you can see from Exhibit 1, it's in a high structural position. It is also in close proximity to the gas sales

compressors in the central tank battery, which is located just southwest of that well in the extreme northeastern corner of Section 20, and that means a short injection line length. U-3 also produces 46 barrels of oil per day, not a heck of a lot, so that will help ease the pain of taking a well off production.

The approximate reservoir pressure in the area of U-3 is 1000 psi at this time. Now, if a satisfactory rate of injection cannot be initiated into Tribal U-3, then we will have to select another well and we prefer to use U-8.

(Whereupon, a discussion

was held off the record.)

MR. STAMETS: You may continue Mr. Giles.

A (Continuing) I have said, Mr. Stamets, that if a satisfactory rate of injection cannot be initiated into Well U-3 then we'll prefer to select as an alternate location Well U-8, another arrow on Exhibit 1. I want to make it clear that U-8 will not be used if U-3 accepts gas in a satisfactory manner.

We have two other Exhibits labeled Exhibits 2 and 3 and they are simply wellbore diagrams for these two wells, U-3 and U-8, containing pertinent information on

the casing, tubing and cement programs. Gas will be injected down 2-7/8-inch tubing underneath the packer. So, our requested gas injectivity test at one or both of these wells, in our view, will not impair the correlative rights of any party because it is purposely intended as only a short term injectivity test and is not designed as a pressure maintenance project. Amoco holds the full working interest in the Navajo Tribal N, P, U, and C leases; the Navajo Tribe is the only royalty interest owner and there are no overriding royalty interests. Now, following this 30-day test period Amoco will analyze the injection data to determine what future steps, if any, should be taken. If we determine it is feasible to continue gas injection then we will make the proper and necessary applications under Rule 701 with the Commission for any extended long-term gas injection program.

That's really what we are here for and what it is all about.

Q Mr. Giles, maybe this is a layman's way of expressing it, but is this test as much a test of the use of the existing sales compressors for injection use as it is a test of the formation itself?

A Yes, it is.

GILES-DIRECT
CROSS

CASE 5434
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Q In other words you are trying to see if we can make due with what is already on the lease there?

A That is correct.

MR. SWAN: That concludes our Case. I submit him for questioning.

MR. STAMETS: Okay.

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Giles, is it possible that you could be injecting into both of these wells or would you just be injecting into one?

A Plans are just to inject into one; U-3 initially, and then if its reservoir pressure is too high to allow the existing sales gas compressor to operate properly to inject gas there then we'll take U-8 and use it.

Q Since this is a short-term project, there is no real concern here about corrosion prevention, anything like this, so far as your lines or tubing and so on?

A That is correct.

Q Since this is a short-term project, just assuming that you would inject into U-8 for the 30 days, would you expect that to have any effect on the Mobil acreage to the north?

A No, I wouldn't, because under such a short-term test we should be able to observe any northward movement of the gas at our Well U-16, between Mobil's lease and U-8. Actually -- I might say it even another way -- if there were an effect felt on Mobil's lease it would probably be a beneficial-oil-migration effect to them.

(Whereupon, a discussion
was held off the record.)

BY MR. STAMETS:

Q Mr. Giles, will Amoco submit a report on the limited gas injection test, advising us what volumes were injected and the pressures and so on in this particular well or wells?

A You bet, and I would think it to be proper for you to put it in your Order that you require this; we would do it, however.

Q Do you anticipate that you might be looking at more than a 30-day test?

A Well, this is a good question. If we -- we will use U-3 to start with, and I could envision that in 10-days or two-weeks time we decide that that well is not taking gas acceptably and we want to move to U-8, I would think we ought to be permitted the 30 days on U-8 in order

to adequately and properly evaluate this short-term test.

Q If an order were entered authorizing 30-day injection test on U-3 and/or U-8, this should take care of that circumstance?

A Certainly.

MR. STAMETS: Are there any other questions of this Witness?

MR. SPERLING: Yes.

MR. STAMETS: Mr. Sperling?

CROSS EXAMINATION

BY MR. SPERLING:

Q Mr. Giles, you indicated that this was in addition to the determining the ability of the reservoir to take gas injection and equipment to test the existing equipment. How would you propose to vary the equipment used in the event you find it necessary to move to U-8?

A We would just simply --

Q (Interrupting) Lay a line over there?

A (Continuing) Lay a line over there, yes, sir.

Q What type of reservoir are we dealing with here?

A We have a Vuggy limestone.

Q Has it been Amoco's experience that the permeabilities in this area are excellent?

A They are quite good; they're as good in this area as probably anywhere in the field.

Q Would that indicate to you that the ability of the reservoir to take gas injection?

A I think it would improve the capability of the taking of gas and I think that's conducive to why we selected a top-structure U-3 Well initially. It is in an area of better permeability; we ought to learn our objective results sooner.

Q What is the drive mechanism in the reservoir?

A Gravity segregation predominately with perhaps a very limited water influx from the southwest in some areas, but predominately and essentially gravity segregation.

Q This is classified as a combination gas-oil reservoir is it not?

A It's an oil reservoir with a solution gas-oil ratio of about 800.

Q But there are wells classified as gas wells within the field?

A Yes. At this time we have a gas cap where there are seven wells on the very top part of the structure that are shut in to conserve energy.

Q Do you have any idea where the gas oil contact might be at this point in time?

A Not a precise idea, no.

Q Do you have an opinion?

A Up in the area where the 7 wells are shut in.

Q What contour line on your map would that be?

At the outside 500 minus 500 contour line on the Exhibit?

A I don't really know precisely where it would be; it would be up on the southern part of the N lease, the Southern Half of Section 17 and the North Half North Half of Section 20, up in that area.

Q Well, you don't have an opinion as to the contour line -- I assume this is a structure map?

A It is a structure map.

Q Where would the contact be in your opinion insofar as your indicated lines are concerned; minus 500, minus 510 or where?

A I don't precisely know.

Q And you have no opinion as to where it is?

A I'd rather not venture that opinion; that's a little more precise than I'd like to say at this time.

Q Well, you would say that the U-3 Well is above the gas-oil contact? In other words, U-3 is in the gas cap?

A Very close to it if it's not.

Q And what about U-8?

A Not in my opinion in the gas cap.

Q Would you have any objection to notifying the other operators in the field in the event that your decision is to shift injection from U-3 to U-8?

A No, no. I think all operators should be fully informed as to what we are doing at all times. We intend to do this.

Q Well, it would seem to me -- maybe you agree with this and maybe you don't, we'll find out I guess -- the optimum place to inject gas would be within the so-called gas cap area, and you have indicated that that is your preference by your selection initially of the U-3 Well I take it, is that right?

A It is a very high-structure well, yes.

Q The U-8 Well is not nearly as high a structure, it being approximately 531 minus 531, some 42 or 3 feet lower than U-3?

A Well, of course U-8 is in an area that has the -- the pressure is probably about 200 pounds lower than in U-3 and that could have a decided advantageous benefit in trying to utilize the existing gas sales compressor to try

this short-term test. That is why U-8 would be a promising alternative. To go back up into N-12, N-3, or wells close to U-3 when your U-3 Well didn't work out very well, you're just picking a well with the same type of reservoir pressure and your chances diminish appreciably for a second test being successful there.

Q Do you have any current bottomhole pressure information on either of these wells?

A Yes.

Q What is that bottomhole pressure?

A The bottomhole pressure of U-3, we don't have a recent measurement, but at N-12, to the northwest, it was 1075 psi; at U-8 it was 776, so that's 300 pounds difference. The pressure gradient moves to the southwest to the highest pressure, and it is just normal that it would do that because we are reinjecting produced water at N-2 and U-1.

Q You have been injecting water for a considerable period of time, isn't that true?

A Yes, produced water.

Q Produced water, yes.

A And Texaco has down at AL-3 in Section 28.

Q Has the Formation's reaction to injected water

changed appreciably since you started that? In other words, are you injecting more water than you did initially?

A We're injecting 3500 barrels of water per day into our two wells at this time. No substantial change in performance as a result of that.

Q I think the Examiner expressed Mobil's concern in the matter, and you have already indicated that you expect to come back anyway with whatever data you are able to collect if it appears that the project is feasible, but to state Mobil's concern, it is that of the possibility of a channeling as a result of the injection of gas in U-8. I would assume that if you find it to be feasible then you would plan to try and inject as much produced gas as possible into the reservoir on a full-fledged pressure-maintenance program. Is that what you have in mind?

A Well, you're getting a little ahead of our plans for talking about a full scale --

Q (Interrupting) This is presuming the ultimate, now.

A I will say this: Amoco has studied this Pool for possible -- call it extra recovery mechanism, and we will come not only to Mobil but to Texaco with our findings and would hope we could all have togetherness before we come before the Examiner for a long-term, full-scale, secondary

so-called recovery project. So, we will keep you informed.

MR. SPERLING: Thank you; that is all I have.

MR. STAMETS: Mr. Swan?

REDIRECT EXAMINATION

BY MR. SWAN:

Q Mr. Giles, getting to the question of whether you inject into U-3 or decide to go down into the U-8, if the U-3 will not take the gas, will it be, in your opinion -- well, what will be the reason it won't take? Will it be a rock condition or --

A (Interrupting) No, no, not a rock condition, but the fact that the sales gas compressor is limited by 1500-pound-pressure rating and the reservoir pressure is 1000 or 1075 pounds. We are going to have a little line loss and down-hole-pressure loss, maybe a couple of hundred pounds, so we are kind of at a teeter-toter position as to how much gas we can inject bucking that reservoir pressure. That's why, if it is not successful at U-3, we would want to move to a slightly lower pressure to give that sales gas compressor an opportunity to inject gas.

Q And if you have to move to that U-8, might that mean that your sales compressors just aren't going to get the job done?

A It could, and it may mean we'll have to go for additional compression.

Q Would that U-8 test be necessary so that you'd know what kind of additional compression to go for?

A I would.

MR. SWAN: That's all.

MR. STAMETS: Any other questions of the Witness?
He may be excused. Anything further in this Case?

MR. SWAN: Oh, I'm sorry. There are Exhibits 1, 2, and 3.

MR. STAMETS: Without objection Exhibits 1, 2, and 3 will be admitted.

(Whereupon, Amoco's Exhibits
Nos. 1, 2, and 3 were admitted into
evidence.)

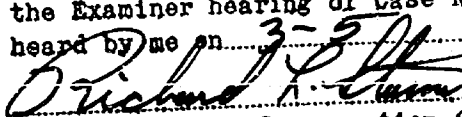
MR. STAMETS: Anything further in this Case?
We will take the Case under advisement.

CASE 5434
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STATE OF NEW MEXICO)
)
COUNTY OF SANTA FE) SS.

I, RICHARD L. NYE, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.


RICHARD L. NYE, Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5434 heard by me on 3-5-75 1975

Richard L. Nye, Examiner
New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

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

I. R. TRUJILLO
CHAIRMAN

LAND COMMISSIONER
PHIL R. LUCERO
MEMBER

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

March 11, 1975

Mr. Paul Cooter
Atwood, Malone, Mann & Cooter
Attorneys at Law
Post Office Box 700
Roswell, New Mexico 88201

Re: CASE NO. 5434
ORDER NO. R-4983

Applicant:

Amoco Production 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. Jim Sperling, Mr. Oscar Swan

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. 5434
Order No. R-4983

APPLICATION OF AMOCO PRODUCTION
COMPANY FOR A PILOT PRESSURE
MAINTENANCE PROJECT, SAN JUAN
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 5, 1975,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 11th day of March, 1975, the Commission,
a quorum being present, having considered the testimony, the
record, and the recommendations of the Examiner, and being
fully advised in the premises,

FINDS:

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

(2) That the applicant, Amoco Production Company, is
a major operator in the Tocito Dome-Pennsylvanian "D"
Pool, San Juan County, New Mexico.

(3) That the applicant seeks to conduct a limited gas
injection test in said pool to determine injectivity
characteristics of the reservoir and injection capacity of
existing lease gas compressors.

(4) That the applicant seeks to inject produced gas
for a period of up to thirty days into the Pennsylvanian
"D" formation in its Navajo Tribal U lease Well No. 3 and/or
Well No. 8 located in Units M and F, respectively, of Sec-
tion 16, Township 26 North, Range 18 West, NMPM, San Juan
County, New Mexico.

(5) That the mechanics of the proposed injection program
are feasible and in accord with good conservation practices.

(6) That the evidence presented indicates that such a
limited gas injection test can be conducted without viola-
tion of correlative rights or causing of waste.

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Case No. 5434
Order No. R-4983

(7) That the applicant should furnish prior notification to all other operators in the Tocito Dome-Pennsylvanian "D" Pool and the Aztec Office of the Commission of the date and time of commencement of gas injection into either or both of said wells Nos. 3 and 8.

(8) That upon completion of the limited gas injection test the operator should file a complete report of the test with the Aztec and Santa Fe Offices of the Commission.

(9) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amoco Production Company, is hereby authorized to conduct a limited gas injection test in the Tocito Dome-Pennsylvanian "D" Pool, San Juan County, New Mexico, by the injection of produced gas into its Navajo Tribal U Well No. 3 and/or Well No. 8 located in Unit M and Unit F, respectively, of Section 16, Township 26 North, Range 18 West, NMPM.

PROVIDED HOWEVER, that injection into said wells shall be limited to no more than 30 days each.

PROVIDED FURTHER, that injection into each of said wells shall be through 2 7/8-inch tubing under a packer set within one hundred feet of the uppermost perforation, that the annulus shall be loaded with inhibited fluid, and that an approved leak detection device shall be attached to the annulus to determine leakage of the tubing or packer.

(2) That the operator shall notify the Aztec district office of the Commission and all operators in said Tocito Dome-Pennsylvanian "D" Pool of the date and time gas injection is to be commenced into said Well No. 3 and/or Well No. 8.

(3) That upon completion of the limited gas injection test, the operator shall file with the Aztec and Santa Fe Offices of the Commission a report setting out the pertinent details of the test including gas volumes and injection pressures.

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

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Case No. 5434
Order No. R-4983

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman



Phil R. Lucero

PHIL R. LUCERO, Member

A. L. Porter, Jr.

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

S E A L

dr/

ORAN L. HASELTINE
VICE-PRESIDENT
GAS SUPPLY

SOUTHERN UNION GAS COMPANY

FIDELITY UNION TOWER
DALLAS, TEXAS 75201

March 10, 1975

RECEIVED
MAR 17 1975
OIL CONSERVATION COMM.
Santa Fe

Mr. Richard L. Stamets
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Stamets:

When we were in Santa Fe last week, you requested some additional information pertaining to our projected sales of industrial volumes of gas from our Southeast System in Lea and Eddy Counties, New Mexico. We are pleased to furnish you the information on the attached schedule.

If there is anything further along these lines that we can provide, please let us know.

Yours truly,

Oran L. Haseltine

OLH:sbr

Attachment

cc: Mr. R. J. McCrary

Case 5433

SOUTHERN UNION GAS COMPANY
Industrial Sales Information
Southeast New Mexico

Information tabulated below pertains to certain new industrial contracts entered into in 1974.

<u>BUYER</u>	<u>MAXIMUM VOLUME</u>	<u>DELIVERY POINT</u>
N-Ren Southwest Corp.	8,000 M/D	Section 26-T21S-R27E Eddy County
Beker Industries Corp.	35,000 M/D	Section 24- 21 - 27 Eddy County
Famariss Oil and Refining Corp.	3,600 M/D	Section 36- 36 - 16 Eddy County
Tipperary Corp.	5,000 M/D	Section 2- 15 - 17 Lea County
 TOTAL	 51,600 M/D	

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Application of Southern Union Gas
Company for Suspension and
Amendment of Certain Provisions
of Rule 14 (A), 15 (A) and 15 (B),
of the General Rules and Regulations
for the Prorated Gas Pools of
Southeastern, New Mexico.

R L S 3-5-75

Finds

(1)

(2) That the applicant, Southern Union
Gas Company, seeks suspension for a
period of one year from April 1, 1975,
of those provisions of Rule 14 (A) and
15 (A) of the General Rules and
Regulations for the prorated gas
pools of Southeastern New Mexico
promulgated by Order No. R-1670,
as amended, that provide for
cancellation of unproduced allowable
and shutting in of overproduced wells,
Indian Basin - Upper Pennsylvanian Gas Pool, Eddy County, New Mexico.

(3) That the applicant does not seek
suspension of the provisions of Rule
15 (B) of said ~~general rule~~ General Rules.

(4) That Southern Union Gas Company
is the owner and operator of one
of the pipelines connected to gas
wells in the ~~aforsaid~~ ~~prorated~~
~~gas pools~~ said gas pool.

(5) That there are three ^{non-marginal} wells connected to applicant's pipeline system in said Indian Basin - Upper Pennsylvanian Gas Pool that have accumulated substantial underproduction which is subject to cancellation as of April 1, 1975.

(6) That the applicant has made diligent efforts to bring said underproduced wells into balance but problems with pipeline construction, weather, delays in completion of ~~the~~ new industrial connections, and the rapid completion of new gas wells in the area have combined to prevent full balancing before the end of the gas proration period.

(7) That there is and will be a demand for the gas from the Indian Basin - Upper Pennsylvanian Gas Pool and from said three underproduced wells such that they may be brought into balance before April 1, 1976.

(8) That completion of additional pipeline facilities ~~and~~ serving the Indian Basin - Upper Pennsylvanian Gas Pool and said underproduced wells should permit the taking of gas such as to bring said wells into balance before April 1, 1976.

9
(H) That in order to protect correlative rights, prevent waste, promote conservation, and allow each producer in the Indian ~~Basin~~ Basin - Upper Pennsylvanian Gas Pool the opportunity to produce his just and equitable share of the gas in said pool, the subject application should be approved.

IV Therefore Ordered

(1) ~~That for the Indian Basin - Upper Pen~~

(1) That Rules 14(A) and 15(A) of The General Rules and Regulations ~~for the Protected Gas Pools of Southeastern New Mexico, for the Indian Basin - Upper~~ promulgated by Order No. R-1670, as amended, are hereby suspended in the Indian Basin - Upper Pennsylvanian Gas Pool ~~for~~ for a period of one year until April 1, 1976.

2 Jurs

Dockets Nos. 7-75 and 8-75 are tentatively set for hearing on March 19 and April 2, 1975. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 5, 1975

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. Nutter, Alternate Examiner:

CASE 5425: (Continued and Readvertised)

Application of Continental Oil Company for an unorthodox location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a non-standard 480-acre gas proration unit, comprising the W/2 of Section 13 and the E/2 E/2 of Section 14, Township 21 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to its Lockhart B Wells Nos. 4 and 8, located at unorthodox locations in Units H and P, respectively, of Section 14, and to its Lockhart B Well No. 7, at an unorthodox location in Unit D of said Section 13.

CASE 5408: (Continued from the February 5, 1975; Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit W. E. Medlock and Reliance Insurance Company and all other interested parties to appear and show cause why the Queen Ridge No. 1 Well located in Unit M of Section 36, Township 10 South, Range 26 East, Chaves County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5414: (Continued and Readvertised)

Application of Continental Oil Company for an unorthodox gas well location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard 360-acre gas proration unit comprising the SE/4 and E/2 SW/4 of Section 28 and the N/2 NE/4 and NE/4 NW/4 of Section 33, both in Township 20 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its Meyer B-28 A Com Acct. 2 Wells Nos. 2 and 3, located, respectively, in Unit O of said Section 28 and in Unit C of said Section 33.

CASE 5429: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Charles M. Goad and United States Fidelity & Guaranty Company and all other interested parties to appear and show cause why the Charles M. Goad, State No. 1 Well located in Unit M of Section 28, Township 2 South, Range 26 East, De Baca County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5431: Application of David C. Collier for an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Kersey Well No. 1-Y, to be drilled 1980 feet from the South line and 2330 feet from the West line of Section 33, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

CASE 5432: Application of American Quasar Petroleum Co. of New Mexico for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Robinia Draw Unit Area, comprising 4,739 acres, more or less, of State and Federal lands in Townships 22 and 23 South, Ranges 23 and 24 East, Eddy County, New Mexico.

CASE 5433: Application of Southern Union Gas Company for suspension and amendment of certain provisions of Rules 14(A), 15(A), and 15(B), of the General Rules and Regulations for the prorated gas pools of Southeastern New Mexico as applied to the Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks suspension for a period of one year from April 1, 1975, of those provisions of Rules 14(A), 15(A), and 15(B), of the General Rules and Regulations for the prorated gas pools of Southeastern New Mexico promulgated by Order No. R-1670, as amended, that provide for the cancellation of underproduction and the shutting-in of overproduced wells as applied to the Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico.

CASE 5434: Application of Amoco Production Company for a pilot pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot pressure maintenance project by the injection of gas through its Navajo Tribal "U" Wells Nos. 3 and/or 8, located, respectively, in Units M and F of Section 16, Township 26 North, Range 18 West, Tocito Dome-Pennsylvanian "D" Oil Pool, San Juan County, New Mexico.

CASE 5435: Application of Mesa Petroleum Co. for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Nash Unit Well No. 1, located in Unit H of Section 13, Township 23 South, Range 29 East, Eddy County, New Mexico, in such a manner as to produce gas from the Strawn formation through tubing and gas from the Morrow formation through the casing-tubing annulus by means of a cross-over assembly.

CASE 5436: Application of William G. Ross for compulsory pooling and an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in formations of Pennsylvanian age or older underlying the E/2 of Section 3, Township 18 South, Range 26 East, Atoka-Pennsylvanian Gas Pool, Eddy County, New Mexico, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and East lines, or in the alternative 990 feet from the South line and 660 feet from the East line of said Section 3. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs as well as actual operating costs and charges for supervision. Also to be considered is the designation of the applicant as the operator of the well and a charge for the risk involved in drilling said well.

CASE 5437: Application of Atlantic Richfield Company for two unorthodox locations and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a standard 640-acre gas proration unit comprising all of Section 14, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to its McDonald State WN Wells Nos. 11 and 27, located, respectively, in Units D and O of said Section 14.

CASE 5430: Southeastern New Mexico nomenclature case calling for the creation, abolishment, extension and contraction of certain pools in Eddy, Lea and Roosevelt Counties, New Mexico:

(a) CREATE A new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the Avalon-Atoka Gas Pool. The discovery well is the Atlantic Richfield Company State BR Well No. 1, located in Unit K of Section 16, Township 21 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
SECTION 16: S/2

(b) CREATE A new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Southeast Bagley-Wolfcamp Pool. The discovery well is the Anderson Oil & Gas Company, Inc. Hess State Well No. 1 located in Unit L of Section 34, Township 11 South, Range 33 East, NMPM. Said pool would comprise:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
SECTION 34: SW/4

(c) CREATE A new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the South Flying "M"-Atoka Gas Pool. The discovery well is the Phillips Petroleum Company Marg "A" Com Well No. 1 located in Unit K of Section 25, Township 9 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 9 SOUTH, RANGE 32 EAST, NMPM
SECTION 25: S/2

(d) CREATE A new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the North Pearl-Morrow Gas Pool. The discovery well is the Dorchester Exploration, Inc. Henry Record Well No. 1, located in Unit I of Section 26, Township 19 South, Range 35 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 35 EAST, NMPM
SECTION 26: S/2

- (e) ABOLISH the Arrowhead-Drinkard Pool in Lea County, New Mexico, described as:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: SW/4

- (f) EXTEND the Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: SE/4

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 31: SW/4

- (g) CONTRACT the vertical limits of the South Flying "M"-Pennsylvanian Pool in Lea County, New Mexico, to include only the Bough formations and redesignate said South Flying "M"-Pennsylvanian Pool as the South Flying "M"-Bough Pool.

- (h) EXTEND the Atoka-Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
SECTION 1: E/2
SECTION 12: E/2

- (i) EXTEND the Blinebry Oil and Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: SE/4

- (j) EXTEND the Bluitt-Wolfcamp Gas Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 37 EAST, NMPM
SECTION 34: SW/4

TOWNSHIP 8 SOUTH, RANGE 37 EAST, NMPM
SECTION 3: W/2
SECTION 10: NW/4

- (k) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
SECTION 15: All
SECTION 28: All

- (l) EXTEND the Cemetary-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 25 EAST, NMPM
SECTION 7: E/2
SECTION 21: W/2

(m) EXTEND the South Empire-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM
SECTION 31: N/2

(n) EXTEND the Forty Niner Ridge-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM
SECTION 21: N/2

(o) EXTEND the Kennedy Farms-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 26 EAST, NMPM
SECTION 27: N/2

(p) EXTEND the La Rica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
SECTION 33: All

(q) EXTEND the Red Lake-Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 27 EAST, NMPM
SECTION 18: S/2

(r) EXTEND the Todd Wolfcamp Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 35 EAST, NMPM
SECTION 27: NE/4

(s) EXTEND the Tubb Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 2: SE/4



*Set for
hearing*

Case 5434

Amoco Production Company
Petroleum Center Building
501 Airport Drive
Farmington, New Mexico 87401

L. O. Speer, Jr.
Area Superintendent

January 21, 1975

File: LOS-30-986.510

Re: Request for Administrative Approval to
Conduct a Limited Gas Injection Test into
The Pennsylvanian "D" Formation
Tocito Dome Field, San Juan County, New Mexico

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

Gentlemen:

Amoco Production Company is requesting administrative approval to conduct a limited gas injection test in the Pennsylvanian "D" Formation, Tocito Dome Field, San Juan County, New Mexico. Amoco proposes to reinject produced gas into the Pennsylvanian "D" Formation for a thirty day period to determine at what rates and pressures the formation will accept injected gas. It is important to emphasize that this is not a pressure maintenance project, but instead, is a feasibility study for gas injection with our current compressor facilities.

Produced gas for the test will be obtained from oil wells on the Navajo Tribal "N", "P", and "U" leases. All wells on these leases produce from the Pennsylvanian "D" horizon. Tentative plans call for injecting up to 5 MMCFD, but this is dependent upon what we can actually inject with our current compression facilities. Amoco holds a 100% working interest in the Navajo Tribal "N", "P", and "U" leases, the Navajo Tribe is the only royalty interest owner, and there is no overriding interest.

Initially, Navajo Tribal "U" Well No. 3 will be used as the test injection well. If injection cannot be initiated into Navajo Tribal "U" Well No. 3, we will attempt injecting into Navajo Tribal "U" Well No. 8. In both instances, gas will be injected down 2-7/8" tubing under a packer. Attached are the wellbore diagrams for the subject wells containing pertinent information regarding casing, tubing, and cement programs. Also included are the open hole logs on the proposed injection wells and a plat showing the injectors and nearby producers in the field.

DOCKET MAILED

Date 2-20-75

Case 5434

Page 2

Oil Conservation Commission
State of New Mexico
January 21, 1975

Following the thirty day test period, Amoco will analyze the injection data to determine what future steps, if any, will be taken. If Amoco determines that it is feasible to continue gas injection, the necessary applications pertaining to New Mexico Oil Conservation Commission Rule 701 will be filed before any extended term gas injection is commenced. Again, we wish to emphasize that this is only a short term feasibility study and not a pressure maintenance project. We hope that you will consider this proposal as such and grant administrative approval for the test.

Yours very truly,



GOM:en
Attachments

cc: U. S. Geological Survey
Farmington, New Mexico

Case 5434

13-3/8" 48#
CSA 94' x 100 sx

8-5/8" 24#
CSA 1475' x 500 sx

2nd Stage:
500 sx Poz,
circulate

2-7/8" tubing

DV Tool SA 3612'

Annulus to be filled with
treated water.

1st Stage:
300 sx Poz
200 sx Neat
circulate

Packer SA approx. 6200'
Perfs 6216-26' x 4 SPF
Perfs 6234-43' x 4 SPF

4-1/2" 10.5#
CSA 6940' x 1000 sx

PBD 6330'

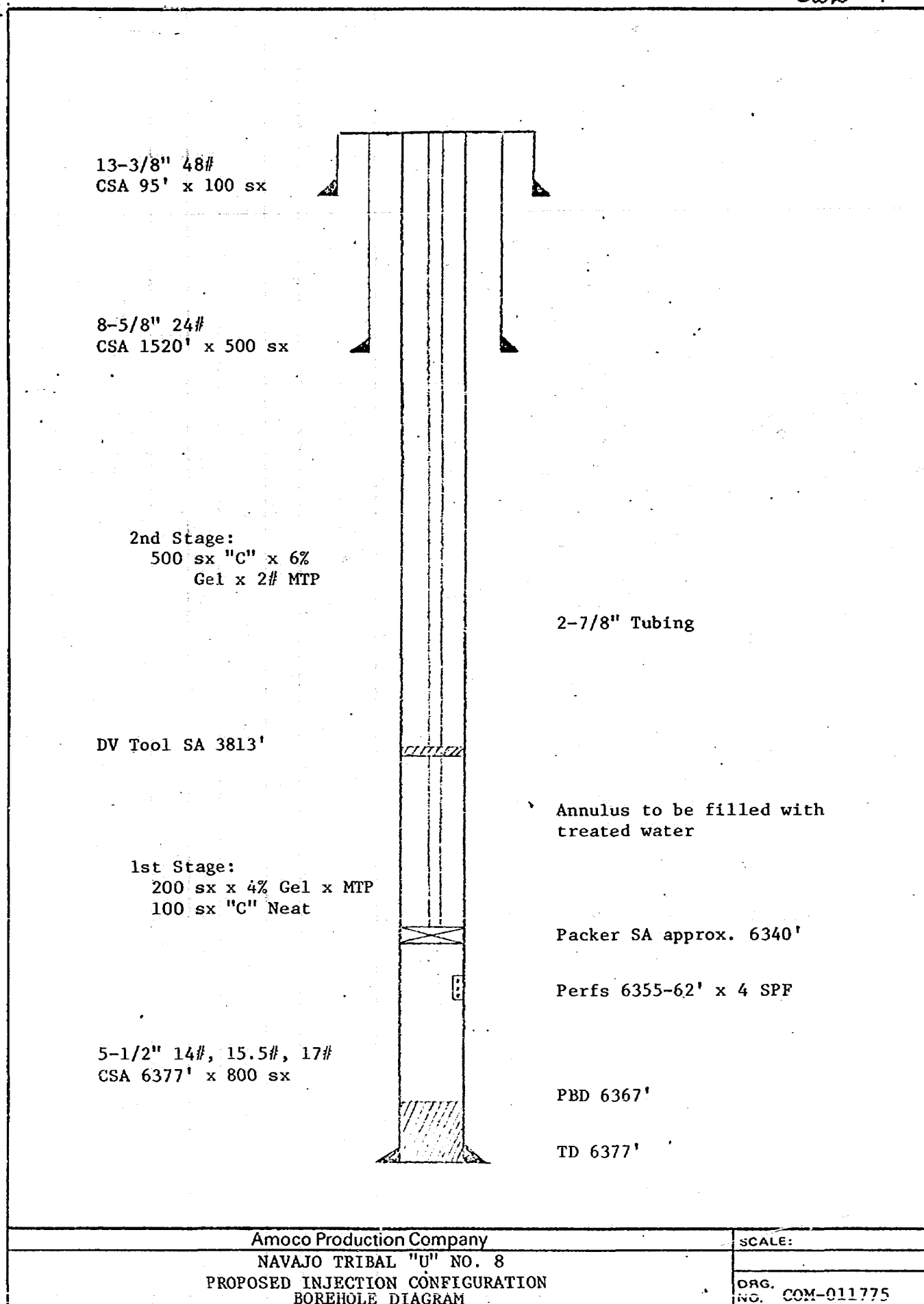
TD 6940'

Amoco Production Company
NAVAJO TRIBAL "U" NO. 3
PROPOSED INJECTION CONFIGURATION
BOREHOLE DIAGRAM

SCALE:

ORG. NO. GOM-011775

Case 5434



File 100-5424

P. O. Drawer 1857
Roswell, New Mexico 88201

January 29, 1975

Amoco Production Company
Attn: L. O. Speer, Jr.
Petroleum Center Bldg.
501 Airport Drive
Farmington, New Mexico 87401

Gentlemen:

Your letter to the N.M.O.C.C. with copy to the U.S.G.S. requests approval to initiate a limited gas injection test into the Pennsylvanian "D" formation, Tocito Dome field, San Juan County, New Mexico, for the purpose of establishing feasibility of a possible future gas repressurization for the field.

As set forth in your plan, the test would be for a period of 30 days with maximum volumes of 5 MMCFD utilizing existing compression facilities and leasehold gas into either the well No. U-3 or No. U-8, located in the W/2 sec. 16, T. 26 N., R. 18 W. Gas would be injected below a packer in the Pennsylvanian formation.

The plan as outlined in your proposal is hereby approved provided like approval is granted by the N.M.O.C.C. Any changes in the plan must receive prior approval from this office. Please notify the Farmington District office when the system is operational.

Sincerely yours,

CARL C. TRAYWICK
Acting Area Oil and Gas Supervisor

cc:
✓ NMOCC, Santa Fe
Farmington
File

McGrath:

Docket No. 6-75

Dockets Nos. 7-75 and 8-75 are tentatively set for hearing on March 19 and April 2, 1975. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 5, 1975

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. Nutter, Alternate Examiner:

CASE 5425: (Continued and Readvertised)

Application of Continental Oil Company for an unorthodox location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a non-standard 480-acre gas proration unit, comprising the W/2 of Section 13 and the E/2 E/2 of Section 14, Township 21 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to its Lockhart B Wells Nos. 4 and 8, located at unorthodox locations in Units H and P, respectively, of Section 14, and to its Lockhart B Well No. 7, at an unorthodox location in Unit D of said Section 13.

CASE 5408: (Continued from the February 5, 1975, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit W. E. Medlock and Reliance Insurance Company and all other interested parties to appear and show cause why the Queen Ridge No. 1 Well located in Unit M of Section 36, Township 10 South, Range 26 East, Chaves County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5414: (Continued and Readvertised)

Application of Continental Oil Company for an unorthodox gas well location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard 360-acre gas proration unit comprising the SE/4 and E/2 SW/4 of Section 28 and the N/2 NE/4 and NE/4 NW/4 of Section 33, both in Township 20 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its Meyer B-28 A Com Acct. 2 Wells Nos. 2 and 3, located, respectively, in Unit O of said Section 28 and in Unit C of said Section 33.

CASE 5429: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Charles M. Goad and United States Fidelity & Guaranty Company and all other interested parties to appear and show cause why the Charles M. Goad, State No. 1 Well located in Unit M of Section 28, Township 2 South, Range 26 East, De Baca County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5431: Application of David C. Collier for an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Kersey Well No. 1-Y, to be drilled 1980 feet from the South line and 2330 feet from the West line of Section 33, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

CASE 5432: Application of American Quasar Petroleum Co. of New Mexico for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Robinia Draw Unit Area, comprising 4,739 acres, more or less, of State and Federal lands in Townships 22 and 23 South, Ranges 23 and 24 East, Eddy County, New Mexico.

CASE 5433: Application of Southern Union Gas Company for suspension and amendment of certain provisions of Rules 14(A), 15(A), and 15(B), of the General Rules and Regulations for the prorated gas pools of Southeastern New Mexico as applied to the Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks suspension for a period of one year from April 1, 1975, of those provisions of Rules 14(A), 15(A), and 15(B), of the General Rules and Regulations for the prorated gas pools of Southeastern New Mexico promulgated by Order No. R-1670, as amended, that provide for the cancellation of underproduction and the shutting-in of overproduced wells as applied to the Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico.

CASE 5434: Application of Amoco Production Company for a pilot pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot pressure maintenance project by the injection of gas through its Navajo Tribal "U" Wells Nos. 3 and/or 8, located, respectively, in Units M and F of Section 16, Township 26 North, Range 18 West, Tocito Dome-Pennsylvanian "D" Oil Pool, San Juan County, New Mexico.

CASE 5435: Application of Mesa Petroleum Co. for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Nash Unit Well No. 1, located in Unit H of Section 13, Township 23 South, Range 29 East, Eddy County, New Mexico, in such a manner as to produce gas from the Strawn formation through tubing and gas from the Morrow formation through the casing-tubing annulus by means of a cross-over assembly.

CASE 5436: Application of William G. Ross for compulsory pooling and an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in formations of Pennsylvanian age or older underlying the E/2 of Section 3, Township 18 South, Range 26 East, Atoka-Pennsylvanian Gas Pool, Eddy County, New Mexico, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and East lines, or in the alternative 990 feet from the South line and 660 feet from the East line of said Section 3. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs as well as actual operating costs and charges for supervision. Also to be considered is the designation of the applicant as the operator of the well and a charge for the risk involved in drilling said well.

CASE 5437: Application of Atlantic Richfield Company for two unorthodox locations and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a standard 640-acre gas proration unit comprising all of Section 14, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to its McDonald State WN Wells Nos. 11 and 27, located, respectively, in Units D and O of said Section 14.

CASE 5430: Southeastern New Mexico nomenclature case calling for the creation, abolishment, extension and contraction of certain pools in Eddy, Lea and Roosevelt Counties, New Mexico:

(a) CREATE A new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the Avalon-Atoka Gas Pool. The discovery well is the Atlantic Richfield Company State BR Well No. 1, located in Unit K of Section 16, Township 21 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
SECTION 16: S/2

(b) CREATE A new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Southeast Bagley-Wolfcamp Pool. The discovery well is the Anderson Oil & Gas Company, Inc. Hess State Well No. 1 located in Unit L of Section 34, Township 11 South, Range 33 East, NMPM. Said pool would comprise:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
SECTION 34: SW/4

(c) CREATE A new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the South Flying "M"-Atoka Gas Pool. The discovery well is the Phillips Petroleum Company Marg "A" Com Well No. 1 located in Unit K of Section 25, Township 9 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 9 SOUTH, RANGE 32 EAST, NMPM
SECTION 25: S/2

(d) CREATE A new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the North Pearl-Morrow Gas Pool. The discovery well is the Dorchester Exploration, Inc. Henry Record Well No. 1, located in Unit I of Section 26, Township 19 South, Range 35 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 35 EAST, NMPM
SECTION 26: S/2

(e) ABOLISH the Arrowhead-Drinkard Pool in Lea County, New Mexico, described as:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: SW/4

(f) EXTEND the Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: SE/4

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 31: SW/4

(g) CONTRACT the vertical limits of the South Flying "M"-Pennsylvanian Pool in Lea County, New Mexico, to include only the Bough formations and redesignate said South Flying "M"-Pennsylvanian Pool as the South Flying "M"-Bough Pool.

(h) EXTEND the Atoka-Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
SECTION 1: E/2
SECTION 12: E/2

(i) EXTEND the Blinebry Oil and Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: SE/4

(j) EXTEND the Bluitt-Wolfcamp Gas Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 37 EAST, NMPM
SECTION 34: SW/4

TOWNSHIP 8 SOUTH, RANGE 37 EAST, NMPM
SECTION 3: W/2
SECTION 10: NW/4

(k) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
SECTION 15: All
SECTION 28: All

(l) EXTEND the Cemetary-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 25 EAST, NMPM
SECTION 7: E/2
SECTION 21: W/2

(m) EXTEND the South Empire-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM
SECTION 31: N/2

(n) EXTEND the Forty Niner Ridge-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM
SECTION 21: N/2

(o) EXTEND the Kennedy Farms-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 26 EAST, NMPM
SECTION 27: N/2

(p) EXTEND the La Rica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
SECTION 33: All

(q) EXTEND the Red Lake-Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 27 EAST, NMPM
SECTION 18: S/2

(r) EXTEND the Todd Wolfcamp Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 35 EAST, NMPM
SECTION 27: NE/4

(s) EXTEND the Tubb Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 2: SE/4



Amoco Production Company

Security Life Building
Denver, Colorado 80202

February 22, 1977

File Case 5434

Joe D. Ramey, Director (3)
New Mexico Oil Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico 87501

File: VDP-522-986.511

Dear Mr. Ramey:

Order No. R4983-A Limited Gas Injection Test
Tocito Dome Penn "D" Pool, San Juan County, New Mexico

This refers to amended Order No. R4983-A and your letter of September 13, 1976 that extended authorization of the gas injection test program to February 27, 1977.

We have thoroughly analyzed performance of the pilot project, together with the latest information on the status of the Penn "D" Pool, and conclude that pilot injection (or field-wide injection--the hoped for end result) should not be continued. The merit of this conclusion was further supported by a late January, 1977 breakthrough of gas at Amoco's Navajo Tribal "U" No. 26, some 6500' east of the injection well Navajo Tribal "U" No. 7, and only 2000' from a Texaco well, Navajo Tribal BS No. 4, SWNW Section 23-T26N-R18W. During January, 1977, the gas rate from "U" No. 26 increased from a normal 500 MCFD rate to rates measured at 1002 MCFD on January 18, 1977, and 795 MCFD on January 19, 1977. It is obvious that gas movement through the reservoir is not effective in contacting any significant volumes of oil, and gas injection cannot be controlled to effect any measurable increase in recovery by the gravity drainage concept.

In summary, Amoco has injected 354,000 MCF of gas during the pilot period 2-17-76 to 2-1-77. Injection was initiated into two wells, Navajo "U" Nos. 7 and 12. Early breakthrough in a northeasterly direction necessitated the early shut-in of Navajo "U" No. 7 on March 18, 1976, but injection was continued into Navajo "U" No. 12 at a reduced rate of approximately 750 MCFD through June, 1976. Nothing developed of a detrimental nature to July 1, 1976, and because of the low injection to withdrawal balance then in effect, the injection

Mr. Joe D. Ramey
Page 2

rate was increased to approximately 1000 MCFD and has continued at that rate to this time. No sustained beneficial effect has been observed, and because of new evidence of breakthrough, we now feel it prudent to permanently terminate gas injection. We are documenting considerable detail in graphic form and will provide this material to the Commission and to the other operators in the very near future. We are extremely disappointed that the pilot results do not support a project of greater scope.

R.B. Giles
R. B. Giles

MOH/slf

cc: A. R. Kendrick, Supervisor District No. 3
New Mexico Oil Conservation Commission
1000 Rio Brazos Road
Aztec, New Mexico 87110

P. T. McGrath
U. S. Geological Survey
P.O. Box 965
Farmington, New Mexico 87401

J. A. Morris
Mobil Oil Corporation
Three Greenway Plaza East, Suite 800
Houston, Texas 77046

J. C. White
Texaco, Inc.
P.O. Box 2100
Denver, Colorado 80201



February 10, 1977

Joe D. Ramey, Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

File: VDP-348-986.511

Cessation of Gas Injection to Meet
Gas Shortage, Penn "D" Pool,
Tocito Dome Field
San Juan County, New Mexico

To help meet the gas shortage back East, Amoco discontinued its gas injection test program on February 2, 1977 and diverted that 1 MMCFD to gas sales. Inasmuch as we had been selling what gas was not injected, total gas-to-sales by Amoco since that time has been about 2.5 MMCFD.

Pursuant to your September 13, 1976 letter, NMOCC permission to inject gas up to a limit of 1 MMCFD is due to expire February 27, 1977. Before then, we intend to write you our future plans with respect to the gas injection test program in the Tocito Dome "D" Pool.

Very truly yours,

R.B. Giles
R. B. Giles

RBG:cd

cc: A. R. Kendrick, Supervisor,
District No. 3

P. T. McGrath
U. S. Geological Survey
P. O. Box 965
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*File
Case 5434*



Amoco Production Company

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June 13, 1975

June 13, 1975

Joe D. Ramey
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File: DGW-136-538.9

Tocito Dome Gas Injectivity Test Results

This letter is to advise the New Mexico Oil Conservation Commission and other operators in the Tocito Dome Penn "D" Pool of the results of the 37 day gas injectivity test which was performed according to Order R-4983.

The primary purpose of this test was to determine injectivity characteristics of the reservoir and the injection capacity of Amoco's existing compressors. To determine these parameters, Navajo Tribal "U" No. 3, in SW/4 SW/4 Section 16, T26N, R18W was converted to gas injection as specified by the above-referenced order (refer to field map, Attachment No. 1). Two of Amoco's six compressors were manifolded so that gas compressed by these units could be reinjected.

In Amoco's opinion the test was very successful, in that we were able to inject significant quantities of gas at pressures at which all our existing compressors can operate. This is also true for equipment of other operators in the pool.

In all, a total of 85,778 MCF was injected during the 37 days of injection. The test ran longer than the 30 days specified by the Order because a packer leak was discovered six days after the test was initiated. Verbal approval to reinstate the 30 day test was granted by the Aztec office of the New Mexico Oil Conservation Commission after proper repairs had been made.

*File
Case 5438*

Joe D. Ramey
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Attachment No. 2 outlines the daily injection rates, daily injected volumes, cumulative injected volumes, wellhead tubing pressure during injection, the hours of operation and the compressor used. You will note that with the smaller Chicago Pneumatic (CP) compressor we were generally capable of injecting about 2.4 MMCFD at 810 psig. With the larger Ingersoll Rand (IR) machine, we could easily inject as much as 5.4 MMCFD or more at 940 psig. Amoco feels these rates and pressures would be very satisfactory should it be determined that a full scale gas injection project would be the optimum method to deplete the Tocito Dome Penn "D" reservoir.

✓ Gas breakthrough occurred during the test at Amoco's Navajo Tribal "U" No. 14 in the NE/4 SW/4 Section 16, T26N, R16W (shown on the field map, Attachment No. 1). It was anticipated prior to the injectivity test that some gas cycling would occur in wells located close to the injector and at the same relative structural position. This was considered to be probable because of the excellent permeability (as much as 2800 millidarcies) in this portion of the Penn "D" reservoir and because the structurally high wells are located in the original gas cap area of the pool, where gas saturations are likely to still be quite high.

Amoco's Navajo Tribal "U" No. 14 is located approximately 1950 feet from the injection well "U" No. 3. Well "U" No. 14 is structurally located only 12 feet low to "U" No. 3 and "U" No. 14 is in the original gas cap area of the field. Prior to the test period and during the test period all the other wells surrounding the injector, except "U" No. 14, had been shut in because of high GOR's in an effort to conserve energy, an Amoco compressor failure which restricted sales, and pumping equipment problems. As "U" No. 14 thus offered the only pressure sink in this highly permeable area of the field, it is felt natural that the gas injected would move quickly to this location.

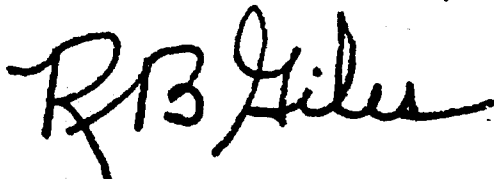
Of the 85,778,000 cubic feet of gas injected into the reservoir, some 71.3% was cycled out of "U" No. 14. The remaining 28.7% of the gas stayed in the reservoir and aided in maintaining reservoir pressure. In terms of reservoir barrels, an average of 7177 barrels per day was injected during the test and 5117 barrels per day was cycled. The net effect was a decrease in reservoir voidage of 2060 reservoir barrels per day less than what would have occurred had all the gas been sold.

It is anticipated that, if future gas injection is determined to be desirable by all the operators in the pool, this gas cycling will decrease as the gas cap expands into areas of the field where a steeper structural dip occurs.

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Well "U" No. 14's test rates before, during, and after the injection test are shown on Attachment No. 3. You will note that, although gas rates increased substantially, no adverse effect was shown on either the oil production or water production. Also at the conclusion of the test the GOR on this well began approaching pre-test rates, demonstrating that no permanent damage of any kind resulted from the temporarily high gas producing rates.

Pressure surveys were run on shut-in offset wells before and after the injection test. Well "N" No. 12 in NE/4 SE/4 Section 17, T26W, R18W recorded 895 psi on both 3-24-75 and 5-15-75. Well "U" No. 12 in SE/4 NW/4 Section 21 pressures were 1084 psi and 1086 psi on 3-24-75 and 5-15-75, respectively. The only significant pressure change was at the gas injector, "U" No. 3, where the bottom hole pressure went from 874 psi immediately prior to injection to 889 psi soon after the conclusion of injection. No significant pressure changes were anticipated as withdrawals were in excess of injection volumes.



JWC/dc

Attachments

cc: E. C. Arnold
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300 752, 301 701, 707

Attachment No. 2

Tocito Dome Gas Injection Data

Date	Injection Rate MCFD	Daily Volume MCF	Cumulative MCF	Wellhead Tubing Pressure-PSI	Hours Injected and Compressor
4-4-75	2136	979	979	820	11 hrs. - CP comp.
4-5-75	2085	2085	3064	810	24 hrs.
4-6-75	1998	1998	5062	810	24 hrs.
4-7-75	2053	2053	7115	810	24 hrs.
4-8-75	2167	2167	9282	800	24 hrs.
4-9-75	1999	1999	11281	817	24 hrs.
4-10-75	2025	913	12194	817	10 hrs.

Gas injection ceased 4-10-75 to repair packer leak at injection well.

4-15-75	2098	1311	13505	800	15 hrs.
4-16-75	2075	2075	15580	800	24 hrs.
4-17-75	1889	1889	17469	798	24 hrs.
4-18-75	2187	2187	19656	800	24 hrs.
4-19-75	2067	2067	21723	798	24 hrs.
4-20-75	2189	2189	23912	810	24 hrs.
4-21-75	2292	2292	26204	813	24 hrs.
4-22-75	2443	2443	28647	813	24 hrs.
4-23-75	2451	2451	31098	813	24 hrs.
4-24-75	2228	2228	33326	790	24 hrs.
4-25-75	2265	2265	35591	800	24 hrs.
4-26-75	2447	2447	38038	800	24 hrs.
4-27-75	2544	2544	40582	805	24 hrs.
4-28-75	2446	2446	43028	800	24 hrs.
4-29-75	2482	2482	45510	790	24 hrs.
4-30-75	2383	2383	47893	790	24 hrs.
5-1-75	2257	2257	50150	792	24 hrs.
5-2-75	2209	2209	52359	790	24 hrs.
5-3-75	2286	2286	54645	790	24 hrs.
5-4-75	2072	2072	56717	768	24 hrs.
5-5-75	2241	1494	58211	750	16 hrs.
5-6-75	2308	2308	60519	770	24 hrs.
5-7-75	5284	4403	64922	940	20 hrs. - IR comp.
5-8-75	5413	4511	69433	940	20 hrs.
5-9-75	3545	2954	72387	850	20 hrs.
5-10-75	2554	2341	74728	730	16 hrs. - IR comp.
					6 hrs. - CP comp.
5-11-75	3339	3339	78067	900	14 hrs. - CP comp.
					10 hrs. - IR comp.
5-12-75	3671	2753	80820	850	13 hrs. - IR comp.
					5 hrs. - CP comp.
5-13-75	7437	4958	85778	980	16 hrs. - IR comp.
5-14-75	Test Concluded 5-14-75				

Attachment No. 3

Production Tests During Gas Injection Period
Navajo Tribal "U" Well No. 14
Tocito Dome Field

	<u>Date</u>	<u>BOPD</u>	<u>BWPD</u>	<u>MCFD</u>	<u>GOR</u>
Before Gas Injection	3-2-75	82	524		
	3-4-75	80	467	234	2841
	3-5-75	79	496	241	3012
Gas Injection Commenced	4-4-75			233	2949
Gas Injection Down	4-10-75 to Repair Packer Leak				
Gas Injection Restarted	4-15-75				
	4-27-75	93	511	1131	12161
	4-28-75	91	538	1578	17340
	4-29-75	76	544	1758	23131
	5-2-75	73	504	2532	34865
	5-5-75	67	517	2729	40731
	5-9-75	93	472	--	--
	5-10-75	90	489	--	--
	5-11-75	74	529	3569	48230
	5-12-75	70	541	3578	51114
	5-13-75	95	593	3723	39189
Gas Injection Ceased	5-14-75	68	538	3700	54412
	5-16-75	58	519	2523	43500
	5-17-75	61	490	2019	33098
	5-20-75	80	535	886	11075
	5-21-75	79	509	745	9430
	5-22-75	79	513	595	7532
	5-23-75	75	508	487	6493
	5-24-75	75	508	463	6173

DRAFT

RLS/dr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5434

Order No. R-4983

APPLICATION OF AMOCO PRODUCTION COMPANY
FOR A PILOT PRESSURE MAINTENANCE PROJECT,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 5, 1975
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this day of March, 1975, the Commission,
a quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That the applicant, Amoco Production Company, is a
major operator in the Tocito Dome-Pennsylvanian D Pool,
San Juan County, New Mexico.

(3) That the applicant seeks to conduct a limited gas injection test in said pool to determine injectivity characteristics of the reservoir and injection capacity of existing lease gas compressors.

(4) That the applicant seeks to inject produced gas for a period of up to thirty days into the Pennsylvanian "D" formation in its Navajo Tribal U lease Well No. 3 and/or Well No. 8 located in Units M and F, respectively, of Section 16, Township 26 North, Range 18 West, NMPM, San Juan County, New Mexico.

(5) That the mechanics of the proposed injection program are feasible and in accord with good conservation practices.

(6) That the evidence presented indicates that such a limited gas injection test can be conducted without violation of correlative rights or causing of waste.

(7) That the applicant should furnish prior notification to all other operators in the Tocito Dome-Pennsylvanian "D" Pool and the Aztec Office of the Commission of the date and time of commencement of gas injection into either or both of said wells Nos. 3 and 8.

(8) That upon completion of the limited gas injection test the operator should file a complete report of the test with the Aztec and Santa Fe Offices of the Commission.

(9) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amoco Production Company, is hereby authorized to conduct a limited gas injection test in the Tocito Dome-Pennsylvanian "D" Pool, San Juan County, New Mexico, by the injection of produced gas into its Navajo Tribal U Well No. 3 and/or Well No. 8 located in Unit M and Unit F, respectively, of Section 16, Township 26 North, Range 18 West, NMPM.

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Case No. 5434
Order No. R-

PROVIDED HOWEVER, that injection in to said wells shall be limited to no more than 30 days each.

PROVIDED FURTHER, that injection into each of said wells shall be through 2 7/8-inch tubing under a packer set within one hundred feet of the uppermost perforation, that the annulus shall be loaded with inhibited fluid, and that an approved leak detection device shall be attached to the annulus to determine leakage of the tubing or packer.

(2) That the operator shall notify the Aztec district office of the Commission and all operators in said Tocito Dome-Pennsylvanian "D" Pool of the date and time gas injection *is to be commenced* into said Well No. 3 and/or Well No. 8, ~~is to commence.~~

(3) That upon completion of the limited gas injection test, the operator shall file with the Aztec and Santa Fe Offices of the Commission a report setting out the pertinent details of the test including gas volumes and injection pressures.

(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 hereinabove designated.