

CASE 4349: Application of TENNECO
FOR A WATERFLOOD EXPANSION & UN-
ORTHODOX INJECTION WELL LOCATIONS

Case Number

4349

Application
Transcripts.

Small Exhibits

ETC.

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

209 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 29, 1970

EXAMINER HEARING

IN THE MATTER OF:)
)
)

Application of Tenneco Oil Company)
for a waterflood expansion and unorth-)
odox injection well locations, McKinley)
County, New Mexico.)

CASE NO. 4240

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 4349.

MR. HATCH: Case 4349. Application of Tenneco Oil Company for a waterflood expansion and unorthodox injection well locations, McKinley County, New Mexico.

MR. KELLY: Booker Kelly of White, Gilbert, Koch & Kelly of Santa Fe on behalf of the Applicant, and I have one witness and ask that he be sworn.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1, 2, 3A & 3B were marked for identification.)

J. MICHAEL LACY

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

DIRECT EXAMINATION

BY MR. KELLY:

Q Would you state your name, position, and employer, please?

A J. Michael Lacy. I am a Petroleum Engineer, Tenneco Oil Company.

Q And you've previously qualified before this Commission as an expert witness in the field of Petroleum Engineering?

A Yes, sir. I have.

Q Mr. Lacy, would you refer to what has been marked

Exhibit 1, the plat, and state briefly what Tenneco seeks by this application?

A Exhibit 1 is a plat showing the location of the South Hospah Field in McKinley County, New Mexico. We desire the Commission's approval to drill and complete two water injection wells within our South Hospah Unit that will be unorthodox. The location of these wells are, Hospah Number 41 will be 1650 feet from the east line and five feet from the north line.

Hospah Number 42 will be 3000 feet from the north line and five feet from the east line. Both of these wells are in Section 12, Township 17 North, Range 9 West.

Q Now, are these wells part of an existing waterflood project?

A Yes, sir, they are. They are part of the South Upper Hospah waterflood project.

Q And what are the limits of that project?

A The project covers the entire Section 12.

Q Now, in what respect are these two wells unorthodox?

A The wells are unorthodox in the fact that they are closer than 330 feet to the outer lease boundary. We have entered into a cooperative lease line injection agreement with the Tesoro Petroleum Corporation, and this agreement calls for Tenneco to drill two wells five feet off their

lease line. It calls for Tesoro to drill two water injection wells off of their lease line. The application of Tesoro was heard earlier on this docket by the Commission. These wells will complete waterflood patterns to the east and north of the existing waterflood patterns in the field, and will recover additional reserves that would be unrecoverable by the present waterflood patterns.

Q So these two proposed injection wells will continue the existing flood pattern?

A Yes, sir.

Q Now, are there any other offset operators, other than Tesoro?

A No, there are not.

Q Within a two-mile range?

A There are not.

Q So the correlative rights of all parties involved are amply protected as evidenced by the fact they have entered into a cooperative agreement?

A That is correct.

Q Do you have an exhibit that shows the extent of the response to the Hospah flood?

A Yes, I have exhibits, I believe they are marked 3A and 3B, which are Commission Form C-116, gas-oil ratio tests that were taken in the South Hospah Field. Exhibit 3A was submitted to the Commission on 8/17/1967, which was prior

to any injection in the field showing the performance of the existing wells in the field at the time. Exhibit 3B is Commission Form C-116 that was submitted on 7/29/69, which shows the response that had been gained to that point. I might add that the average daily producing rate in the field prior to water injection at the time we started water injection was 115 barrels per day.

In January of 1970, the average daily production was 1287 barrels per day.

Q So you've had substantial response?

A Yes, sir; we have.

Q Now, going on to what has been marked Exhibit Number 2 -- looks like we're crossed up on our sequence here -- which is your sketch of the proposed injection well, would you explain that?

MR. UTZ: Excuse me. Would you give me those figures again? I thought they were here, but they're not.

THE WITNESS: The average daily rate at the time we started injection was 115 barrels of oil per day. The average rate in January of 1970 was 1287 barrels of oil per day.

MR. UTZ: Thank you.

Q (By Mr. Kelly) When did you start injection?

A We started injection in June of 1968.

Q Now, going on to the Exhibit Number 2, which is your sketch of the injection well, would you explain that?

to any injection in the field showing the performance of the existing wells in the field at the time. Exhibit 3B is Commission Form C-116 that was submitted on 7/29/69, which shows the response that had been gained to that point. I might add that the average daily producing rate in the field prior to water injection at the time we started water injection was 115 barrels per day.

In January of 1970, the average daily production was 1287 barrels per day.

Q So you've had substantial response?

A Yes, sir; we have.

Q Now, going on to what has been marked Exhibit Number 2 -- looks like we're crossed up on our sequence here -- which is your sketch of the proposed injection well, would you explain that?

MR. UTZ: Excuse me. Would you give me those figures again? I thought they were here, but they're not.

THE WITNESS: The average daily rate at the time we started injection was 115 barrels of oil per day. The average rate in January of 1970 was 1287 barrels of oil per day.

MR. UTZ: Thank you.

Q (By Mr. Kelly) When did you start injection?

A We started injection in June of 1968.

Q Now, going on to the Exhibit Number 2, which is your sketch of the injection well, would you explain that?

A Exhibit Number 2 is a diagrammatic sketch of our proposed water injection well completions and this is in accordance with the completion practice that we have followed prior to this in the field with water injection wells. We will cement seven-inch surface pipe to the surface. That would be approximately sixty feet long. We will cement a production string, four and a half-inch casing, through the Upper Hospah formation, but we will not penetrate the Lower Hospah formation. We will inject water down plastic coated tubing. We will protect our injection profiles by using a Baker lock set packer and we will selectively perforate between 1550 and 1650 in the Upper Hospah Sands in these two wells.

Q Is this water going to be heated?

A Yes, sir. This water will be heated to a surface temperature of approximately 175 degrees at the well head.

Q And what's the source of your water?

A The source of the water is the Lower Hospah produced water. We will inject approximately 200 barrels a day of this water into these wells.

Q How about pressure?

A The pressure will not exceed 750 pounds at the well-head.

Q And I assume this is comparable to your existing flood and also pretty well specified in the cooperative agreement?

A Yes, the rates are somewhat lower than our existing flood, due to the fact that we are in a thinner pay section off to the east. The rates have been agreed to by both Tesoro and Tenneco Oil Companies, and also the pressures and well-head temperature.

Q Do you anticipate any problem with migrations of fluids or any effect on fresh water that might be in the area?

A No, I do not. We are following the standard completion practice that's been followed in the field, and we've had no problems to date.

Q Now, does Tenneco contemplate any other injection wells in this project that would require unorthodox locations?

A No, we do not.

Q In your opinion, would the granting of this application prevent waste by allowing you to recover hydrocarbons that would otherwise be left in place?

A Yes, it would.

Q Were Exhibits 1 through 3B prepared by you or under your supervision?

A With the exception of the Commission's Form 116,

which was taken from our ordinary company business, these were prepared by me; yes.

Q And these have previously been submitted to the Commission?

A Yes, they have.

MR. KELLY: I move for the introduction of Tenneco's Exhibits 1 through 3B.

MR. UTZ: Without objection, Exhibits 1 through 3B will be entered in the record in this case.

(Whereupon, Applicant's Exhibits 1-3B were admitted into evidence.)

MR. KELLY: Mr. Examiner, that's all I have on Direct. I believe that the waterflood project rules provide for additional injection wells without hearing just on ministry of application. We went ahead and presented testimony on that, but the only thing we really are here on is the fact there is an unorthodox location.

MR. UTZ: Two of them, as a matter of fact.

MR. KELLY: Two of them.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Lacy, what do you intend to do with the annulus in injection wells?

A Our current practice in the South Hospah Field has been to inject heated water into the formation. Due to the high heat loss that would be involved in putting a fluid such

as water or oil in the annulus, we've swabbed these wells dry and left air in the annulus, and this way we can inject heated water that will reach the formation without any appreciable heat loss down the tubing.

Q Will the annulus be sealed?

A I do not know, sir.

Q Is this the manner in which all your other injection wells are completed?

A Yes, sir.

Q I presume the purpose of heating your water is to lower the viscosity of your oil?

A Yes; that's correct. We have a rather unfavorable mobility ratio at the reservoir temperature.

Q Do you have evidence that this is working?

A Yes, sir. We do.

Q What do you use for fuel to heat your water?

A We are using Dakota gas as supplied by Well Number 10, and Well Number 23 as a standby.

Q I presume this Dakota gas is not considered lease use gas, is it?

A I couldn't answer that; I don't know.

Q Do you report your volumes on the Dakota gas?

A I don't believe we do. I can't answer that question

accurately, as I'm not involved in reporting the gas oil production.

A VOICE: Those are not based on the Dakota pool.

MR. UTZ: Well, I realize that, but I still wonder whether you got volume reports on them or not.

A VOICE: It's supposed to be reported as lease use.

Q (By Mr. Utz) Do you consider lease use?

A VOICE: If it's on the same use; yes.

THE WITNESS: Yes. The gas is not being transferred across the lease line.

A VOICE: They are allowed to use whatever is necessary.

MR. UTZ: That's one lease use that hasn't come up before.

A VOICE: Well, it is lease use.

A VOICE: In terms of the unit conveyed; that's right, I believe.

MR. UTZ: Is that right? Well, I hope you're getting enough more oil to pay for that gas.

THE WITNESS: I rather think we will.

MR. UTZ: Any other questions of the witness? He may be excused. Statements in this case?

MR. SHIRLEY: Donald Shirley, Tesoro Petroleum,

San Antonio. As offset operator, Tesoro has no objection to Tenneco's application and obviously finds it compatible with its own application heard in Case 4340.

MR. UTZ: Thank you. The case will be taken under advisement.

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
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<u>EXHIBIT</u>	<u>MARKED</u>	<u>OFFERED AND ADMITTED</u>
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STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, DAVID BINGHAM, a Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill, and ability.

David Bingham
 COURT REPORTER

I do hereby certify that the foregoing is
 a complete record of the proceedings in
 the hearing held on Dec. 10, 1930, 4349
 heard by J. C. [Signature] 30
 [Signature] Chairman
 New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

May 7, 1970

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

Dear Sir:

Reference is made to Commission Order No. R-3957, entered in Case No. 4349, approving the expansion of the Tenneco South Hespah Water-flood Project.

Injection into each of the two additional wells shall be through plastic-lined tubing set in a packer, which shall be located as near as is practicable to the uppermost perforation.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1140 barrels per day when the North-west New Mexico normal unit allowable is 70 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

-2-

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

May 7, 1970

C
Your cooperation in keeping the Commission so informed as to the
status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

C
O
P
Y
ALP/DSM/ir

cc: Oil Conservation Commission
Hobbs and Aztec, New Mexico

Mr. D. E. Gray, State Engineer Office
Santa Fe, New Mexico

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. 4349
Order No. R-3957

APPLICATION OF TENNECO OIL COMPANY
FOR A WATERFLOOD EXPANSION AND UN-
ORTHODOX INJECTION WELL LOCATIONS,
McKINLEY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 29, 1970,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 5th day of May, 1970, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That the applicant, Tenneco Oil Company, seeks permis-
sion to expand the Tenneco South Upper Hospah Waterflood Project
in the South Hospah Unit Area, South Hospah Upper Sand Oil Pool,
by the injection of water into the Hospah Sand through two
additional injection wells at unorthodox locations in Section 12,
Township 17 North, Range 9 West, NMPM, McKinley County, New
Mexico, as follows:

Unit Well No. 41 - 5 feet from the North line
and 1650 feet from the East line; and

Unit Well No. 42 - 3000 feet from the North line
and 5 feet from the East line.

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

(4) That the proposed expansion of the Tenneco South Upper Hospah Waterflood Project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That an administrative procedure should be adopted whereby the Secretary-Director of the Commission may authorize additional injection wells and producing wells at orthodox and unorthodox locations within said waterflood project as may be necessary to complete efficient injection and production patterns.

(6) That the subject application should be approved and the expanded project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the showing of well response as required by Rule 701 E-5 should not be necessary before obtaining administrative approval for the conversion of additional wells to water injection, and provided further that said injection and producing wells would be drilled no closer than 5 feet to the outer boundary of the waterflood project area nor closer than 5 feet to any quarter-quarter section or subdivision inner boundary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to expand the Tenneco South Upper Hospah Waterflood Project in the South Hospah Unit Area, South Hospah Upper Sand Oil Pool, by the injection of water into the Hospah Sand through the following-described wells at unorthodox locations in Section 12, Township 17 North, Range 9 West, NMPM, McKinley County, New Mexico:

Unit Well No. 41 - 5 feet from the North line
and 1650 feet from the East line; and

Unit Well No. 42 - 3000 feet from the North
line and 5 feet from the East line.

(2) That the expanded waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

-3-

CASE No. 4349
Order No. R-3957

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve such additional injection wells and producing wells at orthodox and unorthodox locations within said project area as may be necessary to complete efficient injection and production patterns; provided said wells are drilled no closer than 5 feet to the outer boundary of said waterflood project area nor closer than 5 feet to any quarter-quarter section or subdivision inner boundary, and provided that the application therefor has been filed in accordance with Rule 701 B of the Commission Rules and Regulations and is accompanied by evidence that the operator of any productive lease offsetting the proposed location has assented thereto. The showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

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

(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.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

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

esr/

Case #4399

Heard 4-29-70

Rec. 5-1-70

Grant Jernico's request for
an expansion of their L.
Hospah upper sand waterflood.
The two injection wells & their
NSL's are:

Hospah unit #41 5/N, 165d/E

↙ ↘ #42 3000/N, 5/E.

also Grant Adm. procedure
for future inj. NSL's at
least 330' from unit
line.

Thusha Vte.

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 29, 1970

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

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

CASE 4340: Application of Tesoro Petroleum Corporation for three waterflood projects and unorthodox injection well locations, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute three waterflood projects in the South Hospah Upper Sand Oil Pool by the injection of water through nine injection wells to be drilled at unorthodox locations in Section 1, Township 17 North, Range 9 West, and in Sections 6 and 7, Township 17 North, Range 8 West, McKinley County, New Mexico. Applicant further seeks a procedure whereby additional injection wells and producing wells at unorthodox locations within the project areas may be approved administratively.

CASE 4341: Application of Pan American Petroleum Corporation for two non-standard gas proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard gas proration units for its State "C" Tract 13 Well No. 5, a dual completion, located 1980 feet from the North line and 660 feet from the West line of Section 36, Township 21 South, Range 37 East, Lea County, New Mexico, said units to be comprised as follows:

Blinebry Gas Pool - 240 acres - NW/4 and W/2
NE/4

Tubb Gas Pool - 200 acres - W/2 NW/4, NE/4
NW/4 and W/2 NE/4

CASE 4342: Application of Dearing, Wright, Gibbins, and Church, doing business as New Mexico Petroleum Company, for authority to operate an oil treating plant, Lea County, New Mexico. Applicants, in the above-styled cause, seek authority to install and operate a chemical and heating process oil treating plant in the vicinity of Tatum, New Mexico, for the reclamation of sediment oil to be obtained from tank bottoms, waste pits, and drip tanks.

- CASE 4343: Application of Texaco Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation in the perforated and open-hole interval from 11,194 feet to 11,278 feet in its New Mexico "BB" State (NCT-1) Well No. 2 located in Unit N of Section 11, Township 12 South, Range 32 East, East Caprock-Devonian Pool, Lea County, New Mexico.
- CASE 4344: Application of Texaco Inc. for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation in the open-hole interval from 11,230 feet to 11,503 feet in its B. E. Spencer "B" Federal Well No. 1 located in Unit D of Section 28, Township 15 South, Range 30 East, Little Lucky Lake-Devonian Pool, Chaves County, New Mexico.
- CASE 4345: Application of Yates Drilling Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Seven Rivers and possibly other formations in the open-hole interval from 68 feet to 100 feet in its Galvin Well No. 8 and from 68 feet to 90 feet in its Galvin Well No. 14, both located in Unit N of Section 12, Township 20 South, Range 26 East, West McMillan-Seven Rivers Pool, Eddy County, New Mexico.
- CASE 4346: Application of Yates Drilling Company for a pressure maintenance expansion and promulgation of rules therefor, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand the S. P. Yates West McMillan Anderson Pressure Maintenance Project in the West McMillan Seven Rivers-Queen Pool, Eddy County, New Mexico, authorized by Order No. R-3852, by the conversion to water injection of two additional wells located in Units O and P, Section 11, Township 20 South, Range 26 East. Applicant further seeks the designation of a project area, promulgation of rules governing said project, and a procedure whereby other methods of flooding in the subject project may be authorized administratively.
- CASE 4347: Application of Yates Drilling Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Yates North Vacuum (San Andres) Unit Area comprising 800 acres, more or less, of State lands in Sections 1, 2, 11, and 12, Township 17 South, Range 34 East, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico.

CASE 4348: Application of Yates Drilling Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its North Vacuum (San Andres) Unit Area by the injection of water into the San Andres formation through 9 wells located in Sections 1, 2, 11, and 12, Township 17 South, Range 34 East, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 4349: Application of Tenneco Oil Company for a waterflood expansion and unorthodox injection well locations, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks to expand the waterflood project in its South Hospah Unit Area by the injection of water into the South Hospah Upper Sand Oil Pool, McKinley County, New Mexico, through two additional injection wells at unorthodox locations in Section 12, Township 17 North, Range 9 West, as follows:

Unit Well No. 41 - 5 feet from the North line and 1650 feet from the East line;

Unit Well No. 42 - 3000 from the North line and 5 feet from the East line.

CASE 4350: Application of Cities Service Oil Company for an exception to Order No. R-3221, as amended, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's Snyder Federal lease comprising the S/2 NE/4 and N/2 SE/4 of Section 26, Township 15 South, Range 29 East, Sulimar-Queen Pool, Chaves County, New Mexico. Applicant seeks authority to dispose of salt water produced by wells on said lease in an unlined surface pit located in Unit H of said Section 26.

CASE 4351: Application of Humble Oil & Refining Company for well reclassification and simultaneous dedication of acreage, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the reclassification of its New Mexico "G" State Well No. 5 from an oil well in the Eumont Pool to a gas well in said pool. Applicant further seeks the dedication of a standard 640-acre gas proration unit comprising all of Section 23, Township 21 South, Range 36 East, Lea County, New Mexico, to said Well No. 5 and to applicant's New Mexico "G" State Well No. 9,

located, respectively in Units E and G of said Section 23, and authority to produce the allowable assigned to said unit from either of said wells in any proportion.

CASE 4352: Application of Jack L. McClellan for the creation of a new gas pool or, in the alternative, the establishment of pool rules for two existing pools, Chaves and Lea Counties, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Queen gas pool comprising the following described acreage:

CHAVES COUNTY, NEW MEXICO

Township 15 South, Range 29 East

Section 11: SE/4

Section 12: SW/4

Section 13: NW/4

Section 14: E/2

Section 23: NE/4 and SW/4

In the alternative applicant seeks the promulgation of special rules for the Sulimar-Queen Pool, Chaves County, and Double L-Queen Pool, Chaves and Lea Counties, New Mexico, as separate or as consolidated pools, including provisions for the classification of oil and gas wells, spacing and well location requirements for oil and gas wells, and an allocation formula for withdrawals by oil wells and gas wells.

CASE 4353: Application of Lone Star Producing Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Tres Papalotes-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units.

APR 24 AM 8 27
April 14 1970

*just
file - case 4349*

New Mexico Oil Conservation Commission
P. O. Box 2086
Santa Fe, New Mexico

Re: Waiver to Tenneco Oil Company's
Application for Unorthodox Loc-
ations, Hospah Field
McKinley County, New Mexico

Gentlemen:

Tesoro Petroleum Corporation as an offset operator waives objection
to Tenneco Oil Company's request to drill two water injection wells
at unorthodox locations as follows:

Hospah No. 41	1650' FEL & 5' FNL
Hospah No. 42	3000' FNL & 5' FEL

both are located in Section 12, T17N, R9W, McKinley County, New Mexico.

We have received a copy of the above mentioned application.

Yours very truly,

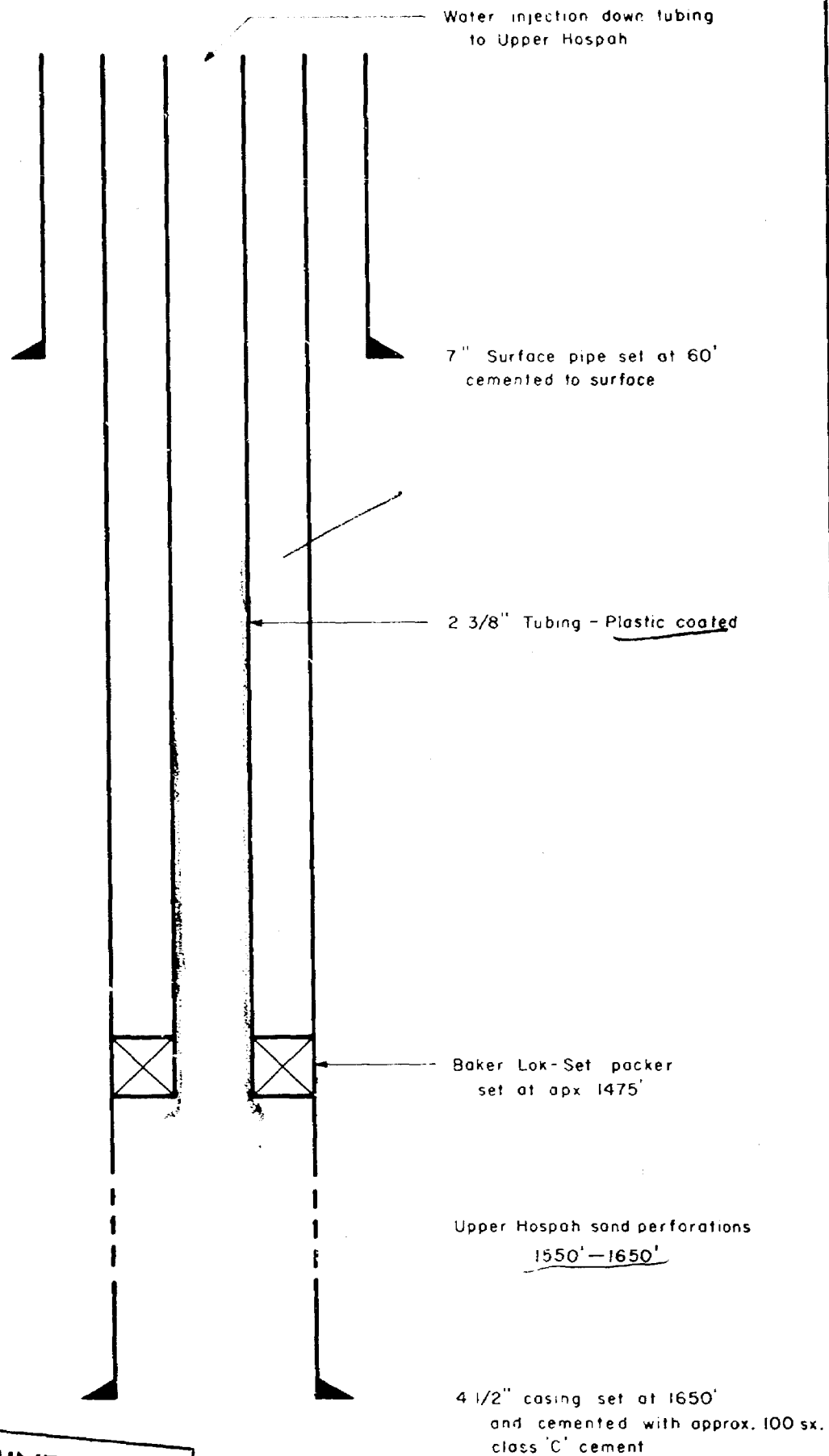
TESORO PETROLEUM CORPORATION

Harold Vagtborg Jr.

Harold Vagtborg, Jr.
Vice President

/jel

TENNECO OIL COMPANY
DENVER DISTRICT
PROPOSED WATER INJECTION WELL
UPPER HOSPAH SAND
SOUTH HOSPAH FIELD
Section 12 - T 17 N - R 9 W
Mc Kinley County, New Mexico



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Tenneco EXHIBIT NO. 2
CASE NO. 4349

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-65

Operator Tenneco Oil Company		Pool South Hospah Upper Sand				County McKinley										
Address P.O. Box 1714 Durango, Colorado						TYPE OF TEST - (X)		Scheduled <input checked="" type="checkbox"/>		Completion <input type="checkbox"/>		Special <input type="checkbox"/>				
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU. FT./BBL.
		U	S	T	R							WATER BBL.S.	GRAV. OIL	OIL BBL.S.	GAS M.C.F.	
Hospah NM 081208	1X	G	12	17N	9W	7/3/67	P	None	-	6	24	1	33	4	TSTM	TSTM
	2	F	12	17N	9W	7/2/67	P	None	-	16	24	0	33	15	TSTM	TSTM
	3	H	12	17N	9W	7/18/67	P	None	-	12	24	0	33	9	TSTM	TSTM
	4	C	12	17N	9W	7/19/67	P	None	-	31	24	0	33	23	TSTM	TSTM
	5	B	12	17N	9W	7/9/67	P	None	-	37	24	0	33	28	TSTM	TSTM
Hospah "A" NM 536034	1	J	12	17N	9W	7/25/67	P	None	-	11	24	2	33	6	TSTM	TSTM
	3	K	12	17N	9W	7/23/67	P	None	-	30	24	17	33	24	TSTM	TSTM
	4	L	12	17N	9W	7/27/67	P	None	-	16	24	1	33	12	TSTM	TSTM

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Tenneco EXHIBIT NO. 34
CASE NO. 4349

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

J. E. Massey

(Signature)

District Production Engineer

(Title)

8/17/67

(Date)

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-65

Operator Tenneco Oil Company		Pool South Hospah Upper Sand				County McKinley									
Address Suite 1200 Lincoln Tower Building Denver, Colorado 80203						TYPE OF TEST - (X)		Scheduled <input checked="" type="checkbox"/> Completion <input type="checkbox"/> Special <input type="checkbox"/>							
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	CHOKE STATUS	T.B.G. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU. FT./BBL.
		U	S	T	R						WATER BBL.	GRAV. OIL	OIL BBL.	GAS M.C.F.	
Hospah	✓ 1	G	12	17	9	7-4-69	P None	---		24	1		28	TSTM	TSTM
"	2	F	12	17	9	7-1-69	" "			24	0		184	"	"
"	3	H	12	17	9	7-5-69	" "			24	3		8	"	"
"	4	C	12	17	9	7-11-69	" "		40	24	2		57	"	"
"	12	E	12	17	9	7-12-69	" "			24	5		85	"	"
"	15	E	12	17	9	7-13-69	" "		14	24	14		40	"	"
"	16	F	12	17	9	7-6-69	" "			24	0		17	"	"
"	18	G	12	17	9	7-13-69	" "			24	2		33	"	"
"	19	J	12	17	9	7-3-69	" "		62	24	19		55	"	"
"	20	I	12	17	9	7-5-69	" "		5	24	10		1	"	"
"	21	K	12	17	9	7-5-69	" "			24	43		91	"	"
"	22	L	12	17	9	7-4-69	" "		40	24	14		38	"	"
"	24	B	12	17	9	7-11-69	" "			24	119		79	"	"
"	25	A	12	17	9	7-1-69	" "			24	13		2	"	"
"	26	A	12	17	9	7-12-69	" "			24	145		63	"	"
"	27	H	12	17	9	7-16-69	" "			24	0		1	"	"
"	28	A	12	17	9	7-3-69	" "			24	315		1	"	"
Whigham	1	I	11	17	9	7-6-69	" "			24	23		1	"	"
* Injection															
* Hospah	5	B	12	17	9										
* Hospah	13	F	12	17	9										
* Hospah	17	G	12	17	9										
* Hospah	23	K	12	17	9										

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Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and applicable provisions.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Tenneco EXHIBIT NO. 32
CASE NO. 4349

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

B. G. Ford
(Signature)
sv. Prod. Clerk
(Title)
7-29-69
(Date)

APR 15 1970

TENNECO OIL COMPANY

A Major Component of Tenneco Inc.
SUITE 1200 • LINCOLN TOWER BUILDING • DENVER, COLORADO 80203



APR 15 1970

April 14, 1970

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

Re: Order No. R-3325
South Upper Hospah
Waterflood Project

GMA
File Case 4349

Gentlemen:

Tenneco Oil Company hereby requests Commission approval to drill and complete two water injection wells in the South Hospah Unit at the following unorthodox locations:

Hospah No. 41	1650' FEL & 5' FNL
Hospah No. 42	3000' FNL & 5' FEL

both in Section 12, T17N, R9W, McKinley County, New Mexico.

The completion of water injection wells at these locations are in accordance with a cooperative waterflood agreement which Tenneco Oil Company has entered into with Tesoro Petroleum Corporation, the offset operator. These wells will constitute new patterns and will therefore result in the recovery of additional reserves. The waterflood patterns formed by drilling these injection wells are shown on the attached plat. It is felt by both parties that this configuration will result in equitable production of secondary reserves along the lease line.

We propose to drill and complete these wells as shown in the diagrammatic sketch. Approximately 200 BWPD of produced Lower Hospah water will be injected into the Upper Hospah at a depth of 1550 to 1650 feet.

As required by Rule 701-B, we have enclosed a plat of the area, and Form C-116 showing production tests of the affected wells. Well logs will be supplied upon completion of these wells.

TENNECO OIL COMPANY

New Mexico Oil Conservation Commission
April 14, 1970
Page Two

Tesoro Petroleum Corporation has been sent a copy of this application.

Thank you for your consideration in this matter .

Yours very truly,

TENNECO OIL COMPANY

C. W. Nance

C. W. Nance
District Production Superintendent

JML/jl

Attachment

cc: New Mexico Oil Conservation Commission
Aztec, New Mexico

White, Gilbert, Koch & Kelly
Santa Fe, New Mexico

Tesoro Petroleum Corporation
San Antonio, Texas

Millard Carr

2 EA

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-65

Operator Tenneco Oil Company		Pool South Hospah Upper Sand				County McKinley										
Address Suite 1200 Lincoln Tower Building Denver, Colorado 80203						TYPE OF TEST - (X)		Scheduled <input checked="" type="checkbox"/>		Completion <input type="checkbox"/>		Special <input type="checkbox"/>				
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	STATUS	CHOKE SIZE	T.B.G. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU. FT./BBL.
		U	S	Y	R							WATER BBLs.	GRAV. OIL	OIL BBLs.	GAS M.C.F.	
Hospah	1	G	12	17	9	7-4-69	P	None	---		24	1		28	TSTM	TSTM
"	2	F	12	17	9	7-1-69	"	"			24	0		184	"	"
"	3	H	12	17	9	7-5-69	"	"			24	3		8	"	"
"	4	C	12	17	9	7-11-69	"	"		40	24	2		57	"	"
"	12	E	12	17	9	7-12-69	"	"			24	5		85	"	"
"	15	E	12	17	9	7-13-69	"	"		14	24	14		40	"	"
"	16	F	12	17	9	7-6-69	"	"			24	0		17	"	"
"	18	G	12	17	9	7-13-69	"	"			24	2		33	"	"
"	19	J	12	17	9	7-3-69	"	"		62	24	19		55	"	"
"	20	I	12	17	9	7-5-69	"	"		5	24	10		1	"	"
"	21	K	12	17	9	7-5-69	"	"			24	43		91	"	"
"	22	L	12	17	9	7-4-69	"	"		40	24	14		38	"	"
"	24	B	12	17	9	7-11-69	"	"			24	119		79	"	"
"	25	A	12	17	9	7-1-69	"	"			24	13		2	"	"
"	26	A	12	17	9	7-12-69	"	"			24	145		63	"	"
"	27	H	12	17	9	7-16-69	"	"			24	0		1	"	"
"	28	A	12	17	9	7-3-69	"	"			24	315		1	"	"
Whigham	1	I	11	17	9	7-6-69	"	"			24	23		1	"	"
* Injection																
* Hospah	5	B	12	17	9											
* Hospah	13	F	12	17	9											
* Hospah	17	G	12	17	9											
* Hospah	23	K	12	17	9											

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Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

B. G. Ford
(Signature)
W. R. Clark
(Title)
7-29-69
(Date)

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-65

Operator Tenneco Oil Company				Pool South Hospah Upper Sand				County McKinley								
Address P.O. Box 1714 Durango, Colorado						TYPE OF TEST - (X) <input checked="" type="checkbox"/> Scheduled <input type="checkbox"/> Completion <input type="checkbox"/> Special <input type="checkbox"/>										
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT/BB
		U	S	T	R							WATER BBLs.	GRAV. OIL	OIL BBLs.	GAS M.C.F.	
Hospah NM 081208	1X	G	12	17N	9W	7/3/67	P	None	-	6	24	1	33	4	TSTM	TSTM
	2	F	12	17N	9W	7/2/67	P	None	-	16	24	0	33	15	TSTM	TSTM
	3	H	12	17N	9W	7/18/67	P	None	-	12	24	0	33	9	TSTM	TSTM
	4	C	12	17N	9W	7/19/67	P	None	-	31	24	0	33	23	TSTM	TSTM
	5	B	12	17N	9W	7/9/67	P	None	-	37	24	0	33	28	TSTM	TSTM
Hospah "A" NM 536034	1	J	12	17N	9W	7/25/67	P	None	-	11	24	2	33	6	TSTM	TSTM
	3	K	12	17N	9W	7/23/67	P	None	-	30	24	17	33	24	TSTM	TSTM
	4	L	12	17N	9W	7/27/67	P	None	-	16	24	1	33	12	TSTM	TSTM

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I hereby certify that the above information is true and complete to the best of my knowledge and belief.

J. E. Massey

(Signature)

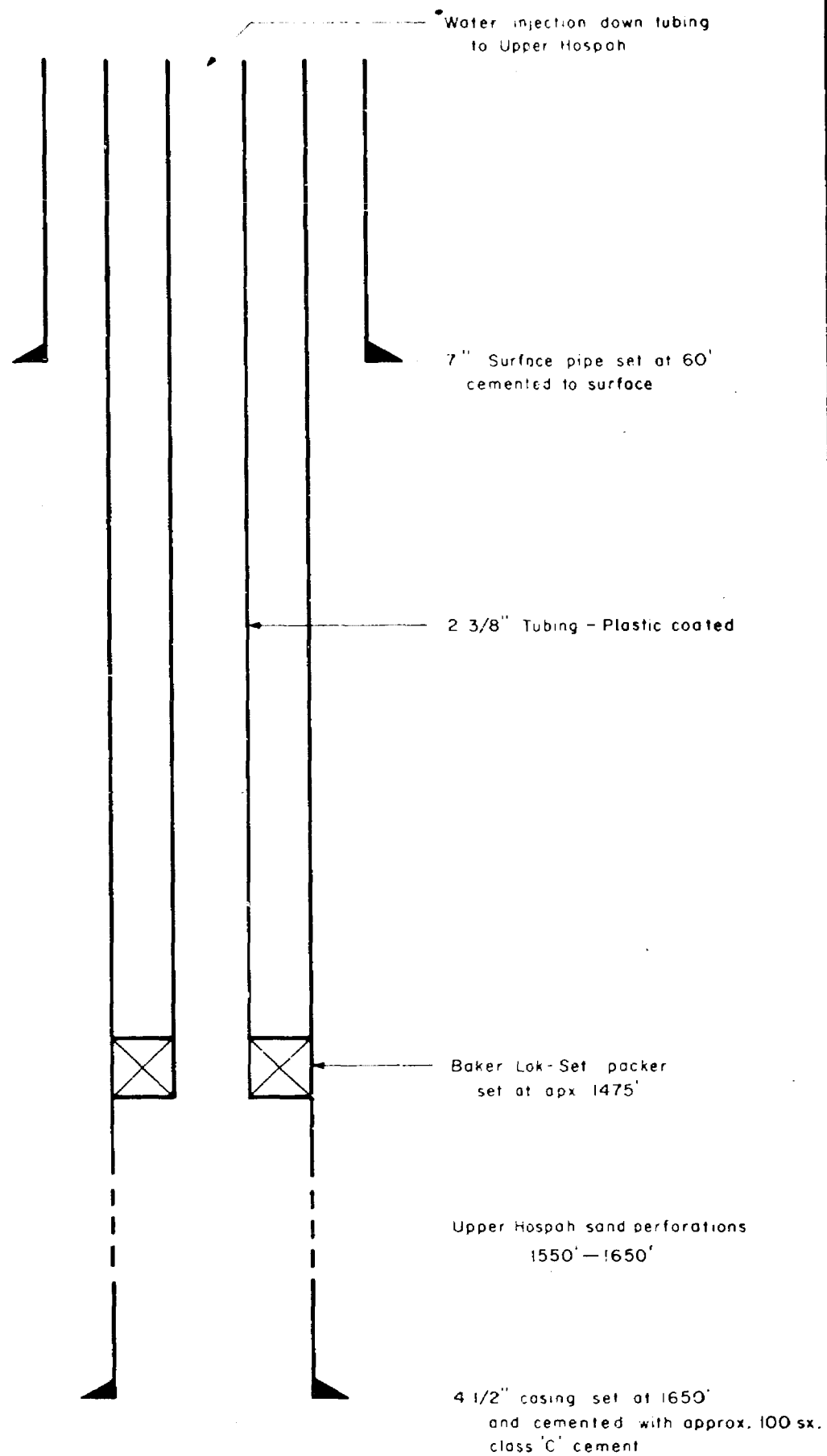
District Production Engineer

(Title)

8/17/67

(Date)

TENNECO OIL COMPANY
DENVER DISTRICT
PROPOSED WATER INJECTION WELL
UPPER HOSPAH SAND
SOUTH HOSPAH FIELD
Section 12 — T 17 N — R 9 W
Mc Kinley County, New Mexico



DRAFT

GMH/esr

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. 4349

Order No. R-3957

APPLICATION OF TENNECO OIL COMPANY
FOR A WATERFLOOD EXPANSION AND UNORTHODOX
INJECTION WELL LOCATIONS, MCKINLEY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 29, 1970,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this _____ day of May, 1970, 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 applicart, Tenneco Oil Company,
expand the Tenneco South Upper Hospah
seeks permission to/~~institute~~ Waterflood Project in the _____
South Hospah Unit Area, South Hospah Pool, by
the injection of water into the Upper Sand Oil ~~formation~~

through two additional injection wells at unorthodox locations
in Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico, as follows:

Unit Well No. 41 - 5 feet from the North
line and 1650 feet from the East line; and

Unit Well No. 42 - 3000 feet from the North
line and 5 feet from the East line.

(SEE UNDER)

state of depletion and should properly be classified as stripper
wells.

expansion of the Tenneco South Upper Hospah
(4) That the proposed Waterflood Project should result in
the recovery of otherwise unrecoverable oil, thereby preventing
waste.

(5) That an administrative procedure should be adopted whereby the Secretary-Director of the Commission may authorize additional injection wells and producing wells at ^{orthodox} ~~unorthodox~~ locations within said waterflood project as may be necessary to complete efficient injection and production patterns.

(6) That the subject application should be approved and the expanded project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the showing of well response as required by Rule 701 E-5 should not be necessary before obtaining administrative approval for the conversion of additional wells to water injection, and provided further that said injection and producing wells would be drilled no closer than 5 feet to the outer boundary of the waterflood project area nor closer than 5 feet to any quarter-quarter section of subdivision inner boundary.

(2) That the ^{expanded} ~~subject~~ waterflood project ^{shall} ~~be hereby designated~~

~~the~~ ~~waterflood project~~ ~~and~~ ~~shall~~

be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

Provided However, that the Secretary-Director of the Commission may approve such additional ^{orthodox and} injection wells and producing wells at ~~unorthodox~~ locations within said project area as may be necessary to complete efficient injection and production patterns; provided said wells are drilled no closer than 5 feet to the outer boundary of said waterflood project area nor closer than 5 feet to any quarter-quarter section or subdivision inner boundary, and provided that the application therefor has been filed in

under for 3x4

(under)

ROUGH DRAFT FOR WATERFLOOD LETTERS

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

Dear Sirs:

Reference is made to Commission Order No. R-3957, entered in Case No. 4149, approving the *expansion of the Tenuca South Hapah* Waterflood Project. *Each of*

Injection into the two additional wells shall be through plastic-lined tubing set in a packer, which shall be located as near as is practicable to the uppermost perforation

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1140 barrels per day when the ~~southeast~~ *Northwest* New Mexico normal unit allowable is ~~42~~ ⁷⁰ barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

cc: OCC: Hobbs ✓
Artesia
Aztec x

USGS

~~Mr. C. B. Kelly~~ State Engineer Office, Santa Fe, New Mexico
Mr. D. E. Gray,

Tenneco Oil Co.

South Horpale Unit

41

1650 FEL

5 FNL

12-17-9

#

42

3000

FNL

5

FEL

12-17-9

injection (April 29)