

CASE 4521: Application of
SHENANDOAH OIL CORPORATION FOR A
WATERFLOOD PROJECT, EDDY COUNTY.

Case Number
4521

Application

Transcripts

Small Exhibits

ETC.

DRAFT
GMH/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. 4521

Order No. R- 4133

APPLICATION OF SHENANDOAH OIL
CORPORATION FOR A WATERFLOOD
PROJECT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 14, 1971,
at ~~Santa Fe~~, New Mexico, before Examiner Daniel S. Nutter.
Hobbs,

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

FINDS:

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

(2) That the applicant, Shenandoah Oil Corporation, seeks
authority to institute a waterflood project in the Grayburg-
Jackson Pool by the injection of water into the Grayburg and San
Andres formations through three wells, located in Sections 15 and
22 of Township 17 South, Range 30 East, NMPM, Eddy County, New
Mexico.

(3) That the applicant further seeks an administrative
procedure whereby said project could be expanded to include
additional injection wells in the area of the said project as
may be necessary in order to complete an efficient injection
pattern; that said administrative procedure should provide for
administrative approval for conversion to water injection in
exception to the well response requirements of Rule 701 E-5
of the Commission Rules and Regulations.

(under)

CASE NO. 4521
Order No. R-

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

(6) That the subject application should be approved and the 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.

(1) That the applicant, Shenandoah Oil Corporation, is hereby authorized to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg and San Andres formations through ^{the following} three wells, located in ~~Sections 15 and 22 of~~ Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico;

WELL NUMBER

LOCATION

Dale H. Parke "B" Tr. B,
Well No. 1

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 15 *Section 15*

Dale H. Parke "B",
Well No. 4

SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 15 *Section 15*

Dale H. Parke "A" Tr. 1,
Well No. 6

SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 22 *Section 22*

(4) That the applicant, Shenandoah Oil Corporation, is authorized to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg and San Andres formations through the following three wells, located in Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico; and to institute such further orders as the Commission may deem necessary.

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

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
SHENANDOAH OIL CORPORATION TO
INSTITUTE A WATERFLOOD PROJECT BY THE
INJECTION OF WATER INTO THE PREMIER
ZONE OF THE GRAYBURG FORMATION AND INTO
THE GRAYBURG-JACKSON ZONE OF THE SAN ANDRES
FORMATION THROUGH THREE INJECTION WELLS TO
BE LOCATED IN SECTIONS 15 AND 22, TOWNSHIP
17 SOUTH, RANGE 30 EAST, GRAYBURG-JACKSON
QUEEN SAN ANDRES FIELD, EDDY COUNTY, NEW
MEXICO.

APPLICATION FOR APPROVAL OF
SHENANDOAH OIL CORPORATION WATERFLOOD PROJECT NO. 8

Comes now the Applicant, Shenandoah Oil Corporation, and
hereby makes application for approval of a waterflood project pur-
suant to Rule 701 of the Rules and Regulations of the Commission
and in support thereof states:

1. Applicant desires to initiate a waterflood project to
inject fresh water into the Premier Zone of the Grayburg formation
and the Grayburg-Jackson Zone of the San Andres formation in three
existing wells on the following described tracts:

WELL NUMBER

LOCATION

Dale H. Parke "B" Tr. B,
Well No. 1

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15, T-17 S, R-30-E

Dale H. Parke "B",
Well No. 4

SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15, T-17-S, R-30-E

Dale H. Parke "A" Tr. 1,
Well No. 6

SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 22, T-17-S, R-30-E

2. That the above wells and the other wells in the area
have reached an advanced state of depletion and are stripper wells.

3. That Applicant feels that the waterflooding of the Premier Zone of the Grayburg formation and the Grayburg-Jackson Zone of the San Andres formation is feasible and that flooding will result in the increased ultimate recovery of oil and prevent waste.

4. That waterflood projects are being successfully conducted in the area in that Windfohr Oil Company is flooding the area to the East in its Grayburg-Jackson San Andres Unit, Anadarko Production Company is the operator of the Grayburg Jackson Unit to the Southeast, and General American is operating the Grayburg Jackson Premier Sand Unit to the West.

5. That when need arises, upon administrative approval, Applicant should be permitted to convert to water injection wells existing wells or to drill additional injection or production wells within its lease boundaries, as shown by Exhibit "A" attached hereto.

6. Applicant proposes to inject fresh and produced water when available in the Premier Zone of the Grayburg formation at the approximate depth from 2450 feet to 2605 feet and in the Grayburg-Jackson Zone of the San Andres formation at the approximate depth of from 2840 feet to 2940 feet. Injection into the Parke "B" Well No. 4, located in Unit "H", Section 15, Township 17 South, Range 30 East, will be limited to the Grayburg-Jackson Zone of the San Andres formation. Applicant will inject 150 barrels of water per day into each zone, or a total of 300 barrels of water per day into two injection wells, and inject 250 barrels of water per day into the Parke "B" Well No. 4, with a total injection rate of approximately 850 barrels of water per day. The injection area of the various wells are set forth on Exhibit "C". Injection water will be purchased

from a commercial water company operating in the area and produced water will be re-injected when it becomes available.

7. That in support of this application and in accordance with the provisions of Rule 701-B, Applicant submits herewith the following exhibits:

Exhibit A - Plat showing the location of Applicant's project and lands embraced therein.

Exhibit B - Plat showing location of Applicant's acreage and the location of all other wells within the radius of two miles from the proposed injection wells.

Exhibit C - Nos. 1-3 Diagrammatic Sketches of the proposed injection wells showing estimated tops of the cement, performances and depths.

Exhibit D - Diagrammatic Sketch showing typical down hole equipment to be installed in each injection well.

Exhibit E - Nos. 1-2 Logs of the proposed injection wells.

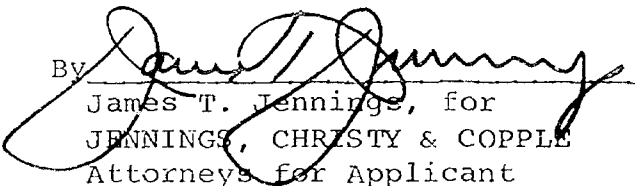
WHEREFORE, Applicant requests the Commission to set this matter down for hearing before an examiner at an early date, publish notice as required by law and, after hearing, issue its Order:

1. Authorizing the waterflood project and the injection of water into the Premier Zone of the Grayburg formation and into the Grayourg-Jackson Zone of the San Andres formation in the three injection wells located in Sections 15 and 22, Township 17 South, Range 30 East.

2. Establishing rules for administrative expansion and conversion of additional wells to water injection wells.

Respectfully submitted,

SHENANDOAH OIL CORPORATION

By 
James T. Jennings, for
JENNINGS, CHRISTY & COPPLE
Attorneys for Applicant
P. O. Box 1180
Roswell, New Mexico 88201

R-30-E

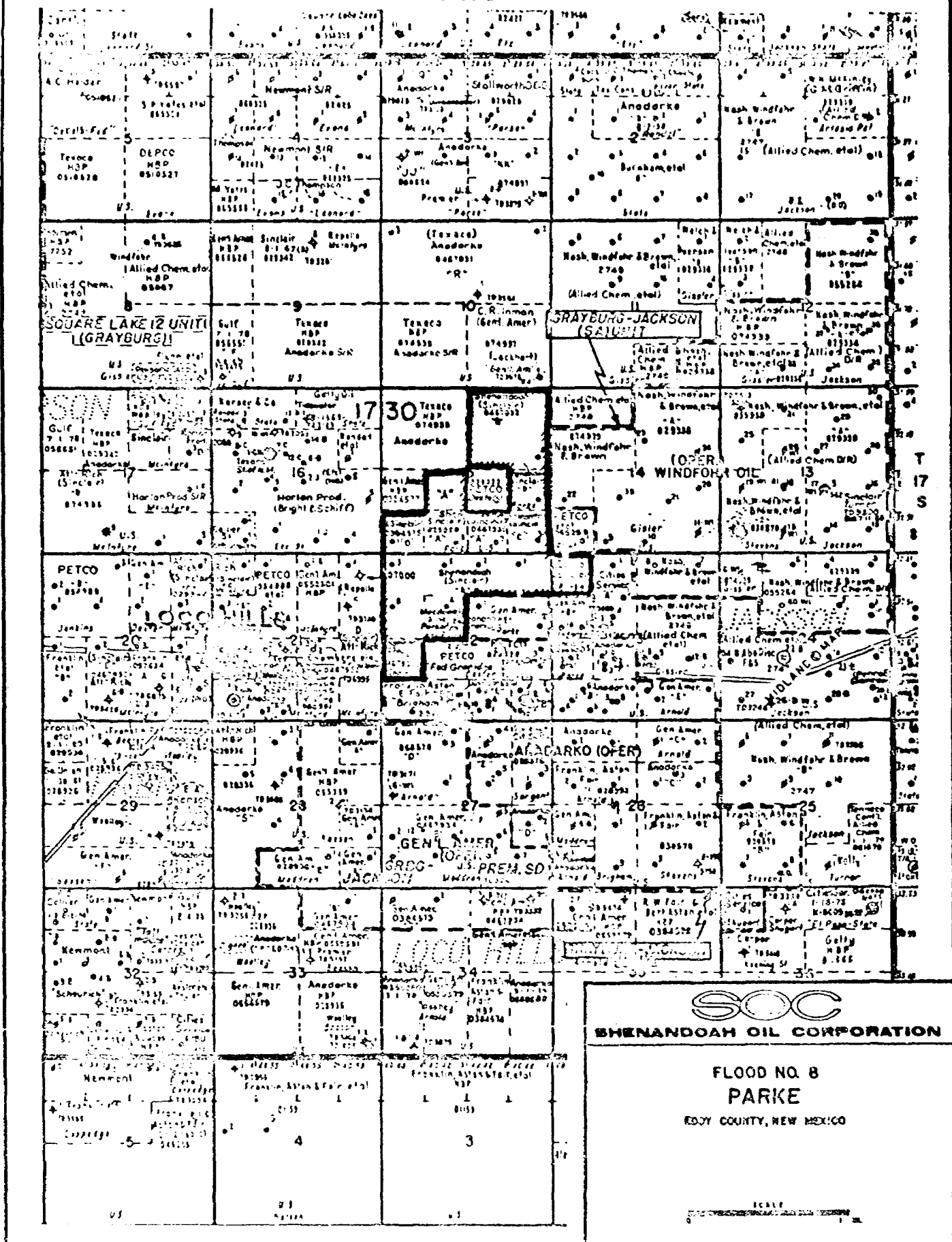


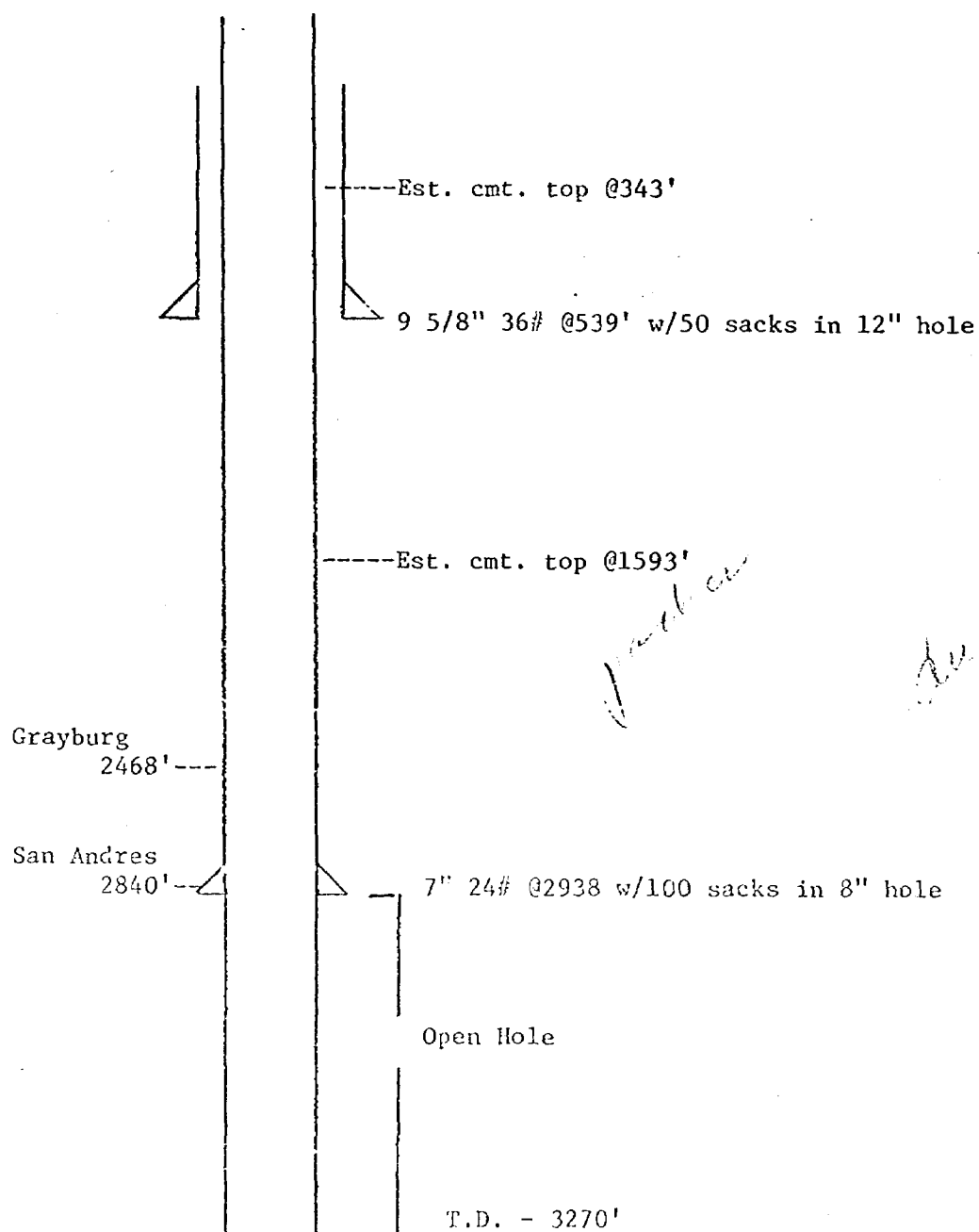
EXHIBIT "B"

A diagramed sketch is attached that shows the typical downhole equipment to be installed in an injection well. The example is from another flood that Shenandoah operates and it has proven very successful.

The casing-tubing annulus will be loaded with inert fluid and will have a pressure gauge at the surface to check for indications of any packer leakage.

DALE H. PARKE "B" TR. P - WELL NO. 1
Unit "M" - 330 FS & WL
Section 15, T-17S, R-30E
Eddy County, New Mexico

Completed: April 10, 1938



NOTE: A 4 1/2" liner will be run to T.D. and cemented depending on the results of a caliper survey. The Grayburg and San Andres formations will be perforated in selected intervals. Injection into the two formations will be separated by using Baker flow valves and packers on 1 string of 2" tubing.

DALE H. PARKE "B" - WELL NO. 4
Unit "H" - 2310 FNL & 330 FEL
Section 15, T-17S, R-30E
Eddy County, New Mexico

Completed: September 5, 1951

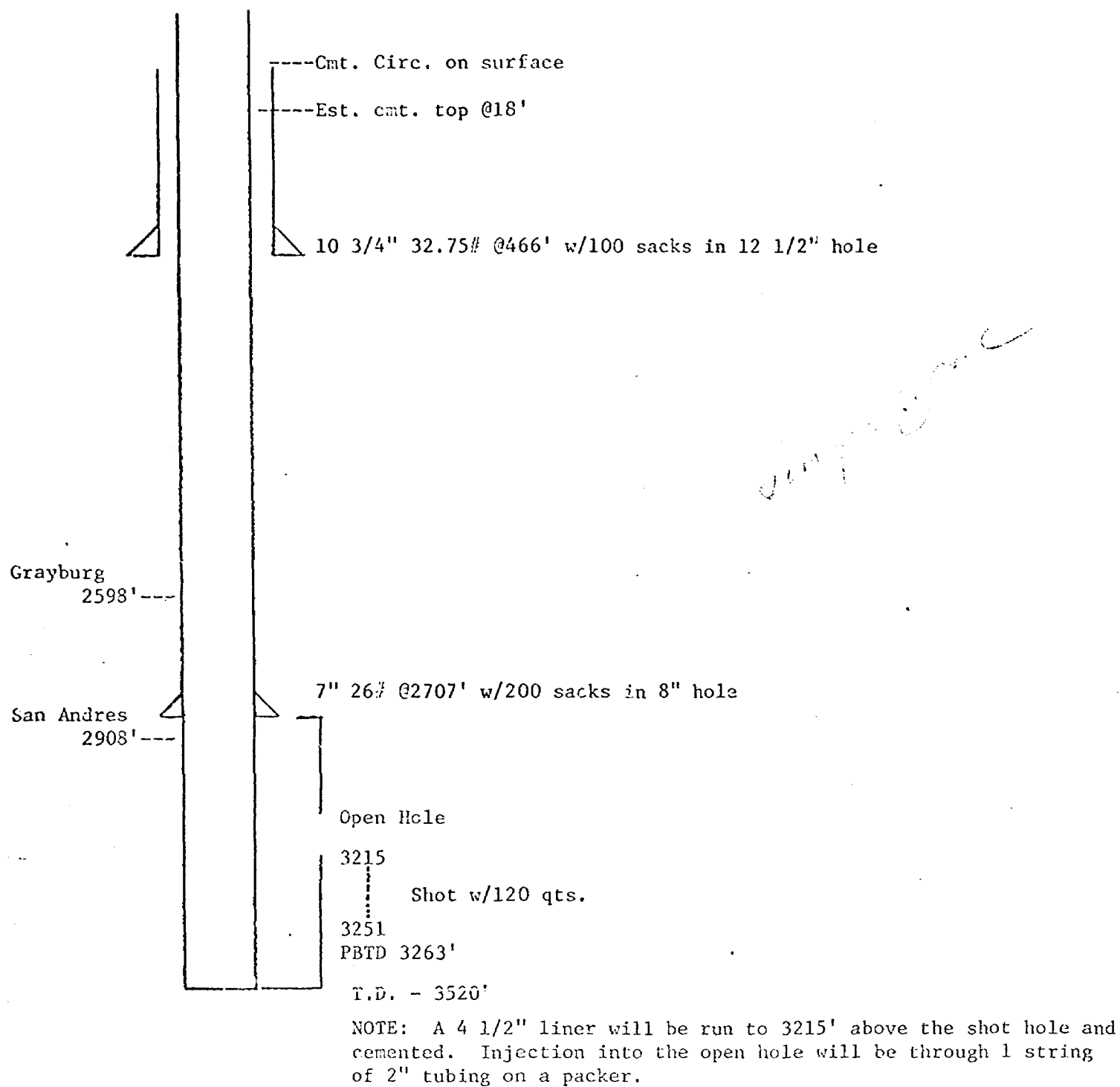
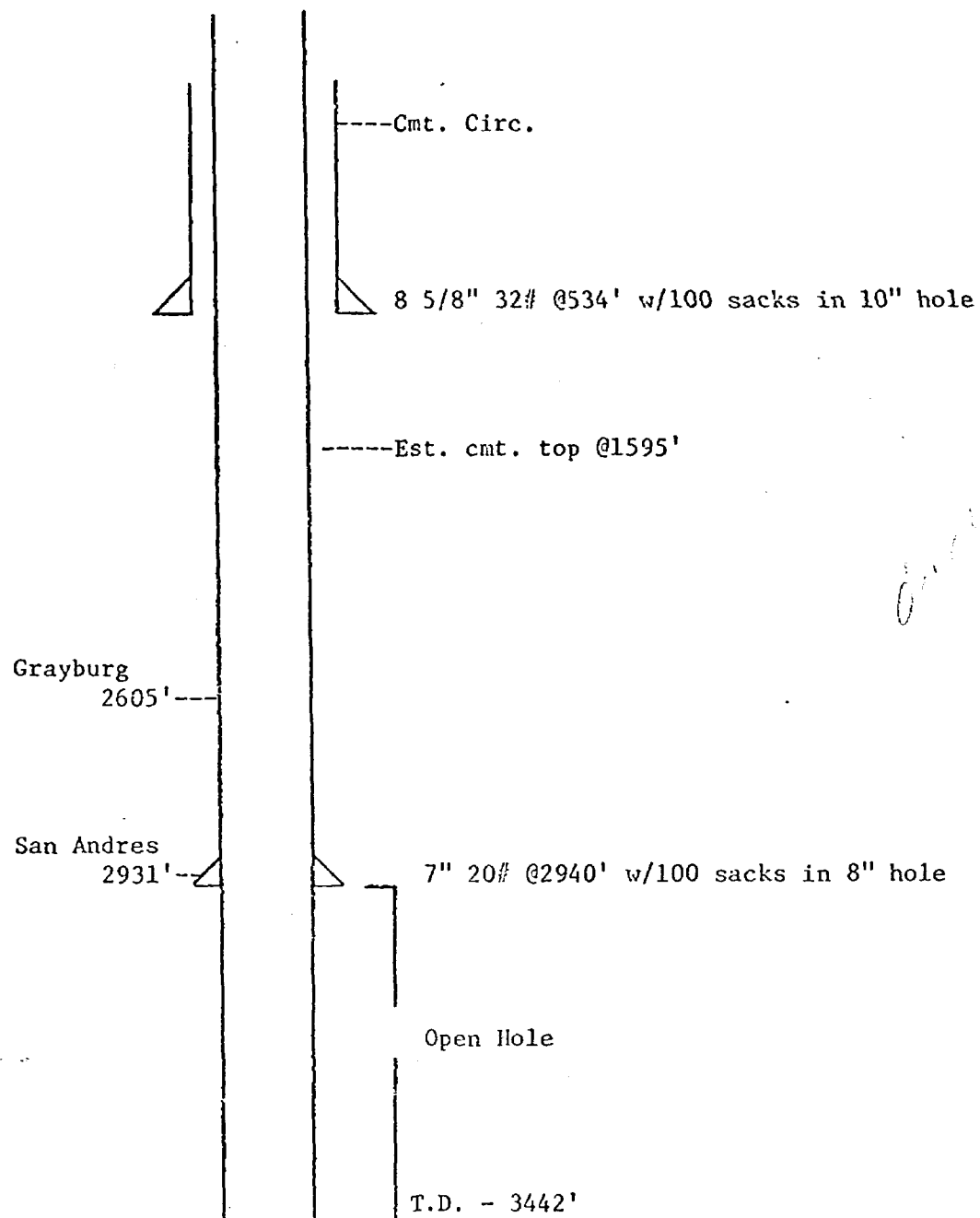


EXHIBIT "C-2"

DALE H. PARKE "A" TR. 1 - WELL NO. 6
Unit "E" - 1650 FNL & 330 FWL
Section 22, T-17S, R-30E
Eddy County, New Mexico

Completed: August 22, 1939



NOTE: A 4 1/2" liner will be run to T.D. and cemented depending on the results of a caliper survey. The Grayburg and San Andres formations will be perforated in selected intervals. Injection into the two formations will be separated by using Baker flow valves and packers on 1 string of 2" tubing.

EXHIBIT "C-3"



United States Department of the Interior

GEOLOGICAL SURVEY

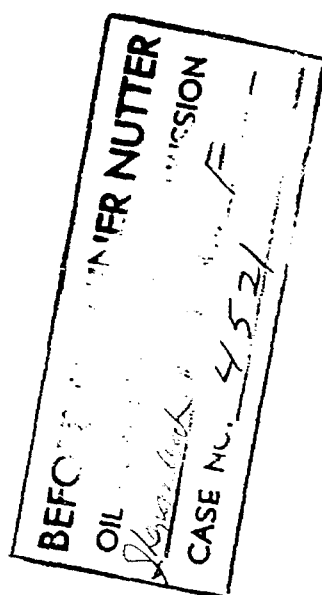
P. O. Drawer U
Artesia, New Mexico 88210

April 6, 1971

Jennings, Christy & Copple
Post Office Box 1180
Roswell, New Mexico 88201

Gentlemen:

Your letter of March 23, 1971 requests approval for Shenandoah Oil Corporation to operate a waterflood project of the Premier Zone of the Grayburg formation and the Grayburg-Jackson Zone of the San Andres formation in T. 17 S., R. 30 E., N.M.P.M., Eddy County, New Mexico, involving that portion of Federal oil and gas leases described as follows:



New Mexico 0467933
Sec. 15: NE $\frac{1}{4}$

New Mexico 0384575
Sec. 15: NE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$

New Mexico 0467930
Sec. 15: SW $\frac{1}{4}$ SE $\frac{1}{4}$
Sec. 22: NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{4}$

Las Cruces 029020-A
Sec. 15: SE $\frac{1}{4}$ SW $\frac{1}{4}$

Las Cruces 029020-C
Sec. 15: SE $\frac{1}{4}$ SE $\frac{1}{4}$
Sec. 23: NW $\frac{1}{4}$ NW $\frac{1}{4}$

Las Cruces 029020-D
Sec. 15: NE $\frac{1}{4}$ SE $\frac{1}{4}$


The flood pattern would be nonsymmetrical and the project operator proposes to convert wells, which are not indicated herein, to water injection in the future, contingent upon the results of the initial flood. To commence the waterflood, the operator proposes to convert to water injection the following wells:

<u>Well Number and Lease</u>	<u>Location</u>
1-Parke "B"	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15
4-Parke "B"	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 15
6-Parke "A"	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 22

The plan for operating this project as proposed in the application is satisfactory to this office and hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

1. This project will be operated in compliance with the New Mexico Oil Conservation Commission regulations governing waterflood operations.
2. Duplicate copies of a monthly progress report (N.M.O.C.C. form C-120 acceptable) are to be submitted to this office showing the volume of water injected and average pressures for the injection wells and production for the producing wells in the project area.
3. This approval does not preclude the necessity to submit the usual notices and reports on wells involved. When this project is expanded to involve other operators and interests, the correlative rights of all concerned should be considered.

Sincerely yours,


James A. Knauf
District Engineer

cc:
N.M.O.C.C., Santa Fe
Roswell
Accounts

RLBeekman:ih 4/6/71

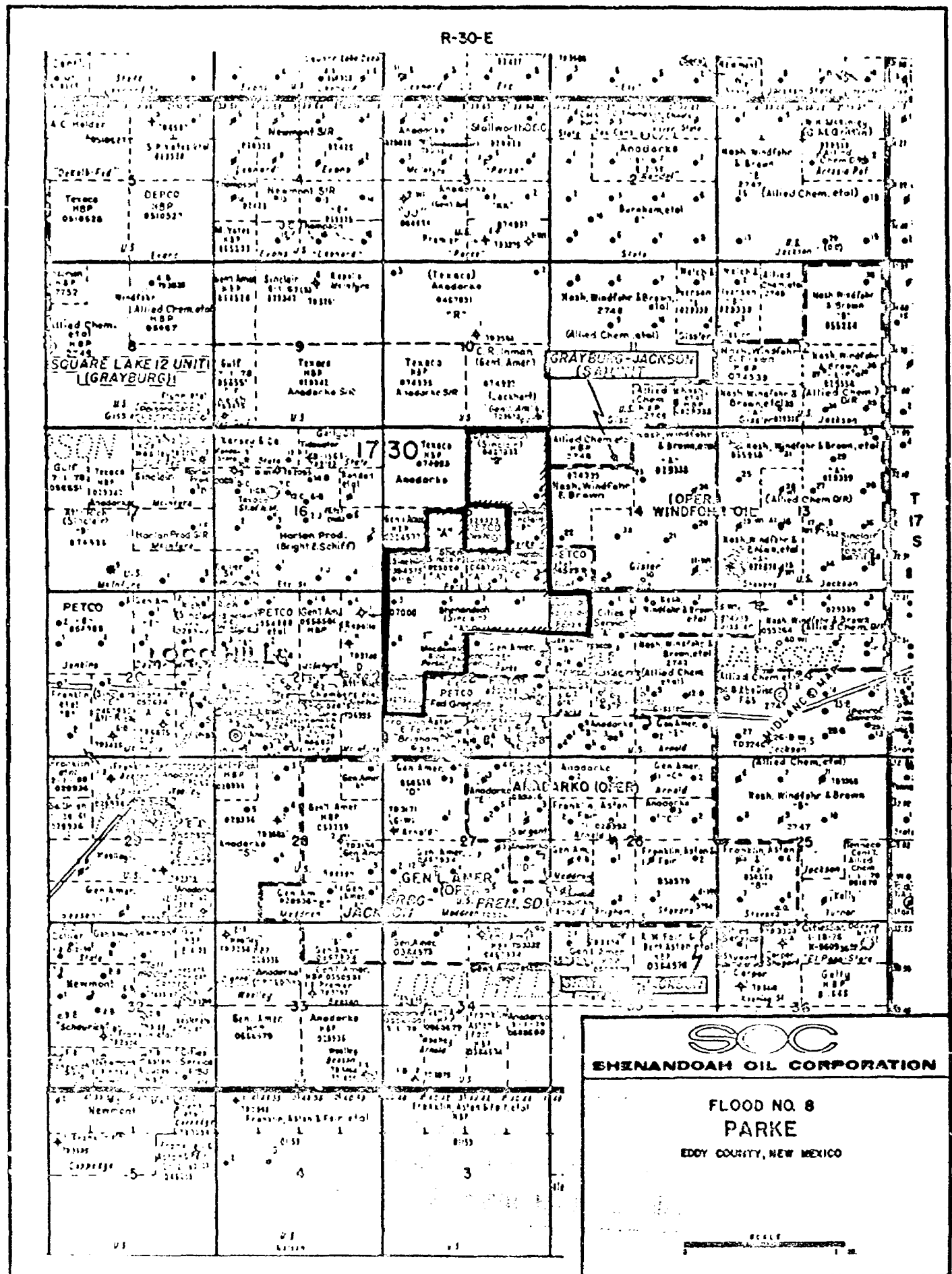
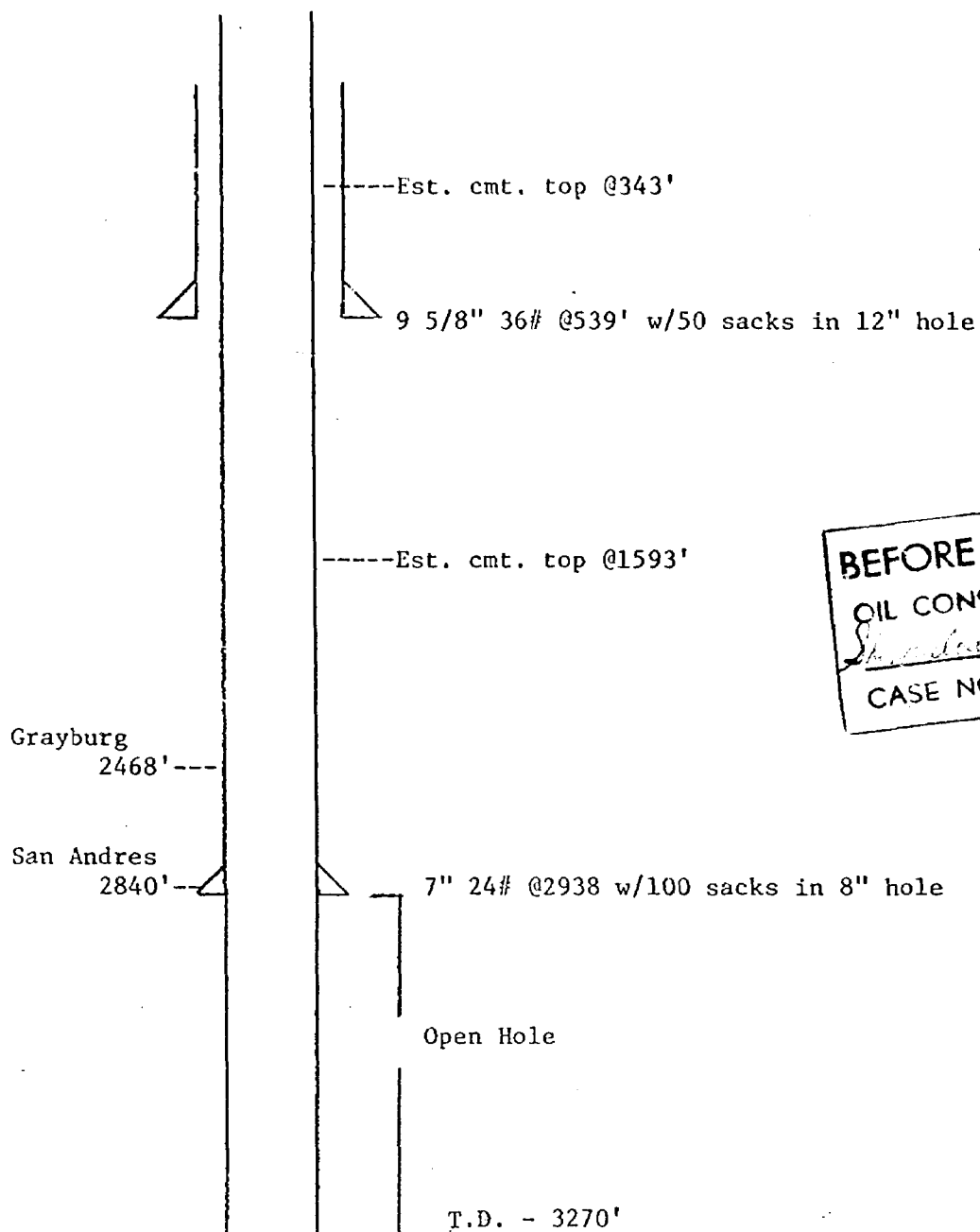


EXHIBIT "B"

DALE H. PARKE "B" TR. B - WELL NO. 1
Unit "M" - 330 FS & WL
Section 15, T-17S, R-30E
Eddy County, New Mexico

Completed: April 10, 1938



BEFORE EXAMINING WELL
OIL CONSERVATION
EXHIBIT NO. C-1
CASE NO. 4521

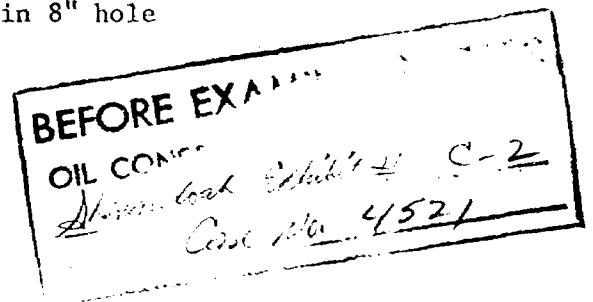
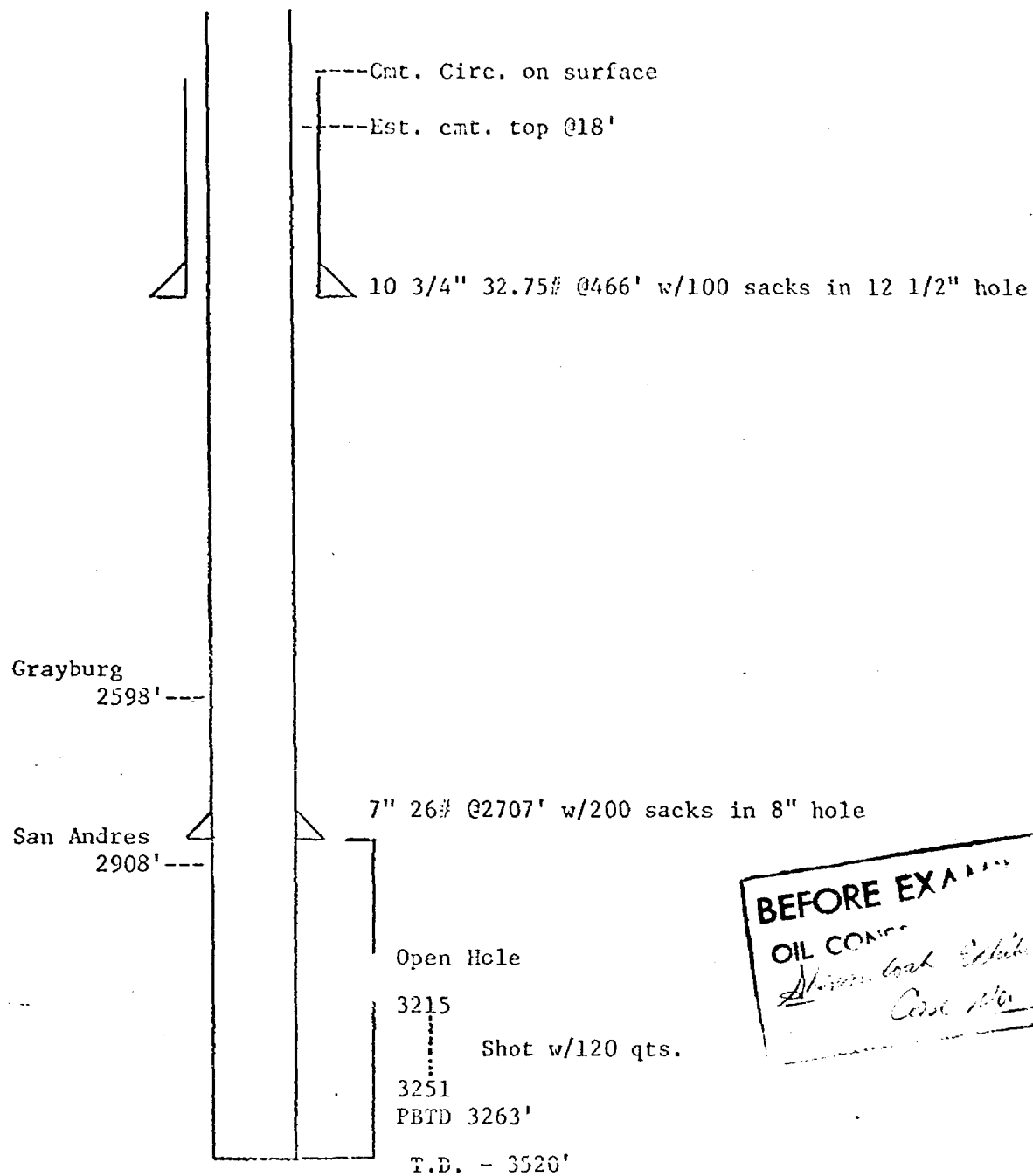
T.D. - 3270'

NOTE: A 4 1/2" liner will be run to T.D. and cemented depending on the results of a caliper survey. The Grayburg and San Andres formations will be perforated in selected intervals. Injection into the two formations will be separated by using Baker flow valves and packers on 1 string of 2" tubing.

EXHIBIT "C-1"

DALE H. PARKE "B" - WELL NO. 4
Unit "H" - 2310 FNL & 330 FEL
Section 15, T-17S, R-30E
Eddy County, New Mexico

Completed: September 5, 1951

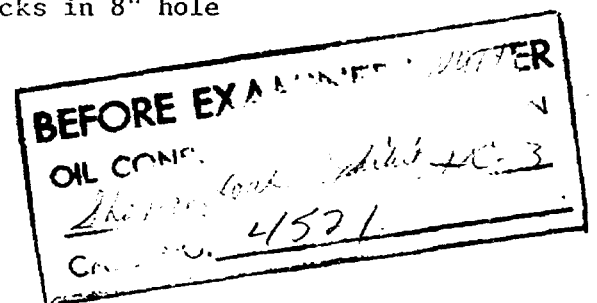
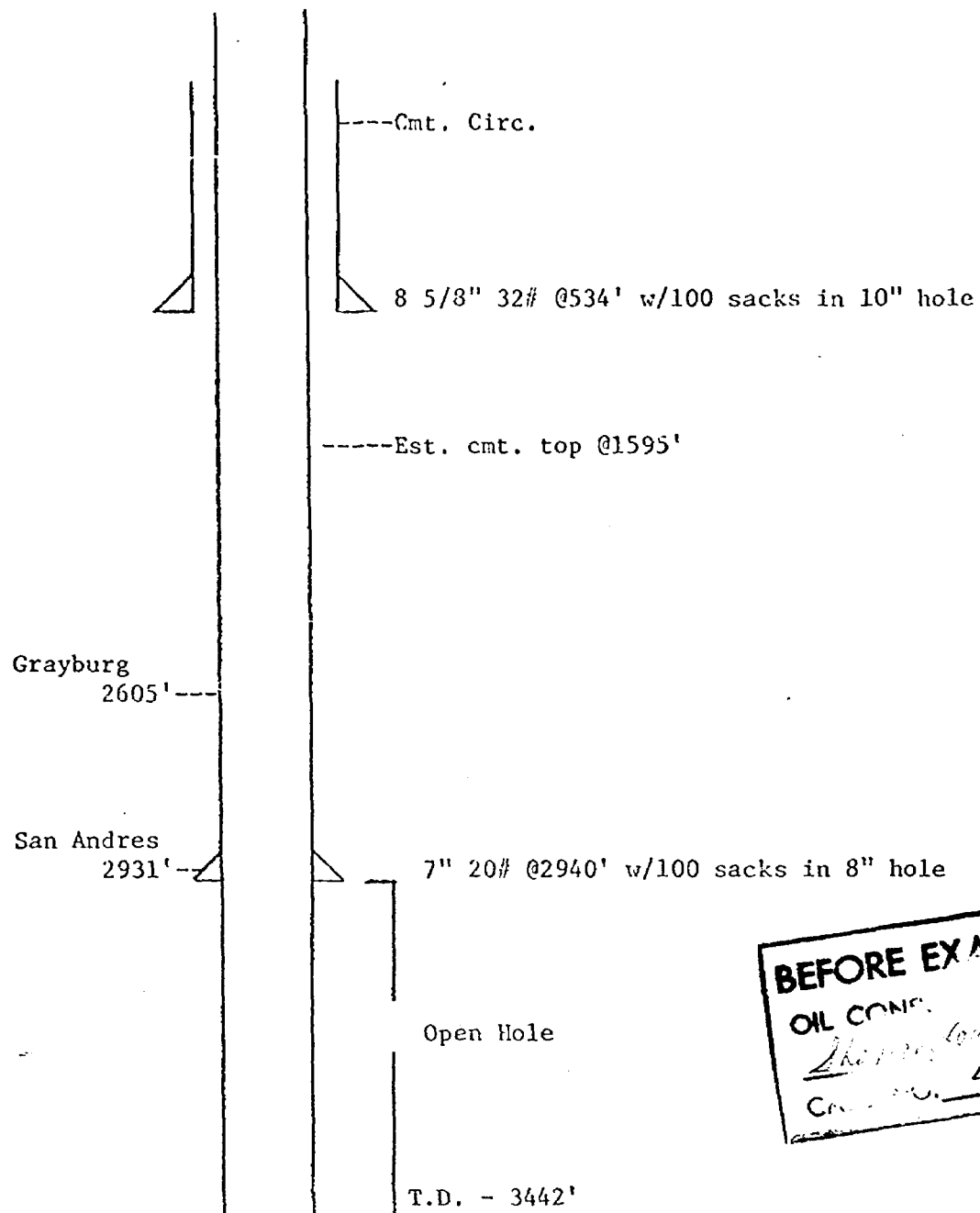


NOTE: A 4 1/2" liner will be run to 3215' above the shot hole and cemented. Injection into the open hole will be through 1 string of 2" tubing on a packer.

EXHIBIT "C-2"

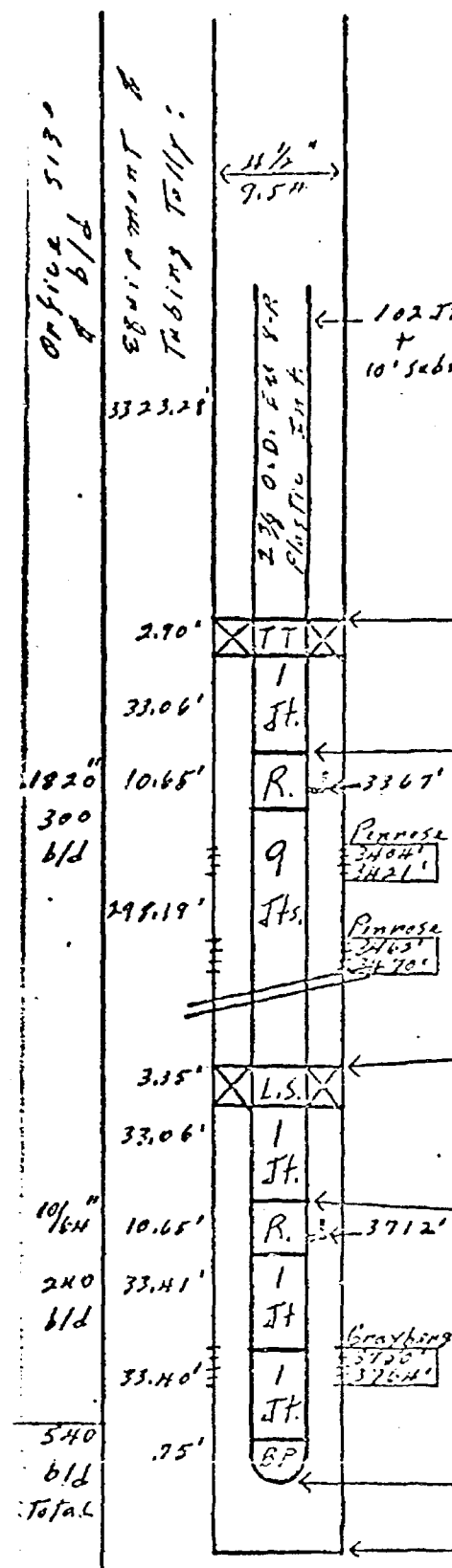
DALE H. PARKE "A" TR. 1 - WELL NO. 6
Unit "E" - 1650 FNL & 330 FWL
Section 22, T-17S, R-30E
Eddy County, New Mexico

Completed: August 22, 1939



NOTE: A 4 1/2" liner will be run to T.D. and cemented depending on the results of a caliper survey. The Grayburg and San Andres formations will be perforated in selected intervals. Injection into the two formations will be separated by using Baker flow valves and packers on 1 string of 2" tubing.

EXHIBIT "C-3"




OPER OR <u>Shenandoah Oil Corp.</u>	NG	LEVER	1	2	3
WELL # <u>Mayer-Kenwood #1</u>					
FIELD <u>Shurt</u>	SIZE				
COUNTY <u>Eddy</u>	WEIGHT				
STATE <u>New Mexico</u>	GRADE				
DATE <u>3/17/70</u>	THREAD				
<input type="checkbox"/> NEW COMPLETION <input checked="" type="checkbox"/> WORKOVER	DEPTH				
	Waterflood				

ITEM NO.	EQUIPMENT AND SERVICES	ESTIMATE
	above top packer (115 Jts. total in well) (subs under top joint.)	
3326'	size 43A4 Baker Model "B" Tandem Tension Packer w/unloader (602-21-0946) w/TK-69 plastic internally and externally.	
3362'	size 2.062 X 10' Baker Model "BF" Full Opening Down Hole Flow Regulator (600-34-2064) w/TK-69 plastic internally and externally. (monel piston)	
3670'	size 43-A Baker Model A-2 Lok-Set Retrievable Casing Packer (646-12-0946) w/TK-69 plastic internally and externally.	
3707'	size 2.062 X 10' Baker Model "BF" Full Opening Down Hole Flow Regulator (600-34-2064) w/TK-69 plastic internally and externally. (monel piston)	
3785'	Tubing T.D.	
3799.50'	Log. T.D.	

COMMENTS:	TOTAL ESTIMATE
Packer set in 13,000' tension. Fluid in well when packers run approx. 3,000' Zero is 2' above ground level. Slip type wellhead.	

Shenandoah Repr. --- C.W. Dorney --- Hobbs, N.M.		
Est. Dates --- Mt. North, Texas		
PREPARED BY M.R. Kruschke, S r.	OFFICE Odessa, Texas	PHONE 914-337-2383
Regional Staff Tech.		

Worksheet
No. 523

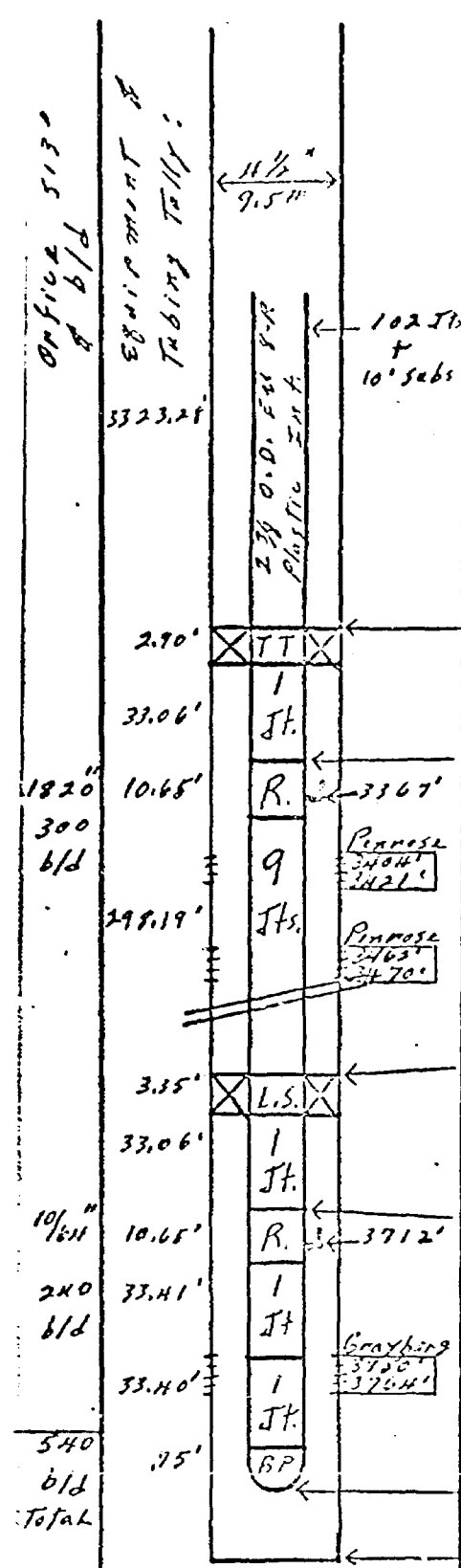


SAVE TIME AND MONEY WITH
COMPLETION BY BAKERS

BAKER OIL TOOLS, INC.

HOUSTON LOS ANGELES NEW YORK

WELL	INITIAL
FLUIDS	DATE



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. D
CASE NO. 4/521

OPER. OR Shenandoah Oil Corp. ING LINE 1 2 3

WELL # Mayer-Kenwood #1

FIELD Shurtart SIZE _____

COUNTY Eddy WEIGHT _____

STATE New Mexico GRADE _____

DATE 3/17/70 THREAD _____

☐ NEW COMPLETION ☒ WORKOVER DEPTH _____

Waterflood

ITEM NO.	EQUIPMENT AND SERVICES	ESTIMATE
	above top packer (115 Jts. total in well) (Subs under top joint.)	
3326'	size 43A4 Baker Model "E" Tandem Tension Packer w/unloader (602-21-0946) w/TK-69 plastic internally and externally.	
3362'	size 2.062 X 10' Baker Model "BF" Full Opening Down Hole Flow Regulator (600-34-2064) w/TK-69 plastic internally and externally. (monel piston)	
3670'	size 43-A Baker Model A-2 Lok-Set Retrievable Casing Packer (646-12-0946) w/TK-69 plastic internally and externally.	
3707'	size 2.062 X 10' Baker Model "BF" Full Opening Down Hole Flow Regulator (600-34-2064) w/TK-69 plastic internally and externally. (monel piston)	
3755'	Tubing T.D.	
3799.50'	Log. T.D.	

COMMENTS:

Packer set in 13,000' tension.
Fluid in well when packers run approx. 3,000'
Zero is 2' above ground level.
Slip type wellhead.

Shenandoah Repr. --- C.W. Dornay --- Hobbs, N.M.
Pat Bates --- Ft. Worth, Texas

PREPARED BY M.R. Kruschke, S r. OFFICE Odessa, Texas PHONE 915-337-2283

Regional Staff Tech.

Worksheet No. 523

SAVE TIME AND MONEY WITH COMPLETIONS BY BAKER

BAKER OIL TOOLS, INC.
HOUSTON LOS ANGELES NEW YORK

WELL INITIAL _____
FLUIDS FINAL _____

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. 4521
Order No. R-4133

APPLICATION OF SHENANDOAH OIL
CORPORATION FOR A WATERFLOOD
PROJECT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 14, 1971, at Hobbs, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 19th day of April, 1971, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Shenandoah Oil Corporation, seeks authority to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg and San Andres formations through three wells, located in Sections 15 and 22 of Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico.
- (3) That the applicant further seeks an administrative procedure whereby said project could be expanded to include additional injection wells in the area of the said project as may be necessary in order to complete an efficient injection pattern; that said administrative procedure should provide for administrative approval for conversion to water injection in exception to the well response requirements of Rule 701 E-5 of the Commission Rules and Regulations.

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CASE NO. 4521
Order No. R-4133

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

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

(6) That the subject application should be approved and the 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.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shenandoah Oil Corporation, is hereby authorized to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg and San Andres formations through the following three wells, located in Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico:

<u>WELL NUMBER</u>	<u>LOCATION</u>
Dale H. Parke "B" Tr. B, Well No. 1	SW/4 SW/4 Section 15
Dale H. Parke "B", Well No. 4	SE/4 NE/4 Section 15
Dale H. Parke "A" Tr. 1, Well No. 6	SW/4 NW/4 Section 22

(2) That the subject waterflood project is hereby designated the Shenandoah Grayburg-Jackson Parke 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 expansion of the above-described waterflood project to include such additional injection wells in the area of said project as may be necessary to complete an efficient water injection pattern; that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining

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CASE NO. 4521
Order No. R-4133

administrative approval for the conversion of additional wells to water injection.

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

(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

Bruce King

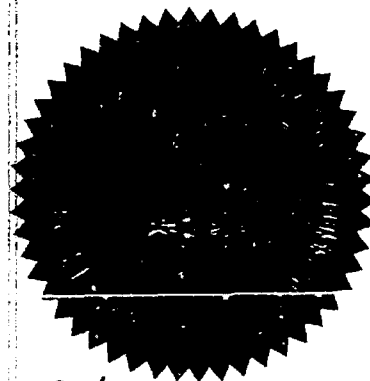
BRUCE KING, Chairman

Alex J. Armijo

ALEX J. ARMIJO, Member

A. L. Porter, Jr.

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



dr/

CASE 4352 (Reopened):

(Continued from Page 1)

an opportunity to appear and present evidence as to whether the Double L-Queen and Suble-Queen Pools, Chaves County, New Mexico, are in fact separate reservoirs or one common reservoir. Further, in the event it is found that the two pools comprise one common reservoir, the Commission will consider the adoption of special rules and regulations to provide for the classification of oil and gas wells, spacing and well location requirements for oil and gas wells, and an allocation formula for withdrawals from the gas wells and oil wells.

CASE 4520: Application of Shenandoah Oil Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Artesia Pool by the injection of water into the Grayburg formation through nine wells located in Sections 25 and 36 of Township 17 South, Range 28 East and Sections 30 and 31 of Township 17 South, Range 29 East, Eddy County, New Mexico. Applicant further seeks a procedure whereby additional injection wells may be approved administratively.

CASE 4521: Application of Shenandoah Oil Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg and San Andres formations through three wells located in Sections 15 and 22 of Township 17 South, Range 30 East, Eddy County, New Mexico. Applicant further seeks a procedure whereby additional injection wells may be approved administratively.

CASE 4522: Southeastern New Mexico nomenclature case calling for the creation of a new pool, the assignment of oil discovery allowable, and the extension of certain pools in Lea and Chaves Counties, New Mexico:

(a) Create a new pool in Chaves County, New Mexico, classified as an oil pool for Queen production and

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. James T. Jennings
Jennings, Christy & Copple
Attorneys at Law
Post Office Box 1180
Roswell, New Mexico 88201

Dear Sir:

2nd enclosed *remains with* Commission Order No. R-4133, entered in Case No. 4521, approving the *Shenandoah Grayburg-Jackson Park* Waterflood Project.

Injection is to be through the three authorized water injection wells, each of which shall be equipped with tubing and a packer. Injection shall be through the tubing and in the case of dual zone completions through down-hole dual flow regulators. The casing-tubing annulus shall be loaded with an inert fluid and equipped with

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 32.6 barrels per day when the Southeast New Mexico normal unit allowable is 42 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 x
Artesia x
Aztec

USGS

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

JAMES T. JENNINGS
SIM B. CHRISTY IV
ROGER L. COPPLE
BRIAN W. COPPLE

LAW OFFICES OF
JENNINGS, CHRISTY & COPPLE
1012 SECURITY NATIONAL BANK BUILDING
P. O. BOX 1180
ROSWELL, NEW MEXICO 88201

TELEPHONE 622-8432
AREA CODE 505

March 23, 1971

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

Attention: George Hatch or Ida Rodriguez

RE: SHENANDOAH OIL CORPORATION APPLICATION FOR
APPROVAL OF WATERFLOOD PROJECT NO. 8

On March 18 I filed an Application for Shenandoah Waterflood Project No. 7 and when I discussed the matter of holding the hearing on Project No. 7 with Mr. Hatch, I told him that I contemplated filing another Application, being for Shenandoah's Project No. 8, and advised that I would like to have both Applications set down for hearing before an examiner at Hobbs on April 14.

The Application for Approval of Waterflood Project No. 8 is enclosed in duplicate. A complete set of exhibits is attached to the original, but your attention is called to the fact that we only had logs covering the Dale H. Parke "B" No. 1 and the Dale H. Parke "A" No. 6 and these logs are attached to the original Application. We do not have a log for the Parke "B" No. 4.

I hope that you find the enclosed papers in order, but if you need any further information, please call me collect, and I will look forward to presenting these matters on April 14.


JAMES T. JENNINGS

JTJ/mb
Encl.

cc: Shenandoah Oil Corporation
U.S.G.S., Artesia

4-2-71

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

April 19, 1971

Mr. James T. Jennings
Jennings, Christy & Copple
Attorneys at Law
Post Office Box 1180
Roswell, New Mexico 88201

Dear Mr. Jennings:

Enclosed herewith is Commission Order No. R-4133, entered in Case No. 4521, approving the Shenandoah Grayburg-Jackson Parke Waterflood Project.

Injection is to be through the three authorized water injection wells, each of which shall be equipped with tubing and a packer. Injection shall be through the tubing and in the case of dual zone completions through down-hole dual flow regulators. The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface.

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 336 barrels per day when the Southeast New Mexico normal unit allowable is 42 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. James T. Jennings
Jennings, Christy & Copple
Attorneys at Law
Post Office Box 1180
Roswell, New Mexico 88201

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

Enclosure
ALP/DSM/ir

cc: OCC-Hobbs and Artesia, New Mexico
Mr. D. E. Gray, State Engineer Office
Santa Fe, New Mexico

SHENANDOAH OIL CORPORATION

1500 COMMERCE BUILDING
FORT WORTH, TEXAS 76102

B. J. KELLENBERGER
PRESIDENT

August 27, 1971

TELEPHONE
817-332-7381

RECEIVED

Re: Shenandoah Oil Corporation's
Parke - Grayburg/Jackson Project
Eddy County, New Mexico

Mr. A. L. Porter, Jr.
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

In accordance with Rule 703(a) of the New Mexico Rules and Regulation Book, this is to advise you that water injection into the three wells as set forth in Case No. 4521, was commenced August 19, 1971. These wells are located in Sections 15 and 22, Township 17 South, Range 30 East, Eddy County, New Mexico as follows:

<u>LEASE</u>	<u>WELL NO.</u>	<u>LOCATION</u>
Parke "A"	6	Unit E - Section 22
Parke "B"	1	Unit M - Section 15
Parke "B"	4	Unit H - Section 15

Attached is a plat showing the location of the above wells within the Project Area.

Very truly yours,

SHENANDOAH OIL CORPORATION

T. P. Bates

T. P. Bates,
Vice President - Secondary Recovery

TPB:jn
Attachment

CC: C. W. Downey
New Mexico Oil Conservation Commission - Artesia
U. S. Geological Survey - Artesia
U. S. Geological Survey - Roswell

[illegible]

SCALE
0 100
MAY 20 1976

dearnley-meier reporting service, inc.

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
Hobbs, New Mexico

April 14, 1971

EXAMINER HEARING

IN THE MATTER OF:

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

Case No. 4521

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
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 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87109

1 MR. NUTTER: Call Case 4521.

2 MR. HATCH: Case 4521. Application of Shenandoah
 3 Oil Corporation for a waterflood project, Eddy County, New
 4 Mexico.

5 MR. JENNINGS: Would you show the same appearances
 6 on behalf of Shenandoah Oil Corporation.

7 MR. NUTTER: And the witness is still sworn.

8 MR. JENNINGS: And his qualifications are accepted
 9 in this case?

10 MR. NUTTER: They are accepted.

11 NEIL F. TOLER

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

14 DIRECT EXAMINATION

15 BY MR. JENNINGS:

16 Q Mr. Toler, are you familiar with application filed on
 17 behalf of Shenandoah Oil Corporation for waterflood
 18 project number 8 for three injection wells in Sections
 19 15 and 22, Township 17 South, Range 30 East, in the
 20 Grayburg-Jackson San Andres field?

21 A Yes, I am.

22 Q What zones do you propose to inject into the three wells?

23 A We propose to inject into the two wells on the west side
 24 of Section 22 and Section 15, into the premier zone, and
 25 into the Grayburg-Jackson zone. In other words, two

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1 dual injections. The third well that we're proposing
2 at the present time will be in Section 15, will only be
3 in the Grayburg-Jackson zone.

4 Q Now, that well is the well, Part B well number four,
5 it is just going to be injected from one zone, the well
6 located in the Southeast Northeast Quarter of Section 15?

7 A Right.

8 Q Are you familiar with the current production from these
9 wells at this time?

10 A They are depleted, in the depleted stage, and referred
11 to as stripper production at the present time.

12 Q Do you feel that waterflooding of the premier zone of
13 the Grayburg formation and the Grayburg-Jackson zone
14 of the San Andres formation is feasible and will result
15 in ultimate increased recovery of oil?

16 A I do. There are three successful floods currently being
17 carried on offsetting our property, within Forest Grayburg-
18 Jackson San Andres unit to the east, and Anadarko
19 Grayburg-Jackson unit to the southeast, and the general
20 American Grayburg-Jackson premier sand unit to the west.

21 Q Mr. Toler, I hand you what has been marked as
22 Applicant's Exhibit A, and ask you if you will identify
23 that, please.

24 A Exhibit A is a plat showing the location of our property,
25 our project, and the land that we propose to put under

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 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87106

- 1 injection.
- 2 Q Do you contemplate converting additional wells to the
- 3 future into injection wells?
- 4 A Yes. Depending on production, performance, and from
- 5 the waterflood, we will possibly convert four additional
- 6 wells. All those wells are within the project area.
- 7 They are within the project area shown on Exhibit A.
- 8 Q I hand you what has been marked Exhibit B, and ask you
- 9 to identify that.
- 10 A It is a plat showing the location of our property that
- 11 we plan to put under waterflood, and all other wells
- 12 within a two-mile radius from our proposed property,
- 13 injection wells.
- 14 Q I hand you what has been marked as Exhibit C1 to 3, and
- 15 ask you if you will identify those and tell what they
- 16 are, please.
- 17 A Exhibit C are diagrammatic sketches of the proposed
- 18 injection wells showing the estimated tops of cement
- 19 perforations in the depth drill tube.
- 20 Q In each of the three wells?
- 21 A In each of the three wells.
- 22 Q And it shows the casing currently in the wells and where
- 23 the perforations will be?
- 24 A It shows the casing, and it shows the top of the Grayburg
- 25 formations, the top of the San Andres. Most of these

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 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

- 1 wells are completed open hole, and the San Andres is in
 2 the open hole. Grayburg formation is behind the casing
 3 at the present time, and will be perforated.
- 4 Q What would be your source of water, Mr. Toler?
- 5 A We'll purchase fresh water from a local company, and
 6 as produced water becomes available, we will reinject it.
- 7 Q I hand you what has been marked as Exhibit D, and ask
 8 you if you will identify that.
- 9 A This is a diagrammatical sketch showing typical downhill
 10 equipment to be installed in each injection well. Again,
 11 this is a typical installation that we currently have
 12 on our Shugart area floods, which is very successful.
- 13 Q How much water do you contemplate injecting into each
 14 of the zones?
- 15 A Approximately -- I'm sorry. A hundred and fifty barrels
 16 per day per zone, or three hundred barrels per well,
 17 except in the single injection well, where we'll inject
 18 two hundred fifty barrels of water a day.
- 19 Q I hand you --
- 20 A I'm sorry. I forgot to add for a total of approximately
 21 seven hundred fifty barrels, initially.
- 22 Q When do you contemplate getting into operations or
 23 starting your injections if this is approved?
- 24 A On our project eight and our project seven, we are
 25 scheduled to start this by July the 1st.

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 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

1 Q I hand you what has been marked as Exhibit E1 and 2 and
 2 ask you if you will identify those, please and --

3 A These are radioactive logs of two wells that we are to
 4 put on injection. We do not have a log on the Barkey
 5 B4. However, when completing this well as an injection
 6 well, we will run a radioactive log, and will submit it
 7 to the Commission.

8 Q Have you obtained the approval of the United States
 9 Geological Survey for this project?

10 A Yes.

11 Q I hand you what has been marked Exhibit F and ask if
 12 that is the letter you received approving the project?

13 A This is the letter we received from the U.S.G.S. on the
 14 6th, approving our proposed flood plan.

15 Q Mr. Toler, are you entered into any agreement with any
 16 offset operators in connection with your cooperative?

17 A Yes. We have entered into a cooperative waterflood
 18 agreement involving two wells, one belonging to Winfer
 19 and one belonging to Shenandoah. The one belonging to
 20 Shenandoah being the Barkey B in 6 and 15.

21 Q Where is the Winfer well?

22 A The Winfer well is located on the Gissler lease in
 23 Section 14.

24 MR. JENNINGS: That's all. We would at this time
 25 like to offer Exhibits A through F.

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1 MR. NUTTER: Shenandoah Exhibits A through F will
 2 be admitted in evidence.

3 (Whereupon, Applicant's Exhibits
 4 A through F were duly admitted
 into evidence.)

5 MR. JENNINGS: I believe that's all.

6 CROSS EXAMINATION

7 BY MR. NUTTER:

8 Q Mr. Toler, as I understand it, the one well, Shenandoah
 9 Bark B4 or Barkey B4 --

10 A Yes, yes.

11 Q -- will be a single zone injection well?

12 A That's right.

13 Q And injection will be confined to the Grayburg-Jackson
 14 zone only?

15 A Right, sir.

16 Q And the other two wells over in Sections 15 and 22 will
 17 be dual zone wells into the premier and Grayburg?

18 A That's right.

19 Q Now, C1 through C3 show the casing and cementing of these
 20 wells. Will tubing be also installed in each of these?

21 A Tubing will be installed. Also a liner will be run to
 22 TD in two of the wells at the present time, and will be
 23 cemented.

24 Q Which of those will be the ones with the liner?

25 A The four and a half inch liner will be run in a track one

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- 1 well number six, B, track B, well number one.
- 2 Q Totaled up?
- 3 A Total depth, I'm sorry.
- 4 Q And then a packer would be installed?
- 5 A And a packer will be installed.
- 6 Q Do you have a tentative setting depth for the packer?
- 7 A The packer will be installed in the liner -- I'm sorry,
- 8 it will be installed in the seven inch casing above the
- 9 liner, tubing will be extended down into the liner.
- 10 Q Do you have a tentative setting depth for your packer?
- 11 A Tentative setting depth for -- well, it will be
- 12 approximately 2900 feet.
- 13 Q What will be the top of the liner in the two wells you're
- 14 going to run the liner in?
- 15 A The top of the liner will be above the casing tube,
- 16 in each well, the seven inch casing tube.
- 17 Q In other words, all you're trying to do is get away from
- 18 this open hole?
- 19 A Just get away from the open hole, right. From the
- 20 injection down to the Grayburg-Jackson zone.
- 21 Q I see. And then the casing tubing annulus? How will
- 22 that be handled, Mr. Toler?
- 23 A Casing tubing annulus will be loaded with inert fluid.
- 24 It will have pressure gauge, another casing tubing
- 25 annulus to monitor the pressure.

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 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

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Q If there is an increase in it?

MR. NUTTER: Are there any further questions of the witness? You may be excused.

(Witness excused.)

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 4521? We'll take the case under advisement.

dearnley-meier

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I N D E X

WITNESS:

Page

NEIL F. TOLER

Direct Examination by Mr. Jennings

2

Cross Examination by Mr. Nutter

7

EXHIBIT

MARKED

OFFERED AND
ADMITTED

Applicant's Exhibits A through f

7

dearnley-meier

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 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

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

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

10 Linda Malone
 11 Court Reporter

22
 23 4621
 24 4/14 21
 25



BRUCE KING
GOVERNOR

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

August 26, 1982

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Southland Royalty Company
21 Desta Drive
Midland, Texas 79701

Attention: Mr. K. W. Harbin

Re: Case No. 4521, R-4133
and WFX-494
Injection Pressure Increase

Dear Mr. Harbin:

Based on information and test data submitted by your letter of July 26, 1982, the maximum authorized wellhead pressure for the following described well is hereby increased to 1000 psi:

Dale H. Park "C" Well No. 3-Y, Unit P, 15-T17S-R30E

Yours very truly,

JOE D. RAMEY
Director

JDR/RJ/fd

cc: L. A. Clements
R. L. Stamets

step rate for wrong well!
8-23-82 - call Jerry - will return
call.

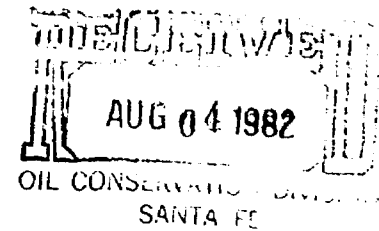


Southland Royalty Company

July 26, 1982

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Roy Johnson



Re: Dale H. Parke "C" No. 3-Y
Grayburg Jackson (SR-Q-GB-SA)
Sec. 15, T-17-S, R-30-E
Eddy County, New Mexico

Gentlemen:

Southland Royalty respectfully requests authority to inject water into the subject well at a wellhead pressure of 1000 psi. This injection pressure will be below the measured fracture pressure which is indicated by our recent step rate tests. The subject well was recently converted to a water injection well in our Parke Waterflood under authority of Administrative Order WFX-494.

The Administrative Order limited the wellhead injection pressure to 580 psi. The order also stated that the pressure limitation could be raised in the event that we establish that injecting at higher pressures will not fracture the confining strata. Under this provision Southland is presenting the attached results of a step rate test we performed on the subject well. Our tests show that the wellhead fracture pressure of the recently converted well to be 1030 psi. Should you require further documentation, please let us know.

Very truly yours,

K. W. Harbin
District Production Manager

DDR/slh

Attachments

cc: NMOCD - Artesia

21 DESTA DRIVE (915) 686-5600 MIDLAND, TEXAS 79701

Southland Royalty Company
Dale H. Parke "C" Well No. 3-Y
Step-Rate Test
Tabulation of Pressure & Time

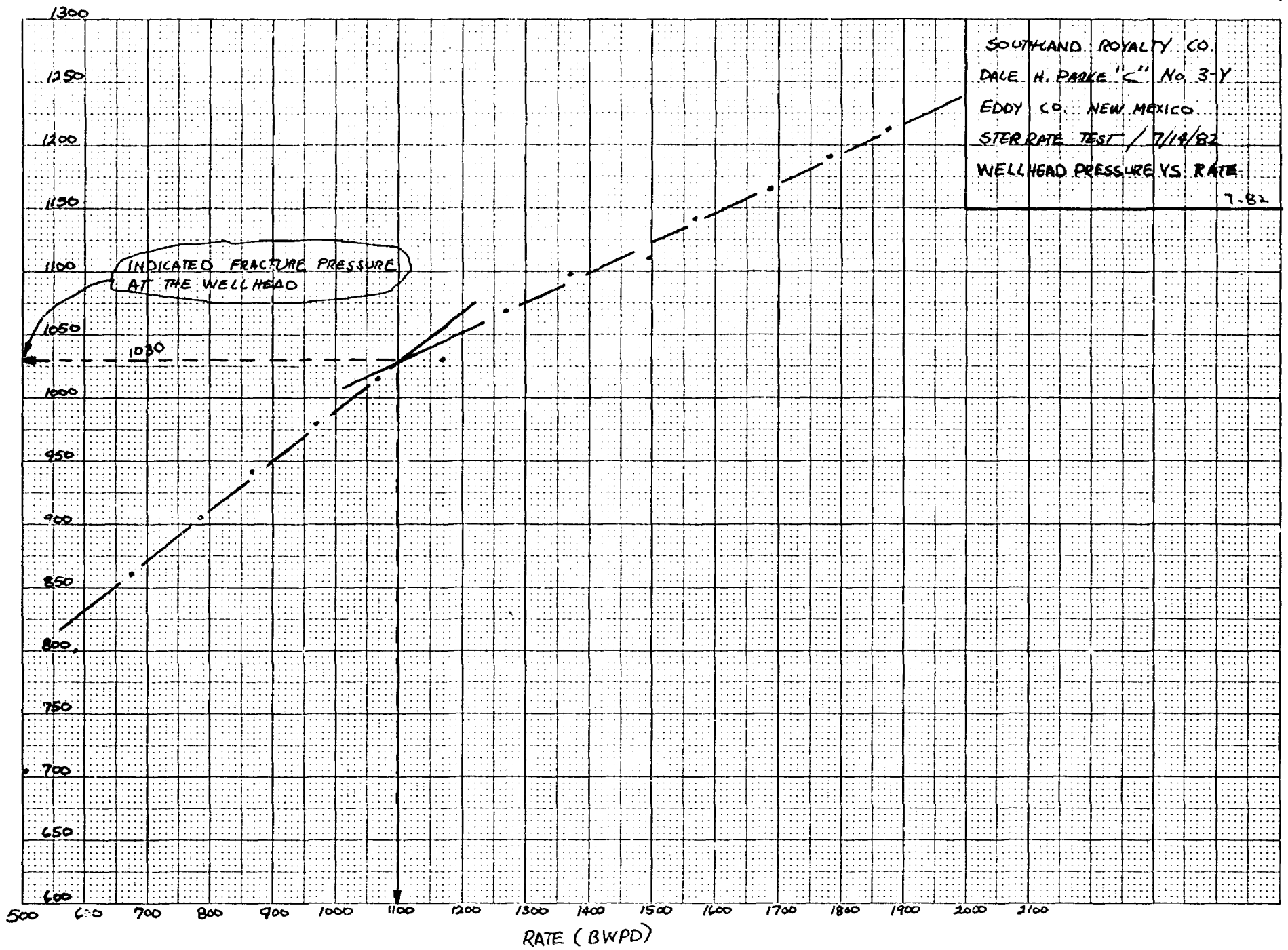
Test Conducted By:
D. & R. Well Testing

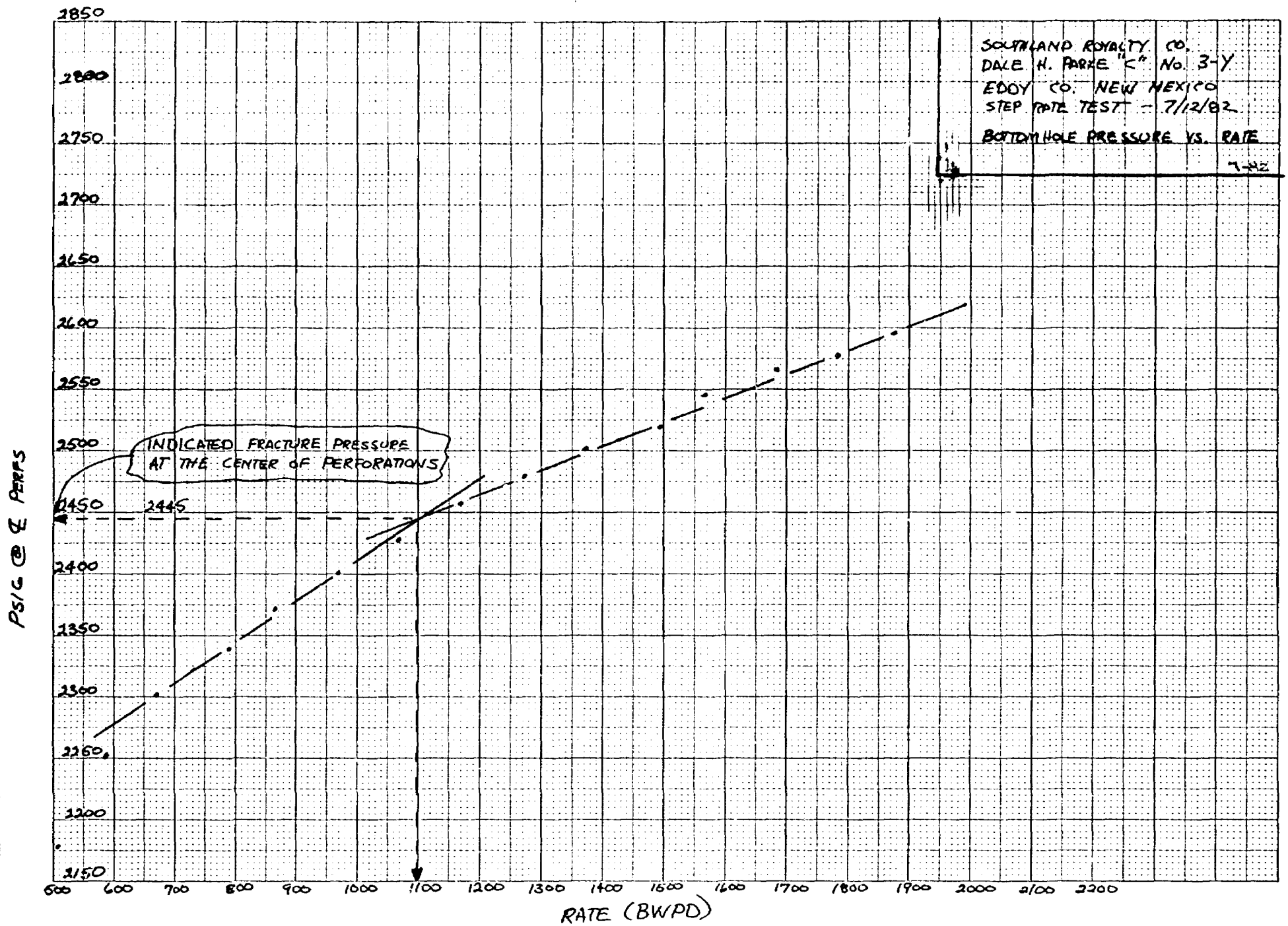
Test Date: July 14, 1982
Test Depth: 3158
Clock: 0-12 Hour
Element: 0-6500 P.S.I.
Operator: Don Tyson & Leroy Thompson

<u>Cum. Hrs. & Min.</u>	<u>W.H.D.W. Pres.</u>	<u>Rate B.W.P.D.</u>	<u>Gradient .458</u> <u>P.S.I.G. Center Perfs.</u>
00 Hrs. 00 Min.	455	S.I.	2008 Gauge @ 2758'
00 20	455	S.I.	2008 Start Pump
00 25	610	514	2067 Rate 1
00 30	672	509	2099
00 35	705	508	2138
00 40	705	508	2177 End Rate 1
00 45	757	598	2190 Rate 2
00 50	775	587	2225
00 55	800	586	2251 End Rate 2
01 00	825	656	2268 Rate 3
01 05	840	658	2284
01 10	860	672	2300 End Rate 3
01 15	885	780	2317 Rate 4
01 20	899	786	2330
01 25	905	787	2339 End Rate 4
01 30	930	878	2352 Rate 5
01 35	935	872	2359
01 40	942	865	2372 End Rate 5
01 45	965	970	2382 Rate 6
01 50	971	984	2388
01 55	980	970	2401 End Rate 6
02 00	990	1072	2418 Rate 7
02 05	1010	1071	2424
02 10	1015	1070	2427 End Rate 7
02 15	1015	1170	2434 Rate 8
02 20	1020	1172	2434
02 25	1030	1171	2457 End Rate 8
02 30	1060	1265	2463 Rate 9
02 35	1068	1268	2470
02 40	1069	1272	2479 End Rate 9

<u>Cum. Hrs. & Min.</u>	<u>W.H.D.W. Pres.</u>	<u>Rate B.W.P.D.</u>	<u>P.S.I.G. Center Perfs.</u>
02 Hrs. 45 Min.	1080	1377	2486 Rate 10
02 50	1090	1380	2489
02 55	1099	1372	2502 End Rate 10
03 00	1104	1472	2509 Rate 11
03 05	1109	1495	2512
03 10	1114	1495	2519 End Rate 11
03 15	1125	1565	2525 Rate 12
03 20	1135	1568	2532
03 25	1142	1568	2545 End Rate 12
03 30	1149	1669	2551 Rate 13
03 35	1162	1668	2558
03 40	1165	1685	2564 End Rate 13
03 45	1177	1766	2567 Rate 14
03 50	1187	1774	2571
03 55	1192	1782	2577 End Rate 14
04 00	1205	1866	2584 Rate 15
04 05	1209	1868	2590
04 10	1213	1873	2596 End Rate 15
			End Test.
04 20	1221	1882	2606 Gauge Out
			End Test.

DEAD WEIGHT P.S.I.G. (WELLHEAD)







STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2086
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

May 24, 1982

Mr. J. E. Pullig
Division Manager
Bass Enterprises Production Co.
P. O. Box 2760
Midland, Texas 79702

Re: Big Eddy Unit Well No. 56
(SWD), Indian Flats Field
Area, Case No. 6160, Order
No. R-5693

Dear Mr. Pullig:

Your letter of May 6, 1982, to Mr. Bill Gressett requesting an increased injection pressure limit on the subject well has been forwarded to me for reply.

Based upon the results to the step-rate test submitted with your letter and the authority granted me by Order (3) of Division Order No. R-5693, an increase in the surface pressure limit on the subject well to 1300 psig is hereby approved.

Yours very truly,

JOE D. RAMEY
Director

JDR/RLS/fd

cc: Bill Gressett
Prentiss Childs
Case File

CASE 4522:

SOUTHEASTERN NEW MEXICO
NOMENCLATURE