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

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Case Number 4521

Application Trascripts 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.

jer ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on <u>April 14</u>, 191 at Santa Fo, New Mexico, before Examiner <u>Daniel S. Nutter</u>.

NOW, on this <u>day of April</u>, 1971, the Commission, a guorum 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-

H.

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 three wells, located in Soctions 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 SW4SW4 Sec El abou Dale H. Parke "B", Well No. 4 SEANE' Sec Dale H. Parke "A" Tr. 1, Well No. 6 SWANWA Sec (4) . . 14 parabolic in or and onco a entry of 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

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Comes now the Applicant, Shenandoah Oil Corporation, and hereby makes application for approval of a waterflood project pursuant 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	SW4SW4 Sec. 15, T-17 S, R-30-E
Dale H. Parke "B", Well No. 4	SE4NE4 Sec. 15, т-17-S, R-30-Е
Dale H. Parke "A" Tr. l, Well No. 6	SW4NW4 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

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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, performations 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

for JENNINGS, CHRISTY & COPPL Attorney for Applicant P. O. Box 1180 Roswell, New Mexico 88201 - 3 -

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PXHIBIT "A"

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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.



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NOTE: A 4 1/2" liner will be run to T.D. and cemented depending on the results of acaliper 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-2"



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:



<u>New Mexico 0467933</u> Sec. 15: NE¹/₂

New Mexico 0384575 Sec. 15: NE¹2SW¹2, SW¹2SW¹2

<u>New Mexico 0467930</u> Sec. 15: SW²/₅SE¹/₄ Sec. 22: NW¹/₂, NW¹/₂SW¹/₂, N¹/₂NE¹/₄

Las Cruces 029020-A Sec. 15: SE¹2SW¹2

Las Cruces 029020-C Sec. 15: SE\SE\ Sec. 23: NW\2NW\2

Las Cruces 029020-D Sec. 15: NE¹2SE¹2

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:

Well Number and Lease	Location
1-Parke "B"	SW2SW2 sec
4-Parke "B"	SEŽNEŽ sed
6-Parke "A"	SWZNWZ sec

2. 15 . 15 c. 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.

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Sincerely yours,

James A. Knauf District Engineer

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

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EXHIBIT "A"

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EXHIBIT "B"



into the two formations will be separated by using Baker flow valves and packers on 1 string of 2" tubing.

EXHIBIT "C-1"



EXHIBIT "C-2"



on the results of acaliper 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"

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EXHIBIT "D"

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BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

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

> CASE NO. 4521 Order No. R-4133

APPLICATION OF SHEMANDOAH 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, Shenandcah 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.

-2-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:

WELL	NUMBER		LOCATION				
	H. Parke No. 1	*B* Tr.	В,	5W/4	sw/4	Section	15
	H. Parke No. 4	"B",		se/4	ne/4	Section	15
	H. Pa rke No. 6	"A" Tr.	1,	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 -3-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

me

BRUCE KING, Chairman



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



EXAMINER HEARING - APRIL 1.4, 1971

DOCKET No. 8-71

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 withdrzwals 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 abovestyled 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:

L: Application of Shenandoah Oil Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the abovestyled 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.

<u>CASE 4522:</u> 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:

Л Commission Order No. R-4133, entered in Case No. , approving the shinandoan Uranburg. Joeleson Varke <u>4521</u> Waterflood Project. unchion

in writer, each of which shall be with, tubing and a packer, Sujet and in the case Vilun plilian through anue The an mert fluid and 20

Voadea with is to allowable, our calculations indicate that when all of be authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions Ć of Rule 701-E-3 is 3? 6 barrels per day when the Southeast New Mexico pressure 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 Aurface 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 <u>x</u> Aztec

USGS

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

JAMES T JENNINGS SIM B.CHRISTY 12 ROGER L.COPPLE BR'AN 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

7-1 - 225 228

<u>____</u>

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.

.T. JTJ 'nb 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

Raclosed 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 accigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behaves him to promptly notify both of the aforementioned <u>Commission offices</u> 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

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Your cooperation in keeping the Commission so informed as to that status of the project and the wells therein will be appreciated. Very truly yours, A. L. PORTER, Jr. Secretary-Director Enclosure ALP/DSM/ir OCC-Hobbs and Artesia, New Mexico CC: Mr. D. E. Gray, State Engineer Office Santa Fe, New Mexico

SHENANDOAH OIL CORPORATION 1500 COMMERCE BUILDING 19 FORT WORTH, TEXAS 76102

B. J. KELLENBERGER President

TELEPHONE 817-332-7381



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

ef. les

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

Dear Mr. Porter:

Y

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:

LEASE	WELL NO.	LOCATION
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

P.Bater

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



soos	BEFORE THE
PY, CONVENT	NEW MEXICO OIL CONSERVATION COMMISSION Hobbs, New Mexico
VII VII	April 14, 1971
B SELVICE, INC. Ements, expert testimony, daliy copy, conventions • albuquerdue, new maxico	EXAMINER HEARING
reporting	IN THE MATTER OF: Application of Shenandoah Oil Corporation for a waterflood project, Eddy County, New Mexico.
dearniey-meier specializing IN, depositions zon sumus Ruda, o P.O. Kax 1002	BEFORE: Daniel S. Nutter, Examiner
	TRANSCRIPT OF HEARING

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PAGE 2

	1	MR. NUTTER: Call Case 4521.
	2	MR. HATCH: Case 4521. Application of Shenandoah
	3	0il 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.
neie	8	MR. JENNINGS: And his qualifications are accepted
ley-1	9	in this case?
dearnley-meier	10	MR. NUTTER: They are accepted.
de	11	NEIL F. TOLER
IVENTIONS 87103	12	called as a witness, having been first duly sworn, was
DAILY COPY, CONVENTIONS NEW MEXICO 87103	13	examined and testified as follows:
MILY COPY, CON 87109	14	DIRECT EXAMINATION
STIMONY, DA	15	BY MR. JENNINGS:
- C Fr	16	Q Mr. Toler, are you familiar with application filed on
се ж с – к с – к коспе коспе	17	behalf of Shenandoah Oil Corporation for waterflood
STATEMENTS, ONE 243-069 ● A L BU Q U EF	18	project number 8 for three injection wells in Sections
5 1 7 • 7 • 7	19	15 and 22, Township 17 South, Range 30 East, in the
α _N ⊔	20	Grayburg-Jackson San Andres field?
Р 201710NS, НЕА 7 - О. БОХ 100 ВАМК ⊎LDC.	21	A Yes, I am.
⊡ ± ⊾ L⊂• E S V C S V	22	Q What zones do you propose to inject into the three wells?
SPECIALIZING IN. E	23	A We propose to inject into the two wells on the west side
SPECIA 2009 SH PTRST	24	of Section 22 and Section 15, into the premier zone, and
	25	into the Grayburg-Jackson zone. In other words, two

			page 3
	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	А	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.
NTIONS 103	12	Q	Do you feel that waterflooding of the premier zone of
, CONVE	13		the Grayburg formation and the Grayburg-Jackson zone
ESTIMONY, DAILY COPY, CONVENTIONS Inerque, New Mexico 87103 Mexico 87108	14		of the San Andres formation is feasible and will result
MONY, DAI RQUE, N	15		in ultimate increased recovery of oil?
<u>е</u> С 5	16	A	I do. There are three successful floods currently being
EXPERT >LBL RQUE. N	17		carried on offsetting our property, within Forest Grayburg-
rements, exper 243-0091 • A L ^e Buquerque,	18		Jackson San Andres unit to the east, and Anadarko
DEPOSITIONS, HEARINGS, 57A' C.e.fO. BOX 1092.PHONE AL EANK BLDG. EAST AL	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
SPECIALIZING IN. DI Portageneration al.	23		that, please.
SPECIALIZIN 104 SIMMS FTRST NAT	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

dearnley-meier

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and the second second

			PAGE 4
	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
3	11		we plan to put under waterflood, and all other wells
CONVENTIONS CO 87103	12		within a two-mile radius from our proposed property,
	13		injection wells.
AILY COPY, NEW MEXI 87108	14	Q	I hand you what has been marked as Exhibit C1 to 3, and
9 . 0	15		ask you if you will identify those and tell what they
TEST Our Ew M	16		are, please.
rements, expert 243-6691• Albu Buquerque, Ni	17	A	Exhibit C are diagrammatic sketches of the proposed
DEFOSITIONS, HEARINGS, STATEMENTS, 	18		injection wells showing the estimated tops of cement
INGS, STAT • PHONE : AST • AL	19		perforations in the depth drill tube.
HEARIN 1092 - F	20	Q	In each of the three wells?
:F OSITIONS, НЕА 1-109 вох 109 104 весь.	21	A	In each of the three wells.
N. DEFC DC F. NAL CA	22	Q	And it shows the casing currently in the wells and where
SPECIALIZING IN. DI APPE SIMMS BLDG	23		the perforations will be?
SPECIJ AND SIN	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

dearnley-meier

PAGE	- 5
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	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	Α	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
DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS 2:• F.O. Box 1092•Phone 243-6691•Albuquerque, new mexico 87103 2. Bank bldg. East•Albuquerque, new mexico 87108	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
, HEARIN (1092 •	20	A	I'm sorry. I forgot to add for a total of approximately
OSITIONS, 	21		seven hundred fifty barrels, initially.
אי סבר מייר פי צ≻ר פי	22	Q	When do you contemplate getting into operations or
SPECIALIZING IN: DI 2099 SIMMS BLDC. FIRST NATIONAL	23		starting your injections if this is approved?
59 ECL 209 50 F105 1	24	А	On our project eight and our project seven, we are
	25		scheduled to start this by July the 1st.

dearnley-meier
page 6

	1	Q	I hand you what has been marked as Exhibit El and 2 and
	2		ask you if you will identify those, please and
	3	Α	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
с. Валица	7		to the Commission.
neie	8	Q	Have you obtained the approval of the United States
ley-I	9		Geological Survey for this project?
dearnley-meier	10	A	Yes.
9	11	Q	I hand you what has been marked Exhibit F and ask if
ENTIONS 103	12		that is the letter you received approving the project?
DAILY COPY, CONVENTIONS , NEW MEXICO 07103 3 87108	13	Α	This is the letter we received from the U.S.G.S. on the
AILY COP NEW ME A7108	14		6th, approving our proposed flood plan.
<mark>МОИҮ, D</mark> А RQUE, 7 Exico a	15	Q	Mr. Toler, are you entered into any agreement with any
TESTI Joure Rev M	16		offset operators in connection with your cooperative?
ЕХРЕЯ 1 • А Г В 2 0 Г Г.	17	A	Yes. We have entered into a cooperative waterflood
DEPOSITIONS, HEARINGS, STATEMENTS, EXPL 3. P. O. BOX 1092 • PHONE 243-6691 • AL	18		agreement involving two wells, one belonging to Winfer
63, 51 A1 Р Н О N E S T • A L	19		and one belonging to Shenandoah. The one belonging to
POSITIONS, MÉARINGS, F.O. BOX 1092 • PM	20		Shenandoah being the Barkey B in 6 and 15.
351710NS, .0. BOX Ank BL	21	Q	Where is the Winfer well?
аа 	22	А	The Winfer well is located on the Gissler lease in
SPECIALIZING IN DE Pos simms bldg.	23		Section 14.
SPECIJ POD SI FERST	24		MR. JENNINGS: That's all. We would at this time
	25	like	e to offer Exhibits A through F.

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page 7

	1	MR. NUTTER: Shenandoah Exhibits A through F will					
	2	be admitted in evidence.					
	3	(Whereupon, Applicant's Exhibits 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?					
4TIONS 03	12	A That's right.					
CONVE	13	Q And injection will be confined to the Grayburg-Jackson					
PERT TESTIMONY, DAILY COPY, CONVENTIONS Albuquerque, "New Mexico 87103 Je, New Mexico 87108	14	zone only?					
	15	A Right, sir.					
T TESTIMONY, D UQUERQUE, NEW MEXICO	16	Q And the other two wells over in Sections 15 and 22 will					
	17	be dual zone wells into the premier and Grayburg?					
TEMENTS, EX: 243-5691 • / .Buquerqu	18	A That's right.					
STA 0 Z G	19	Q Now, C1 through C3 show the casing and cementing of these					
, HEARIN 4 1092 •	20	wells. Will tubing be also installed in each of these?					
OSITIONS	21	A Tubing will be installed. Also a liner will be run to					
IN, DEFU Log. P DNAL F	22	TD in two of the wells at the present time, and will be					
SPEC:ALIZING IN: DEFOSITIONS, HEARINGS, STATEMENTS, EX Joy Simms BLDGP.O. BOX 1992 • PHONE 243-6691 • Joyes Inational Fank BLDG. East • ALBUQUEROU	23	cemented.					
SPEC: 2001 S FERSO	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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page 8

	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	
DAILY COPY, CONVENTIONS , NEW MEXICO 87103 87108	12	approximately 2900 feet.		
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	13	Q	What will be the top of the liner in the two wells you're	
NEW MEXICO 87103 87108	14		going to run the liner in?	
ROUE, N		A	The top of the liner will be above the casing tube,	
	16	in each well, the seven inch casing tube.		
ROUE. N	17	Q	In other words, all you're trying to do is get away from	
BUQUER	18		this open hole?	
STOAL		A	Just get away from the open hole, right. From the	
DG. EA	20		injection down to the Grayburg-Jackson zone.	
0.0. BOX BANK BL	21	Q	I see. And then the casing tubing annulus? How will	
- - - - - - - - - - - - - - - - - - -	22		that be handled, Mr. Toler?	
NMS BL	23	A	Casing tubing annulus will be loaded with inert fluid.	
2.04 St 1.185 F		It will have pressure gauge, another casing tubing		
	25		annulus to monitor the pressure.	

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PAGE 9



PAGE 10



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PAGE 11 1 STATE OF NEW MEXICO ) SS ) 2 COUNTY OF BERNALILLO ) 3 I, LINDA MALONE, Court Reporter in and for the County 4 of Bernalillo, State of New Mexico, do hereby certify that 5 the foregoing and attached Transcript of Hearing before the 6 New Mexico Oil Conservation Commission was reported by me 7 and that the same is a true and correct record of the said dearnley-meier 8 proceedings, to the best of my knowledge, skill and ability. 9 <u>Court Reporter</u> 10 11 SPECIALIZING IN. DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS 12 209 SIMMS BLDG., P.O. 80X 1392. PHONE 243.6691. ALBUQUERQUE, NEW MEXICO 87103 FIRST NATIONAL HANK BLDG. EAST ALBUQUERQUE, NEW MEXICO 87108 13 14 15 16 17 18 19 20 21 22 I do provide exercities that the descenter in 21 đ. 23 1.14 21.  $\{ e_i \}_{i=1}^{n}$ 24 Y WARD ×C Æ in Balon but immorantice ALCONING OF 25



STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING

August 26, 1982

POST OFFICE BOX 2008 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 Jorry - will return eall.

Southland Royalty Company



July 26, 1982



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

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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,

J.M. Hartin

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

Gradient .458 Rate B.W.P.D. P.S.I.G. Center Perfs. Cum. Hrs. & Min. W.H.D.W. Pres. S.I. 00 Hrs. 00 Min. 2008 Gauge @ 2758' S.I. 2008 Start Pump 2067 Rate 1 2177 End Rate 1 2190 Rate 2 .757 2251 End Rate 2 2268 Rate 3 2300 End Rate 3 2317 Rate 4 2339 End Rate 4 2352 Rate 5 2372 End Rate 5 2382 Rate 6 9?0 2401 End Rate 6 2418 Rate 7 2427 End Rate 7 2434 Rate 8 

2457 End Rate 8

2479 End Rate 9

جورا بالانتفاء المتعاد

2463 Rate 9

um, Hrs. & Min.	W.H.D.W. Pres.	Rate B.W.P.D.	P.S.I.G. Center Perfs
02 Hrs. 45 Min.	1080	1377	2486 Rate 10
02 50	1090	1380	2489
92 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
30 30	1149	1669	2551 Rate 13
3 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.

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(Page 2 of 2)





DEAD WEIGHT P.SI.C. (WELLHEAD)

KOE 20 X 20 TO THE INCH + 7 X 10 INCHES KEUFFEL & ESSER CO. MILEIN 054



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KOE 20 X 20 TO THE INCH . 7 X 40 INCHES KEUFFEL & ESSER CO. WAGE COURS &

PERFS

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PS/C @

RATE (BWPD)



## STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

BRUCE KING GUVERNOR LARRY KEHOE SECRETARY

POST OFFICE BOX 2088 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

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cc: Bill Gressett Prentiss Childs Case Filc

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CASE 4522: SOUTHEASTERN NEW MEXICO NOMENCLATURE