

CASE 3034: Application of SHELL
for a waterflood project in the
Langlie-Mattix Pool, Lea County.

CASE NO.

3034

Application,

TRANSCRIPTS,

SMALL Exhibits

ETC.

SHELL OIL COMPANY
PROPOSED WATERFLOOD IN THE LANGLEIE MATTHEX FIELD
INJECTION WELL DETAIL

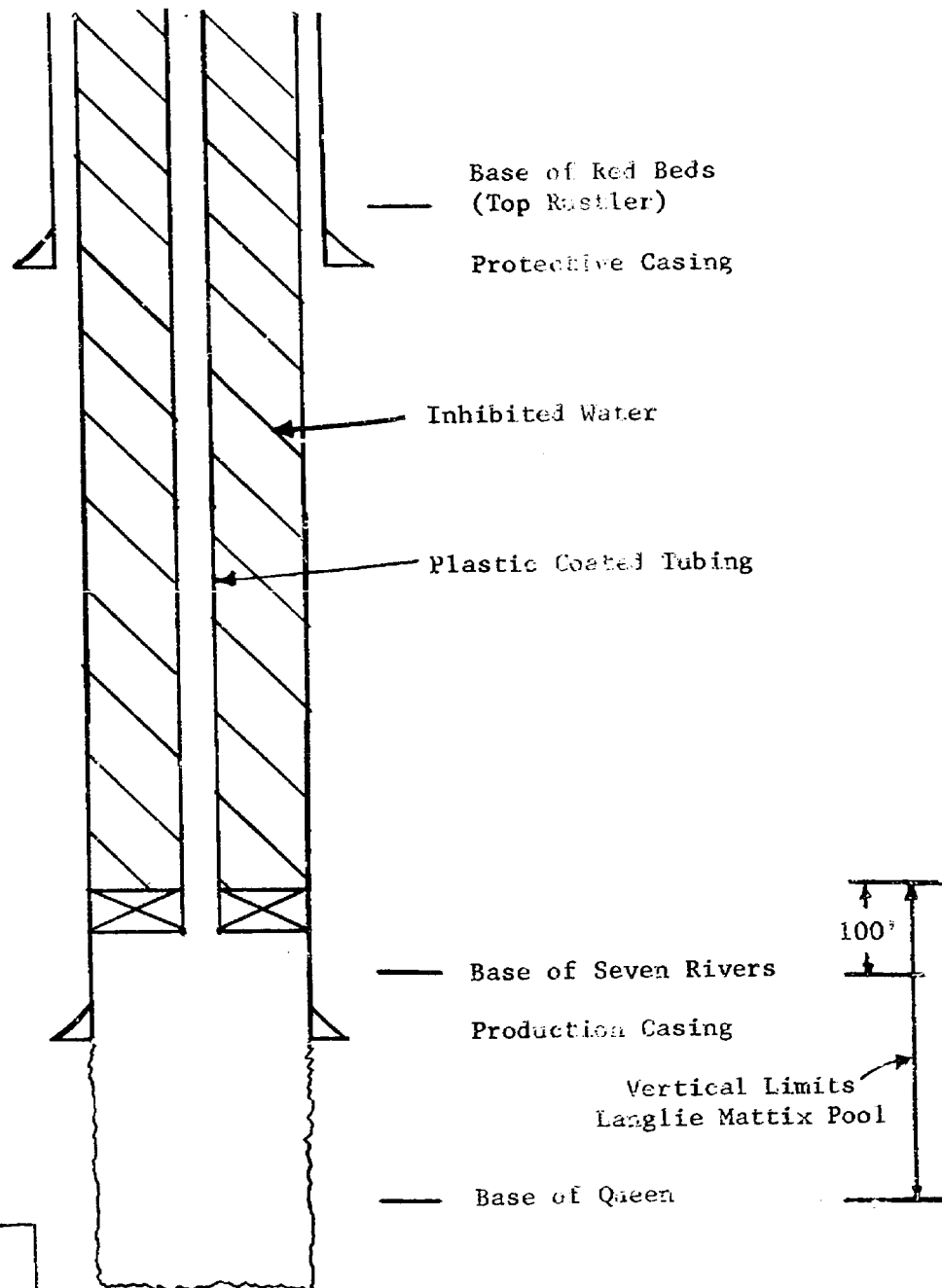
Injection Well	Location Unit-S-T-R	Distance Feet	Casing Detail(1)				ID	PBTD(3)	Vertical Limit(4) Langlie Mattix	
			Size In.	Depth Ft.	Cmt. Sz.	Est. Cmt. Top(2)			Top (100' above 7 Rivers Base)	Bottom (Base of the Queen)
Shell Gulf Lillie 2	E-23-24-37	1980 FNL 660 FWL	12 1/2 8 5/8 7	152 1350 3344	50 100 150	 480 1244	3517	3400	3043	3400
Shell Gulf Lillie 3	C-23-24-37	660 FNL 1980 FWL	8 5/8 7	1120 3341	100 150	250 1241	3550	3550	3130*	3490*
Shell Humble Knight 1	M-14-24-37	660 FSL 660 FWL	15 1/2 8 5/8 7	123 1365 3361	50 100 150	 495 1261	3517	3517	3107	3457
Shell Humble Knight 3	G-23-24-37	1980 FNL 1980 FEL	8 5/8 7	1460 3328	100 150	590 1228	3615	3615	3175	3555
Shell Humble Knight 6	O-23-24-37	660 FSL 1980 FEL	8 5/8 7	1140 3250	100 150	270 1150	3502	3502	3118	3483
Shell Humble Knight 8	I-23-24-37	1650 FSL 990 FWL	7 5 1/2	1350 3256	100 100	0 2056	3560	3480	3224	3584
Shell Humble Knight 10	O-14-24-37	330 FSL 2310 FEL	8 5/8 4 1/2	635 3258	225 100	Circ. 2558	3482	3482	3263	3628
Shell JAE Knight 6	K-14-24-37	1980 FSL 1980 FWL	8 5/8 7	1365 3363	100 150	495 1263	3600	3563	3243	3603
Shell Plains Knight 1	K-23-24-37	1980 FSL 1980 FWL	8 5/8 7	1200 3230	100 150	330 1130	3586	3586	3087	3445

- (1) The base of the Red Beds in this area is between 900 and 1000 feet.
 (2) Based on gauge hole.
 (3) Five injection wells are open below the base of the Queen into the Grayburg.
 The Grayburg, however, is not productive and has no field designation in this area.
 (4) ES and/or Radioactive logs are available on only 3 injection wells. Vertical limits
 on other wells are estimated from nearby wells and driller's sample description.

Case #3034
Exhibit II

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 6
 CASE NO. 3034

SHELL OIL COMPANY
 PROPOSED WATERFLOOD
 LANGLIE MATTIX FIELD
 LEA COUNTY, NEW MEXICO
 DIAGRAMMATIC SKETCH OF TYPICAL INJECTION WELL



BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 A. EXHIBIT NO. 45
 CASE NO. 3034

Exhibit V
 Case # 3034

DRAFT
JMD/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. 3034

Order No. R-3635

APPLICATION OF SHELL OIL COMPANY
FOR A WATERFLOOD PROJECT, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
April 29, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.
~~Examiner duly appointed by the Oil Conservation Commission of New~~
~~Mexico, hereinafter referred to as the "Commission," in accordance~~
~~with Rule 1214 of the Commission Rules and Regulations.~~

NOW, on this _____ day of May, 1964, the Commission,
a quorum being present, having considered the ~~appreciation of the~~ testimony,
the record, ~~evidence adduced~~ 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, Shell Oil Company, seeks authority
to institute a waterflood project in the Langlie-Mattix Pool by the
injection of water into the Queen ~~and Grayburg~~ formations through
nine wells in Sections 14 and 23, Township 24 South, Range 37 East,
NMPM, Lea County, New Mexico.

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

(4) That the proposed waterflood project is in the interest
of conservation and should result in recovery of otherwise unrecov-
erable oil, thereby preventing waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rule 701 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen ~~and Gray~~ ~~being~~ formations through the following-described nine wells in Township 24 South, Range 37 East, NMPM, Lea County, New Mexico:

Well	Unit	Section
Shell-JAE Knight Well No. 6	K	14
Shell-Humble Knight Well No. 1	M	14
Shell-Humble Knight Well No. 10	O	14
Shell-Gulf Lillie Well No. 3	C	23
Shell-Gulf Lillie Well No. 2	E	23
Shell-Humble Knight Well No. 3	G	23
Shell-Humble Knight Well No. 8	I	23
Shell-Plains Knight Well No. 1	K	23
Shell-Humble Knight Well No. 6	O	23

(2) That the subject waterflood project shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 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.

Provided, however, that any of the aforesaid wells which is completed ~~at~~ below the base of the Queen formation shall be plugged back to the base of the Queen formation upon conversion to water injection.

GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission



P. O. BOX 87
SANTA FE

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER

17
42
34
68
714

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

*This does not include
the Shree Humbler Knight
Well No. 9 in Unit H of
Section 23. If this well
is restored to production,
the above maximum would
be increased by 42.*

Mr. Richard S. Morris
Seth, Montgomery, Federici & Andrews, 19
Post Office Box 2307
Santa Fe, New Mexico

Gentlemen:

Enclosed herewith is Commission Order No. R- 2698, entered in Case
No. 3034, approving the Shree Oil Company Roughed Mattie
Water Flood Project.

According to our calculations, 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 714 barrels per day.

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,

cc: OCC - Hobbs
oee:--@

A. L. PORTER, Jr.
Secretary-Director



MAIN OFFICE 200
1964 APR 15
STATE OF NEW MEXICO
STATE ENGINEER OFFICE
SANTA FE

S. E. REYNOLDS
STATE ENGINEER

April 16, 1964

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

Case 3034

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Shell Oil Company which seeks approval of a water flood project in the Langlie Mattix Pool in Sections 14 and 23, T. 24 S., R. 37 E. Attached to the application is a diagrammatic sketch of typical injection well which shows that injection will be down plastic coated tubing under a packer and the annular space between the tubing and the casing will be filled with inhibited water. This office offers no objection to the granting of the subject application, provided the packer on the lower end of the tubing is set well below the cement surrounding the casing and further provided that the plastic coating of the tubing is inside the tubing.

Very truly yours,

S. E. Reynolds
State Engineer

FEI/ma
cc-Shell Oil Co.
Seth, Montgomery, Federici &
Andrews

By: *Frank E. Irby*
Frank E. Irby
Chief
Water Rights Div.

3034

SHELL OIL COMPANY
PROPOSED WATERFLOOD IN THE LANGLE MATIEX FIELD
INJECTION WELL DETAIL

Injection Well	Location Unit-S-T-R	Distance Feet	Casing Detail(1)				TD	PBTD(3)	Vertical Limit(4) Langlie Mattix	
			Size In.	Depth Ft.	Cmt. Sz.	Est. Cmt. Top(2)			Top (100' above 7 Rivers Base)	Bottom (Base of the Queen)
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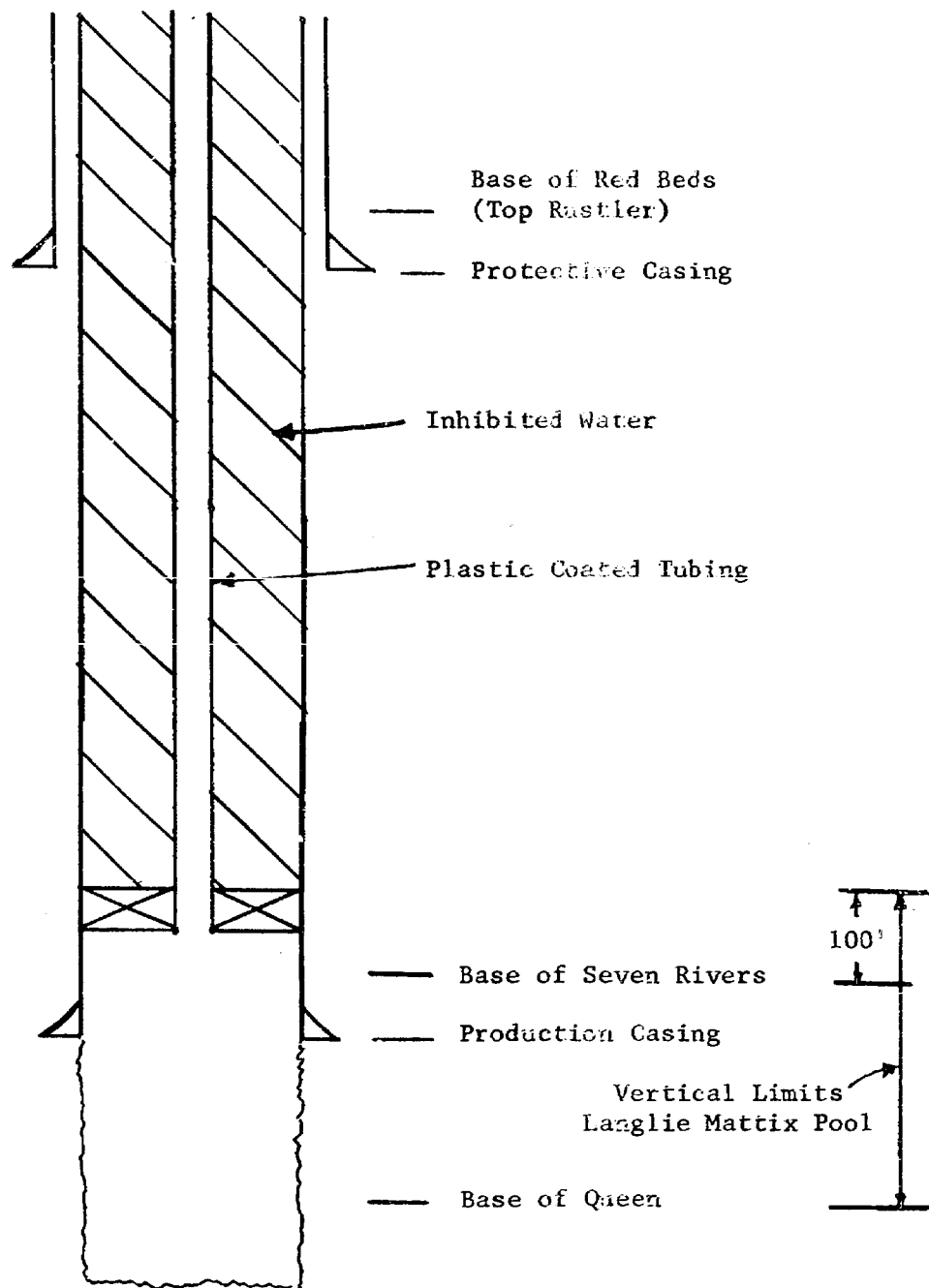
(1) The base of the Red Beds in this area is between 900 and 1000 feet.

(2) Based on gauge hole.

(3) Five injection wells are open below the base of the Queen into the Grayburg.
The Grayburg, however, is not productive and has no field designation in this area.

(4) ES and/or Radioactive logs are available on only 3 injection wells. Vertical limits
on other wells are estimated from nearby wells and driller's sample description.

SHELL OIL COMPANY
PROPOSED WATERFLOOD
LANGLIE MATTIX FIELD
LEA COUNTY, NEW MEXICO
DIAGRAMMATIC SKETCH OF TYPICAL INJECTION WELL



Case 3034

Heard 4-29-64

Rec. 4-30-64

1. Grant Shell permission to waterflood their Langlie Matter waterflood #1 consisting

of ~~Sec. 14~~ 24S 37E,

Sec. 14, SW/4, W/2 SE/4,

- 23, N/2 SE/4, E/2 SW/4, NWSW/4

2. Grant permission to inject water in the wells listed on this Exhibit #6 attached.

3. Manual waterflood order otherwise.

— Shust W

HIGH OFFICE DEC

1964 APR 6 PM 1:49

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF SHELL OIL COMPANY }
FOR APPROVAL OF A WATER FLOOD }
PROJECT, LEA COUNTY, NEW MEXICO }

Case No. 3034

A P P L I C A T I O N

Comes now Shell Oil Company and applies to the New Mexico Oil Conservation Commission for approval of a water flood project in the Langlie-Mattix Pool, Lea County, New Mexico, and in support of its application states:

1. Shell Oil Company is the owner and operator of the SW $\frac{1}{4}$ and the W $\frac{1}{2}$ SE $\frac{1}{4}$ of Section ¹⁴12, and of all of Section 23, except the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 23, T.24S., R.37E., Lea County, New Mexico.

2. Said properties are presently developed in the Langlie-Mattix Pool by 18 wells, 14 of which are presently producing, 3 of which are temporarily abandoned, and one of which is a dry hole.

3. Shell Oil Company proposes to institute a water flood project on said properties by the conversion of 9 wells located thereon to water injection; the location of said wells is as shown on the plat and tabulation attached to and made a part of this application.

4. The average daily rate of injection of water into each of said injection wells will vary between 300 and 350 barrels; the total water requirement for the project is estimated to be four million barrels.

5. Attached to and made a part of this application is a diagrammatic sketch of a typical injection well for this project.

6. The wells on said property to be included in the

*Deck Memo
Called in this
Correction
4/6/64
JR*

water flood project all have reached an advanced state of depletion and are properly to be considered "stripper" wells.

7. Approval of the subject application will prevent waste and protect correlative rights.

WHEREOFRE, Shell Oil Company requests that this application be set for hearing before the Commission, or one of its Examiners, and that an order be entered approving this application.

SETH, MONTGOMERY, FEDERICI & ANDREWS

By Richard S. Morris

P. O. Box 2307
Santa Fe, New Mexico

Attorneys for Shell Oil Company

DOCKET MAILED

Date 4-17-64
JL

- CASE 3034: Application of Shell Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen and Grayburg formations through nine wells in Sections 14 and 23, Township 24 South, Range 37 East, Lea County, New Mexico.
- CASE 3035: Application of Shell Oil Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the S/2 of Section 22, Township 21 South, Range 37 East, Tubb Gas Pool, Lea County, New Mexico, to be dedicated to its Turner Well No. 2, located in Unit L of said Section 22.
- CASE 3036: Application of Curtis J. Little for a pressure maintenance project, San Juan, County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in the Gallup formation underlying its Navajo Indian Lease in Sections 21, 22, 27 and 28, Township 32 North, Range 17 West, Many Rocks Gallup Oil Pool, San Juan County, New Mexico. Initial injection will be through three wells located in Units D and O of Section 27 and Unit I of Section 28. Applicant further seeks the promulgation of special rules governing the operation of said project.

Docket No. 12-64

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 29, 1964

ROOM: 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 3015 (Continued from the March 25, 1964 Examiner Hearing):

Application of Lone Star Producing Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Atlantic State Well No. 1 located in Unit G of Section 30, Township 17 South, Range 36 East, Lea County, New Mexico, to produce oil from an undesignated San Andres Pool and from undesignated Abo Detritus through parallel strings of 2-3/8 inch tubing.

CASE 3024 (Continued from the April 8, 1964 Examiner Hearing):

Application of Deane H. Stoltz for approval of a non-standard unit, a dual completion, and commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard 80-acre unit in the North Bagley-Wolfcamp Pool comprising the SW/4 NE/4 and NW/4 SE/4 of Section 22, Township 11 South, Range 33 East, Lea County, New Mexico, approval of the dual completion (conventional) of its Deane H. Stoltz State 262 Well No. 1, located in Unit G of said Section 22, to produce oil from the North Bagley-Wolfcamp Pool through 1 1/4-inch tubing and to produce oil from the North Bagley-Upper Pennsylvanian Pool through the casing-tubing annulus by means of a hydraulic pump and authority to commingle production from the North Bagley-Wolfcamp and North Bagley-Pennsylvanian Pools into a common tank battery, computing production from the North Bagley-Upper Pennsylvanian Pool by the subtraction method.

CASE 3016 (Continued from the March 25, 1964 Examiner Hearing):

Application of Texaco, Inc. for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special pool rules, including a provision for 80-acre proration units, for the Vacuum Upper-Pennsylvanian Pool in Sections 25 and 36, Township 17 South, Range 34 East, Lea County, New Mexico.

CASE 3031: Application of Continental Oil Company to revise the vertical limits of the Blinebry Oil Pool and Terry Blinebry Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order extending the vertical limits of the Blinebry Oil Pool and Terry Blinebry Pool to encompass all of the Blinebry formation, Lea County, New Mexico.

CASE 3032: Application of Robert G. Hanagan for force-pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Indian Hills-Upper Pennsylvanian Gas Pool underlying all of Section 32, Township 21 South, Range 24 East, Eddy County, New Mexico.

CASE 3033: Application of Cherry Brothers and Cabot Corporation for the creation of a new oil pool and for special temporary pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Lower Wolfcamp production for its Austin State Well No. 1, located in Unit F of Section 19, Township 14 South, Range 36 East, Lea County, New Mexico, and for the establishment of temporary pool rules therefor, including a provision for 80-acre oil proration units.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

File

May 8, 1964

C
O
P
Y

Mr. Richard S. Morris
Seth, Montgomery, Federici & Andrews
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Dear Mr. Morris:

Enclosed herewith is Commission Order No. R-2698, entered in Case No. 3034, approving the Shell Oil Company Langlie Mattix Waterflood Project.

According to our calculations, 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 714 barrels per day. This does not include the Shell Humble Knight Well No. 9 in Unit H of Section 23. If this well is restored to production, the above maximum would be increased by 42.

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 871
SANTA FE, NEW MEXICO

-2-

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

ALP/lr

cc: Oil Conservation Commission
Hobbs, New Mexico

C
O
P
Y

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. 3034
Order No. R-2698

APPLICATION OF SHELL OIL COMPANY
FOR A WATERFLOOD PROJECT, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 29, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 8th day of May, 1964, 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, Shell Oil Company, seeks authority to institute a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through nine wells in Sections 14 and 23, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

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

(4) That the proposed waterflood project is in the interest of conservation and should result in recovery of otherwise unrecoverable oil, thereby preventing waste.

-2-

CASE No. 3034

Order No. R-2698

(5) That the subject application should be approved and the project should be governed by the provisions of Rule 701 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through the following-described nine wells in Township 24 South, Range 37 East, NMPM, Lea County, New Mexico:

Well	Unit	Section
Shell-JAE Knight Well No. 6	K	14
Shell-Humble Knight Well No. 1	M	14
Shell-Humble Knight Well No. 10	O	14
Shell-Gulf Lillie Well No. 3	C	23
Shell-Gulf Lillie Well No. 2	E	23
Shell-Humble Knight Well No. 3	G	23
Shell-Humble Knight Well No. 8	I	23
Shell-Plains Knight Well No. 1	K	23
Shell-Humble Knight Well No. 6	O	23

PROVIDED HOWEVER, That any of the aforesaid wells which is completed below the base of the Queen formation shall be plugged back to the base of the Queen formation upon conversion to water injection.

(2) That the subject waterflood project shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 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.

-3-

CASE No. 3024

Order No. R-2698

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M Campbell

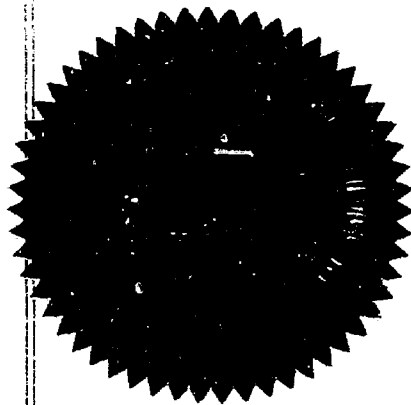
JACK M. CAMPBELL, Chairman

E. S. Walker

E. S. WALKER, Member

A. L. Porter, Jr.

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



esr/

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1162

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

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

APRIL 29, 1964

EXAMINER HEARING

IN THE MATTER OF: Application of Shell Oil
Company for a waterflood project, Lea County,
New Mexico

Case No. 3034

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The Hearing will come to order. We will
call Case Number 3034.

MR. MORRIS: I would like to have these Exhibits
marked for identification as Applicant's Exhibits Numbers One
through Nine.

(Whereupon, Applicant's Exhibits
one through nine marked for
identification.)



DEARNLEY-MEIER REPORTING SERVICE, Inc.

ALBUQUERQUE, N. M.
PHONE 243-6691

MR. MORRIS: If the Examiner please, I am Richard Morris, Avenue 15, Santa Fe, New Mexico, appearing on behalf of the Applicant, Shell Oil Company. I have one witness in this case. He is Mr. Don McCourt.

MR. UTZ: The Witness will be sworn in.

(Witness sworn.)

MR. UTZ: You may proceed. Are there other appearances in this case?

DIRECT EXAMINATION

BY MR. MORRIS:

Q Please state your name and position?

A My name is Donald B. McCourt. I am an Exploitation Engineer with Shell Oil Company.

MR. UTZ: That's M-c-C-o-r-t?

A M-c-C-o-u-r-t.

Q (By Mr. Morris) Where are you employed, Mr. McCourt?

A Roswell, New Mexico.

Q Have you previously testified before the Commission or one of its Examiners?

A No, sir.

Q Then would you briefly outline your education and experience in the oil business?

A I am a graduate of Oklahoma University with a Bachelor of Science Degree in Petroleum Engineering, and I have had five



DEARNLEY-MEIER REPORTING SERVICE, Inc.

ALBUQUERQUE, N. M.
PHONE 243-6691

years of experience with Shell Oil Company in West Texas and New Mexico.

Q Are you familiar with the Application of Shell Oil Company in this case?

A Yes, I am.

Q What is it that Shell seeks in this case?

A We seek approval to conduct a waterflood in the Langlie-Mattix Field on Shell acreage in Section 14 and 23, Township 24 South, Range 37 East, Lea County, New Mexico.

Q Referring now, Mr. McCourt, to what has been marked Exhibit Number One in this case, would you state what that is and what it shows?

A Exhibit One is a Plat of the area and on Exhibit One the area outlined in red is the 840 acres which we seek to waterflood. This acreage is 100 percent Shell acreage. The injection wells are connected by pencil lines showing a standard eighty eight and five spot pattern. The green lines are traces of cross sections which will be presented later in the testimony. The surrounding wells are identified as to producing formations. The leases in the area are also identified.

Q In the area outlined in red, what is the ownership of the working interest?

A One hundred percent Shell working interest.

Q Do you have a structure map of this area, Mr. McCourt,



showing the sub-structure face geology of the area?

A Yes, I have. Exhibit Two of the structure map contoured on the top of the Queen from the available well control in the area. It shows the steeply dipping east flank of the Langlie-Mattix Pool, and up structure the oil accumulation is limited by lack of sand deposition or gas cap, down structure of the accumulation is limited by porosity and permeability pinch out.

Q Referring, now, to what has been marked as Exhibit Three and Four, which are your cross sections, would you please explain what they show.

A Exhibits Three and Four are north south and east west cross sections through the area. Shown on the cross sections are the two hundred and sixty feet, and one hundred and fifty to one hundred sixty foot Penrose interval which we believe is the oil zone.

On the left hand margin of the cross section is marked the Commission's vertical limits of the Langlie-Mattix Pool, defined as one hundred feet above the base of the Seven Rivers to the base of the Queen. All the wells on the subject acreage produce from the Langlie-Mattix Pool. I would further like to point out on these sections that most of these logs were run subsequent to the completion of the wells and that the neutron portion of the log is probably reflecting the hole size.

Which was increased by nitroglycerin being shot off in the



hole, rather than reflecting porosity.

Q Go ahead.

A I was going to mention that lithology. The pay area is in thin beds of quartz sand separated by dolomite stringers and that the completion is solution gas and with probably, some additional help from gascap expansion. Gravity of the crude is 37 degrees API. The last measured static, bottom hole pressure was two hundred and seventy three PSI measured in Shell-Gulf Langlie Number Two in October of '62.

Q Mr. McCourt, would you outline for us the development of this pool and give us what you have in the way of production, history on these properties?

A The large development over these properties was done between 1941 and 1947 by various independent oil operators using cable tool drilling rigs. The standard technique was to drill to the top of the Queen and into it away and set pipe. Drill out to the top of the Grayburg and complete the interval in the open hole with nitroglycerin.

Q What do you have in the way of production history?

A It's cumulative oil production from the 18 wells on the production is six hundred and forty three thousand barrels per well. The wells are in the advance stripper stage, the average production being only about two barrels per day.

Q That is at the present time?



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A That is at the present time.

Q Based on this data that you have presented Mr. McCourt, is it your opinion that the area is ripe for waterflooding?

A Yes.

Q What are your plans in that regard?

A As I mentioned earlier on Exhibit One, we show our plan eighty eight five spot pattern in which we will inject water into nine of the 18 total wells shown on the Plat. I will refer to Exhibit Five which is a diagramatic sketch of the typical injection well. We plan on injecting water into the open hole. Putting an injection volume of initially about 300 to 350 barrels per injection well per day, or about three thousand barrels per day total. We further estimate that about 400 barrels of water will be required for the property.

Q Has this proposal been taken up by the office of the State Engineer and have they given consideration to your proposed mechanical installations in your injection wells and various other matters concerned with the water sources --

A They have.

Q -- to be used?

A And they have no objections.

Q What is the source of water that you expect to use for this project?

A We plan on drilling water wells somewhere in the northwest



Quarter of Section 23, for about 1,150 feet, and produce water from the Russler information for a waterflood. If this supply is inadequate, we will probably test the Santa Rosa, which is about six hundred feet deep. Both these supplies are used in the immediate area. If you look at Exhibit One for a moment, George Buckles Company is using it one mile west to a waterflood, 160-acre lease that he has. And the Entrado Company is using the Santa Rosa water about a mile and a half Southwest, so that we know that both of these formations are potential water sources for our waterflood.

Q Getting back Mr. McCourt to the injection wells that we propose to the project and referring to Exhibit Six, what does that Exhibit show?

A Exhibit Six is a list of the injection wells and the pertinent detail on each one being the location, the size of the casing, the depth to which the casing is set, the total depth of the well, plug back total back of the well and the estimated point at which the vertical limits of the Langlie-Mattix Pool intersects each of the wells.

Q We have outlined what your proposal is with respect to this waterflood project. What benefits do you anticipate from this project?

A We anticipate recovery of the additional water in paying quantities otherwise unrecoverable by natural deflection.



Q Expressed as a percentage of the amount of oil that has been produced on primary at this time and as far as you can see what do you expect to recover on secondary?

A We expect to recover approximately an equal amount of oil on secondary as was recovered on primary.

Q In your opinion, Mr. McCourt, will approval of this application and institution of this water flood project prevent waste and at the same time protect correlative rights?

A Yes.

MR. MORRIS: We offer Exhibits One through Six and that will complete the Direct Examination of Mr. McCourt.

MR. UTZ: Without objection, Exhibits One through Six will be entered in the record of this case.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. McCourt, this tubing you intend to use, it is entirely plastic coated; is it not?

A That's correct.

Q Now, in relation to the top of the cement, your estimated top of the cement on your 7-H, where do you intend to set the packer?

A We will set the packer very close to the bottom of the pipe.

Q So it will be set well below the top of the cement?



A That's correct.

Q And you will fill the casing, tubing. Will you put a gauge on the surface to detect any change in the position of the water?

A Yes, sir.

MR. UTZ: Are there any other questions of the witness?

MR. MORRIS: I have one further question.

REDIRECT EXAMINATION

BY MR. MORRIS:

Q Do you have logs on any of the wells in this area, Mr. McCourt?

A We have logs on three of the injection wells which are offered as Exhibits Seven A, B, and C, I believe.

Q That's correct.

A And those are the only logged wells that we have, other than the wells that are on the cross sections. There are some wells on the cross sections which are not mer producing wells, and so I am not including extra copies of those. I have only furnished the logs on the injection wells that were available.

MR. MORRIS: We offer Exhibit Seven A, B, and C.

MR. UTZ: Without objection, the Exhibits Seven A, B, and C will be admitted into the record. Any other questions?

(Whereupon, Applicant's Exhibits Seven A, B, and C were admitted into evidence.)



MR. UTZ: The witness may be excused.

This case will be taken under advisement.

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, CHARLES FLOYD WALKER, Notary Public 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.

WITNESS my Hand and Seal of Office, this 29th day of June, 1964.

Charles Floyd Walker
NOTARY PUBLIC

My Commission Expires;
June 29, 1964.

I do hereby certify that the foregoing is a complete and true copy of the proceedings in this case, No. 3034, held by me on June 29, 1964.
[Signature]
Examiner
New Mexico Oil Conservation Commission

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I N D E X

<u>WITNESS</u>	<u>PAGE</u>
DON McCOURT	
Direct Examination by Mr. Morris	2
Cross Examination by Mr. Utz	8
Redirect Examination by Mr. Morris	9

E X H I B I T S

<u>NUMBER</u>	<u>MARKED FOR IDENTIFICATION</u>	<u>OFFERED</u>	<u>ADMITTED</u>
"1" through "6"	3	8	8

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