

SW

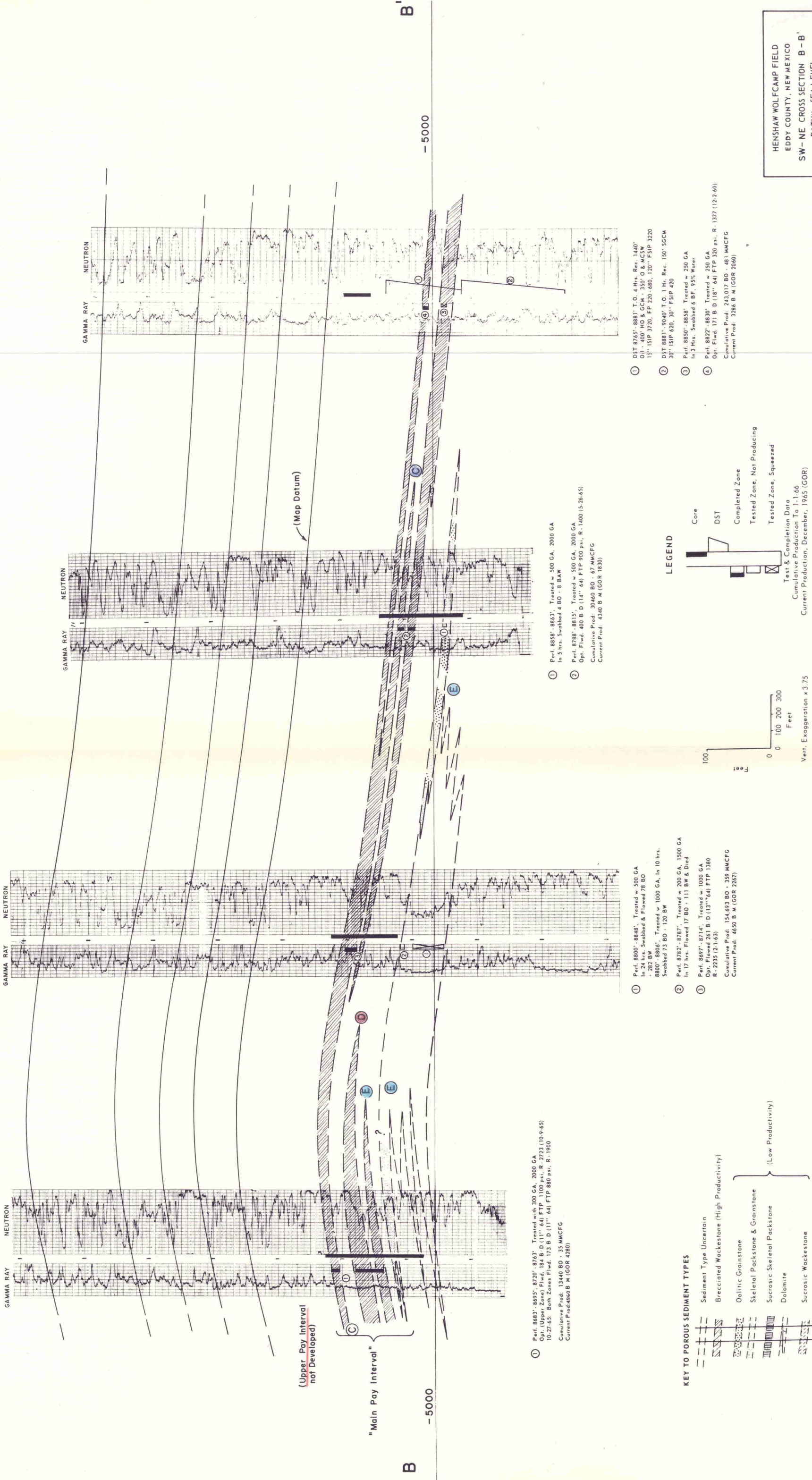
SHELL  
HENSHAW DEEP UNIT 13  
ELEV. 3844'

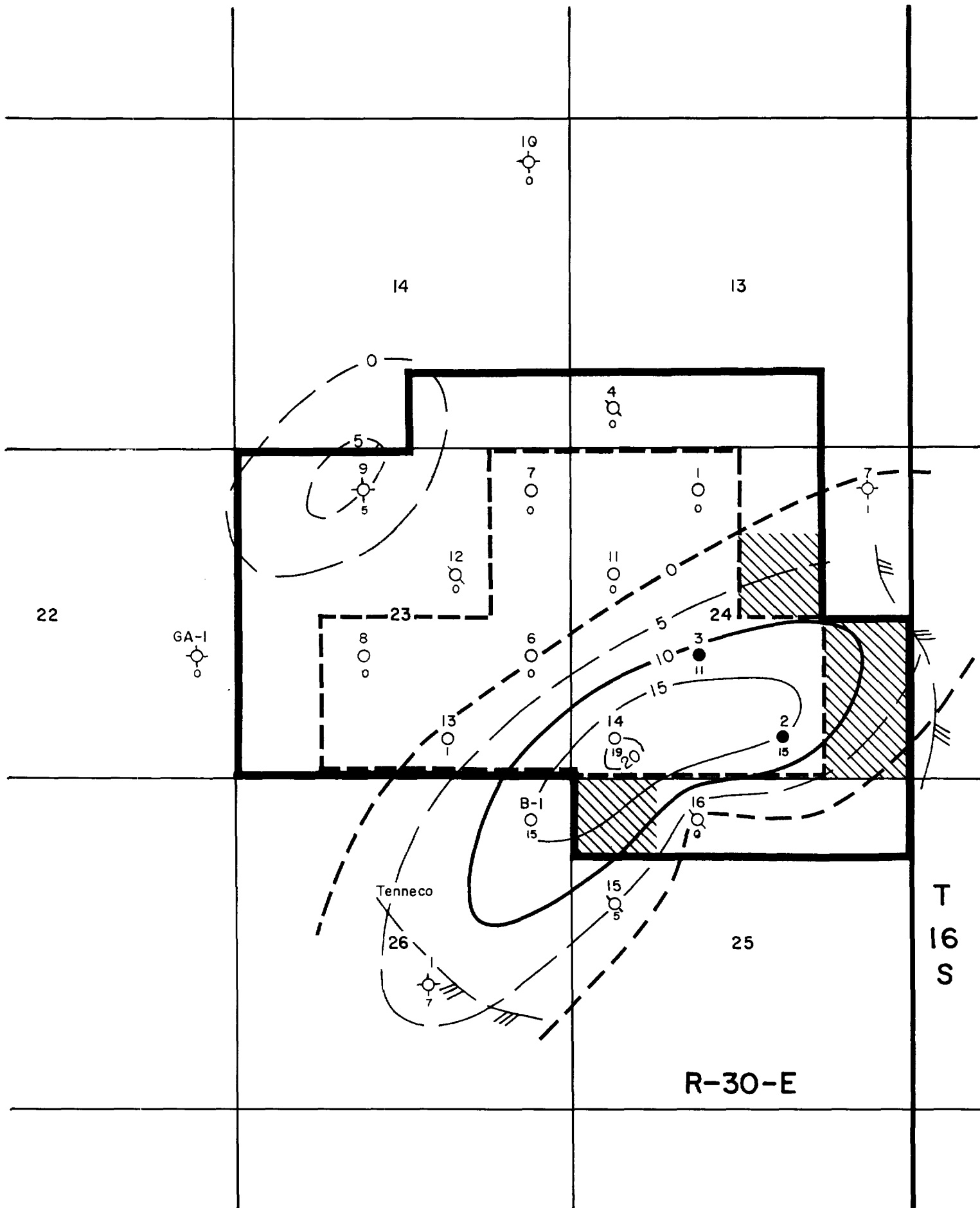
SHELL  
HENSHAW DEEP UNIT 6  
ELEV. 3833'

SHELL  
HENSHAW DEEP UNIT 11  
ELEV. 3842'

SHELL  
HENSHAW DEEP UNIT 1  
ELEV. 3836'

NE





# LEGEND

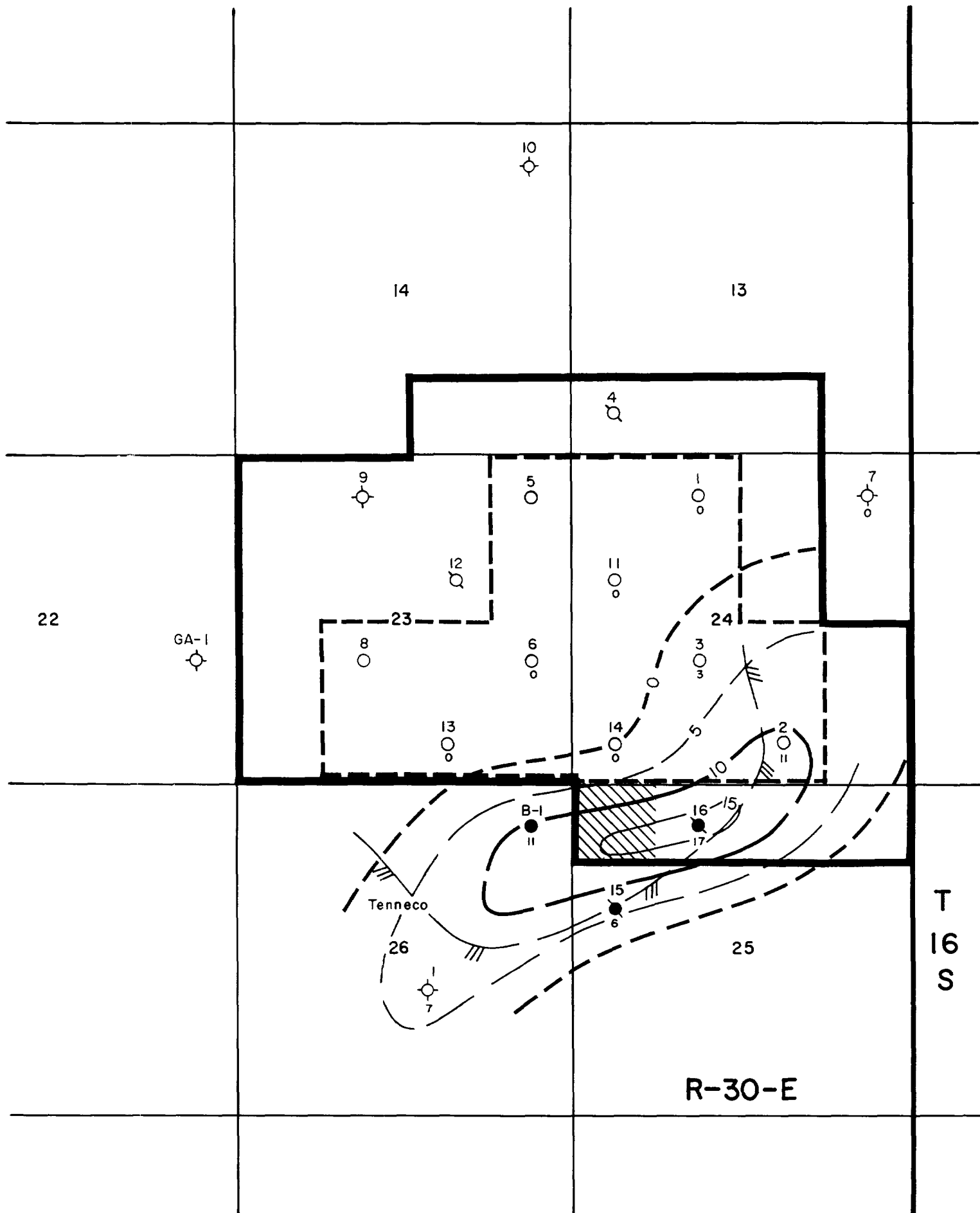
- PRORATED PRODUCTIVE AREA
- BOUNDARY OF PARTICIPATING AREA ESTABLISHED BY FOURTH ENLARGEMENT
- AREA ENTITLED TO PARTICIPATION BASIS GEOLOGICAL CONTROL
- WELL PERFORATED IN ZONE

EXHIBIT NO. 5

## HENSHAW WOLFCAMP FIELD ISOPACH MAP

TOTAL POROSITY DEVELOPMENT  
IN UPPER PAY INTERVAL

C.I. 5 FEET  
SCALE: 1" = 2000'



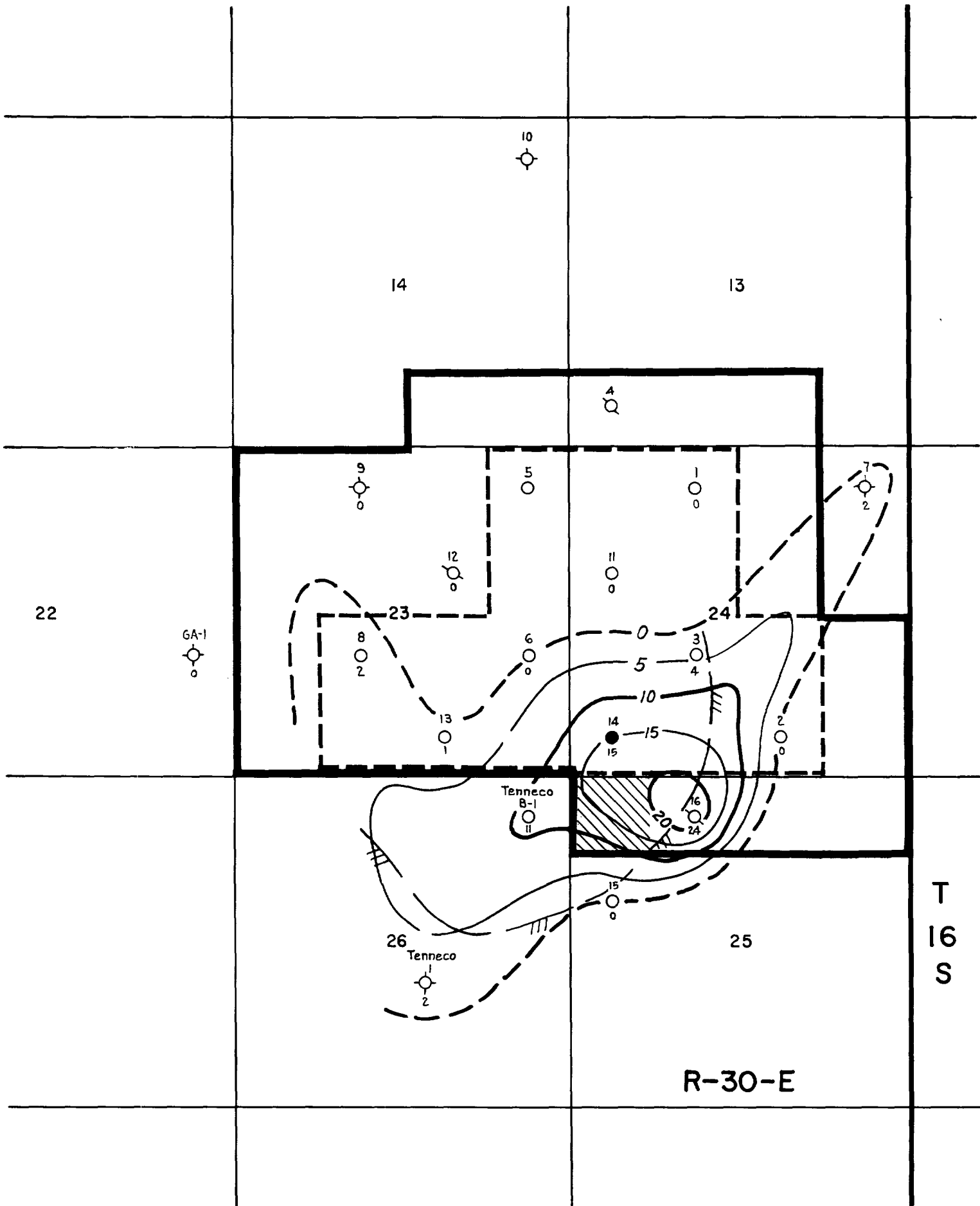
# LEGEND

- PRORATED PRODUCTIVE AREA
- BOUNDARY OF PARTICIPATING AREA ESTABLISHED BY FOURTH ENLARGEMENT
- ▨ AREA ENTITLED TO PARTICIPATION BASIS GEOLOGICAL CONTROL
- WELL PERFORATED IN ZONE

## EXHIBIT NO.6 HENSHAW WOLFCAMP FIELD ISOPACH MAP

"A" ZONE DEVELOPMENT

C.I. 5 FEET  
SCALE: 1" = 2000'



# LEGEND

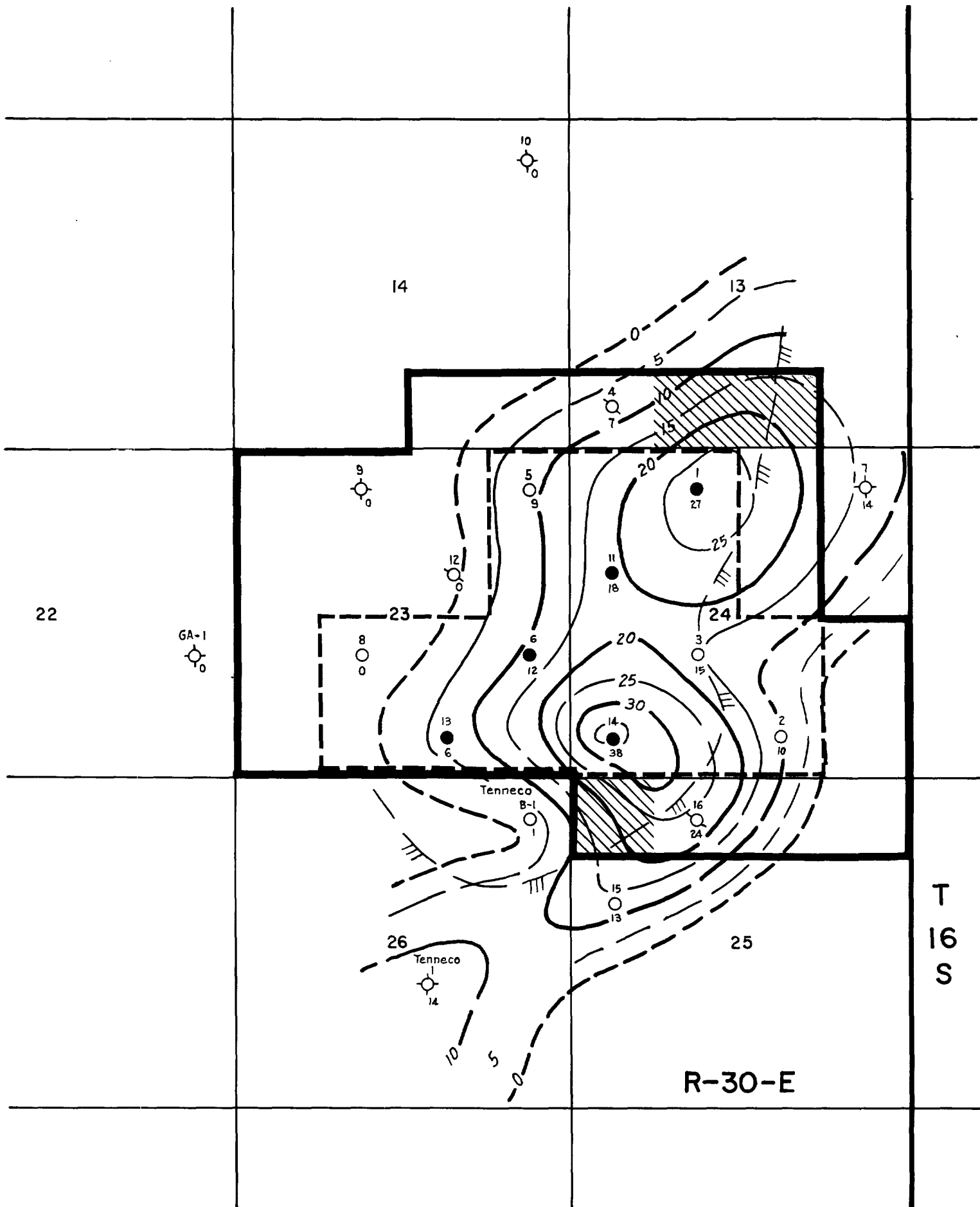
- PRORATED PRODUCTIVE AREA
- BOUNDARY OF PARTICIPATING AREA ESTABLISHED BY FOURTH ENLARGEMENT
- ▨ AREA ENTITLED TO PARTICIPATION BASIS GEOLOGICAL CONTROL
- WELL PERFORATED IN ZONE

EXHIBIT NO.7

## HENSHAW WOLFCAMP FIELD ISOPACH MAP

"B" ZONE POROSITY DEVELOPMENT  
(DOLOMITIC ZONE)

C.I. 5 FEET  
SCALE: 1"=2000'



# LEGEND

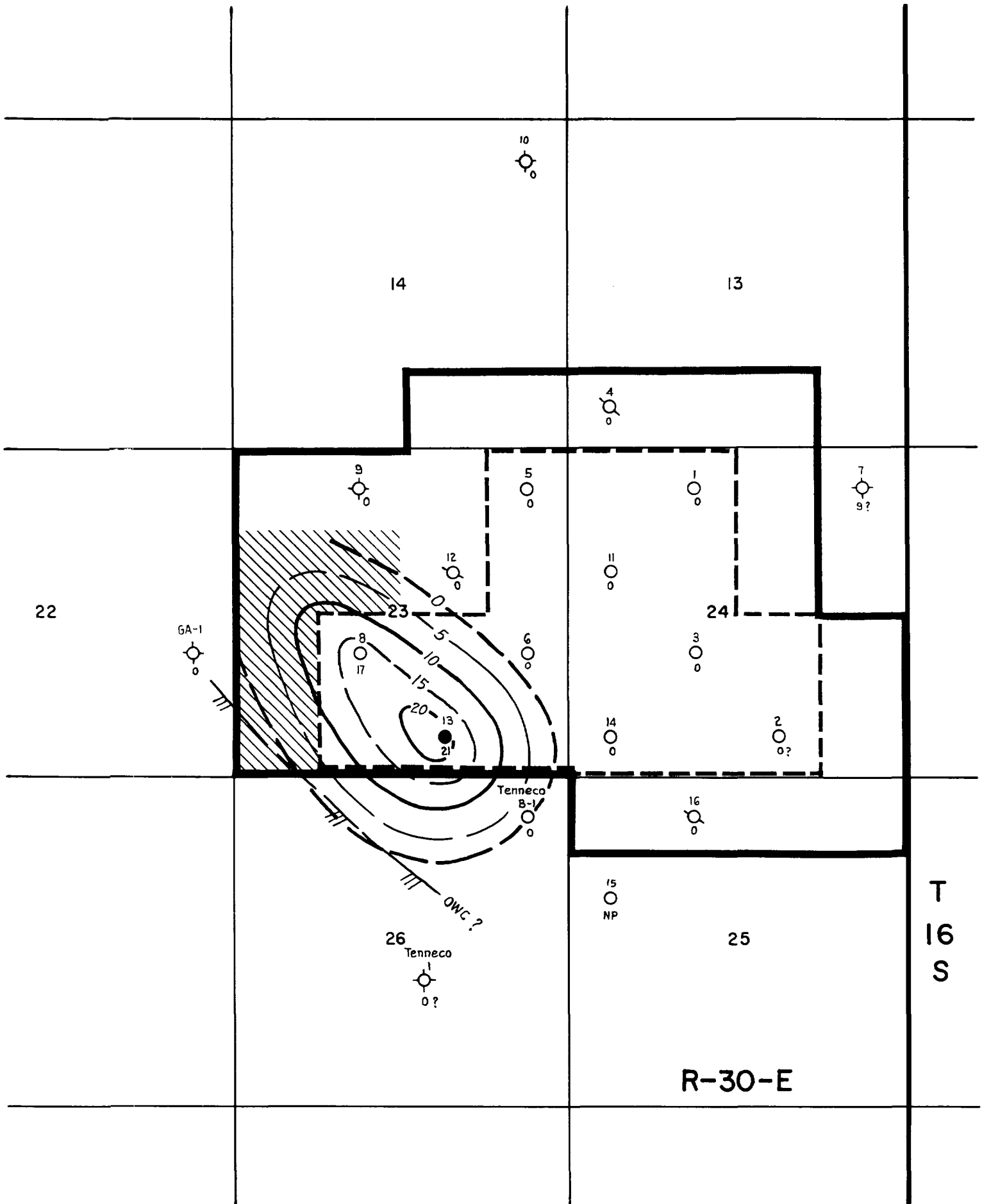
- PRORATED PRODUCTIVE AREA
- BOUNDARY OF PARTICIPATING AREA ESTABLISHED BY FOURTH ENLARGEMENT
- AREA ENTITLED TO PARTICIPATION BASIS GEOLOGICAL CONTROL
- WELL PERFORATED IN ZONE

EXHIBIT NO.8

## HENSHAW WOLFCAMP FIELD ISOPACH MAP

"C" ZONE POROSITY DEVELOPMENT

C.I. 5 FEET  
SCALE: 1" = 2000'



#### LEGEND

- PRORATED PRODUCTIVE AREA
- BOUNDARY OF PARTICIPATING AREA ESTABLISHED BY FOURTH ENLARGEMENT
- ▨ AREA ENTITLED TO PARTICIPATION BASIS GEOLOGICAL CONTROL
- WELL PERFORATED IN ZONE

#### EXHIBIT NO.9

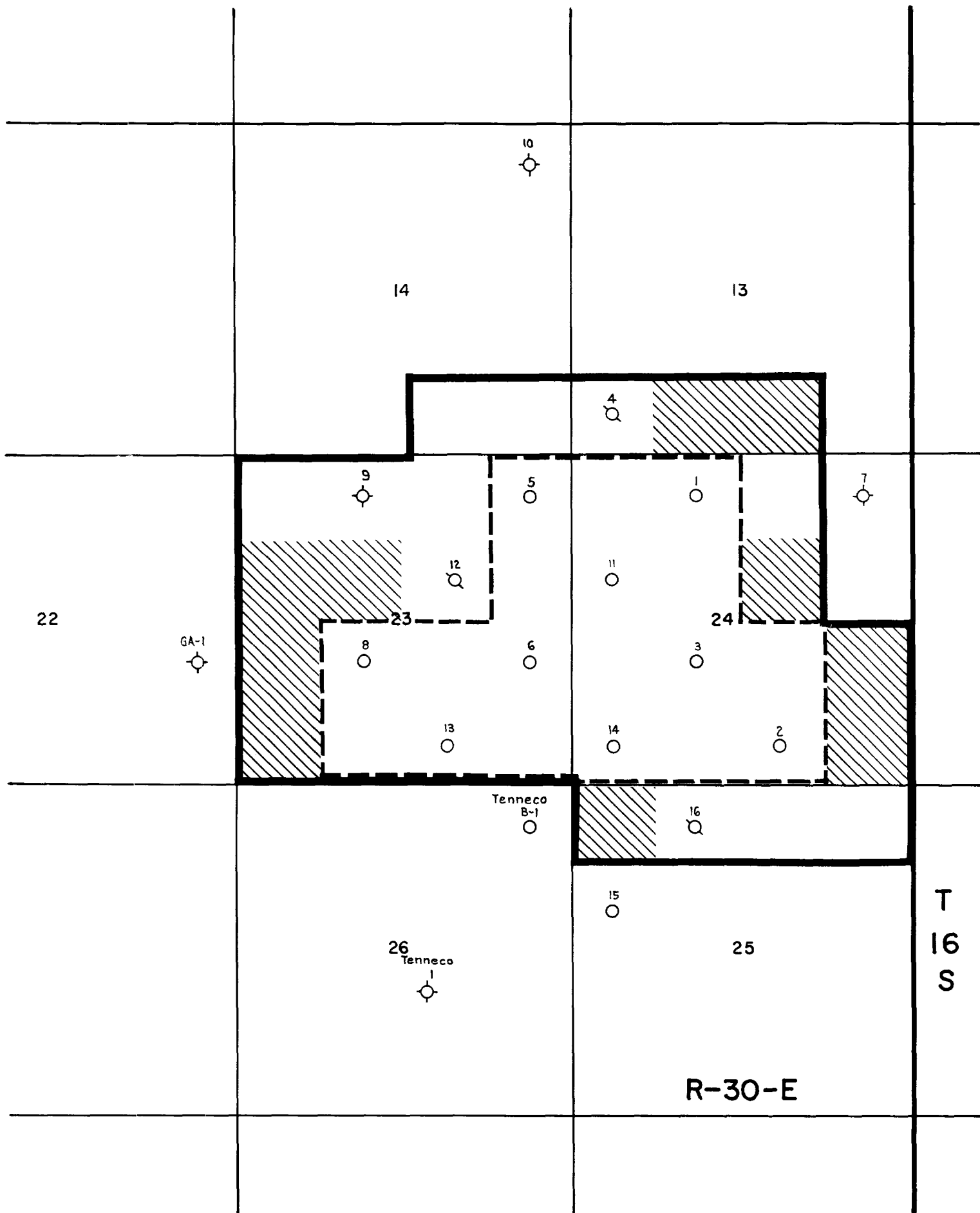
#### HENSHAW WOLFCAMP FIELD ISOPACH MAP

#### "D" ZONE POROSITY DEVELOPMENT

C.I. 5 FEET  
SCALE: 1" = 2000'







# LEGEND

- PRORATED PRODUCTIVE AREA
- BOUNDARY OF PARTICIPATING AREA ESTABLISHED BY FOURTH ENLARGEMENT
- /// AREA ENTITLED TO PARTICIPATION BASIS GEOLOGICAL CONTROL

EXHIBIT NO. II

HENSHAW WOLFCAMP FIELD

COMPOSITE MAP

C.I. 5 FEET  
SCALE: 1" = 2000'



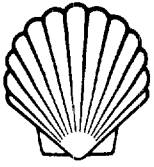
HENSHAW DEEP UNIT  
FIFTH ADJUSTMENT TO INITIAL PARTICIPATING AREA  
OWNERSHIP AND PERCENTAGE OF PARTICIPATION OF LEASES

SCHEDULE I

Working Interest Owner	Lease Serial Number	Tract Number	Description All in T-16-S, R-30-E	Participating Acreage	Percent Participation
Shell Oil Company	LC 029424	3	Section 23: SW/4, S/2 NW/4 Section 24: NW/4, S/2 SW/4	480.00	42.8571
Shell Oil Company	LC 063925	11	Section 24: N/2 SW/4	80.00	7.1429
Shell Oil Company	LC 063928-B	14	Section 13: SE/4 SW/4	40.00	3.5714
Shell Oil Company	LC 063932	15	Section 13: SW/4 SE/4	40.00	3.5714
Texaco, Inc.	LC 064637	18	Section 23: E/2 NE/4, N/2 SE/4, SE/4 SE/4 Section 24: SW/4 NE/4	240.00	21.4286
Texaco, Inc.	LC 064637-A	18	Section 24: SW/4 SE/4	40.00	3.5714
Texaco, Inc.	NM 016802	20	Section 24: S/2 SE/4 Section 25: NW/4 NW/4	120.00	10.7143
Humble Oil & Refg. Co.	NM 029137	23	Section 24: N/2 SE/4	80.00 <u>1120.00</u>	<u>7.1429</u> <u>100.0000</u>

Summary Schedule I

Total Federal Lands	<u>Acre</u>	<u>Percent</u>
Total State Lands	1120.00	100.00
Total Fee or Other Lands	-	-
Sub Total	<u>1120.00</u>	<u>100.00</u>
Uncommitted Acreage	-	-
Total Productive Acreage	1120.00	100.00



# SHELL OIL COMPANY

WESTERN DIVISION

P. O. BOX 1509

MIDLAND, TEXAS 79704

April 21, 1966

Subject: Henshaw Deep Unit  
No. 14-08-001-6453  
Eddy County, New Mexico  
Unit Contraction

Director  
United States Geological Survey  
Department of the Interior  
Washington 25, D.C.

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

Through: Regional Oil & Gas Supervisor  
United States Geological Survey  
P.C. Drawer 1857  
Roswell, New Mexico

Gentlemen:

In compliance with Section 2(e) of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby requests concurrence of the United States Geological Survey and the New Mexico Oil Conservation Commission to contract the Henshaw Deep Unit and to eliminate from the Unit all lands not entitled to participation effective April 22, 1966. On January 1, 1966, the Unit was extended beyond the initial five-year term following the effective date of the Initial Participating Area by drilling operations on Henshaw Deep Unit No. 15, which was located on lands not then entitled to participation. The well was completed on January 22, 1966, thus extending the term of the Unit until April 22, 1966.

It is the opinion of the Operator that further development for unitized substances under terms of the Unit Agreement is not warranted. The limits of the Henshaw Wolfcamp reservoir are now reasonably defined on the south by down-dip edge water in Well Nos. 15 and 16 and on the north by porosity deterioration. Deep measures have been explored in two Unit tests. Well No. 1 tested through the Ellenburger and Well No. 5 tested through the Siluro-Devonian. Neither test encountered unitized substances in paying quantities below the existing Wolfcamp field pay. There are no plans for additional drilling within the scope of Unit operations. Joint working interests have been polled with respect to termination of development and contraction of the Unit. On the date of this application joint operators holding 99.13 percent of the working interest have voted to contract the Unit. The operator holding the remaining working interest has not yet replied to the poll.

It is recommended that the Unit be contracted to the boundaries as set forth in the application for the Fifth Enlargement to the Initial Participating Area dated February 21, 1966. Although some concern has been voiced as to the advisability of retaining acreage in the participating area which is occupied by a dry hole or a temporarily abandoned well, it is the recommendation of the operator that the participating boundaries as proposed in our pending application be established.

This determination is considered warranted in view of unusual geological conditions prevailing in the Wolfcamp pay interval. The complex stratigraphic relationships of the reservoir have reduced the drilling success ratio far below normal development experience. Reliability of porosity prediction has been poor even at infilling locations. Formation units are difficult to correlate between adjacent wells even though an extensive coring program was pursued in the course of development. Yet, reservoir performance shows effective reservoir drainage substantially in excess of 80 acres. It is the conclusion of the operator that drainage is probably accomplished through randomly occurring porosity patterns. Therefore, it is necessary that some tolerance be established to guard against offset drainage and that "windows" not be introduced into the participating area for the contracted Unit.

For your information the following data are attached:

- 1) Schedule I showing ownership and percentage of participation of leases in contracted Unit Area.
- 2) Letter to Joint Operators, Henshaw Deep Unit, proposing contraction of Unit.
- 3) Copies of ratified ballots from Joint Operators who have agreed to contract Unit.
- 4) Plat showing boundaries of contracted Unit Area as proposed by this application.

Yours very truly,

  
J. E. R. Sheeler  
Division Production Manager

Attachments

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
Director, United States Geological Survey

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
New Mexico Oil Conservation Commission



# SHELL OIL COMPANY

WESTERN DIVISION  
P. O. BOX 1509  
MIDLAND, TEXAS 79704

April 21, 1966

Subject: Henshaw Deep Unit  
No. 14-08-001-6453  
Eddy County, New Mexico  
Unit Contraction

Director  
United States Geological Survey  
Department of the Interior  
Washington 25, D.C.

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

Through: Regional Oil & Gas Supervisor  
United States Geological Survey  
P.O. Drawer 1857  
Roswell, New Mexico

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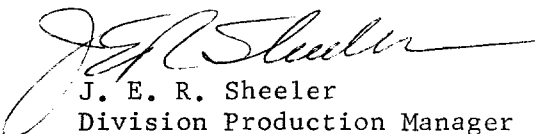
It is recommended that the Unit be contracted to the boundaries as set forth in the application for the Fifth Enlargement to the Initial Participating Area dated February 21, 1966. Although some concern has been voiced as to the advisability of retaining acreage in the participating area which is occupied by a dry hole or a temporarily abandoned well, it is the recommendation of the operator that the participating boundaries as proposed in our pending application be established.

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- 3) Copies of ratified ballots from Joint Operators who have agreed to contract Unit.
- 4) Plat showing boundaries of contracted Unit Area as proposed by this application.

Yours very truly,

  
J. E. R. Sheeler  
Division Production Manager

Attachments

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
Director, United States Geological Survey

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
New Mexico Oil Conservation Commission



# SHELL OIL COMPANY

WESTERN DIVISION  
P. O. BOX 1509  
MIDLAND, TEXAS 79704

April 21, 1966

Subject: Henshaw Deep Unit  
No. 14-08-001-6453  
Eddy County, New Mexico  
Unit Contraction

Director  
United States Geological Survey  
Department of the Interior  
Washington 25, D.C.

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

Through: Regional Oil & Gas Supervisor  
United States Geological Survey  
P.O. Drawer 1857  
Roswell, New Mexico

Gentlemen:

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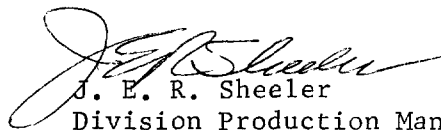
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- 2) Letter to Joint Operators, Henshaw Deep Unit, proposing contraction of Unit.
- 3) Copies of ratified ballots from Joint Operators who have agreed to contract Unit.
- 4) Plat showing boundaries of contracted Unit Area as proposed by this application.

Yours very truly,

  
J. E. R. Sheeler  
Division Production Manager

Attachments

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
Director, United States Geological Survey

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
New Mexico Oil Conservation Commission



HENSHAW DEEP UNIT  
AS CONTRACTED EFFECTIVE APRIL 22, 1966  
OWNERSHIP AND PERCENTAGE OF PARTICIPATION OF LEASES

SCHEDULE I

Working Interest Owner	Lease Serial Number	Tract Number	Description All in T-16-S, R-30-E	Participating Acreage	Percent Participation
Shell Oil Company	LC 029424	3	Section 23: W/2 Section 24: NW/4 & S/2 SW/4	560.00	32.558139
Shell Oil Company	LC 063923 B	10	Section 14: S/2 SE/4	80.00	4.651163
Shell Oil Company	LC 063925	11	Section 24: N/2 SW/4	80.00	4.651163
Texaco, Inc.	LC 063925	12	Section 25: N/2 SW/4	80.00	4.651163
Shell Oil Company	LC 063928 B	14	Section 13: S/2 SW/4	80.00	4.651163
Shell Oil Company	LC 063932	15	Section 13: SW/4 SE/4	40.00	2.325581
Shell Oil Company	LC 063933	16	Section 25: S/2 NW/4	80.00	4.651163
Texaco, Inc.	LC 064637	18	Section 23: NE/4, N/2 SE/4, SE/4 SE/4 Section 24: W/2 NE/4	360.00	20.930233
Texaco, Inc.	LC 064637	18	Section 23: SW/4 SE/4	40.00	2.325581
Texaco, Inc.	NM 074951	20	Section 24: S/2 SE/4 Section 25: N/2 NW/4	160.00	9.302325
Humble Oil & Refg. Co.	NM 029137	23	Section 24: N/2 SE/4	80.00	4.651163
Texaco, Inc.	NM 07781	26	Section 25: N/2 NE/4	<u>80.00</u>	<u>4.651163</u>
<u>Summary Schedule I</u>				1720.00	100.000000
Total Federal Lands			<u>Acres</u>		<u>Percent</u>
Total State Lands			1720.00		100.00
Total Fee or Other Lands			-		-
Sub Total			<u>1720.00</u>		<u>100.00</u>
Uncommitted Acreage			-		-
Total Productive Acreage			1720.00		100.00

)



# SHELL OIL COMPANY

WESTERN DIVISION  
P. O. BOX 1509  
MIDLAND, TEXAS 79704

April 6, 1966

Subject: Henshaw Deep Unit  
Eddy County, New Mexico

All Operators  
Henshaw Deep Unit

Gentlemen:

As you know, the Henshaw Deep Unit is now in the extended period of the original five-year term following the effective date of the Initial Participating Area, which occurred on December 20, 1960. According to Section 2(e) of the Unit Agreement, all non-participating land would have been eliminated from the Unit on January 1, 1966, if drilling operations had not been in progress on unitized lands not entitled to participation. As a consequence to the drilling of Henshaw Deep Unit No. 15 outside of a participating area, the Unit has been held in force for 90 days following the well completion date, or until April 22, 1966.

Our recent drilling efforts were planned so that we might have been able to move again to non-participating lands in NE/4 Section 25-16S-30E prior to April 22, provided the structure and porosity development remained favorable. Results of the two latest tests, however, show definite evidence of edge water, and it is Shell's opinion that the dry hole risk at down-dip locations is prohibitive. Accordingly, we recommend that the drilling program be terminated and that the Unit be contracted to include only such lands that are now entitled to participate in production from existing wells.

We visualize that the final participating area will correspond essentially to that submitted in our application for the Fifth Enlargement to the Initial Participating Area dated February 21, 1966. The United States Geological Survey has raised some questions regarding the advisability of retaining acreage now occupied by dry holes and temporarily abandoned wells. No decisions have yet been reached, but it is Shell's opinion that the established boundaries should be retained if possible. Well control has demonstrated the very random nature of porosity occurrence and it is conceivable that tracts so eliminated might well be drilled later at more favorable spots to the detriment of the rights of the Joint Operators. We intend to search out a solution to this query in the course of the Unit contraction procedure. We will make no commitments in this respect without further consultation with you. Meanwhile, since time is of essence, we would appreciate receiving your concurrence to cease drilling and to contract the Unit.

To assist you in your decision, we want to update you on the information that we have available relating to Wells No. 15 and 16. Unit Well No. 15 was completed on January 22, flowing 190 B/D oil with a 0.2% BS&W cut. On the latest test taken on March 19, the well flowed 176 B/D oil and 173 B/D water. During the latter part of March the well loaded up and died. A tracer survey showed no communication behind casing and it is apparent that water is being produced from perforations 8802 to 8830 feet (4956 to 4984 feet subsea). A temporary pumping unit is now being installed. We are experiencing completion problems in Unit Well No. 16. A squeeze has been performed in an attempt to eliminate communication from behind casing, but it is evident, nevertheless, from drill stem tests and production tests that all of the porous zones below 8800 feet (4972 feet subsea) are water bearing and that the potential oil bearing interval occurs only in the uppermost porous zone from 8764 to 8794 feet (4937 to 4967 feet subsea). The outcome of this completion attempt is still in doubt at this writing. We estimate that any further drilling in a southward direction would result in the loss of some 30 feet of structure. In the absence of new and unexpected porosity development occurring stratigraphically higher in the section than observed heretofore, the entire porous interval is expected to be water bearing.

The northern sector of the Unit has been discounted for further development because of deterioration of porosity in the pay interval in the several north-bounding dry holes. No further exploration is planned in the Unit.

We are attaching a ballot for your ratification and request that you return it to us at your earliest convenience. Your comments regarding the determination of final boundaries for the Wolfcamp Participating Area are also invited. We wish to state again that the Unit will be in default after April 22 unless drilling operations are in progress on non-participating lands. We also wish to remind you of your rights according to Section 5.2 of the Unit Operating Agreement which provides for operations to which all parties do not agree. Unless we hear proposals contrary to our recommendation, we will proceed with plans to contract the Unit. We intend to submit our formal notice on or about April 20.

Yours very truly,

**ORIGINAL SIGNED**  
**By J. E. R. SHEELER**

J. E. R. Sheeler  
Division Production Manager

Attachment

Letter Ballot  
Henshaw Deep Unit

April 6, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas

Attention Mr. J. E. R. Sheeler

Terminate Drilling Program

☒

Approve

☐

Disapprove

Contract Henshaw Deep Unit

☒

Approve

☐

Disapprove

Note:

If ballot is not returned by April 20, it must be assumed that approval of both proposals is implied. The Unit will be in default after April 22, 1966.

WESTERN DIVISION	
APR 15 1966	
Production	Services
417 JERS	108 ADA
418 RCC	109 VHB
419 KWL	111 BCH
<del>416 JRS</del>	112 GLT
414 RJD	112 AJO
406 NWH	113 JDR
408 JDD	113 CL
2 307B FWH	114 JLI
214 JRD	115 RLB
216 REJ	115 VDL
215 RLS	116 DCS
413 SDW	116 CCS
407A-RDS	119 UCS
	110 JGJ
	121 DLF
Reply No	Well File
Discuss	Lease File
Call-up	Field File
Destroy	Gen. Corres.

CITIES SERVICE OIL COMPANY

Company

By: Wiley C. Hill  
Attorney-in-Fact

Date: Apr 14, 1966

Letter Ballot

Henshaw Deep Unit

April 6, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas

Attention Mr. J. E. R. Sheeler

Terminate Drilling Program

☒

Approve

☐

Disapprove

Contract Henshaw Deep Unit

☒

Approve

☐

Disapprove

Note:

If ballot is not returned by April 20, it must be assumed that approval of both proposals is implied. The Unit will be in default after April 22, 1966.

TEXACO, INC.

\_\_\_\_\_  
Company

By: *[Signature]*

Date: April 15, 1966

Letter Ballot

Henshaw Deep Unit

April 6, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas

Attention Mr. J. E. R. Sheeler

Terminate Drilling Program

☒

Approve

☐

Disapprove

Contract Henshaw Deep Unit

☒

Approve

☐

Disapprove

Note: If ballot is not returned by April 20, it must be assumed that approval of both proposals is implied. The Unit will be in default after April 22, 1966.

TENNECO OIL COMPANY  
Company

By:

Rex H. Byers  
Rex H. Byers, Div. Prod. Supt., SW Div.

Date:

4-14-66

# Letter Ballot

## Henshaw Deep Unit

April 6, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas

Attention Mr. J. E. R. Sheeler

### Terminate Drilling Program

☒

Approve

☐

Disapprove

### Contract Henshaw Deep Unit

☒

Approve

☐

Disapprove

#### Note:

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WESTERN DIVISION	
APR 15 1966	
Production	Services
417 JERS	108 ADA
418 RCC	109 WHB
419 KVL	111 BCH
<del>414 JRG</del>	112 GLT
414 RJD	112 AJG
406 NWH	113 JDR
408 JDD	113 CIR
2 307B PWH	114 JLT
214 JRD	114 RLB
216 KEJ	115 WJD
215 RLS	116 DCG
413 SWJ	116 CRS
407A-RDS	117 HSB
	110 JGJ
	121 DLF
Reply No	Well File
Discuss	Lease File
Call-up	Field File
Destroy	Gen. Corres.

*J. D. O'Neill Jr.*  
Company

By:

*E. J. Anderson*

Date:

*4-14-66*



# Letter Ballot

## Henshaw Deep Unit

April 6, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas

Attention Mr. J. E. R. Sheeler

### Terminate Drilling Program

☒

Approve

☐

Disapprove

### Contract Henshaw Deep Unit

☒

Approve

☐

Disapprove

Note: If ballot is not returned by April 20, it must be assumed that approval of both proposals is implied. The Unit will be in default after April 22, 1966.

HUMBLE OIL & REFINING COMPANY

Company

By: 

J. M. Shepherd

Date: April 19, 1966





# SHELL OIL COMPANY

WESTERN DIVISION  
P. O. BOX 1509  
MIDLAND, TEXAS 79704

April 1, 1966

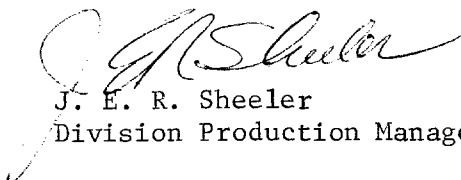
Subject: Plan of Development  
Henshaw Deep Unit  
(No. 14-08-001-6453)  
Eddy County, New Mexico

Oil Conservation Commission  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

Attached for your information are approved copies of two Plans of Development for the Henshaw Deep Unit, which have been ratified by the United States Geological Survey. One of the attached plans covered the period from January 1 to March 31, 1966. The other supercedes the interim plan and covers the calendar year, 1966.

Yours very truly,

  
J. E. R. Sheeler  
Division Production Manager

Attachments

PLAN OF DEVELOPMENT  
FOR THE CALENDAR YEAR 1966  
HENSHAW DEEP UNIT (NO. 14-08-0016453) Q1  
EDDY COUNTY, NEW MEXICO

RECEIVED

FEB 23 1966

APR 4 AM 01

U. S. GEOLOGICAL SURVEY  
ROSWELL, NEW MEXICO

Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

In compliance with Section 10 of the Henshaw Deep Unit Agreement Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the year 1966. This plan is intended to supersede the interim plan of development submitted on December 20, 1965, covering the First Quarter 1966. This interim plan was submitted so that there would be time to evaluate the results of Henshaw Deep Unit No. 15 before providing for additional development.

Henshaw Deep Unit No. 15, SW/4 NW/4 Section 25, T-16-S, R-30-E was completed as a successful well on January 22, 1966. The initial potential from the Lower Wolfcamp pay was gauged at a rate of 190 barrels of oil per day through a 12/64-inch choke with a gas-oil ratio of 1468 cubic feet per barrel and a flowing tubing pressure of 775 psi. A bottom hole pressure, run after the initial potential test, showed a formation pressure of 3326 psi on a 7-hour build-up, which extrapolated to 3400 psi on an infinite time basis. This closely approximates virgin reservoir conditions and it is concluded that drainage from the tract has been negligible.

It is therefore Shell's intention, as Unit Operator, to continue development in the southern sector of the Unit. During the remainder of 1966, two additional wells are planned. Unit Well No. 16, NE/4 SW/4 Section 25, T-16-S, R-30-E, was spudded on February 6, 1966. A second well is to be drilled at location to be determined later.

This Plan of Development shall constitute the drilling obligations of the Unit Operators under the terms of the Henshaw Deep Unit for the period ending December 31, 1966. Before this plan expires, another plan for the Unit will be submitted.

Portions of the Plan of Development herein outlined depend on information to be gained as drilling progresses. It is understood that this Plan may be modified, with approval, to meet changing conditions.

Shell Oil Company  
Unit Operator

Approved: Billy H. Hogan MAR 25 1966  
**ACTING** Regional Oil and Gas Supervisor  
United States Geological Survey  
Subject to like approval by the  
appropriate State Officials.

J. E. Shaver  
Division Production Manager

Approved: \_\_\_\_\_  
New Mexico Oil Conservation Commission

PLAN OF DEVELOPMENT  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)  
EDDY COUNTY, NEW MEXICO

---

Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the period from January 1, 1966 to March 31, 1966. This plan is limited to the first three months of 1966 rather than the calendar year in order to provide a reasonable period of time to evaluate the results of Henshaw Deep Unit No. 15, SW/4 NW/4, Section 25, T-16-S, R-34-E which was spudded on December 3, 1965 and is expected to be completed before the end of January, 1966. The well is located beyond the limits of the existing participating area and will probably encounter the objective Wolfcamp down dip from any existing wells in the field. Since future development in the Unit Area will, to a large extent, be contingent on the results of this probe, we prefer, for the present, not to commit additional wells beyond the drilling location.


The original Plan of Development for 1965 provided for the drilling of two Wolfcamp tests during the calendar year. Our drilling program, however, was accelerated, and four wells have been completed during 1965. Unit Wells No's. 11, 13 and 14 were completed as successful Wolfcamp producers, while Unit Well No. 12 will probably not recover sufficient oil to return the investment even though it was potentialed as a top allowable well. By the end of October 1965 the Unit was producing oil at a rate in excess of 27,000 barrels per month after accumulating approximately 915,000 barrels.

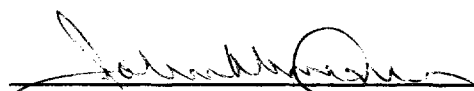
As of January 1, 1966 the Henshaw Deep Unit will have reached the fifth anniversary from the effective date of the Initial Participating Area. Unit Well No. 15 is being drilled outside of the existing participating area in accordance with Section 1 - (e) of the Unit Agreement in order to maintain the Unit Area in force by drilling on lands not entitled to participation.

We respectfully request that the drilling of Henshaw Deep Unit No. 15 satisfy the drilling obligations of the Unit Operators for the period ending

March 31, 1966. Before this plan expires, a plan for a future course of action in the Unit will be submitted.

SHELL OIL COMPANY  
Unit Operator

By:   
For: J. E. R. Sheeler  
Division Production Manager

Approved  Date JAN 31 1966  
Supervisor, United State Geological Survey  
Subject to like approval by the  
appropriate State officials.

Approved \_\_\_\_\_ Date \_\_\_\_\_  
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

February 24, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas 79704

Attention: Mr. J.E.R. Sheeler

Re: Fifth Enlargement,  
Lower Wolfcamp  
Participating Area,  
Henshaw Deep Unit, Eddy  
County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Fifth Enlargement to the Initial Participating Area for the Henshaw Deep Unit, Eddy County, New Mexico, subject to like approval by the United States Geological Survey.

Five approved copies of the application are returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JEK/og

cc: U. S. Geological Survey - Roswell





# SHELL OIL COMPANY

WESTERN DIVISION  
P. O. BOX 1509  
MIDLAND, TEXAS 79701

February 21, 1966

Subject: Henshaw Deep Unit 14-08-001-6453  
Eddy County, New Mexico  
Fifth Enlargement to Initial  
Participating Area  
Lower Wolfcamp Formation

Director:

United States Geological Survey  
Department of the Interior  
Washington 25, D. C.

Through:

Regional Oil & Gas Supervisor  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Oil Conservation Commission  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Gentlemen:

In compliance with the requirements of Section 11 of the Henshaw Deep Unit Agreement No. 14-08-001-6453, approved December 3, 1959, Shell Oil Company, as Unit Operator hereby requests approval for the Fifth Enlargement to the Initial Participating Area. The proposed enlargement adds 160 acres to the previous 1560-acre participating area for a revised total of 1720 acres now entitled to participate in production from the Henshaw Deep Unit. It is requested that the Fifth Enlargement to the Initial Participating Area be effective January 1, 1966, the first day of the month in which Unit Well No. 15 was completed as an oil producer from the Wolfcamp formation.

The acreage presently dedicated to production as provided in the Initial Participating Area plus the First through Fourth enlargements is described as follows:

S/2 SW/4, SW/4 SE/4 Section 13; S/2 SE/4 Section 14; All Section 23; W/2, W/2 NE/4, SE/4 Section 24; N/2 N/2 Section 25;  
All in T-16-S, R-30-E NMPM.

A fifth enlargement is now proposed as the result of the successful completion on January 22, 1966 of Henshaw Deep Unit No. 15, SW/4 NW/4 Section 25, T-16-S, R-30-E in the Lower Wolfcamp reservoir (interval 8802-8825 feet). The well was completed flowing for a daily potential of 190 barrels of oil (0.2% BS&W cut) through a 12/64-inch choke with a flowing tubing pressure of 775 psi. following a 4100 gallon acid treatment. The gas-oil ratio is 1468 cubic feet per barrel. Well No. 15 is located on the south plunging nose of the Henshaw structure and is now the only producer located beyond the boundaries of the existing participating area. Accordingly, it is requested that the Initial Participating Area be enlarged to include the 160-acre area described as S/2 NW/4 and N/2 SW/4 Section 25, T-16-S, R-30-E. The resulting Participating Area, totaling 1720 acres as covered by this application would then be described as follows:

S/2 SW/4, SW/4 SE/4 Section 13; S/2 SE/4 Section 14; All  
Section 23; W/2, W/2 NE/4, SE/4 Section 24; NW/4, N/2 NE/4,  
N/2 SW/4 Section 25; All in T-16-S, R-30-E.

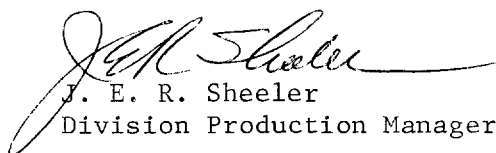
As exploitation has progressed in a southward direction there has been a rather persistent improvement in porosity development at higher positions in the stratigraphic column. This has afforded completion opportunities in upper zones as the lower zones plunge below water. As noted in previous reports, correlation within the pay interval is usually not clear cut and must often be forced. Even though porosity occurrence is devious, there is indirect evidence from well behavior that some mode of continuity in reservoir porosity exists in the pay section. Recoveries to date when compared to volumetrics show that most of the wells will drain in excess of 160 acres. No firm definition of water level can be shown because of the complex distribution of porosity, but 5000 feet subsea is about the lower limit of oil bearing porosity encountered thus far.

In support of this application we are attaching the following supporting data.

1. A structural map showing the Henshaw Deep Unit, the existing Enlarged Initial Participating Area and the proposed Fifth enlargement of the Initial Participating Area.
2. A cross section showing structure and porosity distribution in a northwest - southeast direction.
3. A summary of production statistics on Unit wells completed to date.
4. Schedule I, showing the participating percentage of each lease included or partially included in the enlarged Initial Participating Area.

It is the Operator's opinion that the land covered by this application constitutes the total area which can be regarded as reasonably proved to be productive of unitized substances in paying quantities. Accordingly, your approval of the application for the Fifth Enlargement of the Initial Participating Area, effective January 1, 1966, is respectfully requested.

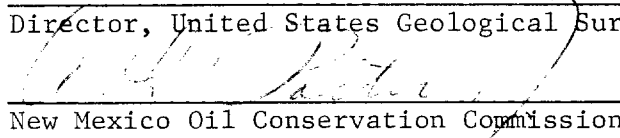
Yours very truly,

  
J. E. R. Sheeler  
Division Production Manager

Attachments

Approved: \_\_\_\_\_  
Director, United States Geological Survey

Date: \_\_\_\_\_

Approved:   
New Mexico Oil Conservation Commission

Date: Feb. 24, 1966

HENSHAW DEEP UNIT  
REVIEW OF WELLS COMPLETED TO 2-1-66

Unit Well No.	Location	Initial Completion		Current Prod. Data			Cumulative Production to 2-1-66		
		Date	Potential	Oil - B/Mo	Wtr. B/Mo	GOR	Oil M-bbl	Gas MMCF	Wtr. M-bbl
1	NE/4 NW/4 Sec 24	12-60	171 B/D	3255	23	2420	242	353	-
2	SW/4 SE/4 Sec 24	6-61	122 B/D	1866	118	6253	190	411	12
3-A	NE/4 SW/4 Sec 24	2-62	109 B/D	341	-	11,207	46	160	2
4	SW/4 SW/4 Sec 13	2-62	179 B/D	TA	-	-	1	2	-
5	NE/4 NE/4 Sec 23	8-62	305 B/D	4774	-	2010	174	337	-
6	NE/4 SW/4 Sec 23	2-63	261 B/D	4867	-	2134	155	336	-
7	NE/4 NE/4 Sec 24	6-63	D&A	-	-	-	-	-	-
8	NE/4 SW/4 Sec 23	8-63	380 B/D	4930	-	2109	134	304	-
9	NE/4 NW/4 Sec 23	11-63	D&A	-	-	-	-	-	-
10	NW/4 NW/4 Sec 14	8-64	D&A	-	-	-	-	-	-
11	SW/4 NW/4 Sec 24	5-65	400 B/D	4560	-	2279	36	77	-
12	SW/4 NW/4 Sec 23	4-65	374 B/D	TA	-	-	6	11	2
13	SW/4 SE/4 Sec 23	10-65	184 B/D	5208	-	2723	18	48	-
14	SW/4 SW/4 Sec 24	11-65	197 B/D	5047	-	1810	12	22	-
15	SW/4 NW/4 Sec 25	1-66	190 B/D	5456	-	1468	2	3	-
Totals:				40,304			1,016	2,064	16

HENSHAW DEEP UNIT  
FIFTH ENLARGEMENT OF INITIAL LOWER WOLF CAMP PARTICIPATING AREA  
OWNERSHIP AND PERCENTAGE OF PARTICIPATION OF LEASES

SCHEDULE I

Working Interest Owner	Lease Serial Number	Tract Number	Description All in T-16-S, R-30-E	Participating Acreage	Percent Participation
Shell Oil Company	LC 029424	3	Section 23: W/2 Section 24: NW/4 & S/2 SW/4	560.00	32.558139
Shell Oil Company	LC 063923 B	10	Section 14: S/2 SE/4	80.00	4.651163
Shell Oil Company	LC 063925	11	Section 24: N/2 SW/4	80.00	4.651163
Texaco, Inc.	LC 063925	12*	Section 25: NW/4 SW/4	80.00	4.651163
Shell Oil Company	LC 063928 B	14	Section 13: S/2 SW/4	80.00	4.651163
Shell Oil Company	LC 063932	15	Section 13: SW/4 SE/4	40.00	2.325581
Shell Oil Company	LC 063933	16*	Section 25: S/2 NW/4	80.00	4.651163
Texaco, Inc.	LC 064637	18	Section 23: NE/4, N/2 SE/4, SE/4 SE/4 Section 24: W/2 NE/4	360.00	20.930233
Texaco, Inc.	LC 064637	18	Section 23: SW/4 SE/4	40.00	2.325581
Texaco, Inc.	NM 074951	20	Section 24: S/2 SE/4 Section 25: N/2 NW/4	160.00	9.302325
Humble Oil & Refg. Co.	NM 029137	23	Section 24: N/2 SE/4	80.00	4.651163
Texaco, Inc.	NM 07781	26	Section 25: N/2 NE/4	80.00	4.651163
Summary Schedule I				1720.00	100.000000
Total Federal Lands				Acres	Percent
Total State Lands				1720.00	100.00
Total Fee or Other Lands				-	-
Sub Total				1720.00	100.00
Uncommitted Acreage				-	-
Total Productive Acreage				1720.00	100.00

\* Leases added to enlarged Initial Participating Area

Drawer 1837  
Roswell, New Mexico 88201

March 25, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas 79704

Attention: Mr. J. E. R. Shoeler

Gentlemen:

Your 1966 plan of development for the Henshaw Deep unit area, Eddy County, New Mexico, proposing the drilling of two Lower Wolfcamp wells, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(ORIG. SGD) BILLY J. SHOGER

BILLY J. SHOGER  
Acting Oil & Gas Supervisor

cc:  
Washington (w/cy of plan)  
Artesia (w/cy of plan)  
H.M.O.C.C. - Santa Fe (ltr. only) ✓

**ILLEGIBLE**

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

February 24, 1966

Shell Oil Company  
Post Office Box 1509  
Midland, Texas 79704

Attention: Mr. J. E. R. Sheeler

Re: 1966 Plan of Development  
Henshaw Deep Unit  
Eddy County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1966 Plan of Development dated February 21, 1966 for the Henshaw Deep Unit, Eddy County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Four approved copies of the plan are returned herewith.

Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

ALP/JEK/og

cc: U. S. Geological Survey  
Post Office Box 1857  
Roswell, New Mexico

PLAN OF DEVELOPMENT  
FOR THE CALENDAR YEAR 1966  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)

EDDY COUNTY, NEW MEXICO

Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

In compliance with Section 10 of the Henshaw Deep Unit Agreement Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the year 1966. This plan is intended to supersede the interim plan of development submitted on December 20, 1965, covering the First Quarter 1966. This interim plan was submitted so that there would be time to evaluate the results of Henshaw Deep Unit No. 15 before providing for additional development.

Henshaw Deep Unit No. 15, SW/4 NW/4 Section 25, T-16-S, R-30-E was completed as a successful well on January 22, 1966. The initial potential from the Lower Wolfcamp pay was gauged at a rate of 190 barrels of oil per day through a 12/64-inch choke with a gas-oil ratio of 1468 cubic feet per barrel and a flowing tubing pressure of 775 psi. A bottom hole pressure, run after the initial potential test, showed a formation pressure of 3326 psi on a 7-hour buildup, which extrapolated to 3400 psi on an infinite time basis. This closely approximates virgin reservoir conditions and it is concluded that drainage from the tract has been negligible.

It is therefore Shell's intention, as Unit Operator, to continue development in the southern sector of the Unit. During the remainder of 1966, two additional wells are planned. Unit Well No. 16, NE/4 SW/4 Section 25, T-16-S, R-30-E, was spudded on February 6, 1966. A second well is to be drilled at location to be determined later.


This Plan of Development shall constitute the drilling obligations of the Unit Operators under the terms of the Henshaw Deep Unit for the period ending December 31, 1966. Before this plan expires, another plan for the Unit will be submitted.

Portions of the Plan of Development herein outlined depend on information to be gained as drilling progresses. It is understood that this Plan may be modified, with approval, to meet changing conditions.

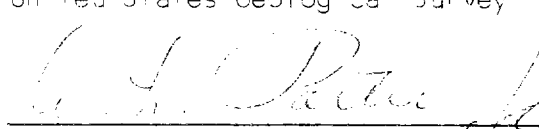
Shell Oil Company  
Unit Operator

Approved:

Regional Oil and Gas Supervisor  
United States Geological Survey

  
Division Production Manager

Approved:

  
New Mexico Oil Conservation Commission

Feb. 24, 1966



OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

1727

February 24, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas 79704

Attention: Mr. J. E. R. Sheeler

Re: Proposed Plan of Development,  
First Quarter 1966, Henshaw  
Deep Unit, Eddy County, New  
Mexico.

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Plan of Development dated December 20, 1965 for the period from January 1, 1966 to March 31, 1966 for the Henshaw Deep Unit, Eddy County, New Mexico, subject to like approval by the United States Geological Survey.

Five approved copies of the plan are returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JEK/og

cc: U. S. Geological Survey - Roswell

MAIN OFFICE CUC

Drawer 1857  
Roswell, New Mexico 88201

*L.H.*  
JAN 1 AM 10 09

January 31, 1966

Shell Oil Company  
P. O. Box 1509  
Midland, Texas 79704

Attention: Mr. J. E. R. Sheeler

Gentlemen:

Your plan of development dated December 20, 1965, covering the first three months of 1966 for the Henshaw Deep unit area, Eddy County, New Mexico, has been approved on this date subject to like approval by the appropriate State officials. Said plan proposes the completion of unit well 15 in the SW $\frac{1}{4}$  sec. 25, T. 16 S., R. 34 E., N.M.P.M. This well was spudded on December 3, 1965, as a Wolfcamp test.

Three approved copies of the plan are enclosed.

Sincerely yours,

*John A. Anderson*  
JOHN A. ANDERSON  
Regional Oil & Gas Supervisor

cc:  
Washington (w/cy of plan)  
Artesia (w/cy of plan)  
N.M.C.C. - Santa Fe (ltr. only) ✓



# SHELL OIL COMPANY

WESTERN DIVISION  
P. O. BOX 1509  
MIDLAND, TEXAS 79704

December 20, 1965

Subject: Proposed Plan of Development  
First Quarter 1966  
Henshaw Deep Unit  
Eddy County, New Mexico

Oil and Gas Supervisor  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico


Oil Conservation Commission  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

Attached are six copies of a proposed Plan of Development for the Henshaw Deep Unit, Eddy County, New Mexico covering the first three months of 1966.

If this Plan meets with your approval, please return three ratified copies to us for further handling and distribution.

Yours very truly,

  
For: J. E. R. Sheeler  
Division Production Manager

PLAN OF DEVELOPMENT  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)  
EDDY COUNTY, NEW MEXICO

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Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the period from January 1, 1966 to March 31, 1966. This plan is limited to the first three months of 1966 rather than the calendar year in order to provide a reasonable period of time to evaluate the results of Henshaw Deep Unit No. 15, SW/4 NW/4, Section 25, T-16-S, R-34-E which was spudded on December 3, 1965 and is expected to be completed before the end of January, 1966. The well is located beyond the limits of the existing participating area and will probably encounter the objective Wolfcamp down dip from any existing wells in the field. Since future development in the Unit Area will, to a large extent, be contingent on the results of this probe, we prefer, for the present, not to commit additional wells beyond the drilling location.


The original Plan of Development for 1965 provided for the drilling of two Wolfcamp tests during the calendar year. Our drilling program, however, was accelerated, and four wells have been completed during 1965. Unit Wells No's. 11, 13 and 14 were completed as successful Wolfcamp producers, while Unit Well No. 12 will probably not recover sufficient oil to return the investment even though it was potentialed as a top allowable well. By the end of October 1965 the Unit was producing oil at a rate in excess of 27,000 barrels per month after accumulating approximately 915,000 barrels.

As of January 1, 1966 the Henshaw Deep Unit will have reached the fifth anniversary from the effective date of the Initial Participating Area. Unit Well No. 15 is being drilled outside of the existing participating area in accordance with Section 1 - (e) of the Unit Agreement in order to maintain the Unit Area in force by drilling on lands not entitled to participation.

We respectfully request that the drilling of Henshaw Deep Unit No. 15 satisfy the drilling obligations of the Unit Operators for the period ending

March 31, 1966. Before this plan expires, a plan for a future course of action in the Unit will be submitted.

SHELL OIL COMPANY  
Unit Operator

By:   
For: J. E. R. Sheeler  
Division Production Manager

Approved \_\_\_\_\_ Date Feb. 24 1960  
Supervisor, United State Geological Survey

Approved *[Signature]* Date *Feb. 24 1966*  
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

March 8, 1965

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Attention: Mr. T. H. Dwyer

Re: 1965 Plan of Development,  
Henshaw Deep Unit, Eddy  
County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1965 Plan of Development for the Henshaw Deep Unit, Eddy County, New Mexico, subject to like approval by the United States Geological Survey.

Three approved copies of the plan are returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JEK/og

cc: Commissioner of Public Lands  
Santa Fe, New Mexico

United States Geological Survey - Roswell

100 JAN 8 1964

January 5, 1964

Shell Oil Company  
P. O. Box 1852  
Roswell, New Mexico

Re: Henshaw Deep Unit  
Eddy County, New Mexico

Attention: Mr. T. H. Dwyer

Gentlemen:

Reference is made to our telephone conversation of January 4, 1965, regarding the elimination of the forty (40) acre tract of State land from the Henshaw Deep Unit and your concurrence with me that such elimination was automatic and became effective as of January 5, 1965.

I am returning three (3) copies of the 1965 Plan of Development for the Henshaw Deep Unit, Eddy County, New Mexico. The Application for Plan of Development is returned unapproved as there is no State land remaining in the Unit Area.

Shell Oil Company  
Attention: Mr. T. H. Dwyer  
January 5, 1965  
- page 2 -

Very truly yours,

GUYTON B. HAYS  
COMMISSIONER OF PUBLIC LANDS

BY:  
Ted Bilberry, Director  
Oil & Gas Department

GHI/tmr/v  
cc:

United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

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

Humble Oil & Refining Company  
P. O. Box 1597  
Roswell, New Mexico  
Attention: Mr. John S. Cron



Drawer 1857  
Roswell, New Mexico 88201

February 23, 1965

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Attention: Mr. T. H. Dyer

Gentlemen:

Your 1965 plan of development for the Manshaw Deep unit area, Eddy County, New Mexico, proposing the drilling of two lower Wolfcamp wells, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

JOHN A. ANDERSON  
Regional Oil & Gas Supervisor

cc:  
Washington (w/cy of plan)  
Artesia (w/cy of plan)  
MOCC - Santa Fe (ltr. only) ✓  
Com. of Pub. Lands - Santa Fe (ltr. only)



## SHELL OIL COMPANY

P. O. Box 1858  
Roswell, New Mexico

December 24, 1964

Subject: Plan of Development, 1965  
Antelope Ridge Unit, Lea County, N.M.  
and  
Henshaw Deep Unit, Eddy County, N.M.


Oil Conservation Commission  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

Please find attached our proposed Plan of Development for 1965, for the Antelope Ridge Unit, Lea County, New Mexico, and for the Henshaw Deep Unit, Eddy County, New Mexico.

If you approve these plans, please sign in the space provided and return one copy of each to our Roswell office.

Yours very truly,

  
For: T. H. Dwyer  
Division Production Manager

Attachments

PLAN OF DEVELOPMENT  
FOR THE CALENDAR YEAR 1965  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)  
EDDY COUNTY, NEW MEXICO

---

Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands (5)  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the year 1965.

As provided in the 1964 Plan of Development, Unit Well No. 10 was drilled to the lower Wolfcamp Zone. The lower Wolfcamp pay marker was encountered at 8525 feet (minus 4665 feet) which is 118 feet high to Henshaw Deep Unit No. 4, 3/4 mile south. Cores and drill stem tests indicated the pay was tight and water bearing and the well was plugged and abandoned October 25, 1964. A review of the completions on Wells 1 through 9 is included on previous plans of development for the Henshaw Deep Unit.

Since Unit Well No. 10 was dry and abandoned, the participating area as approved by the Director of the United States Geological Survey on October 7, 1963, remains unchanged at 1560 acres.


During the year 1965 the Unit Operator proposes to drill two lower Wolfcamp wells at undesignated locations. These wells will be the eleventh and twelfth tests in the Henshaw Deep Unit.

This Plan of Development shall constitute the drilling obligations of the Unit Operators under the terms of the Henshaw Deep Unit for the annual period ending December 31, 1964. Before this plan expires, another plan for the Unit will be submitted for the year 1966.

Portions of the Plan of Development herein outlined depend on certain information to be gained subsequent to drilling. This Plan of Development may be modified with approval to meet changing conditions.

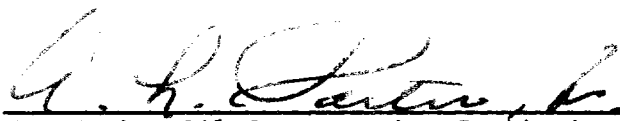
SHELL OIL COMPANY  
Unit Operator

By:

  
T. H. Dwyer  
Division Production Manager

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
State Commissioner of Public Lands

Approved  Date 3-8-60  
New Mexico Oil Conservation Commission

PLAN OF DEVELOPMENT  
FOR THE CALENDAR YEAR 1965  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)  
EDDY COUNTY, NEW MEXICO

---

Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands (5)  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

1964 DEC 20

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the year 1965.

As provided in the 1964 Plan of Development, Unit Well No. 10 was drilled to the lower Wolfcamp Zone. The lower Wolfcamp pay marker was encountered at 8525 feet (minus 4665 feet) which is 118 feet high to Henshaw Deep Unit No. 4, 3/4 mile south. Cores and drill stem tests indicated the pay was tight and water bearing and the well was plugged and abandoned October 25, 1964. A review of the completions on Wells 1 through 9 is included on previous plans of development for the Henshaw Deep Unit.

Since Unit Well No. 10 was dry and abandoned, the participating area as approved by the Director of the United States Geological Survey on October 7, 1963, remains unchanged at 1560 acres.


During the year 1965 the Unit Operator proposes to drill two lower Wolfcamp wells at undesignated locations. These wells will be the eleventh and twelfth tests in the Henshaw Deep Unit.

This Plan of Development shall constitute the drilling obligations of the Unit Operators under the terms of the Henshaw Deep Unit for the annual period ending December 31, 1964. Before this plan expires, another plan for the Unit will be submitted for the year 1966.

Portions of the Plan of Development herein outlined depend on certain information to be gained subsequent to drilling. This Plan of Development may be modified with approval to meet changing conditions.

SHELL OIL COMPANY  
Unit Operator

By:

  
T. H. Dwyer  
Division Production Manager

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
State Commissioner of Public Lands

Approved  Date 3-8-61  
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

1739

April 8, 1964

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Attention: Mr. T. H. Dwyer

Re: Revised Plan of Development  
1963, Henshaw Deep Unit,  
Eddy County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Revision to the 1963 Plan of Development dated October 8, 1963, for the Henshaw Deep Unit, Eddy County, New Mexico.

Four approved copies of the revision are returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JEK/og

cc: Commissioner of Public Lands - Santa Fe  
U. S. Geological Survey - Roswell

C  
O  
P  
Y

MAIN OFFICE OCC

1964 MAR 4 PM 3 22

March 4, 1964

Shell Oil Company  
P. O. Box 1258  
Roswell, New Mexico

Re: Henshaw Deep Unit  
Eddy County, New Mexico  
Revised Plan of Development  
1963

Attention: Mr. T. H. Dwyer

Gentlemen:

The Commissioner of Public Lands approves as of March 4, 1964, the Revised Plan of Development for 1963 for the Henshaw Deep Unit, Eddy County, New Mexico.

We are returning three approved copies.

Very truly yours,

E. S. JOSEPH WALKER  
COMMISSIONER OF PUBLIC LANDS

By:  
(Mrs.) Marian M. Rhea, Supervisor  
Unit Division

ESW/war/v  
cc:

Oil Conservation Commission  
Santa Fe, New Mexico

United States Geological Survey  
P. O. Drawer 1257  
Roswell, New Mexico





# SHELL OIL COMPANY


P. O. Box 18560 OCT 10 PM 1:30  
Roswell, New Mexico

October 8, 1963

Subject: Proposed Revised Plan of Development 1963  
Henshaw Deep Unit  
Eddy County, New Mexico

Oil and Gas Supervisor  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

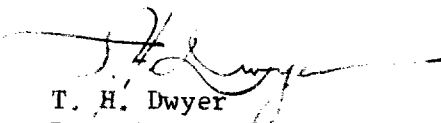
 Oil Conservation Commission  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Gentlemen:

Attached are copies of a proposed Revised Plan of Development on the Henshaw Deep Unit, Eddy County, New Mexico, for the calendar year 1963.

If this Plan of Development meets with your approval, please sign and return one copy for our file.

Yours very truly,

  
T. H. Dwyer  
Division Production Manager

Attachment

Note: On October 1, 1963, R. L. Rankin was transferred to Shell's Oklahoma City Office as Division Production Manager and was succeeded by T. H. Dwyer, hence the differing signature on this letter and the Revised Plan of Development.

REVISED PLAN OF DEVELOPMENT  
FOR THE CALENDAR YEAR 1963  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)  
EDDY COUNTY, NEW MEXICO

---

OIL AND GAS SUPERVISOR (6)  
UNITED STATES GEOLOGICAL SURVEY  
P. O. DRAWER 1857  
ROSWELL, NEW MEXICO

COMMISSIONER OF PUBLIC LANDS (5)  
STATE OF NEW MEXICO  
STATE LAND BUILDING  
SANTA FE, NEW MEXICO

OIL CONSERVATION COMMISSION (5)  
STATE OF NEW MEXICO  
STATE LAND BUILDING  
SANTA FE, NEW MEXICO

Gentlemen:

In compliance with Section 10 of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby submits for your approval a Revised Plan of Development for the remainder of 1963.

The original plan of development for 1963 and previous years reviews the completions of Henshaw Deep Unit Wells 1, 2, 3A, 4, and 5. Henshaw Deep Unit 6, a 9500-foot test located in the NE/4 SE/4 Section 23-16S-30E, was spudded on November 25, 1962, and completed in February 22, 1963, flowing 261 barrels of oil per day from lower Wolfcamp perforations 8697 to 8714 feet. Earlier production tests indicated the Pennsylvanian perforated interval 9266 to 9272 feet and lower Wolfcamp gross interval 8800 to 8848 feet were both essentially all water bearing.

Henshaw Deep Unit 7, located in the NE/4 NE/4 of Section 24-16S-30E, was completed dry and abandoned on July 10, 1963. This well was drilled to a total depth of 9250 feet and plugged after encountering all objective lower Wolfcamp zones either impermeable or water bearing.

Henshaw Deep Unit 8, a 9000-foot test in the NE/4 SW/4 of Section 25-16S-30E, was completed on August 1, 1963. On official potential test Well No. 8 flowed 380 barrels of oil per day from lower Wolfcamp perforations 8733 to 8743 feet.

A Fourth Enlargement to the Initial Participating Area has been submitted to the Director of the U.S.G.S. requesting a 320-acre increase or total participating area of 1560 acres in the Henshaw Deep Unit.

The Unit Operator proposes to initiate drilling operations on two additional lower Wolfcamp tests (Well Nos. 9 and 10) on the Henshaw Deep Unit during the remainder of 1963.

This revised plan of development shall constitute the drilling obligations of the Unit Operator under the terms of the Henshaw Deep Unit for the period ending December 31, 1963. Before this plan expires, another plan for further development of the Unit Area will be submitted.

It is understood that portions of the Plan of Development herein outlined are dependent upon certain information to be gained prior and subsequent to drilling and, therefore, this plan of development may be modified from time to time, with like approval, to meet changing conditions.

SHELL OIL COMPANY  
Unit Operator

By *R. L. Rankin*  
R. L. Rankin  
Division Production Manager

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands

Approved *A. K. Carter* Date 4-8-64  
Oil Conservation Commission

1241.3 5 11 1964  
Drawer 1857  
Roswell, New Mexico 88201

January 31, 1964

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Attention: Mr. T. H. Dwyer

Gentlemen:

Your 1964 plan of development for the Hanshaw Deep unit area, Eddy County, New Mexico, proposing the drilling of one Lower Wolfcamp well, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

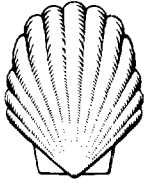
Sincerely yours,

(Orig.Sgd.) CARL C. TRAYWICK

CARL C. TRAYWICK  
Acting Oil & Gas Supervisor

cc:  
Washington (w/cy of plan)  
Artesia (w/cy of plan)  
NMOCC - Santa Fe (ltr. only) ✓  
Com. of Pub. Lands - Santa Fe (ltr. only)

ILLEGIBLE



# SHELL OIL COMPANY

P. O. Box 1858  
Roswell, New Mexico

December 20, 1963

Subject: Proposed Plan of Development 1964  
Henshaw Deep Unit  
Eddy County, New Mexico

Oil and Gas Supervisor  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Oil Conservation Commission  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

Attached are copies of a proposed Plan of Development on the Henshaw Deep Unit, Eddy County, New Mexico, for the calendar year 1964.

If this Plan of Development meets with your approval, please sign and return one copy for our file.

Yours very truly,

  
T. H. Dwyer  
Division Production Manager

Attachment

PLAN OF DEVELOPMENT  
FOR THE CALENDAR YEAR 1964  
HENSHAW DEEP UNIT (NO. 14-08-001-6453)  
EDDY COUNTY, NEW MEXICO

---

Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands (5)  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Oil Conservation Commission (5)  
State of New Mexico  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Henshaw Deep Unit Agreement, Shell Oil Company, as Unit Operator, hereby submits for your approval a Plan of Development for the year 1964.

The original Plan of Development for 1963, providing for one additional test, was amended to include a total of four Lower Wolfcamp wells during the year. However, Henshaw Deep Unit 9, the third of the four-well program planned for 1963, failed to encounter porosity development in the objective Lower Wolfcamp carbonate and was completed as a dry hole on November 2, 1963, after being drilled to a total depth of 9474 feet in the NW/4 NW/4 of Section 23-16S-30E. A review of the completions on Wells 1 through 8 is included on previous plans of development for the Henshaw Deep Unit. As a result of Henshaw Deep Unit 9, the Unit Operator proposes to defer drilling operations on Well No. 10 until 1964 in order to review the geology of the Lower Wolfcamp reservoir.

A Fourth Enlargement to the Initial Participating Area was approved by the Director of the United States Geological Survey on October 7, 1963, which increased the total participating area for the Lower Wolfcamp reservoir in the Henshaw Deep Unit from 1240 to 1560 acres.

The Unit Operator proposed to drill one Lower Wolfcamp well at an undesignated location during the year 1964 which will be the tenth test on the Henshaw Deep Unit.

This plan of development shall constitute the drilling obligations of the Unit Operator under the terms of the Henshaw Deep Unit for the period ending December 31, 1964. Before this plan expires, another plan for further development of the Unit Area will be submitted.

It is understood that portions of the Plan of Development herein outlined are dependent upon certain information to be gained prior and subsequent to drilling, and therefore, this plan of development may be modified from time to time, with like approval, to meet changing conditions.

SHELL OIL COMPANY  
Unit Operator

By

  
T. H. Dwyer  
Division Production Manager

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
State Commissioner of Public Lands

Approved \_\_\_\_\_ Date \_\_\_\_\_  
New Mexico Oil Conservation Commission



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
WASHINGTON 25, D. C.

IN REPLY REFER TO:

JUN 9 - 1959

Shell Oil Company  
Post Office Box 845  
Roswell, New Mexico

Attention: Mr. O. V. Lawrence

Gentlemen:

Your application of March 30 filed with the Oil and Gas Supervisor, Roswell, New Mexico, requests designation of 4,823.84 acres, Eddy County, New Mexico, as logically subject to exploration and development under the unitization provisions of the Mineral Leasing Act, as amended.

Pursuant to unit plan regulations of December 22, 1950, 30 CFR 226.3, the land outlined on your plat marked Exhibit "A", PROPOSED HEMLOCK DEEP UNIT is hereby designated as a logical unit area for all formations below the top of the Yezo formation. Any unit agreement submitted for the area designated should provide for a well to test the Devonian or to a depth of 12,300 feet.

Item 4 of your application requested that any well drilling or completed when the unit is approved be considered as the first well required under section 9. The standard language as used in your proposed form recognizes any drilling well, however, we cannot count a well which has already been completed as the required well unless said well qualifies as a paying well under section 9 of the unit agreement.

Your proposed form, which substantially follows the June 1957 reprint of the standard form of unit agreement except for special provisions to meet the requirements of the State of New Mexico and for modifications concerning rights of working interest owners to unitized substances and certain tax definitions under the "No Partnership" section, will be acceptable with modifications indicated in blue pencil. One marked copy is retained, one is being sent to the Supervisor, and one is attached.

In the absence of any other type of land requiring special provisions, or of any objections not now apparent, a duly executed unit agreement identical with said marked form will be approved if submitted in approvable status within a reasonable period of time.



However, the right is reserved to deny approval of any executed agreement which, in our opinion, does not have the full commitment of sufficient lands to assure effective control of unit operations.

When the executed agreement is submitted to the Supervisor for approval, include the latest status of all acreage, showing the current record owner of all issued leases and the current status of all lease applications, if any.

Very truly yours,

A handwritten signature in cursive script, appearing to read "William R. Baker".

Acting Director

Enclosure

# WESTERN OIL FIELDS, INC.

1827 GRANT STREET  
POST OFFICE BOX 1139 DENVER COLORADO  
TELEPHONE MAIN 3-0226

November 27, 1959

Shell Oil Company  
P. O. Box 845  
Roswell, New Mexico

Attention: Mr. O. V. Lawrence, Division Land Manager

RE: Henshaw Deep Unit Area  
Eddy County, New Mexico  
Etz Federal LC-063927  
Section 19 - 16S - 31E.

Gentlemen:

Due to a heavy backlog and schedule of commitments we regret to advise you that we are unable to enter into the proposed Henshaw Pooling Agreement at this time, nor would we want to sell or dispose of any of our mineral rights.

We wish to thank you for your patience and cooperative effort in this matter.

Very truly yours,

WESTERN OIL FIELDS, INC.

By

W. B. Middlemist

CC: Mr. F. J. Nicholson, Land Area Agent  
Shell Oil Company  
1700 Broadway  
Denver, Colorado

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

1731

November 1, 1963

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Attention: Mr. R. L. Rankin

Re: Fourth Enlargement to  
Initial Participating Area  
Henshaw Deep Unit, Eddy  
County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Fourth Enlargement to the Initial Participating Area for the Henshaw Deep Unit, Eddy County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Four approved copies of the application are returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JSK/og

cc: Commissioner of Public Lands - Santa Fe  
United States Geological Survey - Roswell

PLAIN

1963 OCT 1 11 4 04

October 31, 1963

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Re: Henshaw Deep Unit  
Eddy County, New Mexico  
Fourth Enlargement to  
Initial Participating Area

Attention: Mr. R. L. Rankin

Gentlemen:

The Commissioner of Public Lands approved as of October 31, 1963, the Fourth Enlargement to the Initial Participating Area, of the Henshaw Deep Unit, Eddy County, New Mexico.

We are handing to the Oil Conservation Commission five approved copies of this Application and requesting them to forward to you four approved copies.

Very truly yours,

E. L. JOHNNY WALKER  
COMMISSIONER OF PUBLIC LANDS

BY:  
(Mrs.) Marian M. Rhea, Supervisor  
Unit Division

ESW/mmz/v

cc: Oil Conservation Commission

United States Geological Survey  
Roswell, New Mexico



P. O. Box 1858  
Roswell, New Mexico

October 16, 1963

Subject: Henshaw Deep Unit 14-08-000-6453  
Eddy County, New Mexico  
Fourth Enlargement to  
Initial Participating Area

Commissioner of Public Lands  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Oil Conservation Commission  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

**Gentlemen:**

Attached for your consideration are seven copies of our application for the Fourth Enlargement to the Initial Participating Area of the Henshaw Deep Unit, which has been approved by the United States Geological Survey, subject to your ratification. We are sending these applications jointly to the Commissioner of Public Lands and the Oil Conservation Commission. We respectfully request that each of you, if you concur with the proposed adjusted boundaries, execute all seven copies, retaining three copies for your files and returning four executed copies to us for further handling.

Yours very truly,

Original Signed By  
J. H. DWYER

T. H. Dwyer  
Division Production Manager

## Attachments

160 OCT 1 11 4 05

Oct 27 1968  
S. A. H. H. H.



# SHELL OIL COMPANY

P. O. Box 1858  
Roswell, New Mexico

August 30, 1963

RECEIVED  
SEP 3 1963

U. S. GEOLOGICAL SURVEY  
ROSWELL, NEW MEXICO

Subject: Henshaw Deep Unit No. 14-08-001-6453  
Eddy County, New Mexico  
Fourth Enlargement to Initial  
Participating Area

Director  
United States Geological Survey  
Department of the Interior  
Washington 25, D. C.

Through:

Regional Director  
United States Geological Survey  
P. O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Oil Conservation Commission  
State of New Mexico  
State Land Building  
Santa Fe, New Mexico

Gentlemen:

In compliance with the requirements of Section 11 of the Henshaw Deep Unit Agreement, No. 14-08-001-6453, approved December 3, 1959, Shell Oil Company, as Unit Operator, submits Schedule I, attached hereto, and requests that the land described therein be approved as the acreage which will participate in production from the Henshaw Deep Unit effective August 1, 1963, the first day of the month in which Unit Well No. 8 was completed as an oil producer from the Wolfcamp formation.

The acreage presently dedicated to the participating area covered by the Original Participating Area plus the First, Second, and Third Enlargements is described as follows:

S/2 SW/4, SW/4 SE/4 Section 13; S/2 SE/4 Section 14;  
E/2 Section 23; W/2, W/2 NE/4, SE/4 Section 24;  
N/2 N/2 Section 25; all in T-16-S, R-30-E.

A Fourth Enlargement is requested as the result of the successful completion on August 1, 1963, of Henshaw Deep Unit No. 8, NE/4 SW/4 Section 25, T-16-S, R-30-E, in the Lower Wolfcamp reservoir (interval 8733 to 8743 feet). Well No. 8 was tested on August 1, 1963, at a daily flowing rate of 380 barrels of oil with a 0.1 per cent BS&W cut through a 14/64-inch choke with a flowing tubing pressure of 1200 psi and a gas-oil ratio of 1661 cubic feet per barrel after a 300-gallon acid treatment.

Three tests have been drilled within the Henshaw Deep Unit since the effective date of the Third Enlargement of the Initial Participating Area. Henshaw Deep Unit No. 7, NE/4 NE/4 Section 24, T-16-S, R-30-E, was completed

dry and abandoned on July 10, 1963, beyond the east boundary of the existing participating area. Henshaw Deep Unit No. 6, NE/4 SE/4 Section 25, T-16-S, R-30-E, was completed on February 2, 1963, flowing 261 barrels of oil per day through a 13/64-inch choke with a tubing pressure of 1380 psi and a gas-oil ratio of 2850 cubic feet per barrel. Well No. 6 was drilled within the established participating area in the western sector. The results of this well together with Henshaw Deep Unit No. 8, establish the direction of the structural axis of the lower Wolfcamp to trend in a NNW-SSE direction passing near the middle of Section 23, with structural relief probably increasing to the north. These tests also confirm a general east-west trending belt of good quality reservoir development bounded on the north by Henshaw Deep Unit No. 4 and on the south by Henshaw Deep Unit No. 3A. Henshaw Deep Unit 8 encountered 53 feet of porous carbonate in the producing zone, which is well above the average development established in other wells drilled to date. This improved porosity development helps to account for the high productivity of earlier wells, where performance has indicated reserves of greater magnitude than could be explained by volumetric calculations. Henshaw Deep Unit No. 1 has accumulated 115,347 barrels of oil to July 1, 1963, without a discernible reservoir pressure drop. Cumulative production to July 1 from all wells has been 310,808 barrels of oil. As a result of the latest structural control and the improved porosity development noted in Henshaw Deep Unit No. 8, it is the opinion of the Operator that the entire W/2 Section 23, T-16-S, R-30-E, can reasonably be assumed to be within the productive area of the Henshaw Wolfcamp reservoir. Accordingly, it is requested that the participating area be enlarged to include this tract, thereby establishing a participating area of 1560 acres, described as follows:

S/2 SW/4, SW/4 SE/4 Section 13; S/2 SE/4 Section 14;  
All of Section 23; W/2, W/2 NE/4, SE/4 Section 24;  
N/2 N/2 Section 25; all in T-16-S, R-30-E, N.M.P.M.

The land described above is unitized and constitutes all of the land which can be regarded as being reasonably proved or indicated to be productive of unitized substances in paying quantities.

In support of this application we are submitting the following exhibits:

1. A structural map showing the Henshaw Deep Unit, the present enlarged Initial Participating Area and the proposed Fourth Enlargement of the Initial Participating Area.
2. A cross section showing the structural and stratigraphic relationships of wells within the trend of good quality reservoir development.
3. Schedule I, showing the participating percentage of each lease included or partially included in the enlarged participating area.

Re: Henshaw Deep Unit No. 14-08-001-6453

3

The Operator respectfully requests your approval of this application for the Fourth Enlargement of the Initial Participating Area of the Henshaw Deep Unit to be effective August 1, 1963.

Very truly yours,



R. L. Rankin  
Division Production Manager

Enclosures

1963

Approved:

ACTING

  
Director

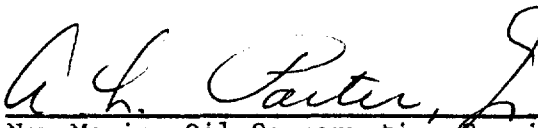
United States Geological Survey

1963

Approved:

  
State Commissioner of Public Lands

Approved:

  
New Mexico Oil Conservation Commission

Nov 1, 1963



Schedule I  
Fourth Enlargement of the Initial Lower Wolfcamp Participation Area  
Henshaw Deep Unit, Eddy County, New Mexico  
Schedule Showing the Percentage of Participation  
and Ownership of Leases in the Participating Area

Lease:	Shell Oil Company
Working Interest Owner:	Shell Oil Company
Serial Number and Tract Number	LC 063928-B (Tract 14)
Participating Acreage:	80.00 Acres
Percent of Participation:	5.128205
Description	Section 13: S/2 SW/4 T-16-S, R-30-E, N.M.P.M.
Lease:	J. W. Jones, et al
Working Interest Owner:	Shell Oil Company
Serial Number and Tract Number:	LC 063932 (Tract 15)
Participating Acreage:	40.00 Acres
Percent of Participation:	2.564103
Description:	Section 13: SW/4 SE/4 T-16-S, R-30-E, N.M.P.M.
Lease:	Shell Oil Company
Working Interest Owner:	Shell Oil Company
Serial Number and Tract Number:	LC 063923 B (Tract 10)
Participating Acreage:	80.00 Acres
Percent of Participation:	5.128205
Description	Section 14: S/2 SE/4 T-16-S, R-30-E, N.M.P.M.
Lease:	H. J. Loe
Working Interest Owner:	Texaco Inc.
Serial Number and Tract Number:	LC 064637 (Tract 18)
Participating Acreage:	360.00 Acres
Percent of Participation:	23.076923
Description:	Section 23: NE/4, N/2 SE/4, SE/4 SE/4 Section 24: W/2 NE/4 T-16-S, R-30-E, N.M.P.M.
Lease:	H. J. Loe
Working Interest Owner:	Texaco Inc.
Serial Number and Tract Number:	LC 064637-A (Tract 18)
Participating Acreage:	40.00 Acres
Percent of Participation:	2.564103
Description:	Section 23: SW/4 SE/4 T-16-S, R-30-E, N.M.P.M.
Lease:	Bright, Schiff & Kennedy
Working Interest Owner:	Shell Oil Company
Serial Number and Tract Number:	LC 029424 (Tract 3)
Participating Acreage:	560.00 Acres
Percent of Participation:	35.897436
Description:	Section 23: W/2; Section 24: NW/4 and S/2 SW/4, T-16-S, R-30-E, N.M.P.M.

Lease:	Texaco Inc.
Working Interest Owner:	Shell Oil Company
Serial Number and Tract Number:	LC 063925 (Tract 11)
Participating Acreage:	80.00 Acres
Percent of Participation:	5.128205
Description:	Section 24: N/2 SW/4 T-16-S, R-30-E, N.M.P.M.
Lease:	Texaco Inc.
Working Interest Owner:	Texaco Inc.
Serial Number and Tract Number:	NM 074951 (Tract 20)
Participating Acreage:	160.00 Acres
Percent of Participation:	10.256410
Description:	Section 24: S/2 SE/4; Section 25: N/2 NW/4, T-16-S, R-30-E, N.M.P.M.
Lease:	Humble Oil & Refining Company
Working Interest Owner:	Humble Oil & Refining Company
Serial Number and Tract Number:	NM 029137 (Tract 23)
Participating Acreage:	80.00 Acres
Percent of Participation:	5.128205
Description:	Section 24: N/2 SE/4 T-16-S, R-30-E, N.M.P.M.
Lease:	Texaco Inc.
Working Interest Owner:	Texaco Inc.
Serial Number and Tract Number:	NM 07781 (Tract 26)
Participating Acreage:	80.00 Acres
Percent of Participation:	5.128205
Description:	Section 25: N/2 NE/4 T-16-S, R-30-E, N.M.P.M.

## Summary:

	<u>Acres</u>	<u>Percent</u>
Total Federal Lands	1560.00	100.0000
Total Indian Lands	-	-
Total State Lands	-	-
Total Fee or Other Lands	-	-
Subtotal	1560.00	100.0000
Uncommitted Acreage	-	-
Total Productive Acreage	1560.00	100.0000

