



United States Department of the Interior

GEOLOGICAL SURVEY
Drawer 1857
Roswell, New Mexico 88201

June 24, 1976
4278

Amoco Production Company
Attention: Mr. A. R. Reed
P.O. Box 3092
Houston, Texas 77001

Gentlemen:

Your letter of June 8, 1976, advises that as unit operator of the Empire South Deep unit, Eddy County, New Mexico, you have determined that unit well No. 7, located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 30, T. 17N., R. 29E., N.M.P.M., is not capable of producing unitized substances in paying quantities from the Wolfcamp.

Well No. 7 was completed October 2, 1975, in the Wolfcamp interval 7,863 to 7,873 feet for a pumping potential of 169 barrels of oil and 53 barrels of water per day. Our records show that after six-months of operation, recovering 2,494 barrels of oil, the production rate has declined to 2 barrels of oil per day as of March, 1976.

This office concurs with your determination that Unit well No. 7 is not capable of producing unitized substances in paying quantities from the Wolfcamp.

Inasmuch as the producing capability of the Morrow in unit well No. 7 has not been determined, this office is of the opinion that the Morrow participating area should not be changed as a result of such well at this time. Any revision (enlargement or contraction) of the current Morrow participating area to be occasioned by unit well No. 7 should await such time as definitive data is available either by actual testing of the Morrow in well No. 7 or the drilling of another Morrow well in the same sec. 30.

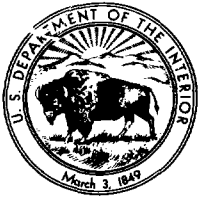
Sincerely yours,

(ORIG. SGE) CARL C. TRAYWICK

CARL C. TRAYWICK
Acting Area Oil and Gas Supervisor

cc: Artesia (w/cy notice)
NMOGC, Santa Fe (ltr. only)
Com. Pub. Lands, Santa Fe (ltr. only)
Accounts

JAGillham:dap



United States Department of the Interior

GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

February 6, 1976

Amoco Production Company
Attention: Mr. A. R. Reed
P.O. Box 3092
Houston, Texas 77001

Gentlemen:

Your letter of January 13, 1976, requesting approval of two proposals for the Empire South Deep unit agreement, Eddy County, New Mexico, No. 14-08-0001-11591, has been approved on this date by the Acting Area Oil and Gas Supervisor, United States Geological Survey. Such approval is subject to like approval by the New Mexico Commissioner of Public Lands and the Oil Conservation Commission.

The two proposals approved are:

1. The fourth revision adds 910.37 acres, described in Exhibit B attached to your letter, to the Morrow participating area enlarging the area to 2,884.05 acres effective as of September 1, 1975. Such revision is based largely upon the completion of unit well No. 6, located in the SE $\frac{1}{4}$ of sec. 1, T. 18S., R. 28E., N.M.P.M. Unit well No. 6 was completed September 17, 1975 from the Morrow interval 10,831 to 10,857 feet for an initial open flow potential of 3,100 MCF of gas and 54 barrels of condensate per day.
2. A 1976 plan of development wherein you propose the drilling of three unit Morrow wells on lands outside the participating area.

Copies of your approved letter application are being distributed to the appropriate Federal offices and one approved copy is returned herewith. You are requested to furnish all interested parties with appropriate evidence of such approval.

Sincerely yours,

(ORIG. SGD.) CARL C. TRAYWICK

CARL C. TRAYWICK
Acting Area Oil and Gas Supervisor

cc:
see next page

RECEIVED
FEB 10 1976
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

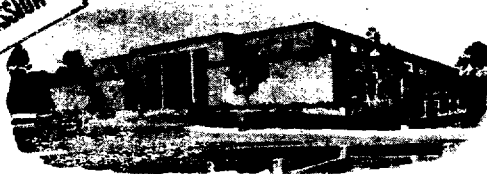
cc:
BLM, Santa Fe (w/cy exhibit B)
Artesia (w/cy appln.)
NMOCC, Santa Fe (ltr only) ✓
Com. Pub. Lands, Santa Fe (ltr only)
2 File Copies
 1) Morrow participating area
 2) Plan of Development

JAGillham:dap



RECEIVED
JAN 26 1976
OIL CONSERVATION COMMISSION

State of New Mexico



457
TELEPHONE
505-527-2748

PHIL R. LUCERO
COMMISSIONER

Commissioner of Public Lands
January 23, 1976

P. O. BOX 1148
SANTA FE, NEW MEXICO 87501

Anaco Production Company
500 Jefferson Building
P. O. Box 3092
Houston, Texas 77001

Re: Fourth Revision of the
Morrow Participating Area and
1976 Plan of Development,
Empire South Deep Unit
Eddy County, New Mexico

ATTENTION: Mr. A. R. Reed

Gentlemen:

The Commissioner of Public Lands has this date approved your 1976 Plan of Development for the Empire South Deep Unit, whereby, you propose the drilling of three (3) Morrow wells.

Approval of your Fourth Revision of the Morrow Participating Area for the Empire South Deep Unit, Eddy County, New Mexico has also been approved on this date. These approvals are subject to like approval by the United States Geological Survey and the New Mexico Oil Conservation Commission.

One approved copy is returned herewith for your files.

Your Three (\$3.00) Dollar filing fee has been received.

Very truly yours,

PHIL R. LUCERO
COMMISSIONER OF PUBLIC LANDS

BY:
RAY D. GRAHAM, Director
Oil and Gas Division

FRL/RDG/s
encl.
cc:

USGS-Roswell, New Mexico
OCC- Santa Fe, New Mexico ✓

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

4578

January 20, 1976

Amoco Production Company
P. O. Box 3092
Houston, Texas 77001

Attention: Mr. A. R. Reed

Re: Fourth Revision Morrow
Participating Area, 1976
Plan of Development,
Empire South Deep Unit,
Eddy County, New Mexico.

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Fourth Revision of the Morrow Participating Area and 1976 Plan of Development for the Empire South 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.

Two approved copies of the revision and plan are returned herewith.

Very truly yours,

JOE D. RAMEY
Secretary-Director

JDR/JEK/og

cc: United States Geological Survey
Box 1857
Roswell, New Mexico

Commissioner of Public Lands
Santa Fe, New Mexico

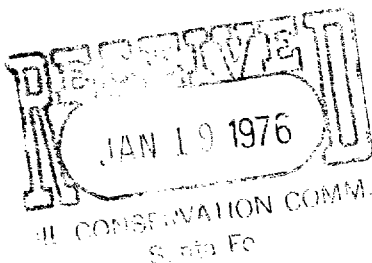


Amoco Production Company

500 Jefferson Building
P.O. Box 3092
Houston, Texas 77001

A. R. Reed
Division Operations
Superintendent

January 13, 1976



File: RCJ-630-LF

Re: Fourth Revision of the
Morrow Participating Area and
1976 Plan of Development,
Empire South Deep Unit
Eddy County, New Mexico

Mr. John Duletsky (3)
Acting Area Oil and Gas Supervisor
United States Department of the Interior
Geological Survey
Post Office Drawer 1857,
Roswell, New Mexico 88201

Mr. Phil R. Lucero (3)
Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Mr. James E. Kapteina (3) ✓
New Mexico Oil Conservation Commission
Post Office Box 2088
Santa Fe, New Mexico 87501

Gentlemen:

Amoco Production Company as operator of the Empire South Deep Unit, Eddy County, New Mexico, No. 14-08-0001-11591, respectfully requests that approval be given for our proposed Fourth Revision of the Morrow Participating Area and 1976 Plan of Development for the Unit.

Attached as Exhibit "A" is a map showing the present Morrow and Wolfcamp Participating Areas by graphical code and outlining the proposed Fourth Morrow Participating Area expansion by yellow border and outline. Further, attached as Exhibit "B" is a tabulation giving the legal description of the 910.37 acres of land in the proposed expansion. Attached as Exhibit "C" is a tabulation giving the legal description and tract percentages of the total Morrow Participating Area which would exist after the proposed Fourth expansion.

The Fourth participating area expansion to be effective September 1, 1975 is based largely on the completion of Well No. 6 on September 17, 1975, flowing 3100 MCFD plus 54 barrels condensate from the Morrow. Exhibit "D" is a structural map of the Middle Morrow from which the Empire South Deep Morrow wells produce. It shows two structural noses over the area of production which is now about 5 miles wide. Exhibit "E" is a cross section of all the unit wells plus one offset on the east. Pertinent well data are shown below the log of each well and the location of each well is shown on a small insert map at the bottom of the cross section.

The cross section shows our correlation of the "A", "B", and "C" Morrow sands which produce in the area. All zones do not produce at each well, but it can be concluded that one or more zones are present at every well in the unit. It is admitted that these sands will probably not produce at commercial rates at some locations. For example, at Unit Well No. 4 the sands are too shaley or too tight to produce. These conditions in the Morrow are present elsewhere in the Delaware Basin where some cases are noted with dry holes very close to producers. It can be reasonably concluded from present data that the Morrow is probably productive over all the Unit. Additional supporting data may become available for the north part of Section 30 and the southeast side of the Unit. We, therefore, believe that our proposed participating area expansion is reasonable.

From examination of the cross section (Exhibit "E") it can be seen that Unit Well No. 7 encountered Morrow sand sections in the "A" and "C" zones. The possible pay in the "A" zone is very thin and the "C" zone is very tight. In view of this, the majority of partners elected to make initial completion attempts in up-hole zones but casing was set through the Morrow section for possible later testing. The well was then completed on October 2, 1975 in the Wolfcamp pumping 169 barrels of oil and no water per day.

Well No. 7 was placed in the Empire Wolfcamp Field which was established by the completion of Unit Well No. 4 in that formation on March 8, 1974. We have not observed sufficient performance from Well No. 7 to make firm recommendations concerning its commercial nature in the Wolfcamp. We also do not desire to make any recommendation at this time concerning this well's effect on the Morrow participating area and would prefer to wait until it is tested or a decision made not to test the Morrow. We still feel that the thick channel type sand found in Unit Well No. 5 may continue on north in Section 29 and/or 30, T17S, R29E. General American is apparently planning to drill an east offset to the Unit being in Section 29 and this could influence our ideas about Section 30.

We propose that the 1976 Plan of Development for the Unit call for at least three (3) wells in the Morrow. No development is presently

Page 3
January 13, 1976

recommended in the Wolfcamp as we hope to learn more about its areal extent while drilling the three (3) Morrow wells. One of these will be Well No. 8 located in the SW/4 of Section 33, T17S, R29E. The other two wells will probably be in the southeast part of the unit as we attempt to validate all acreage in the Unit before the automatic elimination date of November 29, 1976. Well No. 8 should have been able to start before now, but it has taken a very long time to work out all the details for the well. This occurs since we must form a unit of the south half of Section 33 and all of the Empire Deep Unit partners are involved plus two companies outside the Unit.

Your favorable consideration of the foregoing will be appreciated.

Yours very truly,

A. R. Reed

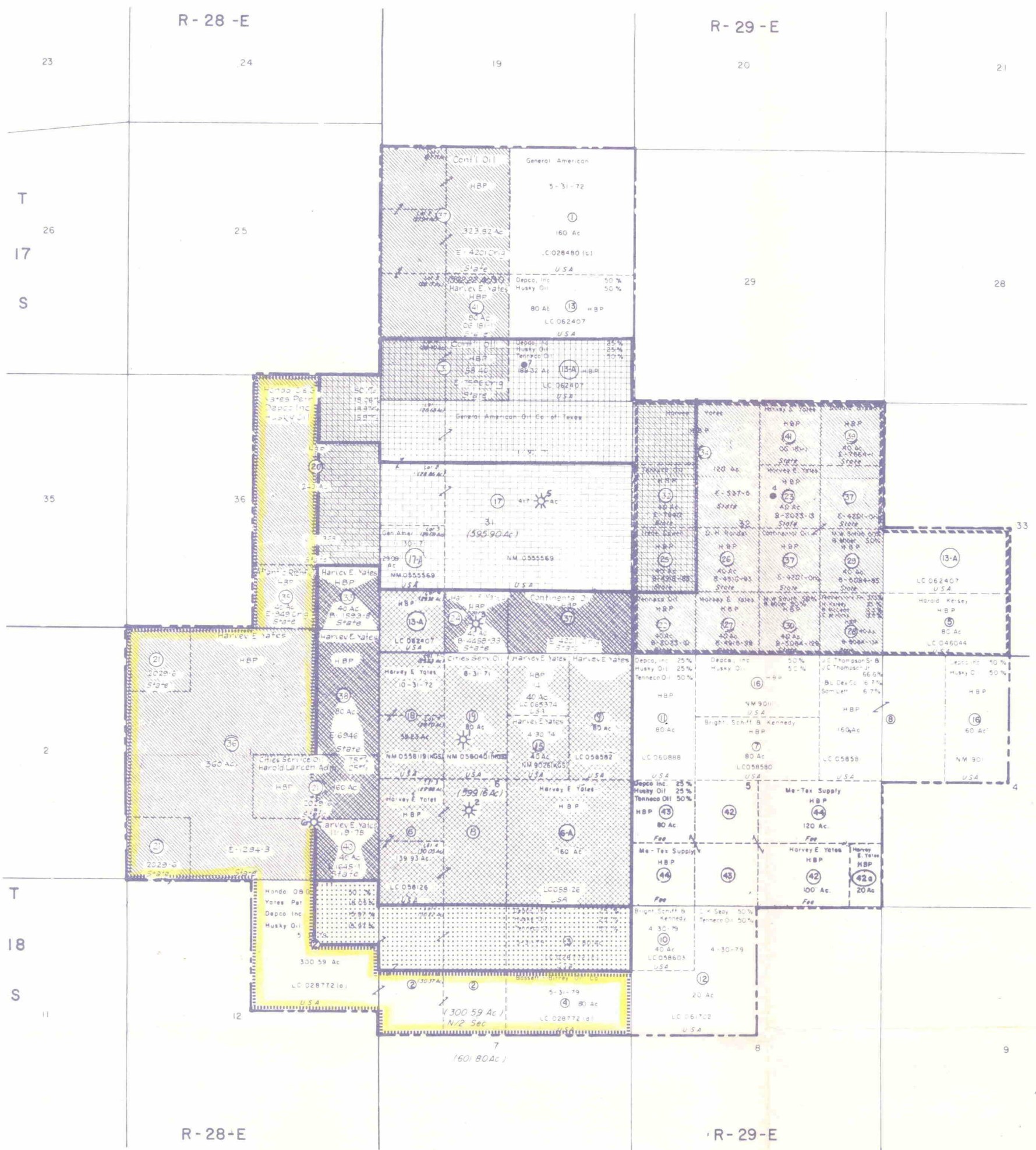
JVM/jel
2/1000

Attachments (5)

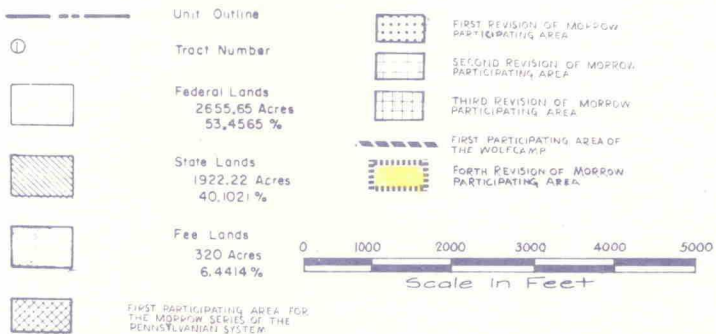
Approved.....January 20, 1976.....

Joe J. [Signature]
.....
Secretary-Director

NEW MEXICO OIL CONSERVATION COMMISSION



LEGEND



EMPIRE SOUTH DEEP UNIT
A FEDERAL UNIT

DEPTH RIGHTS BELOW APPROX. 4000'
4967.87 Acres

T's 17&18S, R's 28 & 29E
Eddy County, New Mexico

EXHIBIT "A"

EFFECTIVE 9-1-75

EXHIBIT A

FOURTH MORROW PARTICIPATING AREA REVISION
EMPIRE SOUTH DEEP UNIT

EXHIBIT B
Effective 9-1-75

<u>Unit Tract No.</u>	<u>Description</u>	<u>Lease No.</u>	<u>Participating Acres</u>
2	T-18-S, R-28-E, Sec. 12: W/2 NE/4, SE/4 NE/4. T-18-S, R-29-E, Sec. 7: Lot 2, SE/4 NW/4.	LC 028772(a)	190.37
4	T-18-S, R-29-E, Sec. 7: S/2 NE/4	LC 028772(d)	80.0
20	T-17-S, R-28-E, Sec. 36: W/2 NE/4, NW/4 SE/4.	647-368	120.0
21	T-18-S, R-28-E, Sec. 1: NW/4 NW/4, SW/4 SW/4, NW/4 SE/4.	2029-6	120.0
35	T-17-S, R-28-E, Sec. 36: SW/4 SE/4.	E-949-Orig.	40.0
36	T-18-S, R-28-E, Sec. 1: W/2 NE/4, E/2 NW/4, SW/4 NW/4, N/2 SW/4, SE/4 SW/4, SW/4 SE/4.	E-1284-3	<u>360.0</u>
		TOTAL	910.37

JVM:sam

ALLOCATION SCHEDULE
INITIAL PLUS FIRST, SECOND, THIRD, AND FOURTH REVISIONS OF MORROW PARTICIPATING AREA
EMPIRE SOUTH DEEP UNIT

EFFECTIVE 9-1-75

Tract No.	Description	Lease No.	Participating Acres	% of Participating Area	Working Interest Owners %
Tr. 2	T-18S, R-28E Sec. 12: NE/4 NE/4, W/2 NE/4, SE/4 NE/4. T-18S, R-29E Sec. 7: Lot 1 (NW/4 NW/4, 30.22 ac.) NE/4 NW/4, Lot 2 (SW/4 NW/4, 30.37 ac.) SE/4 NW/4 T-18S, R-29E, Sec. 7: N/2 NE/4. T-18S, R-29E Sec. 7: S/2 NE/4. T-18S, R-29E Sec. 6: Lots 3, 4 (W/2 SW/4) E/2 SW/4.	LC-028772(a)	300.59	10.4224961	Amoco Production Company Harvey E. Yates Company General American Oil Company of Texas Continental Oil Company Tenneco Oil Company Shinnery Investment Company Depco, Inc. Husky Oil Company of Delaware Hondo Oil & Gas Company Cities Service Oil Company Bright, Schiff and Kennedy Me-Tex Supply Company J. Cleo Thompson, Sr. James Cleo Thompson, Jr. I&L Development Company Sam Lett Yates Petroleum Company Harold Kersey Bassett-Birney Oil Corporation Charlene K. Seay M. W. Smith Kathleen Miller Atlantic Richfield Company O. H. Randel C. F. Qualia Mark D. Wilson A. J. Losee Robert E. Boling Harold Larsen, Administrator Donald Brown Earl A. Latimer, Jr.
Tr. 3	T-18S, R-29E, Sec. 7: N/2 NE/4.	LC-028772(c)	80.00	2.7738771	6.105035
Tr. 4	T-18S, R-29E Sec. 7: S/2 NE/4.	LC-028772(d)	80.00	2.7738771	7.895140
Tr. 6	T-18S, R-29E Sec. 6: Lots 3, 4 (W/2 SW/4) E/2 SW/4.	LC-058126	139.93	4.8518576	3.569535
Tr. 6-A	T-18S, R-29E Sec. 6: SE/4.	LC-058126	160.00	5.547754	3.281250
Tr. 9	T-18S, R-29E Sec. 6: E/2 NE/4.	LC-058582	80.00	2.7738771	6.314060
Tr. 13-A	T-17S, R-29E Sec. 30: S/2 SE/4 Sec. 31: Lot 4 (SW/4 SW/4, 29.32 ac.)	LC-062407	109.32	3.7905029	2.720435
Tr. 14	T-18S, R-29E Sec. 6: NW/4 NE/4.	LC-065374-A	40.00	1.3869385	2.012940
Tr. 15	T-18S, R-29E Sec. 6: SW/4 NE/4.	NM-9026 (KGS)	40.00	1.3869385	2.07760
Tr. 17	T-17S, R-29E Sec. 31: Lot 1 (NW/4 NW/4, 28.63 acres) NE/4 NW/4, N/2 NE/4 T-17S, R-29E Sec. 31: Lot 2 (SW/4 NW/4 28.86 ac.) SE/4 NW/4, NE/4 SW/4, S/2 NE/4, N/2 SE/4.	NM-0555569	417.49	14.4758239	1.207760
Tr. 17-A	T-17S, R-29E Sec. 31: Lot 3 (NW/4 SW/4, 29.09 ac.)	NM-0555569	29.09	1.008651	1.073780
Tr. 18	T-18S, R-29E Sec. 6: Lots 1, 2 (W/2 NW/4)	NM-0558119 (KGS)	59.23	2.0537091	1.073460

Tract No.	Description	Lease No.	Participating Acres	% of Participating Area	Working Interest Owners %
Tr. 19	T-18S, R-29E Sec. 6: E/2 NW/4.	NM-0560401 (KGS)	80.00	2.7738771	H. B. McGrady Charles C. Harlan, Jr. Featherstone Farms, Ltd. Roland McLean Charles W. Hicks Trust for Olen F. Featherstone II TOTAL
Tr. 20	T-17S, R-28E Sec. 36: SE/4 NE/4, NE/4 SE/4, NE/4 NE/4, W/2 NE/4, NW/4 SE/4.	647-368	240.00	8.321631	.025162 .025162 .150965 .050325 .050325
Tr. 21	T-18S, R-28E Sec. 1: NE/4 SE/4, NW/4 NW/4, SW/4 SW/4, NW/4 SE/4	2029-6	160.00	5.547754	.050325 100.000000
Tr. 24	T-17S, R-29E Sec. 31: SE/4 SW/4.	B-4458-33	40.00	1.3869385	
Tr. 25	T-17S, R-29E Sec. 32: NW/4 SW/4.	B-4918-85	40.00	1.3869385	
Tr. 31	T-17S, R-29E Sec. 30: Lot 4 (SW/4 SW/4, 28.40 Ac.) SE/4 SW/4.	E-7596-Orig.	68.40	2.3716648	
Tr. 32	T-17S, R-29E Sec. 32: SW/4 NW/4	E-7640	40.00	1.3869385	
Tr. 33	T-17S, R-28E Sec. 36: SE/4 SE/4.	B-11593-8	40.00	1.3869385	
Tr. 34	T-17S, R-29E Sec. 32: NW/4 NW/4.	E-537-5	40.00	1.3869385	
Tr. 35	T-17S, R-28E Sec. 36: SW/4 SE/4.	E-949-Orig.	40.00	1.3869385	
Tr. 36	T-18S, R-28E Sec. 1: W/2 NE/4, E/2 NW/4, SW/4 NW/4, N/2 SW/4, SE/4 SW/4, SW/4 SE/4.	E-1284-3	360.00	12.482465	
Tr. 37	T-17S, R-29E Sec. 31: S/2 SE/4	E-4201-Orig.	80.00	2.7738771	
Tr. 38	T-18S, R-28E Sec. 1: E/2 NE/4	E-6946	80.00	2.7738771	
Tr. 40	T-18S, R-28E Sec. 1: SE/4 SE/4	L-1645-1	40.00	1.3869385	
	TOTAL		2884.05	100.000000	