

PARTICIPATION - INITIAL PARTICIPATING AREA
CHALK BLUFF DRAW UNIT
EDDY COUNTY, NEW MEXICO

Tract No.	Participating Acreage Description	Participating Acreage	Lease Serial No. and Lessee of Record	Basic Royalty Working Interest <u>Overriding Royalty</u>	Ownership	Participation by Percentages	
						Tract	Area
4.	T-18-S, R-27-E. Sec. 5: Lot 3, SE/4 NW/4, NE/4 SW/4	121	LC-026874 (e) Humble Oil & Ref. Co.		U. S. A.	.125000	.01178062
					Humble Oil & Ref. Co.	.750000	.07068375
					Mary Lorena Higgins	.013750	.00129587
					Joe A. Clayton	.002500	.00023561
					Nora B. Clayton	.002500	.00023561
					A. W. Adkisson	.018750	.00176709
					Lois Burnett	.010000	.00094245
					H. G. Watson	.005156	.00048593
					Childress Royalty Co.	.017188	.00161988
					Fred Brainard	.015919	.00150027
					Clyde Guy & Sons, Inc.	.010763	.00101435
					V. S. Welch*	.017766	.00167435
					Harvey Yates*	.000940	.00008859
					S. P. Yates*	.000940	.00008859
					Martin Yates*	.000940	.00008859
					John Ashby Yates*	.000940	.00008859
James R. Evarts	.001389	.00013090					
Gladys Evarts, Gdn.	.001389	.00013090					
Berda Montgomery	.001389	.00013090					
Beatrice Caywood	.001389	.00013090					
Anita Britain	.000464	.00004372					
Irene Evarts	.000464	.00004372					
Robert Evarts	.000464	.00004372					
Total		1.000000				1.09424500	

*These interests subject to remaining unpaid balance of \$2,000.00 oil payment reserved by Helen Yeager Eaton.

6.	T-18-S, R-27-E. Sec. 8: SW/4 NE/4	40	LC-043894 Humble Oil & Ref. Co.	Basic Royalty		.125000	.00389438
				Working Interest		.750000	.02336625
				<u>Overriding Royalty</u>		.010000	.00031155
				R. D. Compton		.010000	.00031155
			Julian E. Simon		.105000	.00327127	
			Total		1.000000	1.03115500	

8. T-18-S, R-27-E
 Sec. 5: Lot 4, SW/4 NW/4,
 NW/4 SW/4

121.07 LC-049648 (a)
 Humble Oil & Ref. Co.

Basic Royalty
Working Interest
Overriding Royalty

U. S. A.	.125000	.11178750
Humble Oil & Ref. Co.	.750000	.70725000
Childress Royalty Co.	.017188	.01620830
H. G. Watson	.005154	.00486020
Mary Lorena Higgins	.013751	.01296671
Nora B. Clayton	.002500	.00235750
Joe A. Clayton	.002500	.00235750
Fred Brainard	.083907	.07912440
Total	1.000000	.94300000

9. T-18-S, R-27-E
 Sec. 8: N/2 NE/4, SE/4 NE/4

120 LC-054205
 Malco Refineries, Inc.

Basic Royalty
Working Interest
Overriding Royalty

U. S. A.	.125000	.01168325
Malco Refineries	.825000	.77109450
Malco Refineries	.040000	.00373864
Lillie M. Yates	.010000	.00093466
Total	1.000000	.09346600

11. T-18-S, R-27-E
 Sec. 5: E/2 SE/4, S/2 SW/4

160 LC-055383 (a)
 Malco Refineries, Inc.

Basic Royalty
Working Interest
Overriding Royalty

U. S. A.	.125000	.01557787
Malco Refineries	.750000	.09346726
Malco Refineries	.050000	.00623116
Mary Lorena Higgins	.013750	.00171456
Childress Royalty Co.	.017188	.00214203
Fred Brainard	.005156	.00064255
H. G. Watson	.005156	.00064255
Joe A. Clayton	.002500	.00031156
Nora B. Clayton	.002500	.00031156
A. W. Adkisson	.014375	.00179145
Louis Burnett	.014375	.00179145
Total	1.000000	.12462300

14. T-18-S, R-27-E
 Sec. 9: NW/4

160 LC-055465 (b)
 Mildred Crane Hudson

Basic Royalty
Working Interest
Overriding Royalty

U. S. A.	.125000	.01557787
Humble Oil & Ref. Co.	.750000	.09346726
Mildred Hudson	.125000	.01557787
Total	1.000000	.12462300

18.	T-1E-S, R-27-E Sec. 5: Lots 1, 2, S/2 NE/4	161.81	LC-064384 Malco Refineries, Inc.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U. S. A. Malco Refineries Carlos L. Carter Mildred C. Hudson Total	.125000 .845000 .020000 .010000 1.000000	.01575412 .10649788 .00252066 .00126034 .12603300
20.	T-1E-S, R-27-E Sec. 5: W/2 SE/4	80	LC-065600 Humble Oil & Ref. Co.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U. S. A. Humble Oil & Ref. Co. Lillie M. Yates Total	.125000 .750000 .125000 1.000000	.00778887 .04673326 .00778887 .06231100
26.	T-1E-S, R-27-E Sec. 8: S/2 SE/4	80	LC-070678 (a) Malco Refineries, Inc.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U. S. A. Malco Refineries Malco Refineries Mildred C. Hudson Mary Lorena Higgins Lee Vandag Riff Total	.125000 .750000 .050000 .028750 .014063 .032187 1.000000	.00778887 .04673325 .00311555 .00179145 .00087627 .00200561 .06231100
28.	T-1E-S, R-27-E Sec. 9: SW/4	160	LC-070938 Hugo A. Anderson	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U. S. A. Malco Refineries Malco Refineries Total	.125000 .825000 .050000 1.000000	.01557787 .10281397 .00623116 .12462300
32.	T-1E-S, R-27-E Sec. 8: NW/4 SE/4	40	NM-04175 (a) Mildred Crane Hudson	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U. S. A. Humble Oil & Ref. Co. Lee Vandag Riff Mildred C. Hudson Total	.125000 .750000 .032188 .092812 1.000000	.00389437 .02336625 .00100282 .00289156 .03115500
33.	T-1E-S, R-27-E Sec. 8: NE/4 SE/4	40	NM-04175 (a) Mildred Crane Hudson	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U. S. A. Malco Refineries Lee Vandag Riff Mary Lorena Higgins Mildred C. Hudson Total	.125000 .800000 .032188 .014062 .028750 1.000000	.00389438 .02492400 .00100282 .00043810 .00089570 .03115500

RECAPITULATION

<u>TRACT NO.</u>	<u>PARTICIPATING ACREAGE</u>	<u>PERCENTAGE OF PARTICIPATION</u>
4	121	.09424500
6	40	.03115500
8	121.07	.09430000
10	120	.09346600
11	160	.12462300
14	160	.12462300
18	161.81	.12603300
20	80	.06231100
26	80	.06231100
28	160	.12462300
32	40	.03115500
33	40	.03115500
TOTALS	1,283.88 Acres	1.00

EXHIBIT "B-1"

PARTICIPATION IN PRODUCTION FROM
CHALK BLUFF DRAW UNIT WELL #1
- 60-DAY PRODUCTION TEST -
- 643.88 ACRES -

Tract No.	Participating Acreage Description	Participating Acreage	Lease Serial No. and Lessee of Record	Participation by Percentages		
				Ownership	Tract	Area
4.	T-18-S, R-27-E. Sec. 5: Lot 3, SE/4 NW/4, NE/4 SW/4	121	LC-026874 (e) Humble Oil & Ref. Co.	U.S.A.	.125000	.02349050
				Humble Oil & Ref. Co.	.750000	.14094300
				Mary Lorena Higgins	.013750	.00258395
				Joe A. Clayton	.002500	.00046981
				Nora B. Clayton	.002500	.00046981
				A. W. Adkisson	.018750	.00352356
				Lois Burnett	.010000	.00187924
				H. G. Watson	.005156	.00096893
				Childress Royalty Co.	.017188	.00323004
				Fred Brainard	.015919	.00299166
				Clyde Guy & Sons, Inc.	.010763	.00202262
				V. S. Welch*	.017766	.00333865
				Harvey Yates*	.000940	.00017664
				S. P. Yates*	.000940	.00017664
Martin Yates*	.000940	.00017664				
John Ashby Yates*	.000940	.00017664				
James R. Everts	.001389	.00026102				
Gladys Everts, Gdn.	.001389	.00026102				
Berda Montgomery	.001389	.00026102				
Beatrice Caywood	.001389	.00026102				
Anita Britain	.000464	.00008719				
Irene Everts	.000464	.00008719				
Robert Everts	.000464	.00008719				
	Total	1.000000		1.8792400		

*These interests subject to remaining unpaid balance of \$2,000.00 oil payment reserved by Helen Yeager Eaton.

8.	<u>T-18-E, R-27-E</u> Sec. 5: Lot 4, SW/4 NW/4, NW/4 SW/4	121.07	LC-049648 (a) Humble Oil & Ref. Co.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U.S.A. Humble Oil & Ref. Co. Childress Royalty Co. H. G. Watson Mary Lorena Higgins Nora B. Clayton Joe A. Clayton Fred Brainard Total	.125000 .750000 .017188 .005154 .013751 .002500 .002500 .083907 <u>1.000000</u> .18803200	.02350400 .14102400 .00323189 .00096912 .00258563 .00047008 .00047008 .01577720 <u>.18803200</u>
11.	<u>T-18-S, R-27-E</u> Sec. 5: E/2 SE/4, S/2 SW/4	160	LC-055383 (a) Malco Refineries, Inc.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U.S.A. Malco Ref., Inc. Malco Ref., Inc. Mary Lorena Higgins Childress Royalty Co. Fred Brainard H. G. Watson Joe A. Clayton Nora B. Clayton A. W. Adkisson Lois Burnett Total	.125000 .750000 .050000 .013750 .017188 .005156 .005156 .002500 .002500 .014375 .014375 <u>1.000000</u> .24849300	.03106163 .18636975 .01242465 .00341678 .00427109 .00128123 .00128123 .00062123 .00062123 .00357209 .00357209 <u>.24849300</u>
18.	<u>T-18-S, R-27-E</u> Sec. 5: Lots 1, 2, S/2 NE/4	161.81	LC-064384 Malco Refineries, Inc.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U.S.A. Malco Ref., Inc. Carlos L. Carter Mildred C. Hudson Total	.125000 .845000 .020000 .010000 <u>1.000000</u> .25130400	.03141300 .21235188 .00502608 .00251304 <u>.25130400</u>
20.	<u>T-18-S, R-27-E</u> Sec. 5: W/2 SE/4	80	LC-065600 Humble Oil & Ref. Co.	<u>Basic Royalty</u> <u>Working Interest</u> <u>Overriding Royalty</u>	U.S.A. Humble Oil & Ref. Co. Lillie M. Yates Total	.125000 .750000 .125000 <u>1.000000</u> .12424700	.01553087 .09318526 .01553087 <u>.12424700</u>

RECAPITULATION

<u>Tract No.</u>	<u>Participating Acreage</u>	<u>Percentage of Participation</u>
4	121	.187924
8	121.07	.188032
11	160	.248493
18	161.81	.251304
20	80	.124247
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5 Tracts	643.88	1.00

EXHIBIT "C"
SECOND GEOLOGICAL REPORT ON
THE CHALK BLUFF DRAW AREA
EDDY COUNTY, NEW MEXICO

INTRODUCTION AND HISTORY

The Chalk Bluff Draw Unit, located in north-central Eddy County, New Mexico, was approved December 29, 1955. Since approval, three exploratory wells have been drilled within the Unit area, resulting in two small Pennsylvanian gas producers and one dry hole. (See Exhibit "A")

The Chalk Bluff Unit No. 1 well (located 1980' from the South and West lines, Section 5, T-18-S, R-27-E) drilled and tested 595 feet of barren Devonian dolomite to a total depth of 10,400 feet. The well was completed as the discovery well from the Pennsylvanian Bend sand, with an initial potential of 8482 MCF gas per day.

The Chalk Bluff Draw Unit No. 2 well (located 1930' from South and 1880' from West lines, Section 32, T-17-S, R-27-E) drilled to a total depth of 9425 feet in Pennsylvanian Bend sand, and was dry and abandoned after extensive testing failed to recover unitized substances.

The Chalk Bluff Draw Unit No. 3 well (located 2310' from North and 330' from East line, Section 8, T-18-S, R-27-E) was completed as the second producer in the Unit area from the Bend sand with an initial potential of 2107 MCF gas per day. A recent workover in which the well was stimulated by sand fracturing has increased the productivity to 4580 MCF gas per day.

At the request of the Supervisor and in view of recent development in the area, revised structure maps contoured on the top of the San Andres and the top of the Bend sands (attached) have been prepared for comparisons with the original structure maps submitted in "Report for Designation of a Federal Exploration Unit" dated December 1954.

LITHOLOGY OF PENNSYLVANIAN
BEND GAS ZONE

The Bend sand zone has a thickness of 100 to 145 feet (see Cross Section attached), and consists of interbedded sandstones, gray shales and tan to brown limestones. The zone exhibits blanket characteristics which can be correlated over north-central Eddy County, New Mexico. Correlation of the individual sand members which occur within the zone indicate their lenticular nature over the area in general; however, the No. 1 and No. 3 Unit wells produce from the same member. In exploration for and development of the Bend sand reservoirs in the area, all wells having porosity and permeability development have been gas producers.

STRUCTURE IN THE CHALK BLUFF DRAW AREA

The San Andres structure map (attached) reflects the same favorable northeast trending structural nose (refined by recent drilling) as was described in the "Initial Report for a Unit Area"; however, this structural feature is absent in the deeper formations penetrated by recent exploratory drilling and is probably the result of middle Permian reefing or carbonate buildup.

The Pennsylvanian Bend sand structure map (attached), revised by recent drilling, differs radically from the initial interpretation and now reflects only regional southeast dips of from 75 to 150 feet per mile. The dips are verified by Schlumberger dipmeter information.

The regional position of the Chalk Bluff Draw reservoir, as compared to other Pennsylvanian Bend sand fields in the area, emphasizes stratigraphic accumulation instead of structural closure. The Chalk Bluff Draw Unit wells (the largest developed reservoir in the area) produce gas in paying quantities at an average subsea depth of 5865 feet. The Empire Pennsylvanian field (a one-well field), approximately six miles northeast, produces gas from the Bend sand zone at a subsea depth of 6435 feet, 670 feet lower than in the Chalk Bluff Draw reservoir. The Duffield Pennsylvanian field (a one-well field), nine miles north, produces at a subsea depth of 5040 feet, 825 feet high to the Chalk Bluff Draw reservoir. The recent discovery of Standard of Texas (No. 1 Everest) located four miles to the southwest, produces from the Bend sand zone at a subsea depth of 5639 feet, 126 feet high to the Chalk Bluff Draw reservoir.

RESERVOIR DISCUSSION

To determine the thickness of pay in the Chalk Bluff Draw area, the No. 3 Unit well cored the Bend sand zone from 9470-9561 feet. The cores analyzed by Core Laboratories, Inc. indicated 29 feet of pay with an average porosity of eight (8%) per cent and an average permeability of one and four-tenths millidarcys. Correlation of MicroLogs of the No. 1 and No. 3 Unit wells indicated that the No. 1 well has 16 feet of pay, and average 22.5 feet for the two wells.

In an attempt to estimate the size of the Chalk Bluff Draw reservoir, analyses were made using the pressure-production decline and geological data. (See Exhibit "D") Analysis based on the production decline indicates a recoverable gas volume of 17,094,900 MCFG, while an analysis using geologic data indicates a slightly smaller volume of 16,980,000 MCFG. This information indicates a small reservoir of approximately two productive sections characteristic of the small Pennsylvanian fields in the area, all of which are reasonably developed and controlled by dry holes.

CONCLUSIONS

Humble Oil & Refining Company as Unit Operator, with the approval of the other working interest owners involved, requests the approval of a two-section participating area as defined in Exhibit "A" for the following reasons:

1. Geology of the area indicates the gas accumulation is due to stratigraphic traps in which porosity and permeability are the governing factors.
2. Geologic and reservoir data available at this time indicate 640 acres surrounding each producer is reasonably proved to be productive of unitized substances.
3. Economics (See Exhibit "D") suggests drilling on a spacing pattern of less than 640 acres to be unfavorable.
4. After the Chalk Bluff Draw reservoir is produced for a period of time, more reservoir data will be obtained which will influence a future development program.



J. B. Waid

Division Unitization Geologist

MAIL OFFICE 000
1958 JAN 7 AM 9:12

In reply refer to:
Unit Division

January 6, 1958

File
can file

Humble Oil and Refining Company
P. O. Box 1287
Roswell, New Mexico

Re: CHALK BLUFF DRAW UNIT
Extension for submission of an
Initial Plan of Development

ATTENTION: Mr. R. M. Richardson

Gentlemen:

We are enclosing two copies of your request of extension of time, until July 8, 1958, for filing initial Plan of Development, for the Chalk Bluff Draw Unit.

The above request was approved by the Commissioner of Public Lands January 7, 1958, subject to like approval by the United States Geological Survey.

Will you please furnish us a completely approved copy, at such time as this extension is approved by the United States Geological Survey.

Very truly yours,

MURRAY E. MORGAN,
COMMISSIONER OF PUBLIC LANDS

BY:

Ted Bilberry, Supervisor
Oil and Gas Division

MEM/MER/a

cc: Oil Conservation Commission
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

OIL CONSERVATION COMMISSION

P. O. BOX 371

SANTA FE, NEW MEXICO

October 19, 1955

Mr. Clarence Hinkle
Hervey, Dow & Hinkle
First National Bank Bldg.
Roswell, New Mexico

Dear Sir:

In behalf of your client, Humble Oil & Refining Company, we enclose a copy of Order R-705 issued October 19, 1955, by the Oil Conservation Commission in Case 960, which was heard at a special hearing September 26th.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:brp
Encl.

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960

September 14, 1955

Humble Oil and Refining Company
P. O. Box 2180
Houston, Texas

Re: Chalk Bluff Draw Unit
Eddy County, New Mexico

Gentlemen:

This is to advise you that our Attorney has studied the above designated Unit Agreement, received by this office September 9, 1955, and finds it is substantially the same form as Unit Agreements heretofore approved by the Commissioner of Public Lands. Upon receiving the completed forms, together with all ratifications and joinders, we will consider Unit for final approval.

We would call to your attention that State Land listed is correct as to ownership and lease number other than Tract No. 46, NE/4 SW/4 of Sec. 32-17S-27E, which is listed as E-378 Superior Oil Company as lessee, E-378 was expired June 11, 1955 and this 40 acre tract has not been re-leased.

Very truly yours,

E. S. WALKER
Commissioner of Public Lands

cc: USGS-Roswell
OCC-Santa Fe

MMR:m

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OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

September 12, 1955

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Y

Mr. Clarence E. Hinkle
Hervey, Dow & Hinkle
First Natl. Bank Bldg.
Roswell, New Mexico

Re: Case 960 - Application of Humble
Oil & Refining Co. for approval
of Chalk Bluff Draw Unit Agreement

Dear Sir:

The Oil Conservation Commission has called a special hearing for the above-captioned case to be held at 9 o'clock a.m. on September 26, 1955, Mabry Hall, Santa Fe, New Mexico.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:brp