OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

TIM BABCOCK
GOVERNOR

1963 ✓

ANNUAL REVIEW FOR THE YEAR 1964

Relating To

OIL AND GAS

Volume 8

G. W. Yoder, Chairman
Ted Hawley, Vice Chairman
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HOKER PRINT.

The Oil and Gas Conservation Commission of The State of Montana

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Annual Review for the Year 1964

Volume 8

INTRODUCTION

This is the eighth Annual Review of operations in Montana Oil fields. A review for the Year 1963 was not published; however, the drilling and producing statistics for 1963 and 1964 are shown separately in this review.

Production for the years 1963 and 1964 were 30,870,000 barrels and 30,647,000 barrels, respectively, as compared to 31,647,000 barrels for 1962. Total remaining reserves have been increased substantially the past two years as a result of significant discoveries and secondary recovery projects. Remaining recoverable reserves now stand at 408 million barrels as compared to 341 million barrels two years ago.

During 1963 there were 389 wells drilled. These included 152 wildcats, and 237 development wells. Of the development wells there were 144 oil wells, 9 gas wells, and 84 dry holes. There were 14 discoveries in 1963 for a wildcat dry hole ratio of 9.8 to 1. In 1964 there were 412 wells drilled of which 198 were exploratory and 214 were development. Development drilling resulted in 125 oil wells, 12 gas wells, and 77 dry holes. There were 23 discoveries in 1964 for a wildcat dry hole ratio of 7.6 to 1.

Major discoveries made during 1963 include the Fred and George Creek and Goose Lake Fields. Some important new fields found in 1964 were Weldon, Flat Lake, and four individual Nisku fields in the Tule Creek area. The exploration outlook is promising. The Kibbey discovery in the Weldon Field and the Nisku discoveries in the Tule Creek area have created new interest in northeastern Montana. Discovery of the Fred and George Creek Field and an unnamed Moulton Sand reservoir in the North Cut Bank Field has spurred an intensive drilling program in the Sweetgrass Arch area of northwestern Montana.

Several waterfloods have been started, including five large floods in the Cut Bank Field and some major projects in the Cedar Creek Anticline in southeastern Montana. Additional recovery from these projects and from some now in the planning stage will make up a sizeable portion of Montana production for the next few years.

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

Memorandum

DNRC

To: File **From:** Lucy Smith **Date:** Dec. 9, 1985

Re: 1963/1964 Annual Review (Volume 8)

There is a discrepancy between the "TOTAL WELLS DRILLED", "TOTAL FOOTAGE DRILLED" & "Average Depth ALL WELLS." on pages 1, 4, & 5 in this volume of the Annual Review. Although the figures on page 1 were carried forward in subsequent years, Dee Rickman & myself assumed (No backup documentation) that pgs. 4 & 5 were probably more likely to be correct.

FIVE YEAR SUMMARY

	1960	1961	1962	1963	1964
Production, Northern Montana—Bbls	4,332,218	4,211,017	4,252,304	4,530,510	5,705,948
South Central—Bbls	3,087,871	2,895,587	3,851,672	3,383,587	3,699,927
Central—Bbls	5,780,420	6,367,524	5,279,163	3,950,490	3,269,768
Williston Basin—Bbls	17,039,406	17,431,916	18,264,368	19,005,066	17,971,855
TOTAL	30,239,915	30,906,044	31,647,507	30,869,653	30,647,498
No. of Producing Wells, Northern Montana	2,811	2,447	2,615	2,550	2,216
South Central	96	81	88	82	88
Central	303	324	333	310	317
Williston Basin	497	535	656	700	708
TOTAL	3,707	3,387	3,692	3,642	3,329
Average Daily Production/Well—BOPD,					
Northern Montana	4.2	4.7	4.5	4.9	7.4
South Central	88.1	97.9	119.9	113.4	115.1
Central	52.3	53.8	43.4	34.8	28.8
Williston Basin	93.9	89.3	76.3	74.4	65.7
STATE AVERAGE	22.3	25.0	23.5	23.2	25.2
Development Wells Drilled, Oil Wells	114	169	182	131	100
Gas Wells	4	6	16	6	7
Dry Holes	58	60	57	60	109
TOTAL	176	235	255	197	216
Exploratory Wells Drilled, Oil Wells	14	7	8	8	22
Gas Wells	3	2	2	5	3
Dry Holes	150	173	154	152	150
TOTAL	167	182	164	165	175
TOTAL WELLS DRILLED	343	417	419	362	391
TOTAL FOOTAGE DRILLED	1,655,172	2,209,803	2,415,856	1,906,976	1,863,155
AVERAGE DEPTH ALL WELLS	4,811	5,299	5,765	5,268	4,765

OIL AND GAS DISCOVERIES IN 1963

County	Field	Operator—Well Name and Location	Total Depth Ft.	Producing Formation	Initial Production Oil B/D	Initial Production Gas (MCF)
Carbon	Clarks Fork	Texaco, Govt. C-1 NW SW 27-9S-22E	10,586	Greybull	8.7	316
Glacier	Unnamed	Montana Power, Tribal 1, SW NE SE 6-37N-7W	2,400	Blackleaf	....	260
Liberty	Mt. Lilly	Cardinal Petroleum, Schafer 1, NE NW 20-37N-5E	3,085	Madison	....	6,200
Liberty	Grandview	Tom Vessels, Govt. 1, SE NE 15-34N-4E	2,565	Sunburst	30	....
Liberty	Unnamed	Lawrence Barker, Jr., Joy 21-11, C NE SW 21-35N-7E	2,167	Blackleaf	....	1,000
McCone	Vida	Phillips, Sievers 1, NW NW 30-24N-52E	9,895	Interlake	335	....
Richland	Spring Lake	McAlester Fuel, NP-Viara B-1, C NE NE 35-25N-54E	11,860	Nisku & Red River	428 314	....
Roosevelt	Shotgun Creek	Phillips Petr., McCauley 1, NW NW 35-30N-57E	8,771	Ratcliffe	70	....
Sheridan	Goose Lake	Signal Drilling, A. Lagerquist 1, SE SW 9-35N-58E	8,542	Charles "C"	220	....
Toole	Fred & George	Sands Oil Co., A. Fey 1, SW NW NE 23-37N-2E	2,735	Sunburst	400	....
Toole	Fred & George	Tom Vessels, A. A. Oil-J. Fey 1, NE SE 34-37N-2E	2,670	Swift	64	....
Toole	Unnamed	C. J. Iverson & Assoc., Cont. Land Co. 1, NW NE SE 4-37N-2E	1,820	Bow Island	....	500
Toole	Unnamed	C. J. Iverson & Assoc., Cont. Land Co. A-1, NE SW NE 9-37N-2E	1,799	Bow Island	....	500
Wheatland	Mud Creek	Texaco, Inc., Griffith 1, NE NW 12-6N-17E	4,970	Amsden	....	1,370

OIL AND GAS DISCOVERIES IN 1964

County	Field	Operator—Well Name and Location	Total Depth Ft.	Producing Formation	Initial Production Oil B/D	Initial Production Gas (MCF)
Big Horn	Lodge Grass	Amerada Petroleum, Yellowmule 1, SE NW 6-6S-36E	6,521	Tensleep	165	....
Carbon	NW Elk Basin	L. Barker, Govt. 1, NW NE NW 29-9S-23E	6,362	Tensleep	80	....
Dawson	Bloomfield	Pan American, Steffen 1, NE NW NE 31-20N-53E	11,120	Dawson Bay	55	....
Fallon	So. Wills Creek	Shell Oil, Norbeck-Govt. 42-2, SE NE 2-9N-58E	9,200	Silurian	297	....
Glacier	SE Reagan	W. H. Pine, Newrobe 1, NE NW 12-36N-7W	3,603	Madison	56	....
Liberty	Unnamed	Cardinal, Corcoran-Gray 1-26, NE NE 26-37N-5E	2,920	Swift	22	....
McCone	Weldon	Sinclair, Federal 1, NE SW 22-22N-46E	6,203	Kibbey	1,224	....
Musselshell	Mason Lake	Occidental Petr., Govt.-Hall 1, C Lot 5, 2-8N-24E	4,525	3rd Cat Creek	50	....
Musselshell	Pole Creek	Occidental Petr., Govt.-Kranzler 1, NE NW 21-9N-23E	3,657	Amsden	45	....
Musselshell	SW Gage	W. C. Partee, Federal 1, NE SW 21-9N-26E	6,040	Amsden	199	....
Musselshell	No. Keg Coulee	L. Barker, Stensvad 1-24, NE SE 24-11N-30E	4,550	Tyler	240	....
Roosevelt	Volt	Murphy, Courchene 1, SE SW 4-30N-46E	7,395	Nisku	145	....
Roosevelt	So. Tule Creek	Brinkerhoff, Track 1, SE NW 36-30N-47E	7,630	Nisku	84	....
Roosevelt	NE Benrud	Murphy, Mule Creek Allotted 1, SW SE 20-31N-48E	7,865	Nisku	408	....
Roosevelt	East Tule Creek	Murphy, Bridges 1, C SE NE 15-30N-48E	7,736	Nisku	411	....
Sheridan	Outlook	Amerada, Norager 1, SW SW 21-36N-53E	9,050	Duperow	263	....
Sheridan	Flat Lake	California Oil, Haugen 1, SW NW 18-37N-58E	6,607	Ratcliffe	210	....
Sheridan	Flat Lake	Cardinal, Adolph Anderson 1, NE SW 5-37N-58E	6,780	Madison	176	....
Stillwater	Unnamed	Lawrence Barker, Tyler-Orr 1, NW SE 18-5S-17E	2,940	Greybull	....	10,000
Toole	W. Whitlash	Mesa Petroleum A. Fey 1-9, NE NW 9-37N-3E	2,921	Sunburst	....	13,000
Toole	Middle Butte	Montana Power, Larson 1, SE NE 23-36N-3E	2,675	Sunburst	....	290
Toole	Arch Apex	C. J. Iverson, Beaudoin 1, SE SW 8-37N-2E	2,817	Bow Island	....	500
Toole	Cut Bank	Mose Wagner, Wilcox 1, SE NW NW 9-37N-4W	2,625	Moulton	1,248	....

SUMMARY OF DRILLING BY COUNTIES—1963

STATE OF MONTANA

COUNTY	WILDCATS			DEVELOPMENT			TOTAL WELLS DRILLED	FOOTAGE DRILLED	AVG. DEPTH PER WELL
	Dry	Oil	Gas	Dry	Oil	Gas			
Big Horn	4	....	....	3	2	....	9	35,525	3,947
Blaine	12	....	....	....	....	....	12	53,825	4,485
Carbon	3	1	....	3	2	....	9	54,278	6,031
Carter	2	....	....	....	....	....	2	5,133	2,566
Chouteau	2	....	....	....	....	....	2	3,793	1,896
Custer	3	....	....	....	....	....	3	20,200	6,733
Daniels	3	....	....	....	....	....	3	26,911	8,970
Dawson	4	....	....	3	3	....	10	99,451	9,945
Fallon	6	....	....	10	59	....	75	632,852	8,438
Fergus	2	....	....	....	....	....	2	1,930	965
Garfield	2	....	....	....	....	....	2	8,369	4,184
Glacier	....	....	1	5	10	2	18	52,912	2,939
Hill	4	....	....	....	....	....	4	14,738	3,684
Judith Basin	1	....	....	....	....	....	1	1,150	1,150
Liberty	4	1	2	6	15	3	31	88,313	2,848
McCone	1	1	....	2	3	....	7	66,538	9,505
Musselshell	8	....	....	8	2	....	18	82,263	4,570
Park	1	....	....	....	....	....	1	8,990	8,990
Petroleum	3	....	....	....	....	....	3	9,276	3,092
Phillips	3	....	....	....	....	....	3	9,279	3,093
Pondera	2	....	....	1	15	....	18	55,669	3,092
Powder River	7	....	....	....	....	....	7	51,061	7,294
Prairie	2	....	....	....	....	....	2	12,110	6,055
Richland	1	1	....	....	4	....	6	69,010	11,501
Roosevelt	7	1	....	7	....	....	15	120,015	8,001
Rosebud	17	....	....	4	....	....	21	110,142	5,244
Sheridan	9	1	....	4	10	....	24	187,902	7,829
Teton	2	....	....	2	4	....	8	24,104	3,013
Toole	21	2	2	25	15	4	69	186,081	2,697
Wheatland	....	....	1	1	....	....	2	7,548	3,774
Yellowstone	2	....	....	....	....	....	2	13,023	6,511
TOTALS	138	8	6	84	144	9	389	2,112,391	5,430

SUMMARY OF DRILLING BY COUNTIES—1964
STATE OF MONTANA

COUNTY	WILDCATS			DEVELOPMENT			TOTAL WELLS DRILLED	FOOTAGE DRILLED	AVG. DEPTH PER WELL
	Dry	Oil	Gas	Dry	Oil	Gas			
Beaverhead	1	....	....	....	....	....	1	10,244	10,244
Big Horn	4	1	....	7	3	....	15	91,693	6,112
Blaine	1	....	....	....	....	....	1	4,045	4,045
Carbon	1	1	....	1	3	....	6	33,639	5,606
Carter	8	....	....	....	....	....	8	38,519	4,815
Chouteau	5	....	....	....	....	....	5	9,556	1,911
Custer	3	....	....	....	....	....	3	20,883	6,961
Daniels	1	....	....	....	....	....	1	9,310	9,310
Dawson	2	1	....	1	1	....	5	50,813	10,162
Fallon	1	1	....	9	26	5	42	342,480	8,353
Garfield	2	....	....	....	....	....	2	17,379	8,689
Glacier	3	1	....	12	13	....	29	104,939	3,618
Golden Valley	1	....	....	....	....	....	1	3,774	3,774
Hill	1	....	....	....	....	....	1	3,516	3,516
Liberty	15	1	....	9	11	4	40	116,348	2,909
McCone	....	1	....	....	2	....	3	21,645	7,215
Musselshell	6	4	....	6	15	....	31	144,701	4,667
Park	2	....	....	....	....	....	2	7,319	3,659
Petroleum	3	....	....	1	....	....	4	5,955	1,488
Phillips	2	....	....	....	....	....	2	8,515	4,257
Pondera	5	....	....	1	3	....	9	26,278	2,919
Powder River	5	....	....	....	....	....	5	37,963	7,592
Richland	3	....	....	....	....	....	3	30,835	10,278
Roosevelt	17	4	....	4	2	....	27	212,012	7,852
Rosebud	7	....	....	2	1	....	10	50,232	5,023
Sheridan	16	3	....	1	11	....	31	228,518	7,371
Stillwater	....	....	1	....	....	1	2	5,107	2,553
Teton	2	....	....	2	....	....	4	11,180	2,795
Toole	53	1	3	21	33	2	113	276,272	2,445
Valley	1	....	....	....	....	....	1	7,381	7,381
Wibaux	....	....	....	....	1	....	1	9,121	9,121
Yellowstone	4	....	....	....	....	....	4	19,757	4,939
TOTALS	175	19	4	77	125	12	412	1,959,929	4,757

MONTANA
GAS PRODUCTION DATA—1963

Field	County	Producing Formation	1963 Production MCF
Bear's Den	Liberty	Kootenai	27,549
Big Coulee	Golden Valley & Stillwater	Lakota-Morrison	958,385
Bowdoin	Phillips & Valley	Colorado	1,994,110
Bowes	Blaine	Eagle	909,622
Cabin Creek	Fallon	Siluro-Ordovician	1,077,523
Cedar Creek	Fallon & Wibaux	Judith River and Eagle	4,577,799
Cut Bank & Reagan	Glacier & Toole	Kootenai	7,198,429
Devon	Toole	Colorado	35,048
Dry Creek	Carbon	Cretaceous	1,376,407
Elk Basin	Carbon	Tensleep	397,001
Flat Coulee	Liberty	Kootenai	206,163
Gold Butte	Toole	Swift	59,089
Golden Dome	Carbon	Eagle	183,648
Grandview	Liberty	Greenhorn	41,053
Hardin	Big Horn	Frontier	48,630
Keith Block	Liberty	Sawtooth-Madison	2,477,846
Kevin Sunburst	Toole	Kootnai	890,083
Middle Butte	Toole	Bow Island	91,672
Pine	Dawson, Prairie, Fallon, Wibaux	Siluro-Ordovician	699,245
Plevna	Fallon	Judith River	177,808
Utopia	Liberty	Sawtooth-Ellis	592,198
Whitlash	Liberty	Colorado	2,337,541
Miscellaneous			223,738
		TOTAL ALL FIELDS	26,580,587

REFINING

	Year, 1963 Total Bbls.
Big West Oil Company	916,342
Continental Oil Company	5,705,475
Diamond Asphalt Company	147,541
Farmers Union Central Exchange, Inc.	6,699,142
Humble Oil & Refining Company	11,711,557
Jet Fuel Refinery	89,474
Petrofuels Refining Company	70,062
Phillips Petroleum Company	1,615,536
Union Oil Company	1,141,494
TOTAL Bbls. Oil Refined in Montana (1963)	28,096,623

MONTANA
GAS PRODUCTION DATA—1964

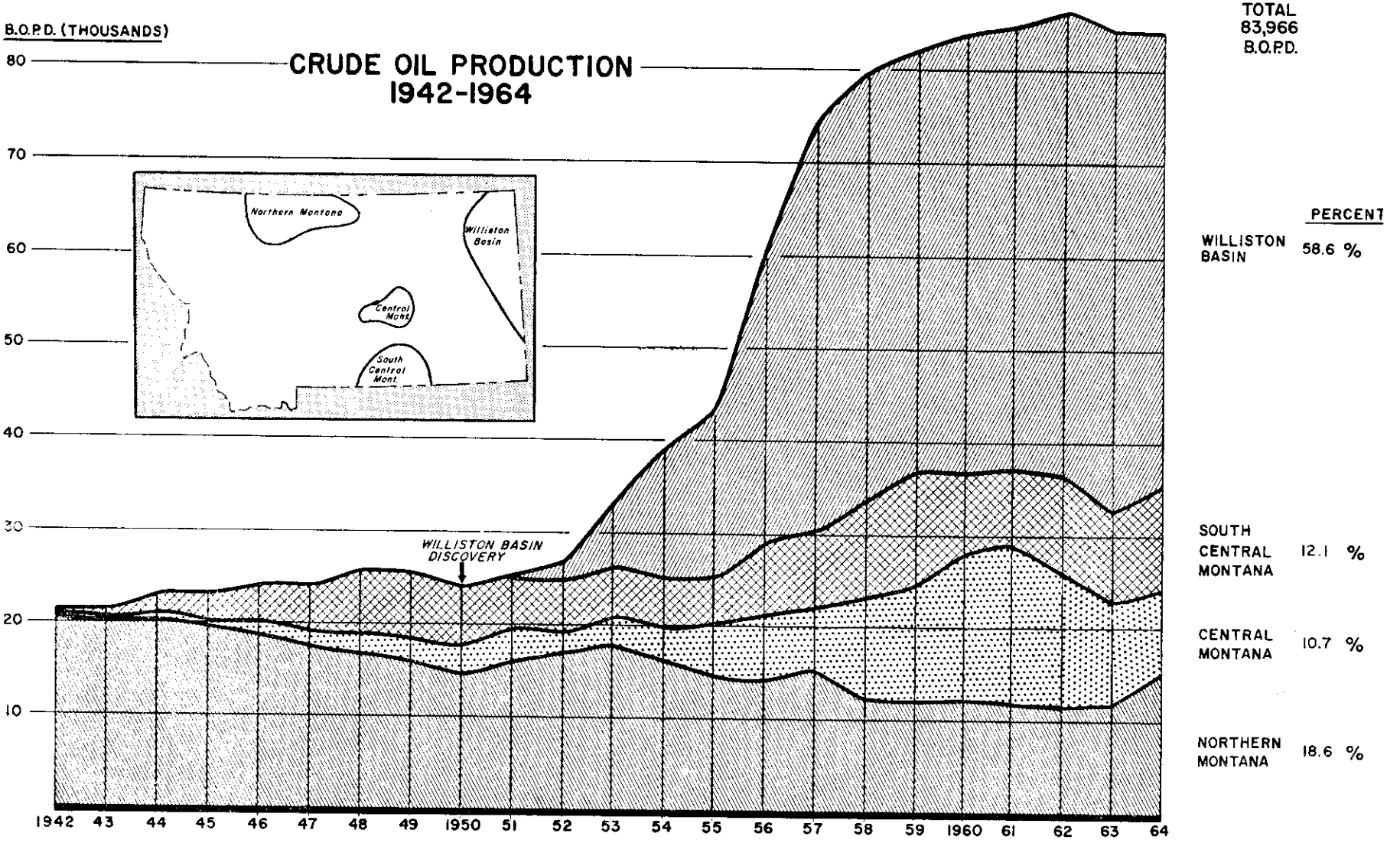
Field	County	Producing Formation	1964 Production MCF
Bear's Den	Liberty	Kootenai	10,694
Big Coulee	Golden Valley & Stillwater	Lakota-Morrison	1,012,953
Bowdoin	Phillips & Valley	Colorado	2,021,246
Bowes	Blaine	Eagle	876,865
Cabin Creek	Fallon	Siluro-Ordovician	1,190,483
Cedar Creek	Fallon & Wibaux	Judith River-Eagle	3,534,393
Cut Bank & Reagan	Glacier & Toole	Kootenai	7,484,591
Devon	Toole	Colorado	17,711
Dry Creek	Carbon	Cretaceous	1,102,342
Elk Basin	Carbon	Tensleep	328,806
Flat Coulee	Liberty	Kootenai	24,622
Gold Butte	Toole	Swift	54,448
Golden Dome	Carbon	Eagle	72,464
Grandview	Liberty	Greenhorn	26,831
Hardin	Big Horn	Frontier	47,394
Keith Block	Liberty	Sawtooth-Madison	2,278,058
Kevin Sunburst	Toole	Kootenai	839,660
Middle Butte	Toole	Bow Island	143,904
Mt. Lilly	Liberty	Madison	276,416
Pine	Dawson, Prairie, Fallon, Wibaux	Siluro-Ordovician	699,201
Plevna	Fallon	Judith River	185,922
Utopia	Liberty	Sawtooth-Ellis	779,114
Whitlash	Liberty	Colorado	1,413,404
Miscellaneous			316,974
	TOTAL ALL FIELDS		24,738,496

REFINING

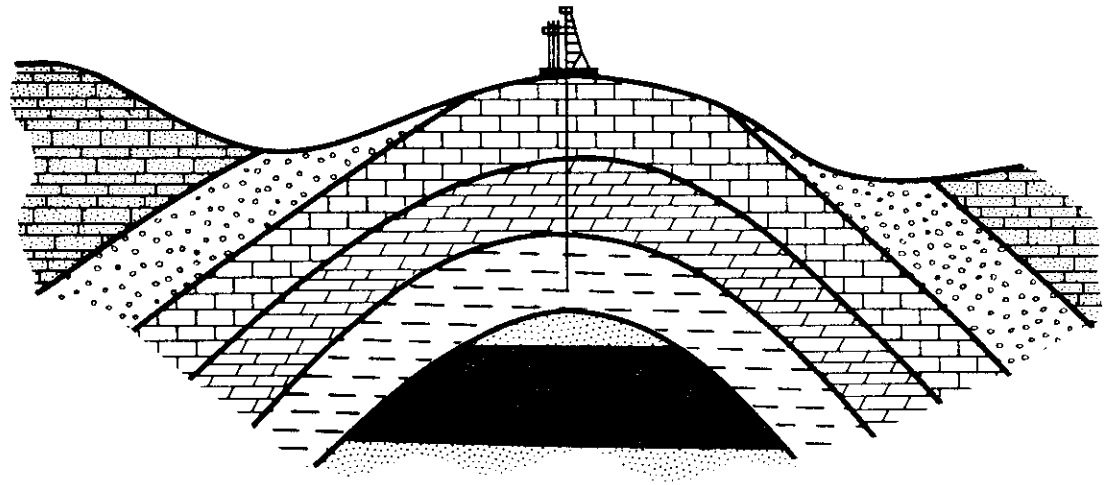
	Year, 1964 Total Bbls.
Big West Oil Company	920,038
Continental Oil Company	8,973,067
Diamond Asphalt Company	94,750
Farmers Union Central Exchange, Inc.	7,325,798
Humble Oil & Refining Company	12,093,046
Jet Fuel Refinery	89,123
North Star Refining Company	19,036
Petrofuels Refining Company	22,362
Phillips Petroleum Company	1,491,466
Texstar Petroleum Company	77,506
Union Oil Company	901,131
TOTAL Bbls. Oil Refined in Montana (1964)	32,007,323

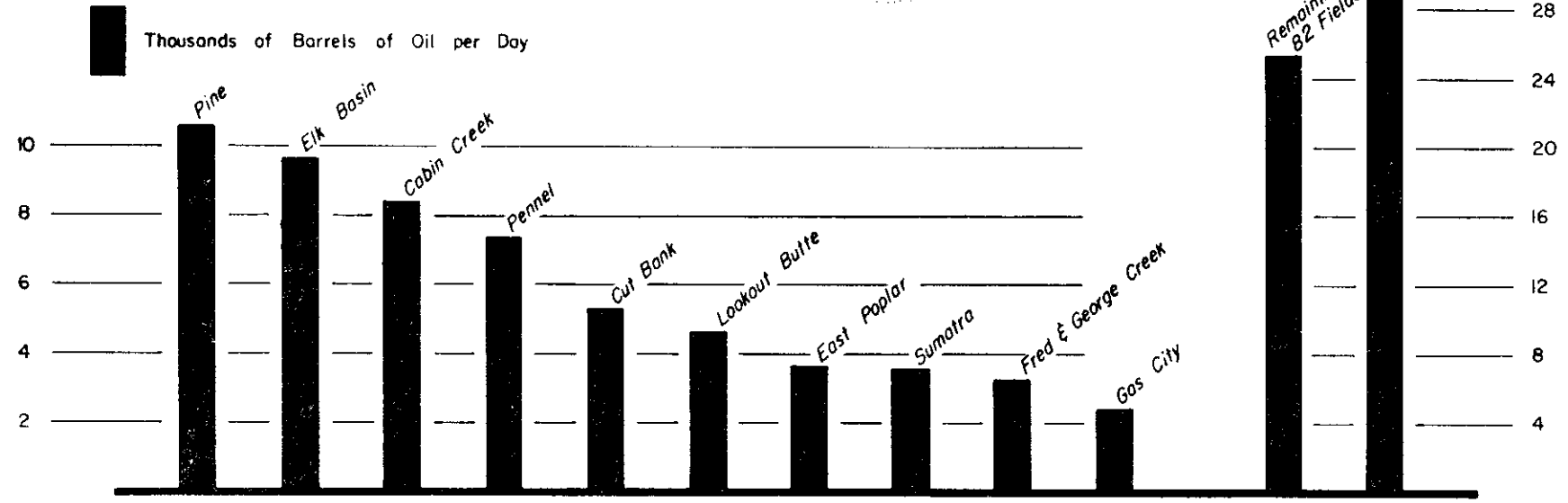
SUMMARY OF ACTIVE SECONDARY RECOVERY PROJECTS
STATE OF MONTANA
(Data Effective to January 1, 1965)

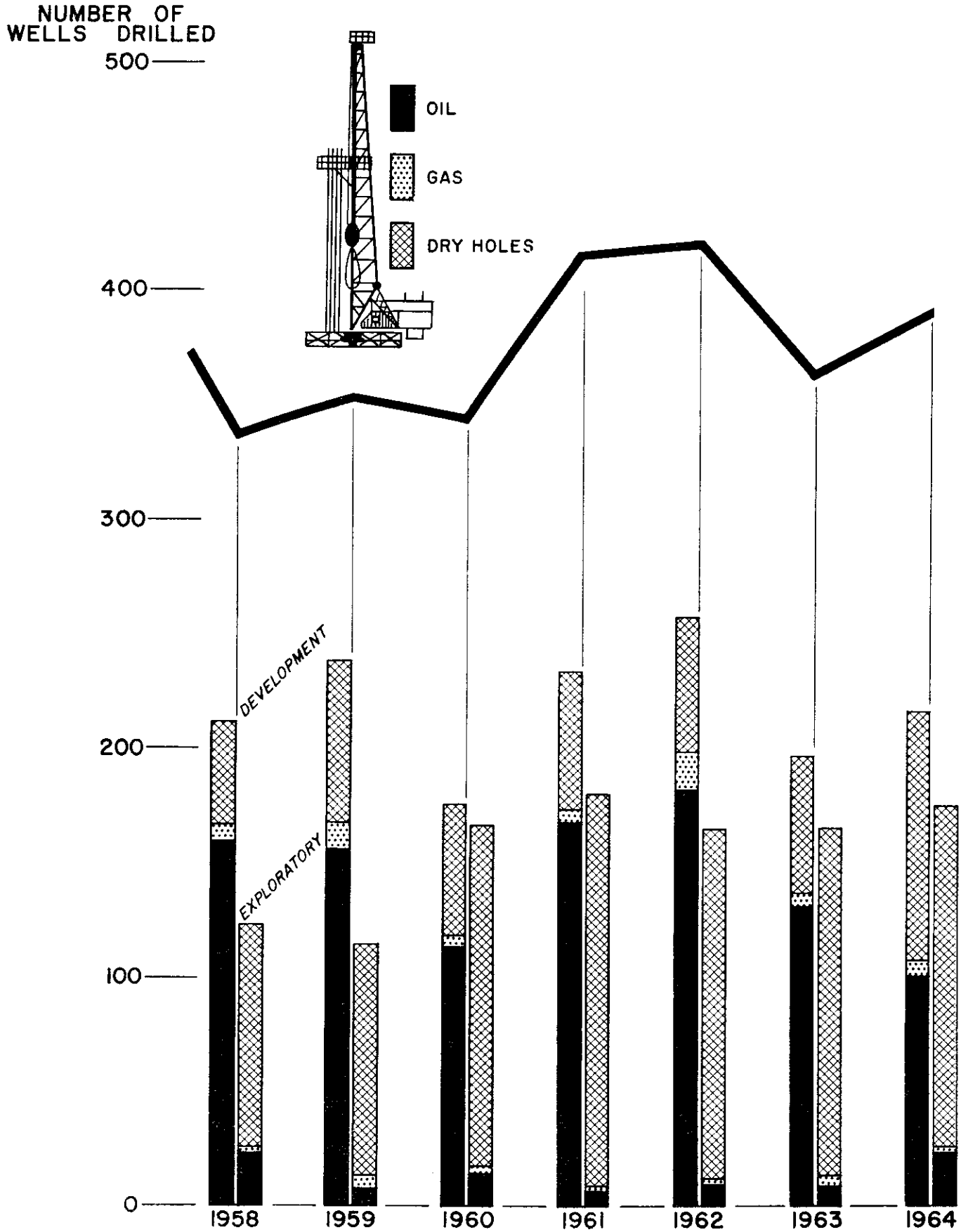
Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MMCF	Dec. 1964 Avg. Daily Injection Rate	Average Injection Pressure psi	Est. Life of Project Years	Est. Orig. Sec. Rec. Reserves 1000's Bbls.	Source of Injection Media & Remarks
Ash Creek, Shannon	McDermott	Waterflood	Peripheral	10-15-64	22	300	1,325	6	126	Parkman, Data for Montana portion.
Bowes, Sawtooth	Texaco	"	Pilot 5-Spot	5-23-61	761	267	124	14	1,708	Madison
Cabin Creek, Siluro-Ordovician	Shell	"	Modified Peripheral	6-12-59	3,349	9,700	--	19	13,449	Prod. Water & Fox Hills
Cat Creek, 1st & 2nd CC Unit 1	Continental	"	Peripheral	10-62	1,577	3,250	400	10	2,815	Third Cat Creek
Cat Creek, 1st & 2nd CC, Unit II	Continental	"	Peripheral	12-59	10,621	5,460	800	9		Third Cat Creek
Cut Bank, NE Unit, Cut Bank	Texaco	"	5-Spot	9-63	771	2,172	2,300	14	9,125	Madison
Cut Bank, NW Unit, Cut Bank	Humble	"	5-Spot	1-62	1,564	1,571	2,400	14	5,700	Madison
Cut Bank, So. Central, Cut Bank	Union	"	5-Spot	5-63	3,991	7,235	2,200	14	12,440	Madison
Cut Bank, SE Unit, Cut Bank	Texaco	"	5-Spot	4-62	3,927	6,195	1,900	14	5,675	Madison
Cut Bank, SW Unit, Cut Bank	Phillips	"	5-Spot	9-62	2,334	3,290	1,850	14	21,000	Madison
Cut Bank, Tribal, Lander	Humble	"	Dispersed	6-51	3,800	637	1,300	17	500	Eagle
Cut Bank, Lander Sand, Lander	Texaco	"	Dispersed	7-64	130	839	2,100	10	1,300	Eagle
Cut Bank, McGuiness, Moulton	Union	"	Dispersed	12-62	423	736	2,150	5	500	Madison
Cut Bank, SW Ext., Cut Bank	Continental	"	One well pilot	12-63	156	164	2,150	Inconcl.	--	Madison
Elk Basin, Frontier	Pan American	Gas Inj.	Crestal	1926	All injection wells in Wyoming			10	No Prim. est.	Purchased Gas
Elk Basin, Ember-Tensleep	Pan American	Gas Inj.	Crestal	1949	All injection wells in Wyoming			50	No Prim. est.	Manufactured inert gas
Elk Basin, Madison	Pan American	Waterflood	Peripheral	1962	7,913	11,103	2,150	50	10,132	Madison & Clarks Fork River
Elk Basin NW, Frontier	Sinclair	"	Peripheral	10-57	2,273	1,968	1,580	9	457	Madison
Ivanhoe, Tyler	Ivanhoe Petr.	"	Pilot Dispersed	7-64	43	160	0	10	2,597	Alluvial Sands
Kevin-Sunburst, Madison	Imperial-Craig	"	Dispersed	--	977	162	200	Inconcl.	--	Madison
Kevin-Sunburst, Madison	Lon Crumley	"	Dispersed	9-63	101	1,000	0	Inconcl.	--	Madison
Kevin-Sunburst, Sunburst	Texaco	"	Peripheral	8-64	222	1,498	1,600	10	500	Madison
Kevin-Sunburst, Sunburst	Juniper	"	Dispersed	8-64	14	117	1,000	Inconcl.	--	Madison
Pine, Siluro-Ordovician	Shell	"	Modified Peripheral	3-59	15,341	13,188	2,300	24	27,441	Prod. Water & Fox Hills.
Pondera, Madison	Phillips	"	Dispersed	8-61	496	410	8	Inconcl.	--	Madison
Poplar, Madison	Murphy	"	Peripheral	9-56	9,774		-	Inconcl.	--	Madison produced water
Reagan, Madison	Union	Gas Inj.	Crestal	8-61	324	1,487	1,015	19	493	Produced gas
Stensvad, Tyler	Pan American	Waterflood	Peripheral	2-63	2,353	5,243	1,085	10	3,849	Madison
							TOTAL		119,807	


B.O.P.D. (THOUSANDS)
CRUDE OIL PRODUCTION
1942-1964
80
70
60
50
40
30
20
10
Northern Montana
Williston Basin
Central Mont.
South Central Mont.
WILLISTON BASIN DISCOVERY
1942 43 44 45 46 47 48 49 1950 51 52 53 54 55 56 57 58 59 1960 61 62 63 64
TOTAL 83,966 B.O.P.D.
PERCENT
WILLISTON BASIN 58.6 %
SOUTH CENTRAL MONTANA 12.1 %
CENTRAL MONTANA 10.7 %
NORTHERN MONTANA 18.6 %

TOP TEN FIELDS
Crude Oil Production
1964






NUMBER OF
WELLS DRILLED
500
400
300
200
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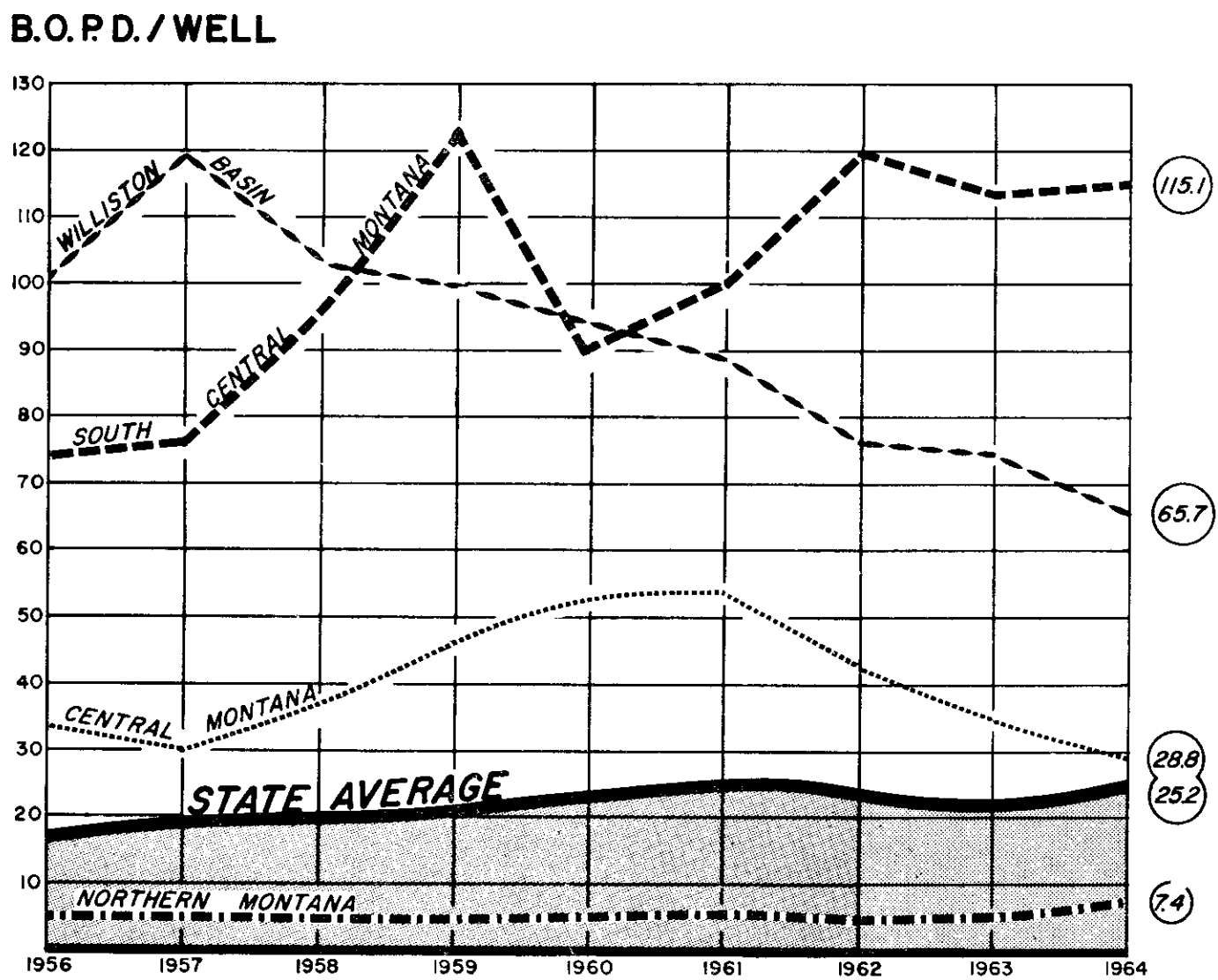
0
OIL
GAS
DRY HOLES
DEVELOPMENT
EXPLORATORY
1958
1959
1960
1961
1962
1963
1964

— AVERAGE —

DAILY PRODUCING RATE



ASH CREEK

County: Big Horn

Discovery Well:

Name: McDermott-Shell, Elsie Berry No. 1
Location: NW SW Sec. 24, T. 58N., R. 85W., Sheridan County, Wyo.
Date Completed: April 26, 1952
Total Depth: 4799'
Initial Potential: 180 BOPD, 20 BWPD

Spacing Regulations:
Spacing waived within unitized portion of field except that no well may be drilled closer than 660' from the unit boundary.

Special Field Rules:
State-wide rules.

No. Producing Wells: 5

Type of Trap: Anticline

Productive Formations: Shannon sandstone of Upper Cretaceous age.

Probable Drive Mechanism: Partial water drive and depletion drive.

Secondary Recovery:
A waterflood project was approved in July, 1964. Water injections were started October 15, 1964.

BANNATYNE

County: Teton

Discovery Well:
Name: Genou Oil & Gas, Speer No. 1
Location: NW NW Sec. 8, T. 25N., R. 1E.
Date Completed: July 21, 1927
Total Depth: 1580'
Initial Potential: 30 BOPD

Deepest Well: Thomas Carney, Speer No. 2, T.D. 3115'

Spacing Regulations:
Center of 10 acre tracts, 50' tolerance for topographic conditions, delineated by Commission Order No. 20-58.

Special Field Rules:
State-wide rules.

No. Producing Wells: 8

Type of Trap: Anticline

Productive Formations: Swift (Jurassic)

Probable Drive Mechanism: Water drive

Secondary Recovery:
A waterflood secondary recovery project is approved for this field. The operator has not yet begun injections.

BASCOM

County: Rosebud

Discovery Well:
Name: Anschutz Oil, Sibley 1
Location: NW NW Section 11, T. 10N., R. 31E.
Date Completed: August 8, 1962
Total Depth: 4850'
Initial Potential: 408 BOPD

Deepest Well: Above well

Spacing Regulations:
Temporary 80-acre spacing expired September 13, 1963. State-wide spacing now applies.

No. Producing Wells: 1

Type of Trap: Structural and Stratigraphic.

Productive Formations: Tyler

Probable Drive Mechanism: Depletion Drive

BEARS DEN

County: Liberty

Discovery Well:
Name: Kenneth Frazier, Ritter-Govt. No. 1-X
Location: SW SE Sec. 12, T. 36N., R. 5E.
Completed: July 6, 1924
Total Depth: 3290'
Initial Potential: 5,000 MCFGPD

Deepest Well: Above well

Spacing Regulations:
330' from boundary of quarter-quarter section, and 1320' between wells. Tolerance of 75' for topographic reasons. Field is not delineated.

Special Field Rules:
State-wide rules.

No. Producing Wells: 5

Type of Trap: Anticline

Productive Formations: Kootenai (Lower Cretaceous)

Probable Drive Mechanism: Depletion and gas cap drive.

BELFRY

County: Carbon

Discovery Well:

Name: Carter, Wheatley-Govt. No. 1
Location: NW NW Sec. 7, T. 9S, R. 22E.
Date Completed: March 22, 1958
Total Depth: 12,185'
Initial Potential: 196 BOPD, 1,121 MCFGPD

Deepest Well: Above well

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules.

No. Producing Wells: 1

Type of Trap: Stratigraphic

Productive Formations: Fuson (Lower Cretaceous)

Probable Drive Mechanism: Depletion and solution gas drive.

BENRUD

County: Roosevelt

Discovery Well:

Name: Cooperative Refinery Association, Listug-Olson "A" 1
Location: NE SW Sec. 34, T. 31N., R. 47E
Date Completed: December 7, 1961
Total Depth: 7620'
Initial Potential: 498 BOPD, 16/64" ck., no water.

Deepest Well: Above well (Devonian)

Spacing Regulations:
160-acre spacing units with permitted well location to be no closer than 660' from spacing unit boundary. Field delineated by Order No. 1-62, 44-62, and 2-63.

Special Field Rules: Semi-annual bottom hole pressure surveys required

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Excess water injected into the Judith River formation. Order No. 64-62.

BENRUD—EAST

County: Roosevelt

Discovery Well:

Name: Murphy Corp., Ft. Peck Tribal 1-A
Location: SE NW Sec. 36, T. 31N., R. 47E.
Date Completed: December 13, 1962
Total Depth: 7804'
Initial Potential: 503 BOPD

Deepest Well: Above well

Spacing Regulations:
160-acre spacing units with permitted well location no closer than 660' from spacing unit boundary. Field delineated by temporary Order No. 2-63 and permanently delineated by Order No. 2-64. Spacing flexibility changed by Order No. 6-65.

Special Field Rules:
Semi-annual bottom hole pressure surveys and quarterly well tests required

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

BENRUD—NORTHEAST

County: Roosevelt

Discovery Well:

Name: Murphy Oil Corp., Mule Creek Allotted 1
Location: SW SE Sec. 20, T. 31N., R. 48E
Date Completed: September 10, 1964.
Total Depth: 7864'
Initial Potential: 408 BOPD

Deepest Well: Above Well

Spacing Regulations:
160-acre spacing with permitted well to be anywhere within a 1320' square in the center of each such unit. Field delineated by Order No. 35-64.

Special Field Rules: Semi-annual bottom-hole pressure surveys and quarterly well tests required.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

BIG COULEE

County: Stillwater and Golden Valley

Discovery Well:

Name: Northern Natural Gas, NP "B" 1

Location: NW SE Sec. 31, T. 5N., R. 20E.
Date Completed: September 19, 1954
Total Depth: 2145'
Initial Potential: 5,515 MCFGPD

Deepest Well: Above Well (Cambrian)

Spacing Regulations:
1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons, not delineated.

Special Field Rules:
State-wide rules.

No. Producing Wells: 4

Type of Trap: Anticline

Productive Formations: Lakota (Lower Cretaceous). Morrison (Jurassic)

Probable Drive Mechanism: Water drive

BIG WALL

County: Musselshell

Discovery Well:

Name: Texaco, NP No. 1

Location: SE NE NW Sec. 19, T. 10N., R. 27E.
Date Completed: July 1, 1948
Total Depth: 3139'
Initial Potential: 9 BOPD

Deepest Well: Texaco, Zoerb, No. 1, Section 18, T. 10N., R. 27E. Kibbey (Mississippian). T.D. 3617'

Spacing Regulations:
330' from lease line, 990' between wells, 75' tolerance for topographic reasons. Delineated by Order No. 12-54.

Special Field Rules:
State-wide rules.

No. Producing Wells: 22

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian); Tyler (Pennsylvanian)

Probable Drive Mechanism: Amsden, water drive; Tyler, depletion.

Water Disposal: The Tyler "A" sand has previously been used as a water disposal formation. Water injection was ceased on November 1, 1961 after approximately 3,200,000 barrels had been injected. Water is now being backflowed to relieve pressure in the Tyler "A" sand.

BLACKFOOT

County: Glacier

Discovery Well:

Name: Union Oil Co., Muntzing No. 1

Location: NE NW Sec. 11, T. 37N., R. 6W.
Date Completed: October, 1956
Total Depth: 3542'
Initial Potential: 15 BOPD

Deepest Well: Mobil, F-34-3-1-. Madison (Mississippian). T.D. 3687'

Spacing Regulations:
Center of 40 acres, 300' tolerance for topographic reasons, delineated by Order No. 3-57.

Special Field Rules:
Dual completions permitted upon approval by Petroleum Engineer.

No. Producing Wells: 11

Type of Trap: Structural and stratigraphic

Productive Formations: Cut Bank Sand (Cretaceous); Madison (Mississippian)

Probable Drive Mechanism: Partial water drive and depletion drive

BLACKLEAF CANYON

County: Teton

Discovery Well:

Name: Northern Natural Gas, Blackleaf-Federal "A" No. 1

Location: NW SE NE Sec. 13, T. 26N., R. 9W.
Date Completed: May 22, 1958
Total Depth: 6323'
Initial Potential: 5,293 MCFGPD

Deepest Well: Above well

Spacing Regulations:
1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons; not delineated.

Special Field Rules:
State-wide rules.

No. Producing Wells: Shut-in

Type of Trap: Fault block

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Unknown

BLOOMFIELD

County: Dawson

Discovery Well:

Name: Pan American, Steffen 1

Location: NE NW NE Sec. 31, T. 20N., R. 53E.
Date Completed: October 12, 1964
Total Depth: 11,120'
Initial Potential: 55 BOPD

Deepest Well: Above well

Spacing Regulations:

State-wide rules, 330' from legal subdivision line and 1320' between wells, 75' topographic tolerance.

Special Field Rules:

State-wide rules.

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formation: Dawson Bay (Devonian)

Probable Drive Mechanism: Unknown

BORDER

County: Toole

Discovery Well:

Name: Vanalta Oil Co., Ltd. No. 1

Location: L.S.D. 3, Sec. 4, T. 1N., R. 16W., Alberta, Canada.
Date Completed: September 25, 1929
Total Depth: 2477'
Initial Potential: 85 BOPD

Deepest Well: Empire State, Iowa Holding Co. No. 2, Jefferson (Devonian). T.D. 4920'

Spacing Regulations:

220' from quarter-quarter section line and 430' between wells, 75' tolerance for topographic reasons. Field is delineated by Order No. 7-54.

Special Field Rules:

State-wide rules, except Rules No. 207, 219, 211, 223 and 224, which do not apply.

No. of Producing Wells: 7

Type of Trap: Stratigraphic and structural

Productive Formations: Cut Bank (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive

BOWDOIN

County: Phillips and Valley

Discovery Well:

Name: Martin well

Location: Sec. 18, T. 31N., R. 35E.
Date Completed: 1913
Total Depth: 740'
Initial Potential: Unknown

Deepest Well: Texaco, Dupont No. 1, Sec. 8, T. 32N., R. 32E. Cambrian. T.D. 5855'

Spacing Regulations:

One well to each quarter-section; at least 1,000' from any lease boundary and 2,000' between wells; field not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: 364

Type of Trap: Structural

Productive Formations: Bowdoin and Phillips sands in upper part of Colorado shale (Cretaceous)

Probable Drive Mechanism: Volumetric

BOWES

County: Blaine

Discovery Well:

Name: California, Johnson & Hobson No. 1

Location: NE NE NE Sec. 9, T. 31N., R. 19E.
Date Completed: October 17, 1926
Total Depth: 4700'
Initial Potential: Show oil

Deepest Well: Northern Ordnance, Guertzgen No. 5, Sec. 1, T. 31N., R. 19E. Devonian. T.D. 5082'

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field delineated by Order No. 13-54.

Special Field Rules:

State-wide rules.

No. Producing Wells: 61

Type of Trap: Structural

Productive Formations: Gas—Eagle (Upper Cretaceous); Oil—Sawtooth (Jurassic)

Probable Drive Mechanism: Eagle, volumetric; Sawtooth, water drive

Secondary Recovery: A pilot five spot waterflood was initiated in the Sawtooth formation on May 23, 1961.

BRADY

County: Pondera

Discovery Well:

Name: Texaco, Inc., Schlepp 1
Location: SE SE SE Sec. 21, T. 27N., R. 2W.
Date Completed: September 10, 1943
Total Depth: 1725'
Initial Potential: 14 BOPD

Spacing Regulations:
Center of 10-acre spacing with 75' topographic tolerance permitted. Order No. 34-62 delineates the field.

No. Producing Wells: 12

Type of Trap: Structural

Productive Formations: Sunburst (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive

BREDETTE—NORTH

County: Daniels and Roosevelt

Discovery Well:

Name: California Company, Paulson No. 1
Location: NW SW Sec. 34, T. 33N., R. 49E.
Date Completed: May 27, 1956
Total Depth: 7475'
Initial Potential: 114 BOPD, 7/64" ck.

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:
80-acre spacing, permitted wells in the NW¼ and SE¼ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order No. 20-56.

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Charles (Mississippian)

Probable Drive Mechanism: Water drive

CABIN CREEK

County: Fallon

Discovery Well:

Name: Shell, No. 22-33
Location: NE SE NW Sec. 33, T. 10N., R. 58E.
Date Completed: June 9, 1953
Total Depth: 9412'
Initial Potential: 1248 BOPD, 32 BWPD, flow into open line.

Deepest Well: Shell, 21-17, Sec. 17, T. 10N., R. 58E. Pre-Cambrian, T.D. 10,573'

Spacing Regulations:
Commission waives Rules No. 203, 213, 218 and 219 in unitized portion of field. Field delineated by Order No. 36-62.

No. Producing Wells: 110

Type of Trap: Structural

Productive Formation: Mission Canyon (Mississippian). Silurian-Ordovician

Probable Drive Mechanism: Mission Canyon, water drive; Siluro-Ordovician, depletion drive

Secondary Recovery:
Order No. 30-63 authorized expansion of waterflood operations in the Siluro-Ordovician reservoir.

Water Disposal: Most of the produced water is injected back into the Siluro-Ordovician reservoir. A limited amount of water is injected into the Mission Canyon formation.

CAT CREEK

County: Garfield and Petroleum

Discovery Well:

Name: Frantz Corp., No. 1
Location: SW SE NW Sec. 21, T. 15N., R. 30E.
Date Completed: February, 1920
Total Depth: 998'
Initial Potential: 10 BOPD

Deepest Well: Arro-California, Charles No. 4, Sec. 21, T. 15N., R. 30E. Cambrian. T.D. 5705'

Spacing Regulations:
220' from lease line, 440' between wells; field delineated by Orders No. 14-54 and 17-55

Special Field Rules:
State-wide rules

No. Producing Wells: 98

Type of Trap: Structural

Productive Formations: Kootenai, Morrison, Swift

Probable Drive Mechanism: Depletion drive

Secondary Recovery: A portion of the field has been unitized and a waterflood secondary recovery program is in progress. More details concerning this project appear earlier in the report.

CEDAR CREEK

County: Fallon and Wibaux

Discovery Well:

Name: Eastern Montana Oil & Gas Co.
Location: NE NE Sec. 20, T. 14N., R. 55E.
Date Completed: November, 1912
Total Depth: 2710'
Initial Potential: 2,500 MCFGPD (est.)

Spacing Regulations:
Judith River: 1200' from quarter section line and 2400' between wells, 75' tolerance for topographic reasons. Field delineated by Order No. 33-54
Eagle: 320-acre spacing, permitted wells to be located in the NW¼ and SE¼ of each section. A 200' topographic tolerance is permitted. Order No. 1-61.

Special Field Rules:
State-wide rules

No. Producing Wells: 239

Type of Trap: Structural

Productive Formations: Judith River (Upper Cretaceous) Eagle (Upper Cretaceous)

Probable Drive Mechanism: Volumetric

CLARKS FORK—NORTH

County: Carbon

Discovery Well:

Name: British-American, Montana State No. 1
Location: NE SE Sec. 16, T. 9S., R. 22E.
Date Completed: January 30, 1956
Total Depth: 10,877'
Initial Potential: 338 BOPD, 1681 MCFGPD, 18/64" ck.

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; not delineated

Special Field Rules
State-wide rules

No. Producing Wells: 2

Type of Trap: Structural and stratigraphic

Productive Formations: Dakota (Lower Cretaceous). Lakota (Lower Cretaceous)

Probable Drive Mechanism: Gas cap and water drive

CUPTON

County: Fallon

Discovery Well:

Name: Rothschild, Northwest Improvement No. 44-15
Location: SE SE Sec. 15, T. 9N., R. 59E.
Date Completed: August 30, 1955
Total Depth: 9785'
Initial Potential: 306 BOPD, 165 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:
80-acre spacing, permitted wells in the SE¼ and NW¼ of each quarter section, 75' tolerance for topographic reasons. Delineated by Order No. 6-62

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

CUT BANK

County: Glacier and Toole

Discovery Well:

Name: Sand Point, Berger No. 1 (Gas well)
Location: SE SE NW Sec. 1, T. 35N., R. 5W.
Date Completed: 1926
Total Depth: 2978'
Initial Potential: 8,000 MCFGPD

Deepest Well: Union, Stufft 418-7. Cambrian. T.D. 5500'

Spacing Regulations:
320' from quarter-quarter section line, 650' between wells, fifth well in center of 40 permitted, 75' tolerance for topographic reasons. Field delineated by Orders No. 10-54 and 21-59.

Special Field Rules:
State-wide rules except Rules 207, 211, 219, 221, 223 and 224 do not apply.

No. Producing Wells: 1016

Type of Trap: Stratigraphic

Productive Formations: Kootenai (Lower Cretaceous); Madison (Mississippian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: Nine units have been formed for the purpose of initiating water-flood operations. More details appear earlier in this report.

DEER CREEK

County: Dawson

Discovery Well:

Name: Texaco, No. 1 NP "G" (NCT-4)
Location: SW SW Sec. 23, T. 17N., R. 53E.
Date Completed: August 29, 1952
Total Depth: 10,128'
Initial Potential: 191 BOPD

Deepest Well: Texaco, Ekland No. 1, Sec. 26, T. 17N., R. 53E. Red River (Ordovician). T.D. 10,228'

Spacing Regulations:
80-acre spacing, permitted well in the NE¼ and SW¼ of each quarter section, 75' tolerance for topographic reasons. Delineated by Order No. 23-55. Amended by Order 14-59.

Special Field Rules:
Permitted to commingle production from the Interlake-Silurian, Stony Mountain-Ordovician, Red River-Ordovician and Charles-Mississippian pay zones upon approval of Commission's Petroleum Engineer. (Order No. 18-63.)

No. Producing Wells: 4

Type of Trap: Structural

Production Formations: Red River (Ordovician); Interlake (Silurian); Stony Mountain (Ordovician); Charles (Mississippian).

Probable Drive Mechanism: Water drive

Water Disposal: Excess produced water is injected into the Dakota and Lakota formations. (Orders 6-56 and 3-58.)

DELPHIA

County: Musselshell

Discovery Well:

Name: Texota, Goffena No. 1
Location: NW NE Sec. 26, T. 9N., R. 27E.
Date Completed: December 20, 1956
Total Depth: 6311'
Initial Potential: 124 BOPD

Deepest Well: Texota-Bradley, Goffena No. A-1. Charles (Mississippian). T.D. 6811'

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

DEVILS BASIN

County: Musselshell

Discovery Well:

Name: Van Duzen Oil, No. 1
Location: NE SW NW Sec. 24, T. 11N., R. 24E.
Date Completed: December, 1919
Total Depth: 2110'
Initial Potential: 12 BOPD

Deepest Well: Clark Drilling Company, NP No. 1. Cambrian. T.D. 4081'

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Heath (Upper Mississippian)

Probable Drive Mechanism: Depletion drive

DEVON

County: Toole

Discovery Well:

Name: Minot, Shelby Holding Co. No. 1
Location: SW NE Sec. 18, T. 33N., R. 2E.
Date Completed: 1926
Total Depth: 1795'
Initial Potential: 3500 MCFGPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:
1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 14

Type of Trap: Stratigraphic

Productive Formations: Blackleaf (Colorado Shale), Lower (Cretaceous)

Probable Drive Mechanism: Volumetric

DRY CREEK

County: Carbon

Discovery Well:

Name: Ohio Oil Company, NP No. 1

Location: 1940' N/S, 2900' W/E, Sec. 11, T. 7S., R. 21E.
Date Completed: March 31, 1929
Total Depth: 5772'
Initial Potential: 6500 MCFGPD (Frontier)

Deepest Well: Ohio Oil Company, NP No. 18, Sec. 3, T. 7S., R. 21E. Cambrian. T.D. 8882'

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 3

Type of Trap: Structural

Productive Formations: Eagle (Upper Cretaceous) gas; Frontier (Upper Cretaceous) gas; Greybull (Lower Cretaceous) oil; Prior (Lower Cretaceous) oil

Probable Drive Mechanism: Gas sands, volumetric; oil sands, combinations water and depletion drive.

DWYER

County: Sheridan

Discovery Well:

Name: Mobil, Muller No. F-44-20-P

Location: SE SE Sec. 20, T. 32N., R. 59E.
Date Completed: January 8, 1960
Total Depth: 12,033'
Initial Potential: 51 BOPD, 49 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:
160-acre spacing permitted well in the SE¼ of each quarter section, 175' tolerance for topographic reasons, field delineated by Order No. 25-60, and 29-61.

Special Field Rules:
State-wide rules

No. Producing Wells: 20

Type of Trap: Probably combination structural and stratigraphic

Productive Formations: Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water is injected into the Dakota formation. (Order 26-63.)

ELK BASIN

County: Carbon

Discovery Well:

Name: Hurst No. 1

Location: Sec. 30, T. 58N., R. 99W., Park County, Wyoming
Date Completed: 1915
Total Depth: 1402'
Initial Potential: 1000 BOPD (Frontier)

Spacing Regulations:
Commission waives Rule No. 203 within Unit Area, Order No. 1061.

Special Field Rules:
State-wide rules

No. Producing Wells: 51

Type of Trap: Structural

Productive Formations: Frontier (Upper Cretaceous); Dakota (Lower Cretaceous); Embar (Permian); Tensleep Pennsylvanian); Madison (Mississippian) Jefferson (Devonian)

Probable Drive Mechanism: Frontier, gravity drainage; Embar-Tensleep, gravity drainage; Madison, water drive. Jefferson, water drive.

Secondary Recovery: Frontier, crestal gas injection with sweet gas; Embar-Tensleep, full pressure maintenance by crestal injection of inert gas, and water injection into the Madison. More details concerning these projects appear earlier in the report.

ELK BASIN—NORTHWEST

County: Carbon

Discovery Well:

Name: Sinclair Wyoming Oil Co., NW EB Unit No. 1

Location: SW NW Sec. 28, T. 9S., R. 23E.
Date Completed: July 22, 1947
Total Depth: 6795'
Initial Potential: 494 BOPD

Deepest Well: Sinclair, Pre-Madison Unit 1. T.D. 9463'. Cambrian

Spacing Regulations:
Spacing waived within unitized portion except that bottom of hole shall not be closer than 330' from unit boundary and surface location shall not be closer than 1320' from any other well. Outside of unit area, 330' from legal subdivision line and 1320' between wells, 75' topographic tolerance. (Orders 43-63 and 28-64.)

Special Field Rules:
State-wide rules

No. Producing Wells: 13

Type of Trap: Structural

Productive Formations: Frontier (Upper Cretaceous). Madison (Mississippian). Tensleep (Pennsylvanian).

Probable Drive Mechanism: Frontier, depletion drive; Madison, water drive; Tensleep, gravity drainage, gas cap.

Secondary Recovery: Waterflood operations are being conducted in the Frontier and Madison formations. Additional details appear earlier in this report. (Orders 9-57 and 17-61.)

FERTILE PRAIRIE

County: Fallon

Discovery Well:

Name: Mon-O-Co, Ferguson-Goldin No. 1
Location: SE SW Sec. 18, T. 7N., R. 61E.
Date Completed: November 8, 1954
Total Depth: 9286'
Initial Potential: 132 BOPD

Deepest Well: McAlester Fuel, NP No. A-1. Winnipeg (Ordovician). T.D. 9684'

Spacing Regulations:
80-acre spacing, permitted wells in the NW¼ and SE¼ of each quarter section, 75' tolerance for topographic reasons; field delineated by Order No. 6-55; amended by Order 7-62.

Special Field Rules:
State-wide rules

No. Producing Wells: 3

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

FLAT LAKE

County: Sheridan

Discovery Well:

Name: California, Haugen 1
Location: SW SW Sec. 18, T. 37N., R. 58E.
Date Completed: June 15, 1964
Total Depth: 6607'
Initial Potential: 210 BOPD

Deepest Well: California, Haugen 2, NE NW Sec. 18, T. 37N., R. 58E. T.D. 6839' Madison

Spacing Regulations:
160-acre spacing with permitted location in approximate center of NE¼ of quarter section, 200' topographic tolerance. (Order Nos. 32-64, 10-65.)

Special Field Rules:
State-wide rules

No. Producing Wells: 4

Type of Trap: Combination structural and stratigraphic

Productive Formation: Madison-Ratcliffe (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 39-64 permits disposal of produced water into the Muddy (Newcastle), Dakota or Lakota formations.

FLAT COULEE

County: Liberty

Discovery Well:

Name: Northern Petroleum, Northern Farms 2
Location: NE SW Sec. 10, T. 37N., R. 5E.
Date Completed: 1933
Total Depth: 2879'
Initial Potential: 30 BOPD (Swift)

Spacing Regulations:
40-acre oil well spacing, 150' tolerance for surface conditions. Order No. 16-62, 19-63. Gas wells to be no less than 330' from quarter-quarter section line and 1320' between wells, 75' tolerance for topographic reasons. (Order 36-54.)

Special Field Rules:
State-wide rules

No. Producing Wells: 26 (Oil)

Type of Trap: Structural and stratigraphic

Productive Formations: Swift (Oil) Jurassic; Blackleaf (Gas) Cretaceous; Madison (Gas) Mississippian

Probable Drive Mechanism: Depletion drive (Swift)

FRANNIE

County: Carbon

Discovery Well:

Name: Pan American, Rosenberg C-1
Location: NW NE NW Sec. 25, T. 85N., R. 98W., Park County, Wyoming
Date Completed: February 28, 1928
Total Depth: 2612'
Initial Potential: 9 BOPD

Spacing Regulations:
10-acre spacing with 200' topographic tolerance. (Order 35-63.)

Special Field Rules:
State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Combination water drive and gravity drainage

FRED & GEORGE CREEK

County: Toole

Discovery Well:

Name: Grannell-Sands Oil, Fey 1

Location: NW NE Sec. 23, T. 37N., R. 2E.
Date Completed: August 15, 1963
Total Depth: 2737'
Initial Potential: 1500 BOPD

Deepest Well: A. A. Oil Corp., J. Fey 1, NW NW Sec. 26, T. 37N., R. 2E. 2995' Madison (Mississippian).

Spacing Regulations

40-acre spacing with a 250' tolerance for topographic or geologic reasons. Field delineated by Order 29-63, 1-65.

Special Field Rules:

Semi-annual bottom-hole pressure surveys required. Surface casing to be set through base of Eagle formation.

No. Producing Wells: 25

Type of Trap: Stratigraphic

Porductive Formations: Sunburst-Swift (Lower Cretaceous-Upper Jurassic)

Probable Drive Mechanism: Solution gas

GAGE

County: Musselshell

Discovery Well

Name: Northern Ordnance, Morris No. 1

Location: SW SW Sec. 15, T. 9N., R. 26E.
Date Completed: September 9, 1943
Total Depth: 7495'
Initial Potential: 120 BOPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated.

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Combination structural and stratigraphic

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

GAGE—SOUTHWEST

County: Musselshell

Discovery Well:

Name: W. C. Partee, Govt. 1

Location: NE SW Sec. 21, T. 9N., R. 26E.
Date Completed: November 6, 1964
Total Depth: 6040'
Initial Potential: 199 BOPD

Deepest Well: Above well. Amsden (Pennsylvanian)

Spacing Regulations:

160-acre with permitted well location in NE¼ of each quarter section, 75' topographic tolerance. Temporary to January 14, 1966. (Order 2-65.)

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formation: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

GAS CITY

County: Dawson

Discovery Well:

Name: Shell, No. 33X21

Location: NE NW SE Sec. 21, T. 14N., R. 55E.
Date Completed: June 4, 1955
Total Depth: 9596'
Initial Potential: 202 BOPD, 5 BWPD, 22/64" ck.

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

Commission waives Rules No. 203, 213, 218 and 219 for unitized portion. Field delineated by Order No. 29-62.

Special Field Rules:

State-wide rules

No. Producing Wells: 28

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 32-61 permits disposal of produced water into the Judith River formation. Order No. 20-64 also permits disposal into the Red River formation below the oil-water contact.

GLENDIVE

County: Dawson

Discovery Well:

Name: Texaco, NP "G" (NCT-1) No. 1

Location: NE NE Sec. 35, T. 15N., R. 54E.
Date Completed: January 10, 1952
Total Depth: 9079'
Initial Potential: 254 BOPD

Deepest Well: Texaco, NP "G" (NCT-1) No. 2 Winnipeg (Ordovician). T.D. 10,537'

Spacing Regulations:

80-acre spacing, permitted well in the NE¼ and SW¼ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order Nos. 27-55, 19-62 and 58-62.

Special Field Rules:

State-wide rules

No. Producing Wells: 11

Type of Trap: Stratigraphic and structural

Productive Formations: Interlake (Silurian). Stony Mountain-Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 16-63 permits disposal of produced water into the Swift formation.

GOOSE LAKE

County: Sheridan

Discovery Well:

Name: Signal-Caltana Assoc., Carl Peterson 1

Location: NE SE Sec. 19, T. 35N., R. 58E.
Date Completed: June 11, 1962
Total Depth: 7205'
Initial Potential: 42 BOPD

Deepest Well: Sun-Signal-Caltana, A. Lagerquist 1, SE SW Sec. 9, T. 35N., R. 58E. T.D. 8540'. Madison (Mississippian)

Spacing Regulations:

160-acre spacing. Area I, Center NW¼. Area II, Center SE¼. Area III, Center NE¼. 200' tolerance for topographic reasons. Field delineated by Order No. 42-63.

Special Field Rules:

Semi-annual bottom-hole pressure surveys required.

No. Producing Wells: 13

Type of Trap: Combination structural and stratigraphic.

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Combination solution gas and water drive.

Water Disposal: Produced water is being injected into the Lakota formation. (Order No. 12-64.)

GRABEN COULEE

County: Glacier

Discovery Well:

Name: Cardinal Petr., McAlpine 1

Location: NE SW Sec. 3, T. 37N., R. 5W.
Date Completed: December 7, 1961
Total Depth: 2816'
Initial Potential: 56 BOPD

Spacing Regulations:

Sunburst: One well per 40 acres, no closer than 330' from quarter-quarter section boundary. Cut Bank and Madison: 10-acre spacing with center 5-spot well also permitted. Field delineated by Order No. 73-62.

Special Field Rules:

State-wide rules

No. Producing Wells: 11

Type of Trap: Structural and stratigraphic

Productive Formations: Sunburst (Lower Cretaceous), Cut Bank, (Cretaceous), Madison (Mississippian)

Probable Drive Mechanism: Depletion drive

GYPSY BASIN

County: Teton and Pondera

Discovery Well:

Name: Western Oils, Bills No. 1

Location: SW SE SW Sec. 31, T. 28N., R. 6W.
Date Completed: July 8, 1951
Total Depth: 3410'
Initial Potential: 50 BOPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

Madison formation, 40-acre spacing for oil; permitted well location in center of quarter-quarter section; 150' topographic tolerance; Sunburst formation, 330' from lease line and 660' between wells, only two wells per quarter-quarter section. Madison and Sunburst, gas spacing, 160-acre spacing, permitted location at center of any quarter-quarter section, at least 2340' between wells, 150' topographic tolerance. (Order Nos. 13-59, 45-63.)

Special Field Rules:

All wells completed below the Sunburst formation must use sufficient cement for production casing to assure protection of the Sunburst pay. (Order No. 45-63.)

No. Producing Wells: 8

Type of Trap: Combination structural and stratigraphic

Productive Formations: Madison (Mississippian), Sunburst (Cretaceous)

Probable Drive Mechanism: Combination water drive and depletion drive

Secondary Recovery: Order No. 6-64 permits injection of excessive gas (produced with the oil) into the Sunburst gas cap.

HARDIN

County: Big Horn

Discovery Well:

Name: Yellowstone Oil & Gas, Blair No. 1
Location: Sec. 10, T. 1S., R. 33E.
Date Completed: 1913
Total Depth: Unknown
Initial Potential: Unknown

Deepest Well: Daniels Petroleum Co., No. 1, Sec. 13, T. 1S., R. 33E. Madison (Mississippian). T.D. 4195'

Spacing Regulations:
1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons; not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 41

Type of Trap: Stratigraphic

Productive Formations: Frontier (Cretaceous)

Probable Drive Mechanism: Volumetric

HIBBARD

County: Rosebud

Discovery Well:

Name: Sinclair, Kesterson No. 1
Location: SE NW Sec. 34, T. 10 N., R. 33E.
Date Completed: February 29, 1960
Total Depth: 5240'
Initial Potential: 240 BOPD

Deepest Well: Above well. Heath (Mississippian)

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

IVANHOE

County: Musselshell

Discovery Well:

Name: Chicago-Republic, No. 1
Location: SW SE NE Sec. 17, T. 11N., R. 31E.
Date Completed: September 15, 1953
Total Depth: 5210'
Initial Potential: 92 BOPD (Morrison)

Deepest Well: Above well. Charles (Mississippian)

Spacing Regulations:
Center of 40-acre, 200' tolerance for topographic reasons. Delineated by Orders No. 13-56 and 7-60.

Special Field Rules:
State-wide rules

No. Producing Wells: 18

Type of Trap: Structural and stratigraphic

Productive Formations: Morrison (Jurrassic). Amsden (Pennsylvanian). Tyler (Mississippian)

Probable Drive Mechanism: Morrison and Tyler, depletion drive; Amsden, water drive

Secondary Recovery: Order No. 19-64 permitted a pilot waterflood in the Tyler formation.

KEG COULEE

County: Musselshell

Discovery Well:

Name: American-Climax Petr. Corp., DeJaegher No. 1
Location: SE NE Sec. 31, T. 11N., R. 31E.
Date Completed: April 1, 1960
Total Depth: 4635'
Initial Potential: 177 BOPD

Spacing Regulations:
40-acre spacing in southwest portion of field except that spacing is waived in unitized portion. (Order Nos. 3-64, 4-64, 23-64). 80-acre spacing in remainder of field with variable pattern. (Order Nos. 11-60, 28-62); topographic tolerance varies from 100' to 150'. (Order Nos. 11-60, 4-64, 23-64.)

Special Field Rules:
State-wide rules

No. Producing Wells: 21

Type of Trap: Stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: The northwest portion of the field has been unitized for waterflood operations in the Tyler "C" sand.

KEG COULEE—NORTH

County: Musselshell

Discovery Well:

Name: Lawrence Barker, Jr., et al, Stensvad 1-24
Location: NE SE Sec. 24, T. 11N., Rge. 30E.
Date Completed: November 10, 1964
Total Depth: 4569'
Initial Potential: 240 BOPD

Deepest Well: Amerada Petroleum Corp., McCall 1, SW SW Sec. 24, T. 11N., R. 30E. T.D. 4935' Otter (Mississippian)

Spacing Regulations:
40-acre spacing, 150' topographic tolerance. Order 46-64.

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Stratigraphic

Productive Formations: Tyler "B" sand (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

KEITH—EAST

County: Liberty

Discovery Well:

Name: Texas Co., Colbry 1
Location: SW SW Sec. 13, T. 36N., R. 6E.
Date Completed: August, 1947
Total Depth: 4970'
Initial Potential: 9000 MCFGPD (Est.)

Deepest Well: Same as above (Cambrian).

Spacing Regulations:
640-acre spacing (Order 22-62).

Special Field Rules:
State-wide rules

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Blackleaf (Cretaceous); Sawtooth (Jurassic); Madison (Mississippian)

Probable Drive Mechanism: Gas expansion and water drive

KEVIN-SUNBURST

County: Toole

Discovery Well:

Name: Gordon Campbell-Kevin Syndicate, Goeddertz No. 1
Location: NE NE NE Sec. 16, T. 35N., R. 3W.
Date Completed: March 14, 1922
Total Depth: 2540'
Initial Potential: 10 BOPD

Deepest Well: Lee Edwards, Inland Empire No. 1, Pre-Cambrian, T.D. 4916'

Spacing Regulations:
9 wells per 40-acre tract, only 3 wells on any side of tract set back at least 220' from line, 75' tolerance for topographic reasons. Field delineated by Orders No. 8-54 and 28-55

Special Field Rules:
State-wide rules, except Rules No. 207, 211, 219, 221, 223 and 224 do not apply

No. Producing Wells: 850

Type of Trap: Stratigraphic

Productive Formations: Madison (Mississippian); Sawtooth (Jurassic); Sunburst (Cretaceous)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: Several pilot waterfloods are now in operation. Results of these floods are yet inconclusive. Additional data concerning these pilots appears earlier in the report.

LAKE BASIN—NORTH

County: Stillwater

Discovery Well:

Name: Holland-American, Castle No. 1
Location: NW SE Sec. 22, T. 2N., R. 21E.
Date Completed: January 11, 1958
Total Depth: 4179'
Initial Potential: 480 MCFGPD, Eagle; 4500 MCFGPD, Frontier

Deepest Well: Superior, Copulos 71-22. Pre-Cambrian. T.D. 7929'

Spacing Regulations:
640-acre spacing, permitted well in the NWSE of each section, 75' tolerance for topographic reasons. Delineated by Order No. 6-58.

Special Field Rules:
State-wide rules. Frontier and Eagle may be dually completed without provisions of Rule 219.

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Eagle (Cretaceous); Frontier (Cretaceous)

Probable Drive Mechanism: Unknown

LAUREL

County: Yellowstone

Discovery Well:

Name: King Oil Company, Van Winkle 1
Location: NE SE Sec. 24, T. 2S., R. 24E.
Date Completed: July 7, 1961
Total Depth: 1000'
Initial Potential: 45 BOPD

Deepest Well: Pan American Syn., SW SW NE, Sec. 23, T. 2S., R. 24E. T.D. 2365'

Spacing Regulations:
10-acre spacing with 75' tolerance for topographic conditions. Field is delineated by Order No. 15-62.

Special Field Rules:
State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Structural and stratigraphic

Productive Formation: Dakota (Cretaceous)

Probable Drive Mechanism: Depletion drive

LITTLE BEAVER

County: Fallon

Discovery Well:

Name: Shell, Unit No. 23-13
Location: NE SW Sec. 13, T. 4N., R. 61E.
Date Completed: July 30, 1952
Total Depth: 8553'
Initial Potential: 313 BOPD, 33 BWPD

Deepest Well: Carter, NP No. 1, Sec. 19, T. 4N., R. 62E. Pre-Cambrian. T.D. 9676'

Spacing Regulations:
Commission waives Rules No. 203, 213, 218 and 219. Field delineated by Order No. 41-62.

Special Field Rules:
State-wide rules

No. Producing Wells: 23

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Combination depletion and water drive

LITTLE BEAVER—EAST

County: Fallon

Discovery Well:

Name: Montana-Dakota Utilities, NP No. 1
Location: Sec. 17, T. 4N., R. 62E.
Date Completed: October, 1952
Total Depth: 8186'
Initial Potential: 25 BOPD

Deepest Well: Shell, No. 14-34, Sec. 34, T. 5N., R. 61E. Red River (Ordovician). T.D. 8471'

Spacing Regulations:
Commission waives Rules No. 203, 213, 218 and 219. Field delineated by Order No. 42-62.

Special Field Rules:
State-wide rules

No. Producing Wells: 17

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Combination depletion and water drive

Secondary Recovery: Waterflood of the Red River formation was approved by Order No. 33-64. Injection had not begun as of January 1, 1965.

Water Disposal: Produced water is injected into the Mission Canyon formation.

LODGE GRASS

County: Big Horn

Discovery Well:

Name: Amerada Petr. Corp., Yellowmule 1
Location: SE NW Sec. 6, T. 6S., R. 36E.
Date Completed: April 20, 1964
Total Depth: 6521'
Initial Potential: 165 BOPD

Deepest Well: Continental, Crow 16-1, C SW SE Sec. 16, T. 6S., R. 36E. T.D. 6643'. Tensleep (Pennsylvanian)

Spacing Regulations: Temporary 160-acre spacing to July 9, 1965, permitted locations vary, 250' topographic tolerance. (Order 26-64.)

Special Field Rules:
Semi-annual bottom-hole pressure surveys.

No. Producing Wells: 2

Type of Trap: Probably structural.

Productive Formation: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Water drive

LONE TREE

County: Sheridan

Discovery Well:

Name: Sun, Hellegaard 1

Location: SE NE Sec. 8, T. 37N., R. 57E.
Date Completed: January, 1963
Total Depth: 10,438'
Initial Potential: 238 BOPD

Deepest Well: Above well

Spacing Regulations:
160-acre spacing, permitted well in center of SE¼ of spacing unit with a 200' topographic tolerance. Field delineated by Order No. 11-63.

Special Field Rules:
Annual bottom-hole pressure surveys to be made in October of each year.

No. Producing Wells: 3

Type of Trap: Structural

Productive Formations: Madison (Mississippian), Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: The disposal of produced salt water by injection into the Dakota sandstone was initiated May 2, 1964. (Order No. 11-64.)

LOOKOUT BUTTE

County: Fallon

Discovery Well:

Name: Continental Oil, NP A-29, No. 2

Location: SE SW Sec. 29, T. 7N., R. 60E.
Date Completed: December 26, 1961
Total Depth: 8851'
Initial Potential: 495 BOPD, 11 BWPD, 22/64" ck.

Spacing Regulations:
160-acre spacing, permitted well to be in SE¼ of each spacing unit, 150' topographic tolerance, delineated by Order No. 21-62. Coral Creek Unit portion of field not subject to spacing. Field re-delineated by Order No. 7-63.

Special Field Rules:
State-wide rules

No. Producing Wells: 46

Type of Trap: Structural

Productive Formations: Silurian, Ordovician

Probable Drive Mechanism: Combination depletion drive with partial water drive.

Water Disposal: Produced water is injected into the Madison formation. (Order No. 68-62.)

MASON LAKE

County: Musselshell

Discovery Well:

Name, Occidental, Govt.-Hall 1

Location: Center Lot 5, Sec. 2, T. 8N., R. 24E.
Date Completed: July 31, 1964
Total Depth: 7915'
Initial Potential: 17 BOPD flowing

Deepest Well: Same as above. Meagher Formation (Cambrian).

Spacing Regulations:
330' from legal subidivision line, 1320' between wells, 75' topographic tolerance. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 2

Type of Trap: Probably structural

Productive Formations: Lakota (Cretaceous)

Probable Drive Mechanism: Water drive

MELSTONE

County: Musselshell

Discovery Well:

Name: Amerada, Hougen No. 1

Location: SE SE Sec. 23, T. 10N., R. 29E.
Date Completed: October 18, 1948
Total Depth: 4228'
Initial Potential: 655 BOPD, ¾" ck.

Deepest Well: Amerada, Hougen No. 2 Sec. 23, T. 10N., R. 29E. Cambrian. T.D. 7626'

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 5

Type of Trap: Structural and stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

Water Disposal: Produced water was injected into the Tyler "B" zone from February, 1954 to May, 1958. A total of 1,056,000 barrels were injected before the injection well plugged. Water now flows into pits and is used for stock water by landowners.

MONARCH

County: Fallon

Discovery Well:

Name: Shell, NP 12-23

Location: Sec. 23, T. 9N., R. 58E.
Date Completed: November 18, 1958
Total Depth: 9175'
Initial Potential: 218 BOPD, 13 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

160-acre spacing, SW¼ of each quarter section, 175' tolerance for topographic reasons, Siluro-Ordovician pool. Delineated by Order No. 12-59. Re-delineated by Order 4-63.

80-acre spacing, with permitted wells to be in the SW¼ or NE¼ of each quarter-quarter section, wells to be no closer than 330' from boundary of permitted quarter-quarter section, Madison pool. Delineated by Order No. 18-61.

Special Field Rules:

State-wide rules

No. Producing Wells: 14

Type of Trap: Structural and stratigraphic

Productive Formations: Red River (Ordovician); Interlake (Silurian); Mission Canyon (Mississippian)

Probable Drive Mechanism: Depletion drive with partial water drive

Water Disposal: Produced water is disposed into the salt water disposal system for the Pennel Field. (Madison formation.)

MOSSER

County: Yellowstone

Discovery Well:

Name: Tarrant, Mosser No. 2

Location: SW SW NE Sec. 26, T. 3S., R. 24E.
Date Completed: January 25, 1937
Total Depth: 1027'
Initial Potential: 60 BOPD

Deepest Well: Tarrant, Mosser No. 1, Sec. 26, T. 3S., R. 24E. Madison (Mississippian). T.D. 2568'

Spacing Regulations:

Spacing waived. Future development requires administrative approval of the Commission. (Order No. 27-62.)

Special Field Rules:

State-wide rules

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Dakota (Lower Cretaceous)

Probable Drive Mechanism: Water drive

MT. LILLY

County: Glacier

Discovery Well:

Name: Cardinal Petroleum, Schafer 1

Location: NE NW Sec. 20, T. 37N., R. 5E.
Date Completed: September 11, 1963
Total Depth: 3085'
Initial Potential: 6,200 MCFGPD
Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

Gas: 640-acre, well location in approximate center of any of the four quarter-quarter sections adjoining center of section, 250' topographic tolerance. (Order No. 37-63.)

Special Field Rules:

None

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Madison (Mississippian)

MUD CREEK

County: Wheatland

Discovery Well:

Name: Texaco, Griffith 1

Location: NE NW Sec. 12, T. 6N., R. 17E.
Date Completed: March 7, 1963
Total Depth: 4970'
Initial Potential: 1,370 MCFGPD

Deepest Well: Above well. Big Horn (Ordovician)

Spacing Regulations:

640-acre (gas); wells located anywhere within a 160-acre tract in center of each section.

Special Field Rules:

Annual bottom-hole pressure surveys in October

No. Producing Wells: 1 (Shut-in)

Type of Trap: Unknown

Productive Formation: Amsden (Pennsylvanian)

MUSSELSHELL

County: Rosebud

Discovery Well:

Name: Sumatra Oil Corp., DeJaegher 2
Location: SE NE Sec. 22, T. 11N., R. 31E.
Date Completed: July, 1962
Total Depth: 4420'
Initial Potential: 342 BOPD, 0.2% BS&W

Spacing Regulations:
330' from quarter-quarter section line and 1320' between wells, 75' topographic tolerance. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Structural and stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

OUTLOOK

County: Sheridan

Discovery Well:

Name: Amerada, Tange No. 1
Location: Sec. 20, T. 36N., R. 53E.
Date Completed: December 22, 1956
Total Depth: 9950'
Initial Potential: 2742 BOPD

Deepest Well: Amerada, A. Johnson No. 1, Sec. 33, T. 36N., R. 53E. Pre-Cambrian. T.D. 11,074'

Spacing Regulations:
160-acre spacing, permitted wells can be in either SW¼ or NE¼ of each quarter section, 175' tolerance for topographic reasons. Delineated by Order No. 19-59A.

Special Field Rules:
State-wide rules

No. Producing Wells: 14

Type of Trap: Stratigraphic and structural

Productive Formations: Winnipegosis (Devonian), Interlake (Silurian), Duperow (Devonian), Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water disposal began January 12, 1960 into the Dakota formation.

OUTLOOK—SOUTH

County: Sheridan

Discovery Well:

Name: Amerada, Loucks 1
Location: NE SW Sec. 35, T. 36N., R. 52E.
Date Completed: April, 1957
Total Depth: 10,842'
Initial Potential: 312 BOPD (Red River)

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:
160-acre spacing; permitted wells can be in either SW¼ or NE¼ of each quarter section, 175' topographic tolerance. (Order No. 19-59A.)

Special Field Rules:
State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Red River (Ordovician), Interlake (Silurian), Winnipegosis (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water injected into the Dakota formation. (Order No. 19-59.)

PENNEL

County: Fallon

Discovery Well:

Name: Shell, State No. 22X-36
Location: SE NW Sec. 36, T. 8N., R. 59E.
Date Completed: September 8, 1955
Total Depth: 9242'
Initial Potential: 205 BOPD, 39 BWPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:
80-acre, permitted wells in the NW¼ and SE¼ of each quarter section, 150' tolerance for topographic reasons in western portion of field.
160-acre spacing with permitted wells in the SE¼ of each quarter section, 150' topographic tolerance in eastern portion of pool. Order No. 20-62.
Delineation amended by Orders No. 4-63 and 7-63.

No. Producing Wells: 109

Type of Trap: Structural

Productive Formations: Lodgepole (Mississippian); Mission Canyon (Mississippian); Siluro-Ordovician

Probable Drive Mechanism: Combination depletion drive and water drive

Water Disposal: Produced salt water is being injected into the Siluro-Ordovician, Dakota and Madison reservoirs.

PINE

County: Fallon, Wibaux, Prairie and Dawson

Discovery Well:

Name: Shell, Pine Unit No. 32-30

Location: SW SW NE Sec. 30, T. 12N., R. 57E.
Date Completed: January 28, 1952
Total Depth: 9746'
Initial Potential: 467 BOPD, 148 BWPD

Deepest Well: Shell, 43-22A, Sec. 22, T. 11N., R. 57E. Pre-Cambrian. T.D. 10,414'

Spacing Regulations:
80-acres; permitted well located in NW¼ and SE¼ of the quarter section; 150' topographic tolerance; area within Pine Unit not subject to spacing. (Order No. 37-62.)

Special Field Rules:
Commission Rules No. 203, 213, 218, and 219 waived for unitized portion of field. (Order No. 37-62.)

No. Producing Wells: 130

Type of Trap: Structural

Productive Formations: Silurian-Ordovician

Probable Drive Mechanism: Combination depletion and water drive

Secondary Recovery: A partial pressure maintenance program was initiated March 10, 1959 by injecting water into the producing horizon. Additional data and details appear earlier in the report. (Order Nos. 13-58, 1-60, 8-62A.)

Water Disposal: Most of the produced water is injected back into the producing formation for pressure maintenance. A limited amount is injected into the Dakota formation. (Order No. 7-58.)

PLEVNA

County: Fallon

Discovery Well:

Name: F. H. Becker No. 1

Location: NE NE SE Sec. 28, T. 5N., R. 60E.
Date Completed: January 18, 1946
Total Depth: 1053'
Initial Potential: 300 MCFGPD

Deepest Well: True Oil, NP-Plevna 1, NE SW Sec. 29, T. 5N., R. 60E., Red River. T.D. 8940'

Spacing Regulations:
1200' from quarter section line, 2400' between wells, 75' tolerance for topographic reasons. Field delineated by Orders No. 34-54 and 4-57.

Special Field Rules:
State-wide rules

No. Producing Wells: 30

Type of Trap: Structural

Productive Formations: Judith River (Upper Cretaceous)

Probable Drive Mechanism: Water drive

POLE CREEK

County: Musselshell

Discovery Well:

Name: Occidental, Govt.-Kranzler 1

Location: NE NW Sec. 21, T. 9N., R. 23E.
Date Completed: March 11, 1964
Total Depth: 3662'
Initial Potential: 45 BOPD

Deepest Well: Occidental, NPRR 2, SE SE Sec. 17, T. 9N., R. 23E. T.D. 7482' (Pre-Cambrian)

Spacing Regulations:
State-wide. 330' from legal subdivision line, 1320' between wells, 75' topographic tolerance. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 7

Type of Trap: Structural

Productive Formation: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water is fresh and used by landowner for watering stock.

PONDERA

County: Teton

Discovery Well:

Name: Midwest Refining, Haber No. 1

Location: SE SE Sec. 17, T. 27N., R. 4W.
Date Completed: June, 1927
Total Depth: 2072'
Initial Potential: 3 BOPD, 3500 MCFGPD

Deepest Well: Wasatch Oil, Hirshberg No. 1, Sec. 23, T. 27N., R. 4W. Pre-Cambrian. T.D. 5233'

Spacing Regulations:
220' from quarter-quarter section line, 430' between wells, 75' tolerance for topographic reasons. Delineated by Order No. 9-54.

Special Field Rules:
State-wide rules, except Rules No. 207, 211, 219, 221, 223 and 224 do not apply.

No. Producing Wells: 350

Type of Trap: Structural and stratigraphic

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination depletion drive with limited water drive

Secondary Recovery: Commission has granted one operator approval to initiate a one injection well pilot waterflood. More details appear earlier in this report.

Water Disposal: Produced water injected into lower Madison formation. (Order Nos. 11-56, 15-56.)

PONDERA COULEE

County: Teton

Discovery Well:

Name: Perl Smith, Louttit-Mills 1

Location: SE NE Sec. 4, T. 27N., R. 5W.
Date Completed: December 21, 1961
Total Depth: 2452'
Initial Potential: 30 BOPD

Spacing Regulations:
10-acre spacing, 75' topographic tolerance, field delineated by Order No. 5-62

Special Field Rules:
State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Water drive

POPLAR

County: Roosevelt

Discovery Well:

Name: East Poplar Unit No. 1 Murphy Corp.

Location: SW NE Sec. 2, T. 28N., R. 51E.
Date Completed: March 10, 1952
Total Depth: 9163'
Initial Potential: 233 BOPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Delineated by Order No. 7-55.

Special Field Rules:
State-wide rules

No. Producing Wells: 81

Type of Trap: Structural

Productive Formations: Charles-Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

Secondary Recovery: Partial pressure maintenance by water injection was started in September, 1956. More details appear earlier in the report. (Order Nos. 34-55, 11-59, 5-60.)

Water Disposal: Excess produced water has been injected into the Dakota and Judith River formations since September, 1957. (Order Nos. 1-55, 5-57, 7-57, 14-61, 21-61, 34-61, 10-62.)

POPLAR—NORTHWEST

County: Roosevelt

Discovery Well:

Name: Ajax Oil, McGowan No. 1

Location: SE SW Sec. 10, T. 29N., R. 50E.
Date Completed: May 12, 1952
Total Depth: 6274'
Initial Potential: 75 BOPD, 25 BWPD

Deepest Well: Humble, Harry Mason No. 1. Interlake (Silurian). T.D. 8392'

Spacing Regulations:
80-acre spacing, permitted wells in the NW¼ and SE¼ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order No. 18-55.

Special Field Rules:
State-wide rules. Order No. 18-55 lists special well completion practices to be followed.

No. Producing Wells: 5

Type of Trap: Structural

Productive Formations: Charles-Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

RAGGED POINT

County: Musselshell

Discovery Well:

Name: Texaco, Manion No. 1

Location: SE SW Sec. 5, T. 11N., R. 30E.
Date Completed: January 4, 1948
Total Depth: 6312'
Initial Potential: 236 BOPD, 5% water

Deepest Well: Above well. Cambrian

Spacing Regulations:
Center of 40 acres, 75' tolerance for topographic reasons. Delineated by Orders No. 15-54 and 8-59.

Special Field Rules:
State-wide rules

No. Producing Wells: 19

Type of Trap: Structural and stratigraphic

Productive Formations: Kibbey and Tyler (Mississippian)

Probable Drive Mechanism: Kibbey, water drive; Tyler, depletion drive

RAPELJE

County: Stillwater

Discovery Well:

Name: Shoreline Petroleum, C. F. Kirchner No. 1
Location: NE SW Sec. 4, T. 2N., R. 20E.
Date Completed: November 18, 1960
Total Depth: 4064'
Initial Potential: 840 MCFGPD

Deepest Well: Above well. Morrison (Jurassic)

Spacing Regulations:
1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Unknown

Productive Formations: Eagle (Cretaceous)

Probable Drive Mechanism: Unknown

REAGAN

County: Glacier

Discovery Well:

Name: Reagan Associates, Tribal 194-1
Location: SE NE Sec. 22, T. 37N., R. 7W.
Date Completed: March 29, 1941
Total Depth: 3869'
Initial Potential: 6000 MCFGPD

Deepest Well: Union Oil, Blackfeet Tribal 194-12. Cambrian. T.D. 6258'

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 48

Type of Trap: Structural

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination gas cap and water drive

Secondary Recovery: A pressure maintenance project utilizing crestal gas injection was initiated during August, 1961. Additional details appear earlier in this report.

RED CREEK

County: Glacier

Discovery Well:

Name: G. S. Frary, Isabel Moberly No. 1
Location: SW SW Sec. 1, T. 37N., R. 5W.
Date Completed: January 16, 1958
Total Depth: 2656'
Initial Potential: 1500 MCFGPD

Deepest Well: Pardee-Inland Empire, McAlpine No. 1, Madison (Mississippian). T.D. 2990'

Spacing Regulations:
40-acre spacing, 75' topographic tolerance, spacing waived for unitized portion of Cut Bank sand reservoir. (Order Nos. 16-58, 73-62, 31-64.)

Special Field Rules:
State-wide rules. Rule 219 waived.

No. Producing Wells: 22

Type of Trap: Structural and stratigraphic

Productive Formations: Cut Bank (Lower Cretaceous), Madison (Mississippian)

Probable Drive Mechanism: Solution gas drive in Cut Bank, water drive in Madison.

Water Disposal: Produced water injected into the Bow Island and Madison formations. (Order Nos. 22-63 and 37-64.)

Secondary Recovery: Waterflood operations in the Cut Bank sand reservoir approved by Order No. 31-64. Injection had not begun as of January 1, 1965.

RED STONE

County: Sheridan

Discovery Well:

Name: H. L. Hunt, Hagen No. 1
Location: NE NW Sec. 7, T. 34N., R. 52E.
Date Completed: November 1, 1958
Total Depth: 10,700'
Initial Potential: 100 BOPD

Deepest Well: Above well. Cambrian

Spacing Regulations:
330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:
State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Devonian

Probable Drive Mechanism: Water drive

REPEAT

County: Carter

Discovery Well:

Name: Ohio Oil, Govt. No. 1

Location: Lot 4, Sec. 4, T. 1S., R. 62E.
Date Completed: March 27, 1956
Total Depth: 9362'
Initial Potential: 186 BOPD, 2% water

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

RICHEY

County: Dawson and McCone

Discovery Well:

Name: Shell, NP No. 11-9

Location: SE NW NW Sec. 19, T. 23N., R. 50E.
Date Completed: November 29, 1951
Total Depth: 10,518'
Initial Potential: 1656 BOPD, 408 BWPD, 32/64" ck.

Deepest Well: Above well. Ordovician

Spacing Regulations:

80-acre spacing, permitted wells in the NW¼ and SE¼ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order No. 21-55.

Special Field Rules:

State-wide rules

No. Producing Wells: 8

Type of Trap: Structural

Productive Formations: Charles (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Part of the produced water in this field is being injected into the Dakota formation.

RICHEY — SOUTHWEST

County: McCone

Discovery Well:

Name: Shell, NP No. 22-25B

Location: SE NW Sec. 25, T. 22N., R. 48E.
Date Completed: 1952
Total Depth: 10,188'
Initial Potential: 51 BOPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

160-acre spacing, well to be located no closer than 900' from boundary of spacing unit. Field delineated by Order No. 25-62.

Special Field Rules:

State-wide rules

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Interlake (Silurian); Dawson Bay (Devonian)

Probable Drive Mechanism: Depletion drive

RUDYARD

County: Hill

Discovery Well:

Name: Texaco, Anderson No. 1

Location: SE SW Sec. 27, T. 34N., R. 9E.
Date Completed: December 9, 1955
Total Depth: 3435'
Initial Potential: 3500 MCFGPD

Deepest Well: Texaco, R. E. Blair No. 1, NW SE Sec. 28, T. 34N., R. 9E. Pre-Cambrian. T.D. 6550'

Spacing Regulations:

640-acre spacing, permitted well in C NW¼, 150' tolerance for topographic reasons. Field delineated by Order No. 2-58.

Special Field Rules:

State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Sawtooth (Jurassic)

Probable Drive Mechanism: Volumetric

SAND CREEK

County: Dawson

Discovery Well:

Name: Texaco, Guelff No. 1

Location: SE NE Sec. 4, T. 15N., R. 54E.
Date Completed: March 8, 1959
Total Depth: 9684'
Initial Potential: 408 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

80-acre spacing, permitted wells in the NW¼ and SE¼ of each quarter section, 150' tolerance for topographic reasons. Field delineated by Order No. 16-59.

Special Field Rules:

State-wide rules

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Interlake (Silurian); Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: The disposal of produced salt water by injection into the Swift formation was initiated June 28, 1961.

SHOTGUN CREEK

County: Roosevelt

Discovery Well:

Name: Phillips, McCauley 1

Location: NW NW Sec. 35, T. 30N., R. 57E.
Date Completed: March, 1963
Total Depth: 8771'
Initial Potential: 70 BOPD

Deepest Well: Above well

Spacing Regulations:

State-wide rules

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Water drive

SIDNEY-BRORSON

County: Richland

Discovery Well:

Name: Wendell C. Flynn, Beagle Land & Livestock Co. No. 1

Location: SW SW Sec. 17, T. 23N., R. 59E.
Date Completed: September 11, 1958
Total Depth: 13,135'
Initial Potential: 50 BOPD

Deepest Well: Above well. Winnipeg (Devonian)

Spacing Regulations:

320-acre spacing, either east-west or north-south spacing units, wells to be located in NW¼ and SE¼ of each section, (Order Nos. 30-62, 12-63).

Special Field Rules:

State-wide rules

No. Producing Wells: 7

Type of Trap: Unknown

Productive Formations: Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

SNYDER

County: Big Horn

Discovery Well:

Name: George Greer, Kendrick No. 2

Location: NE NW NW Sec. 6, T. 1S., R. 35E.
Date Completed: October 4, 1952
Total Depth: 4588'
Initial Potential: 150 BOPD

Deepest Well: George Greer, Kendrick No. 3, Sec. 6, T. 1S., R. 35E. Winnipeg (Ordovician). T.D. 6808'

Spacing Regulations:

10-acre spacing with center 5-spot permitted. Field delineated by Order No. 45-62.

Special Field Rules:

State-wide rules

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Water drive

SOAP CREEK

County: Big Horn

Discovery Well:

Name: Western States Oil & Gas Co., Tribal No. 1
Location: Approx. center Sec. 34, T. 6S., R. 32E.
Date Completed: February 11, 1921
Total Depth: 1966'
Initial Potential: 200 BOPD

Deepest Well: Inland Empire, Tribal 52-34, Sec. 34, T. 6S., R. 32E. Pre-Cambrian. T.D. 4470'

Spacing Regulations:
Center of 10 acres, 100' tolerance for topographic reasons. Delineated by Order No. 26-60.

Special Field Rules:
State-wide rules

No. Producing Wells: 20

Type of Trap: Structural

Productive Formations: Tensleep, Amsden (Pennsylvanian); Madison (Mississippian)

Probable Drive Mechanism: Water drive

SPRING CREEK

County: Richland

Discovery Well:

Name: McAlester Fuel, NP-Vaira 1-B
Location: NE NE Sec. 35, T. 25N., R. 54E.
Date Completed: January 25, 1963
Total Depth: 11,860'
Initial Potential: 428 BOPD (Nisku); 314 BOPD (Red River)

Deepest Well: McAlester Fuel, NP-Vaira 2-B, NE NW Sec. 35, T. 25N., R. 54E. Deadwood (Cambrian).

Spacing Regulations:
160-acre spacing, permitted well location anywhere within a 840' square in center of spacing unit. (Order No. 6-63.)

Special Field Rules:
Dual Completion Rule 219 waived. Semi-annual bottom-hole pressure surveys and quarterly well tests.

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Nisku (Devonian); Red River (Ordovician)

Probable Drive Mechanism: Solution Gas

STENSVAD

County: Musselshell and Rosebud

Discovery Well:

Name: Honolulu, Stensvad No. 11-9
Location: NE SE Sec. 11, T. 11N., R. 31E.
Date Completed: December 20, 1958
Total Depth: 5516'
Initial Potential: 448 BOPD

Spacing Regulations:
40-acres, 200' topographic tolerance; spacing waived in unitized portion of field except that no well may be drilled closer than 660' from the unit boundary.

Special Field Rules:
State-wide rules

No. Producing Wells: 25

Type of Trap: Stratigraphic

Productive Formation: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: Waterflood operations approved by Order No. 53-62. Injection started February 1, 1963.

SUMATRA

County: Rosebud

Discovery Well:

Name: Farmers Union, Sawyer No. 1
Location: NE SW Sec. 26, T. 11N., R. 32E.
Date Completed: October 8, 1950
Total Depth: 5277'
Initial Potential: 50 BOPD

Deepest Well: Texas, Horgen No. 1. Sec. 13, T. 11N., R. 32E. Kibbey (Mississippian). T.D. 5657'

Spacing Regulations:
40-acre, 75' topographic tolerance. Delineated by Order No. 14-58.

Special Field Rules:
State-wide rules

No. Producing Wells: 90

Type of Trap: Stratigraphic

Productive Formation: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

TULE CREEK

County: Roosevelt

Discovery Well:

Name: Murphy, Sletvold No. 1

Location: SE SE Sec. 18, T. 30N., R. 48E.
Date Completed: October 27, 1960
Total Depth: 8478'
Initial Potential: 476 BOPD, 14/64" ck.

Deepest Well: Above well. Dawson Bay (Devonian)

Spacing Regulations:

160-acre spacing. Well to be located no closer than 660' from any boundary of spacing unit. Field delineated by Order No. 26-62.

Special Field Rules:

Semi-annual B.H.P. surveys, with minimum of 12 hours shut in.

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water injected into the Dakota formation.

TULE CREEK—EAST

County: Roosevelt

Discovery Well:

Name: Murphy, Bridges 1

Location: SE NE Sec. 15, T. 30N., R. 48E.
Date Completed: October 28, 1964
Total Depth: 7,736'
Initial Potential: 411 BOPD

Deepest Well: Same as above. Duperow (Devonian)

Spacing Regulations:

160-acres, wells to be located anywhere within a 1320' square in center of spacing unit. (Order Nos. 40-64, 6-65.)

Special Field Rules:

Semi-annual bottom-hole pressure surveys

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

TULE CREEK—SOUTH

County: Roosevelt

Discovery Well:

Name: Brinkerhoff, Track 1

Location: SE NW Sec. 36, T. 30N., R. 47E.
Date Completed: June 19, 1964
Total Depth: 7630'
Initial Potential: 84 BOPD

Deepest Well: Above well. Duperow (Devonian)

Spacing Regulations:

160 acres; well location anywhere within a 1320' square at center of spacing unit. (Order No. 34-64.)

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 44-64 permits disposal of produced water into the Judith River or Dakota formations. Disposal system was not in operation as of January 1, 1965.

UTOPIA

County: Liberty

Discovery Well:

Name: Texaco, State M-1094

Location: NW SE SE Sec. 16, T. 33N., R. 4E.
Date Completed: October 5, 1943
Total Depth: 2579'
Initial Potential: 15 BOPD (Field produces gas)

Deepest Well: Texaco, Laas No. 2. Sec. 14, T. 33N., R. 4E. Cambrian. T.D. 4593'

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:

State-wide rules

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Sawtooth (Jurassic); Madison (Mississippian); Jefferson (Devonian)

Probable Drive Mechanism: Unknown

VIDA

County: McCone and Dawson

Discovery Well:

Name: Phillips, Sievers 1

Location: NW NW Sec. 30, T. 24N., R. 50E.
Date Completed: August 28, 1963
Total Depth: 9895'
Initial Potential: 335 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

160-acre spacing, well to be located no closer than 900' from boundary of spacing unit. Field delineated by Order No. 39-63.

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Interlake (Silurian)

Probable Drive Mechanism: Water drive

VOLT

County: Roosevelt

Discovery Well:

Name: Murphy, Courchene 1

Location: SE SW Sec. 4, T. 30N., R. 46E.
Date Completed: July 11, 1964
Total Depth: 7395'
Initial Potential: 145 BOPD

Deepest Well: Placid, Trimble 1, NE NE Sec. 8, T. 30N., R. 46E. T.D. 7437' Duperow (Devonian)

Spacing Regulations:

160-acres, wells located anywhere within a 1320' square at center of spacing unit. (Order No. 27-64, 6-65.)

Special Field Rules:

Semi-annual bottom-hole pressure surveys

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 3-65 permitted disposal of produced water into the Judith River formation. Facilities were not completed as of January 1, 1965.

WELDON

County: McCone

Discovery Well:

Name: Sinclair, Federal-McCone 1

Location: NE SW Sec. 22, T. 22N., R. 46E.
Date Completed: October 24, 1964
Total Depth: 6203'
Initial Potential: 1,224 BOPD

Deepest Well: Sinclair, Federal-McCone 2, SW SE Sec. 22, T. 22N., R. 46E. T.D. 9300' Red River (Ordovician)

Spacing Regulations:

80-acre; wells located in NE¼ and SW¼ of each quarter section, either north-south or east-west spacing units, 200' topographic tolerance. (Order 9-65.)

Special Field Rules:

Semi-annual bottom-hole pressure surveys

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Kibbey (Mississippian)

Probable Drive Mechanism: Unknown

WHITLASH

County: Toole and Liberty

Discovery Well:

Name: Montana-Canadian Oil, E. Brown No. 1

Location: SE NE NW Sec. 19, T. 37N., R. 4E.
Date Completed: November, 1918
Total Depth: 2730'
Initial Potential: 15,000 MCFGPD

Deepest Well: Union Oil, Mahoney No. 1, Sec. 22, T. 37N., R. 4E. Cambrian. T.D. 4068'

Spacing Regulations:

Gas: 330' from legal subdivision line and 2400' between wells, 75' topographic tolerance.
Oil: 330' from legal subidvision line and 650' between wells; five-spot location at center of 40 acre tract also permitted; 75' topographic tolerance. (Order No. 16-54.)

Special Field Rules:

General Rules Nos. 207, 211, 219, 221, 223, and 224 suspended. (Order No. 16-54.)

No. Producing Wells: 42 Gas; 39 Oil

Type of Trap: Combination stratigraphic and structural

Productive Formations: Blackleaf, Bow Island, and Kootenai-Sunburst (Cretaceous); Swift-Sawtooth (Jurassic); Madison (Mississippian)

Probable Drive Mechanism: Volumetric

WHITLASH—WEST

County: Toole

Discovery Well:

Name: Sumatra Oil, Parsell 1

Location: SE SE NE Sec. 14, T. 37N., R. 23E.
Date Completed: August 7, 1962
Total Depth: 2880'
Initial Potential: 32 MMCFGPD

Spacing Regulations:

Gas: 160-acres; well locations anywhere within a 660' square at center of spacing unit.
Oil: 330' from legal subdivision line and 650' between wells, five-spot location at center of 40 acre tract also permitted.

Special Field Rules:

State-wide rules

No. Producing Wells: 7 Gas; 4 Oil

Type of Trap: Structural and stratigraphic

Productive Formation: Swift (Jurassic)

Probable Drive Mechanism: Volumetric

WILLS CREEK—SOUTH

County: Fallon

Discovery Well:

Name: Shell, Norbeck-Govt. 42-2

Location: SE NE Sec. 2, T. 9N., R. 58E.
Date Completed: February 5, 1964
Total Depth: 9200'
Initial Potential: 297 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

160-acres; well location in SE¼ of each quarter section; 175' topographic tolerance. (Order No. 5-64.)

Special Field Rules:

Semi-annual bottom-hole pressure surveys, wells to be shut-in 48 hours minimum.

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Siluro-Ordovician

WOLF SPRINGS

County: Yellowstone

Discovery Well:

Name: Atlantic, C. S. Horton No. 18-1

Location: SE SW Sec. 18, T. 7N., R. 32E.
Date Completed: July 31, 1955
Total Depth: 8442'
Initial Potential: 370 BOPD

Deepest Well: Above well. Cambrian

Spacing Regulations:

80-acre spacing, permitted wells in the NW¼ and SE¼, 75' tolerance for topographic reasons. Delineated by Order No. 9-59.

Special Field Rules:

State-wide rules

No. Producing Wells: 16

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

WOODROW

County: Dawson

Discovery Well:

Name: Texaco, NP "G" (NCT-8) No. 1

Location: NE NE Sec. 7, T. 16N., R. 54E.
Date Completed: August 25, 1952
Total Depth: 8124'
Initial Potential: 114 BOPD, 20% water

Deepest Well: Texaco, Elpel No. 1. Winnipeg (Ordovician). T.D. 10,370'

Spacing Regulations:

80-acre spacing, permitted well in the NE¼ and SW¼ of each quarter section, 200' topographic tolerance. Field delineated by Order No. 47-62.

No. Producing Wells: 6

Type of Trap: Structural

Productive Formations: Charles (Mississippian), Nisku (Devonian), Silurian, Red River (Ordovician)

Probable Drive Mechanism: Water drive

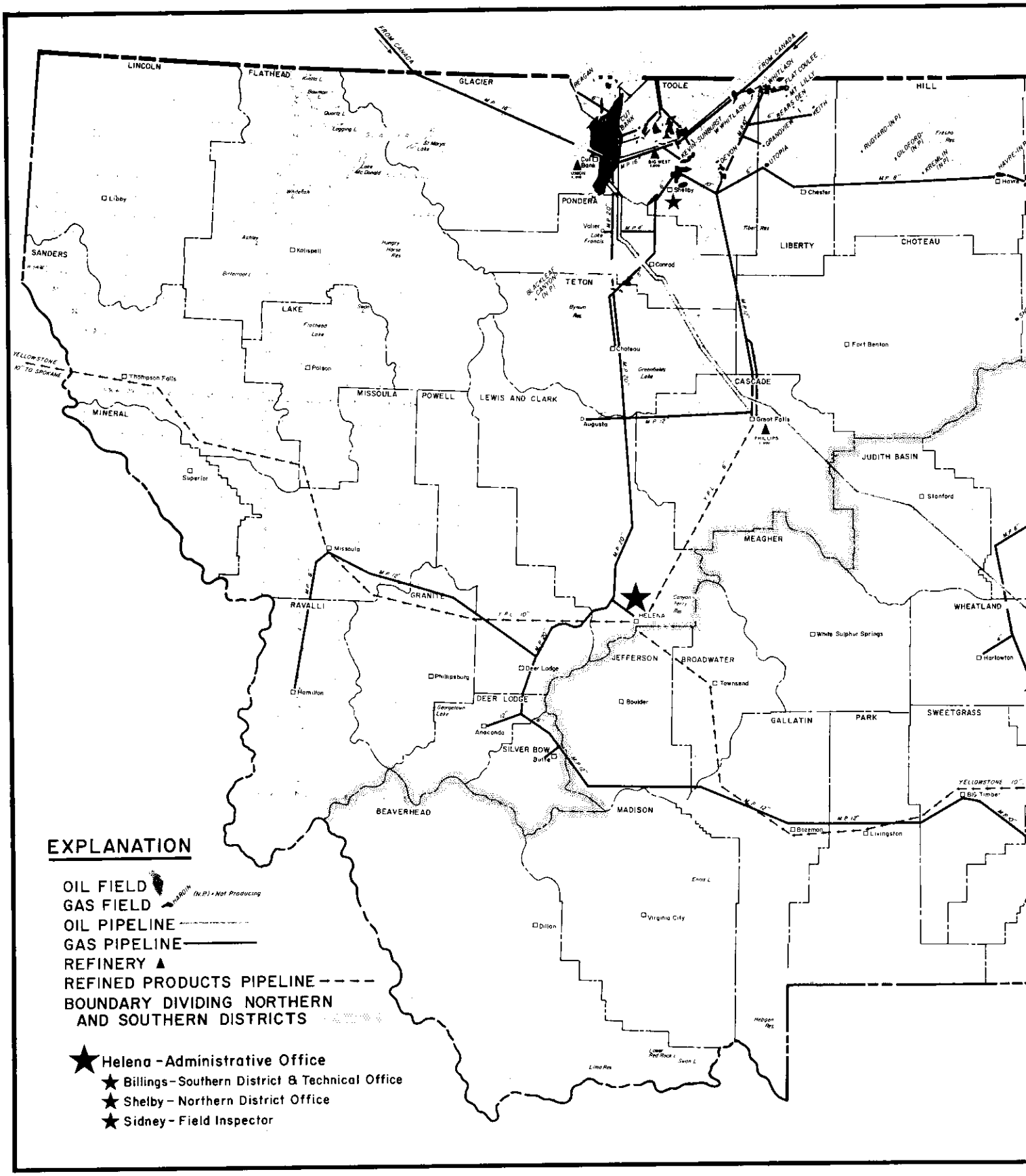
Water Disposal: Produced water injected into the Dakota formation. (Order Nos. 47-62, 48-62.)

STATE OF MONTANA — SUMMARY

LINE NO.	FIELD (OR POOL)	COUNTY	YEAR DISCOVERED	PRODUCTION FORMATION	APPROX. DEPTH	A.P.I. GRAVITY	VOLUME FACTOR	AVG. NET PAY FT.	AVG. POROSITY %	AVG. CONNATE WATER %	ORIGINAL OIL IN PLACE BBLS/ACRE	PRODUCTIVE AREA 1-1-65 ACRES
1	Ash Creek	Big Horn	1952	Shannon (U. Cret.)	4500	34	1.05	14	22	42	13,199	160
2	Bannatyne	Teton	1927	Swift (U. Jur.)	1450	27	1.05	39	15	43	24,635	170
3	Bascom	Rosebud	1962	Tyler (Penn.)	4850	36	1.10	8	14	25	5,924	40
4	Bears Den	Liberty	1924	Sunburst (L. Cret.)	2300	39	1.08	20	12	35	11,205	200
5	Benrud	Roosevelt	1961	Nisku (Dev.)	7650	43	1.41	22	16	30	13,557	80
6	Benrud, East	Roosevelt	1962	Nisku (Dev.)	7500	46	1.37	35	15	30	20,811	160
7	Benrud, Northeast	Roosevelt	1964	Nisku (Dev.)	7620	46	1.4	45	15.5	30	27,054	160
8	Big Wall	Musselshell	1948	Tyler (Penn.)	3000	31	1.02	22	17	40	17,066	1,220
9	Big Wall	Musselshell	1953	Amsden (Penn.)	2500	19	1.61	17	16	35	8,517	280
10	Blackfoot	Glacier	1955	Madison (Miss.)	3550	25	1.15	8	14	40	4,533	480
11	Blackfoot	Glacier	1955	Cut Bank (L. Cret.)	3500	30	1.11	15	15	35	10,221	160
12	Border	Toole	1929	Cut Bank (L. Cret.)	2400	31	1.08	22	15	30	16,593	340
13	Bowes	Blaine	1949	Sawtooth (M. Jur.)	3250	19	1.02	37	11.7	31	22,719	3,760
14	Brady	Pondera	1942	Sunburst (L. Cret.)	1500	34	1.01	10	12	30	6,466	120
15	Cabin Creek	Fallon	1953	Siluro-Ordovician	8400	33	1.20	50	13	30	29,415	7,620
16	Cabin Creek	Fallon	1956	Mission Canyon (Miss.)	7300	33	1.13	25	11	30	13,215	2,259
17	Cat Creek (Antelope-Mosby)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1225	52	1.10	10	21	19	11,997	200
18	Cat Creek (West Dome)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1100	52	1.10	51	21	19	61,200	920
19	Cat Creek	Petroleum, Garfield	1945	Morrison (U. Jur.)	1600	52	1.10	6	22	40	5,586	120
20	Cat Creek	Petroleum, Garfield	1945	Swift (U. Jur.)	1750	52	1.10	25	18	40	19,050	880
21	Cut Bank	Glacier, Toole	1932	Kootenai (L. Cret.)	2900	38	1.09	18	15	35	12,492	49,000
22	Cut Bank	Glacier, Toole	1945	Madison (Miss.)	3000	39	1.10	10	14	30	6,910	3,200
23	Deer Creek	Dawson	1952	Red River	9900	41	1.2	90	7	30	28,530	240
24	Deer Creek	Dawson	1956	Interlake (Sil.)	9440	43	1.2	38	6.7	30	11,514	320
25	Dry Creek	Carbon	1930	Greybull (L. Cret.)	5600	52	1.60	12	12	22	5,445	1,700
26	Dry Creek	Carbon	1932	Pryor (L. Cret.)	5800	52	1.20	30	12	25	17,455	1,000
27	Dwyer	Sheridan	1960	Mission Canyon (Miss.)	8000	33	1.12	30	11.8	55	11,034	4,800
28	Elk Basin	Carbon	1915	Frontier (U. Cret.)	1200	45	1.16	30	21	20	33,720	120
29	Elk Basin	Carbon	1942	Embar-Tensleep (Perm.-Penn.)	5000	29	1.16	124	10.5	10	78,368	1,376
30	Elk Basin	Carbon	1946	Madison (Miss.)	5300	28	1.12	224	12	9	169,434	920
31	Elk Basin	Carbon	1963	Jefferson (Dev.)	5400	28	1.18	64	6.5	31	18,867	40
32	Elk Basin, Northwest	Carbon	1947	Frontier (U. Cret.)	3375	47	1.29	28	19	30	22,400	120
33	Elk Basin, Northwest	Carbon	1947	Madison (Miss.)	6215	35	1.08	124	12	35	74,400	382
34	Elk Basin, Northwest	Carbon	1964	Embar-Tensleep (Perm.-Penn.)	6000	37	1.15	27	11.5	22	16,338	580
35	Fertile Prairie	Fallon	1952	Red River (U. Ord.)	9250	29	1.2	6	14	27	3,964	300
36	Flat Coulee	Liberty	1933	Swift (U. Jur.)	2900	37	1.1	20	21	35	19,254	1,200
37	Flat Lake	Sheridan	1964	Ratcliffe (Miss.)	6500	33	1.17	12	15	45	6,564	480
38	Fred and George Creek	Toole	1963	Sunburst (L. Cret.)	2600	39	1.2	31	27	30	37,882	540
39	Fred and George Creek	Toole	1963	Swift (U. Jur.)	2700	39	1.1	8	14	30	5,528	600
40	Gas City	Dawson	1955	Red River (U. Ord.)	8700	38	1.28	25	12	35	11,825	2,854
41	Glendive	Dawson	1952	Siluro-Ordovician	8700	38	1.25	147	8	35	47,481	1,040
42	Goose Lake	Sheridan	1962	Ratcliffe (Miss.)	7000	34	1.2	10	16	35	6,720	2,400
43	Graben Coulee	Glacier	1961	Sunburst, Cut Bank, Madison	2940	34	1.10	15	12	30	8,880	520
44	Gypsy Basin	Pondera	1958	Madison (Miss.)	3150	--	--	--	--	--	--	320
45	Hibbard	Rosebud	1960	Amsden (L. Penn.)	4810	31	1.05	12	15	35	8,640	60
46	Ivanhoe	Musselshell	1953	Morrison (U. Jur.)	2800	30	1.08	10	15	35	7,000	80
47	Ivanhoe	Musselshell	1960	Amsden (L. Penn.)	3600	32	1.08	9	17	40	6,594	160
48	Ivanhoe	Musselshell	1956	Tyler (L. Penn.)	4050	33	1.08	29	15	20	24,975	520
49	Keg Coulee	Musselshell	1960	Tyler (Penn.)	4550	32	1.15	20	15	25	15,180	780
50	Keg Coulee, North	Musselshell	1964	Tyler (Penn.)	4550	33	1.15	14	12	32	7,707	120
51	Kevin-Sunburst	Toole	1922	Madison-Sunburst (Miss.-L.Cret.)	1500	32	1.08	6.5	20	35	6,053	40,205
52	Little Beaver	Fallon	1952	Red River (U. Ord.)	8300	29	1.4	37	12	35	15,984	2,240
53	Little Beaver, East	Fallon	1954	Red River (U. Ord.)	8300	30	1.5	24	12.5	35	10,085	1,600
54	Lodge Grass	Big Horn	1964	Tensleep (Penn.)	6520	22	1.16	15	15.4	34	10,200	120
55	Lone Tree	Sheridan	1963	Ratcliffe (Miss.)	6550	32	1.15	35	11	65	9,100	240
56	Lone Tree	Sheridan	1963	Nisku (Dev.)	7940	38	1.2	5	13	35	2,705	160
57	Lookout Butte	Fallon	1961	Siluro-Ordovician	8900	33	1.15	15	15	25	11,385	11,680
58	Mason Lake	Musselshell	1964	3rd Cat Creek	4350	36	1.0	16	20	45	13,648	160
59	Melstone	Musselshell	1948	Tyler (Penn.)	4250	34	1.09	25	15	30	18,683	360
60	Monarch	Fallon	1958	Siluro-Ordovician	8400	32	1.10	31	7	35	9,951	2,240
61	Monarch	Fallon	1961	Mission Canyon (Miss.)	6710	34	1.08	17	19	60	9,280	160
62	Outlook	Sheridan	1956	Silurian-Devonian	9000	38	1.12	20	8	30	7,760	1,520
63	Outlook	Sheridan	1964	Duperow (Dev.)	8150	39	1.5	15	10	25	8,729	320
64	Outlook, South	Sheridan	1957	Red River (U. Ord.)	9900	33	1.21	35	8	45	9,870	160
65	Outlook, South	Sheridan	1957	Silurian-Devonian	9100	39	1.12	18	8	30	6,966	320
66	Pennel	Fallon	1955	Siluro-Ordovician	8800	33	1.14	25	11	35	12,161	16,160
67	Pennel	Fallon	1957	Mission Canyon (Miss.)	7000	31	1.10	38	3.4	30	6,380	720
68	Pennel	Fallon	1960	Lodgepole (Miss.)	7500	36	1.13	30	8	35	10,709	320
69	Pine	Dawson, Wibaux, Fallon, Prairie	1952	Siluro-Ordovician	8400	34	1.17	32	11.5	30	17,078	12,360
70	Pole Creek	Musselshell	1964	Amsden (Penn.)	3560	18	1.05	10	7	30	1,620	320
71	Pondera	Pondera, Teton	1927	Madison (Miss.)	2100	34	1.20	15	16	31	10,706	5,560
72	Poplar	Roosevelt	1952	Madison (Miss.)	5500	40	1.10	25	11	30	13,576	17,909
73	Poplar, Northwest	Roosevelt	1952	Madison (Miss.)	6260	40	1.10	16	10.3	45	6,393	400
74	Ragged Point	Musselshell	1947	Kibbey (U. Miss.)	4400	33	1.09	28	11	40	13,152	160
75	Ragged Point	Musselshell	1956	Tyler (Penn.)	3580	32	1.10	14	14.5	35	9,306	680
76	Reagan	Glacier	1947	Madison (Miss.)	3700	38	1.10	11	12	30	6,516	2,520
77	Reagan, Southeast	Glacier	1964	Madison (Miss.)	3570	38	1.10	8	12	30	4,739	80
78	Red Creek	Glacier	1958	Cut Bank (L. Cret.)	2600	31	1.08	20	19.2	30	19,308	768
79	Red Creek	Glacier	1958	Madison (Miss.)	2750	28	1.10	32	13	30	20,537	500
80	Richey	Dawson, McCone	1951	Charles (Miss.)	7000	39	1.20	25	8	30	9,050	940
81	Richey, Southwest	McCone	1962	Silurian-Devonian	9200	48	1.37	27	9	30	9,634	1,160
82	Sand Creek	Dawson	1959	Siluro-Ordovician	8950	39	1.30	25	10	40	8,953	560
83	Sidney-Brorson	Richland	1954	Mission Canyon (Miss.)	9750	32	1.5	45	4	40	4,964	1,440
84	Soap Creek	Big Horn	1952	Tensleep-Amsden-Madison	1900	20	1.05	20	15	35	14,408	410
85	Spring Lake	Richland	1963	Nisku (Devonian)	9960	47	1.83	10	6	30	1,780	200
86	Spring Lake	Richland	1963	Red River (U. Ord.)	11650	51	2.00	9	12	30	2,932	900
87	Stensvad	Musselshell, Rosebud	1958	Tyler (Penn.)	5500	33	1.17	25	14	20	18,565	1,382
88	Sumatra	Rosebud	1949	Tyler (Penn.)	4500	32	1.16	30	18.5	35	24,126	4,040
89	Tule Creek	Roosevelt	1960	Nisku (Devonian)	7500	46	1.41	25	15	30	14,443	1,120
90	Tule Creek, East	Roosevelt	1964	Nisku (Devonian)	7500	43	1.906	30	18	30	15,390	320
91	Tule Creek, South	Roosevelt	1964	Nisku (Devonian)	7560	43	1.4	8	12	30	3,724	160
92	Vida	McCone, Dawson	1963	Interlake (Silurian)	9250	51	1.4	33	2.1	56.6	1,667	320
93	Volt	Roosevelt	1964	Nisku (Devonian)	7300	47	1.4	11	19.5	30	8,320	320
94	Weldon	McCone	1964	Kibbey (U. Miss.)	5900	39	1.01	13	20	35	12,982	800
95	Whitlash	Liberty	1927	(L. Cret. & U. Jur.)	1400	38	1.13	15	16	20	13,180	1,600
96	Wills Creek, South	Fallon	1964	Silurian	8700	33	1.2	12	18	35	9,077	320
97	Wolf Springs	Yellowstone	1955	Amsden (L. Penn.)	6200	30	1.07	11	6	23	3,685	4,330
98	Woodrow	Dawson	1952	Charles-Dev.-Sil.Ord.	9600	42	1.30	25	14	35	13,576	480
99	Miscellaneous Fields											
	TOTALS											

OF PRODUCING OIL FIELDS

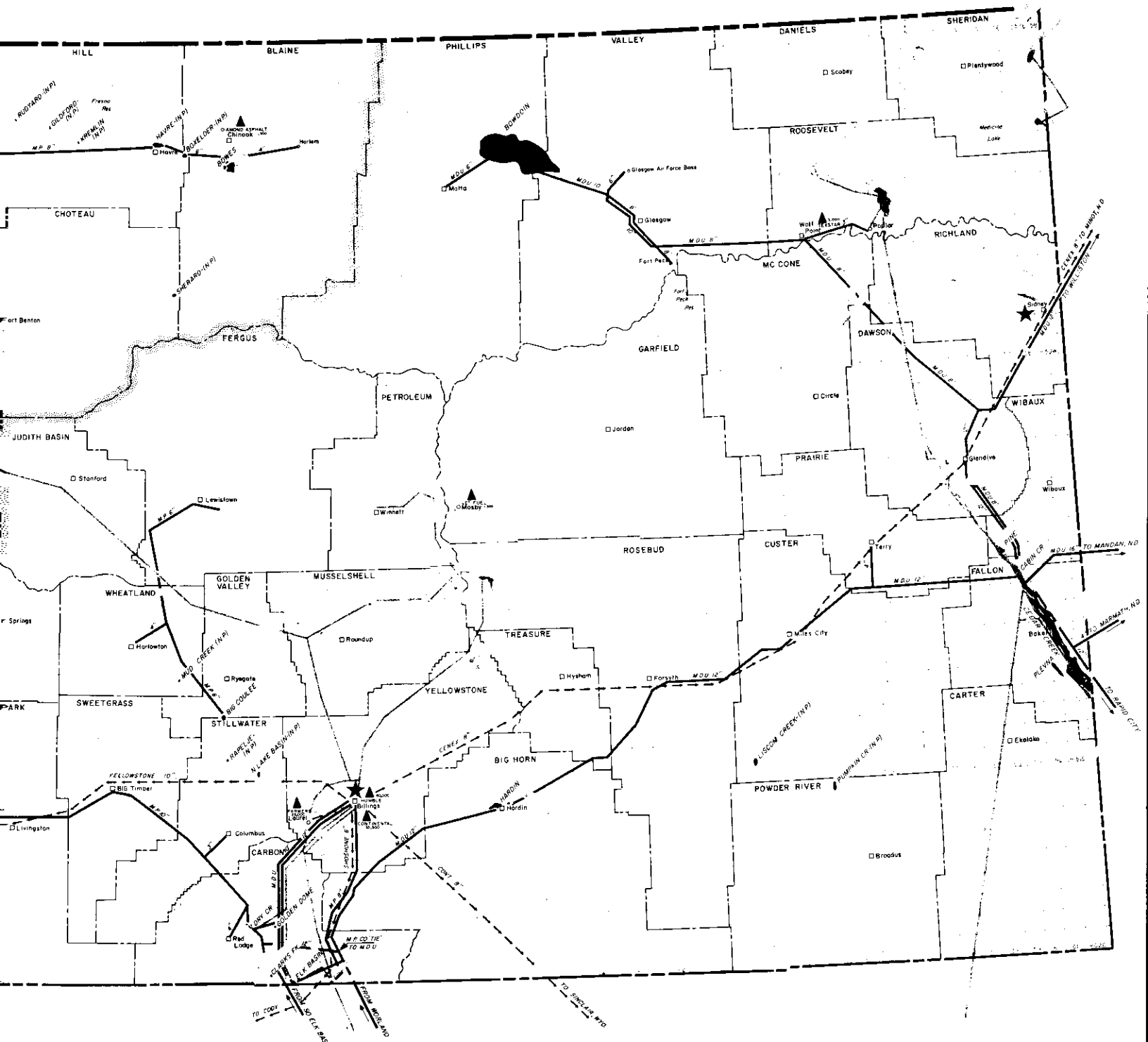
ORIGINAL OIL IN PLACE 1000 BBLS.	ESTIMATED RECOVERY FACTOR % PRIMARY	SECONDARY	ORIGINAL PRIMARY RESERVES 1000 BBLS.	ORIGINAL SECONDARY RESERVES 1000 BBLS.	TOTAL ORIGINAL RESERVES 1000 BBLS.	CUMULATIVE PRODUCTION 1-1-65 1000 BBLS.	REMAINING RESERVES 1-1-65 1000 BBLS.	1963 PRODUCTION TOTAL BBLS.	1963 PRODUCTION AVG. DAILY BOPD	1964 PRODUCTION TOTAL BBLS.	1964 PRODUCTION AVG. DAILY BOPD	ORIGINAL RECOVERABLE RESERVES BBLS./ ACRE	ORIGINAL RECOVERABLE RESERVES BBLS. ACRE/FT.	LINE NO.
2,112	26	32	549	126	675	416	259	25,701	70	24,332	67	4,219	301	1
4,188	5	--	209	--	209	172	37	12,895	35	11,395	31	1,230	32	2
237	14	--	33	--	33	25	8	7,288	20	2,418	6	1,175	147	3
2,241	15	--	336	--	336	252	84	33,430	92	26,105	72	1,680	84	4
1,085	15	--	163	--	163	78	85	20,746	57	23,011	63	2,037	93	5
3,330	30	--	999	--	999	390	609	198,049	543	176,289	483	6,244	178	6
4,329	30	--	1,299	--	1,299	51	1,248	--	--	50,504	421	8,188	180	7
20,821	30	--	6,246	--	6,890	4,956	1,934	276,091	756	247,858	679	5,120	233	8
2,385	27	--	644	--								2,300	135	9
2,176	25	--	544	--	953	708	245	82,602	226	73,136	200	1,133	141	10
1,635	25	--	409	--								2,556	170	11
5,641	23	--	1,297	--	1,297	1,119	178	9,452	26	5,917	16	3,816	173	12
85,423	7	9	5,980	1,708	7,688	6,394	1,294	172,072	471	157,462	431	2,045	55	13
776	8	--	62	--	62	25	37	9,676	27	6,072	16	516	52	14
224,142	22	28	49,311	13,449	62,760	30,889	31,871	2,955,322	8,097	2,580,314	7,126	8,236	165	15
29,832	30	--	8,950	--	8,950	4,485	4,465	501,380	1,373	481,603	1,319	3,961	158	16
2,339	22	--	528	--								2,640	264	17
56,304	30	35	16,891	2,815	25,477	20,503	4,974	234,089	641	240,108	658	21,409	420	18
670	32	--	214	--								1,783	297	19
16,764	30	--	5,029	--								5,715	229	20
612,108	21	32	128,543	67,332	201,845	98,924	102,921	1,777,203	4,869	1,912,081	5,238	3,997	222	21
22,112	27	--	5,970	--								1,865	187	22
6,847	20	--	1,369	--	1,369	1,007	362	15,849	43	16,547	45	5,704	63	23
3,684	36	--	1,326	--	1,326	981	345	129,341	354	44,623	122	4,143	109	24
9,257	18	--	1,664	--	4,108	3,962	146	7,395	20	4,339	12	1,088	91	25
17,455	14	--	2,444	--								3,491	116	26
52,958	15	--	7,943	--	7,943	2,721	5,222	713,450	1,955	536,512	1,470	1,655	55	27
4,046	--	54	--	2,185				3,413	9	3,504	10	18,208	606	28
107,834	--	57	--	61,466	107,447	46,228	61,219	2,653,773	7,270	2,734,070	7,490	44,669	360	29
155,879	21.5	28	33,514	10,132				538,340	1,472	621,038	1,701	47,440	211	30
755	20	--	151	--				13,552	37	8,193	22	3,775	59	31
2,688	25	42	672	457	1,129	943	186	46,374	127	44,030	121	8,508	304	32
28,421	19	--	5,400	--	5,400	810	4,590	13,567	37	15,347	42	16,256	131	33
9,476	20	35	1,895	1,421	3,316	115	3,201	--	--	114,549	314	5,717	211	34
1,189	25	--	297	--	297	193	104	18,261	50	26,045	71	795	133	35
23,105	20	--	4,621	--	4,621	858	3,763	321,205	879	444,138	1,215	3,851	193	36
3,151	30	--	945	--	945	59	886	--	--	59,278	324	1,969	164	37
20,456	25	45	5,114	4,091	9,205	1,173	8,032	114,256	313	1,058,947	2,890	17,046	550	38
3,317	20	--	663	--	663	127	536	16,633	46	110,461	314	1,105	138	39
33,749	20	--	6,750	--	6,750	4,435	2,315	945,533	2,317	874,522	2,390	2,365	95	40
49,380	20	--	9,876	--	9,876	6,546	3,330	421,176	1,154	361,206	989	9,496	65	41
16,128	25	--	4,032	--	4,032	498	3,534	110,751	303	382,397	1,060	1,680	168	42
4,618	20	--	924	--	924	201	723	103,728	284	72,073	197	1,777	118	43
600	25	--	150	--	150	98	52	26,133	72	24,040	66	468	--	44
518	30	--	155	--	155	34	121	8,718	23	7,143	20	2,600	217	45
560	35	--	196	--	6,229	3,137	3,092	382,344	1,047	303,390	830	2,450	245	46
1,055	18	--	189	--								1,181	131	47
12,987	25	45	3,247	2,597								11,238	388	48
11,840	20	40	2,368	2,368	4,736	2,106	2,630	327,066	896	353,566	967	6,071	304	49
924	20	40	185	185	370	11	359	--	--	10,812	180	3,084	220	50
243,361	30	35	73,008	12,168	85,176	67,340	17,836	549,448	1,505	486,606	1,333	2,118	326	51
35,804	15	20	5,371	1,790	7,161	2,800	4,361	327,430	897	309,973	847	4,795	130	52
16,136	21	33	3,389	1,936	5,325	1,833	3,492	320,990	879	286,941	786	3,328	138	53
1,224	12	--	147	--	147	31	116	--	--	30,955	85	1,225	82	54
2,184	15	--	327	--	327	70	257	41,317	113	28,318	78	1,363	39	55
433	25	--	108	--	108	63	45	34,857	96	28,533	78	544	108	56
132,977	17	--	22,606	--	22,606	4,748	17,858	2,161,490	5,922	1,698,348	4,653	1,935	129	57
2,184	25	--	546	--	546	7	539	--	--	6,923	76	3,413	213	58
6,726	25	--	1,681	--	1,681	1,396	285	55,120	151	39,467	108	4,669	186	59
22,290	20	--	4,458	--	4,458	1,397	3,061	167,589	458	170,120	466	1,990	64	60
1,486	7	--	104	--	104	87	17	15,012	41	9,315	25	650	38	61
11,795	45	--	5,308	--	5,308	3,375	1,933	407,085	1,115	323,629	886	2,328	116	62
2,793	25	--	698	--	698	71	627	--	--	71,495	260	2,181	145	63
1,579	21	--	331	--	331	227	104	14,262	39	18,339	50	2,956	84	64
2,229	15	--	334	--	334	178	156	9,441	26	9,985	27	2,091	116	65
196,522	15	--	29,478	--	30,852	10,003	20,849	2,230,419	6,111	2,693,523	7,379	1,824	73	66
4,593	15	--	689	--								957	25	67
3,427	20	--	685	--								2,141	71	68
211,084	25	38	52,771	27,441	80,212	44,259	35,953	4,190,687	11,481	3,860,064	10,576	6,490	203	69
1,158	20	--	231	--	231	40	191	--	--	39,541	132	1,084	108	70
59,525	35	--	20,834	--	20,834	16,887	3,947	427,153	1,170	403,122	1,104	3,603	240	71
243,133	17	--	41,333	--	41,333	34,298	7,035	1,569,471	4,300	1,326,207	3,633	2,397	92	72
2,558	15	--	384	--	384	331	53	23,668	65	21,212	58	960	60	73
2,104	27	--	568	--	568	492	76	9,461	26	6,042	17	3,550	126	74
6,328	30	--	1,898	--	1,898	1,035	863	132,689	363	82,164	225	2,791	199	75
16,420	30	33	4,926	493	5,419	3,411	2,008	231,624	635	223,451	611	2,150	195	76
379	30	--	114	--	114	2	112	--	--	2,232	21	1,425	178	77
14,828	13	26	1,928	1,928	3,856	888	2,968	165,648	453	150,710	412	5,021	251	78
10,269	26	--	2,669	--	2,669	1,423	1,246	343,789	940	322,282	884	4,518	141	79
8,507	23	--	1,957	--	1,957	1,785	172	72,593	199	42,431	116	2,082	83	80
11,175	25	--	2,794	--	2,794	1,187	1,607	164,997	452	199,465	546	2,409	89	81
5,014	25	--	1,254	--	1,254	999	255	104,344	286	90,039	250	2,239	90	82
7,148	12	--	858	--	858	591	267	68,187	187	50,130	137	595	13	83
5,907	24	--	1,418	--	1,418	1,240	178	51,871	142	57,397	157	3,468	173	84
356	15	--	53	--	53	38	15	23,083	84	14,938	82	265	27	85
2,639	20	--	528	--	528	223	305	113,617	311	109,386	300	587	65	86
25,657	25	40	6,414	3,849	10,263	6,459	3,804	558,732	1,531	417,950	1,145	7,426	297	87
97,469	24	30	23,393	5,848	29,241	19,172	10,069	1,735,390	4,754	1,304,576	3,574	5,790	193	88
16,176	27	--	4,368	--	4,368	2,749	1,619	802,587	2,199	564,480	1,547	3,900	156	89
4,925	30	--	1,478	--	1,478	48	1,430	--	--	47,855	798	4,618	153	90
596	25	--	149	--	149	26	123	--	--	25,579	139	931	116	91
533	25	--	133	--	133	41	92	14,872	123	41,261	113	416	12	92
2,622	25	--	656	--	656	41	615	--	--	40,850	192	2,050	186	93
10,386	30	--	3,116	--	3,116	36	3,080	--	--	36,319	404	3,895	300	94
21,088	15	--	3,163	--	3,163	1,675	1,488	113,120	309	163,672	448	1,977	132	95
2,905	20	--	581	--	581	104	477	--	--	104,020	311	1,815	151	96
15,956	26	--	4,149	--	4,149	3,457	692	191,800	525	201,559	551	958	87	97
6,516	15	--	977	--	977	571	406	134,394	368	79,086	217	2,035	81	98
							864	144,552	--	157,563				99
							408,043	30,869,653	84,574	30,647,488	83,965			



EXPLANATION

OIL FIELD
GAS FIELD
OIL PIPELINE
GAS PIPELINE
REFINERY ▲
REFINED PRODUCTS PIPELINE
BOUNDARY DIVIDING NORTHERN AND SOUTHERN DISTRICTS

★ Helena - Administrative Office
★ Billings - Southern District & Technical Office
★ Shelby - Northern District Office
★ Sidney - Field Inspector



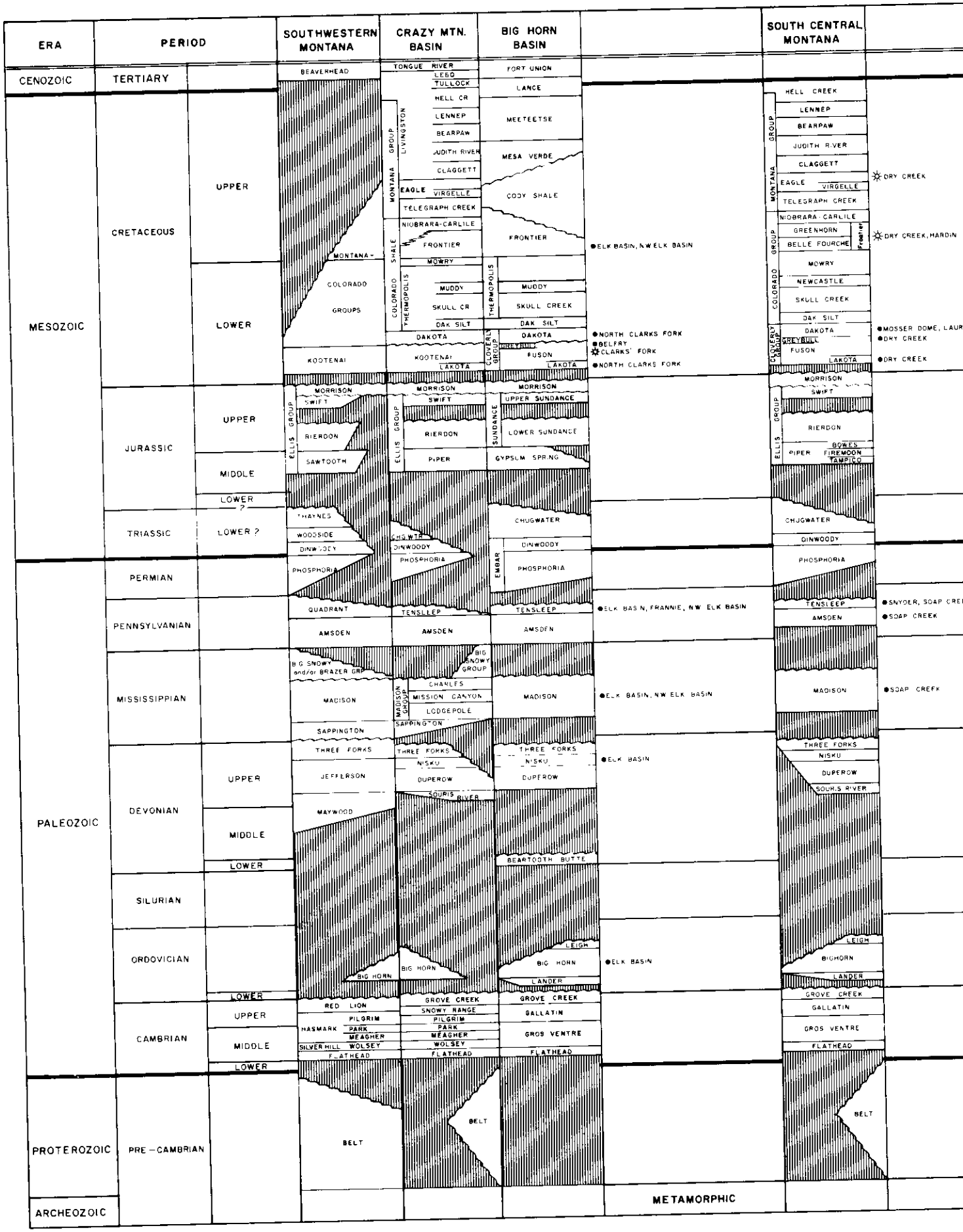
MONTANA

OIL AND GAS FIELDS, PIPELINES AND REFINERIES

1964

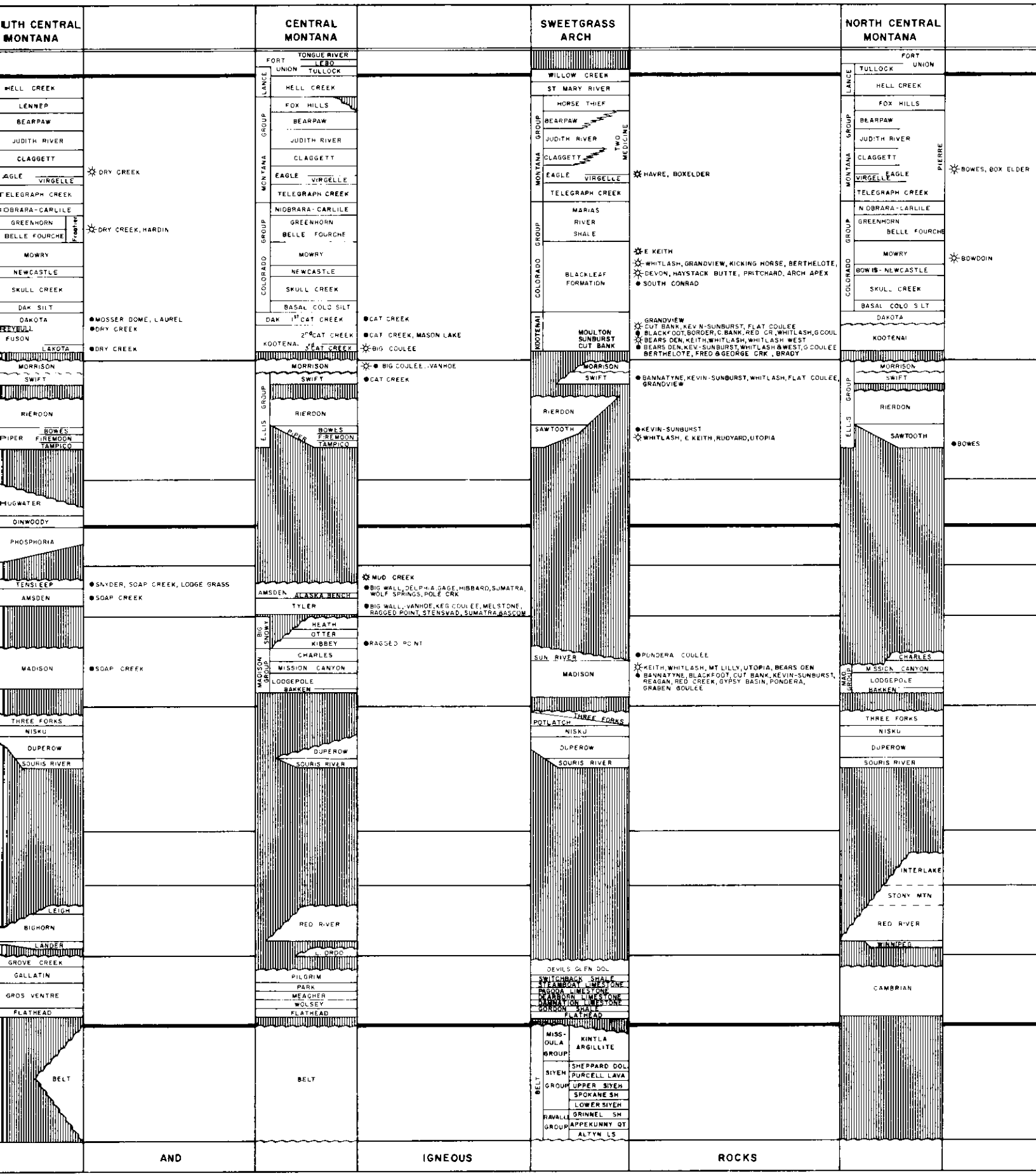
THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA

GENERA


ERA
PERIOD
SOUTHWESTERN MONTANA
CRAZY MTN. BASIN
BIG HORN BASIN
SOUTH CENTRAL MONTANA
CENOZOIC
TERTIARY
BEAVERHEAD
TONGUE RIVER
LEBO
TULLOCK
FORT UNION
LANCE
MESOZOIC
CRETACEOUS
UPPER
LOWER
HELL CREEK
LENNEP
BEARPAW
JUDITH RIVER
CLAGGETT
EAGLE
VIRGELLE
TELEGRAPH CREEK
MEETEETSE
MESA VERDE
CODY SHALE
FRONTIER
NIOBRARA-CARLILE
GREENHORN
BELLE FOURCHE
MOWRY
NEWCASTLE
SKULL CREEK
DAK. SILT
DAKOTA
GREYBULL
FUSON
LAKOTA
KOOTENAI
MONTANA GROUP
LIVINGSTON GROUP
COLORADO SHALE
THERMOPOLIS
CLOVERLY GROUP
MONTANA-COLORADO GROUPS
JURASSIC
MORRISON
SWIFT
RIERDON
SAWTOOTH
PIPER
UPPER SUNDANCE
LOWER SUNDANCE
GYPSUM SPRING
ELLIS GROUP
SUNDANCE
TRIASSIC
LOWER ?
THAYNES
WOODSIDE
DINWOODY
CHUGWATER
GRS. WTR.
EMBAR
PHOSPHORIA
PERMIAN
PENNSYLVANIAN
QUADRANT
TENSLEEP
AMSDEN
MISSISSIPPIAN
BIG SNOWY and/or BRAZER GRS.
BIG SNOWY GROUP
MADISON
CHARLES
MISSION CANYON
LODGEPOLE
MADISON GROUP
SAPPINGTON
DEVONIAN
THREE FORKS
NISKU
JEFFERSON
DUPEROW
SOURIS RIVER
MAYWOOD
BEARTOOTH BUTTE
SILURIAN
ORDOVICIAN
BIG HORN
LEIGH
LANDER
CAMBRIAN
RED LION
GROVE CREEK
SNOWY RANGE
GALLATIN
HASMARK
PILGRIM
PARK
GROS VENTRE
MEAGHER
SILVER HILL
WOLSEY
FLATHEAD
PALEOZOIC
PROTEROZOIC
PRE-CAMBRIAN
BELT
ARCHEOZOIC
METAMORPHIC
● ELK BASIN, N.W. ELK BASIN
● NORTH CLARKS FORK
● BELFRY
✲ CLARKS' FORK
● NORTH CLARKS FORK
● ELK BASIN, FRANNIE, N.W. ELK BASIN
● ELK BASIN, N.W. ELK BASIN
● ELK BASIN
● ELK BASIN
✲ DRY CREEK
✲ DRY CREEK, HARDIN
● MOSSER DOME, LAUR
● DRY CREEK
● DRY CREEK
● SNYDER, SOAP CREE
● SOAP CREEK
● SOAP CREEK

GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCING HORIZONS — MONTANA OIL AND GAS FIELDS, 1964



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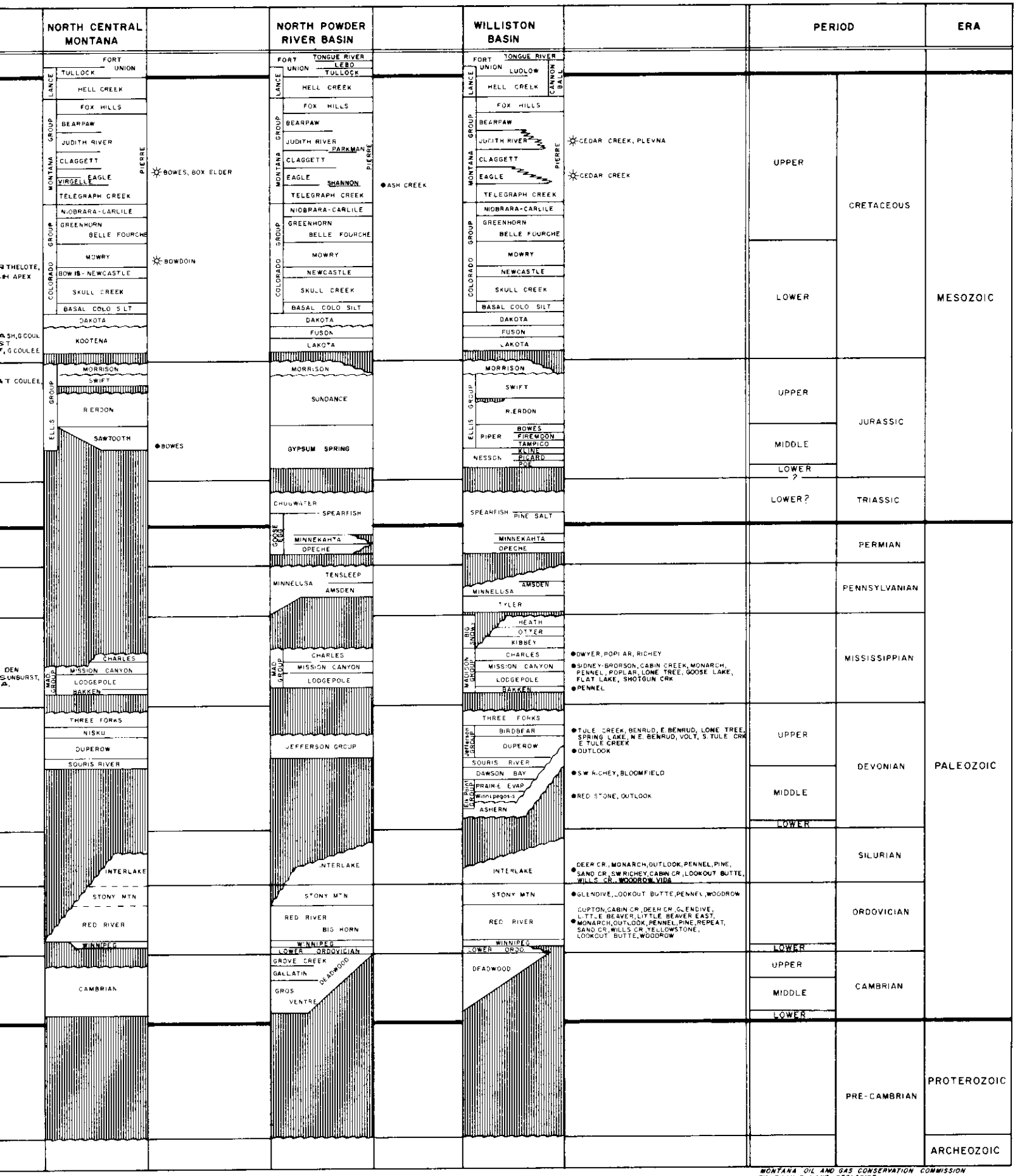

MONTANA OIL AND GAS CONSERVATION COMMISSION
BY - BILLY B. LANE, GEOLOGIST