Oil and Gas Conservation Commission

OF THE STATE OF MONTANA

ANNUAL REVIEW FOR THE YEAR 1969

Relating to

OIL AND GAS

Volume 13

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Annual Review for the Year 1969
Volume 13

INTRODUCTION

Oil production in Montana during 1969 was 43,954,112 barrels. This represents a decrease in total crude produced in the State as compared to 1968 due largely to a decrease of production at the large Bell Creek Field. This reduction at Bell Creek was related to the natural decline in reservoir pressures and to State regulations which restricted gas production. Engineering studies are completed for the central, most productive, part of the Bell Creek Field. This area is scheduled to be unitized and water flooded by mid-1970 which should materially increase Field production by 1971. Production for 1969 was, however, over 20% greater than corresponding figures for 1966 and 1967 indicating a continuing growth of oil productive capacity in Montana.

Secondarily recovered oil is becoming a major factor in the Montana crude picture and added significantly to the nearly one-million barrel increase in production calculated for the Northern Montana portion of the State for 1969. Secondary recovery projects in operation now total 54.

Several new discoveries were made in the northeastern, Williston Basin part of Montana during 1969. This production comes from the Red River formation at depths of 11,200 to 12,500 feet. Initial productive capacity flowing was 315 to 730 barrels daily. Extensions of these new productive areas are anticipated during 1970.

Of potentially great significance was the discovery, at the year's end, of oil in the Silurian Interlake formation in Richland County. The productive zone appears to be thick and initial tests indicate a productive capacity in excess of 1,000 barrels daily.

Two small "muddy sand" fields, Leary and Wright Creek, became productive during 1969. Both fields are in Powder River County, north and west of Bell Creek Field.

Possibly of greatest future importance to Montana was the "coming of age" for the natural gas industry in the State. Due to a price increase, many companies, some new to the State, were exploring primarily for gas. The Tiger Ridge Gas Field in central-northern Montana was expanded to include 215 square miles with the north and west edge of the Field still to be delineated. Dry holes in some parts of the Field are intermixed with productive wells possibly indicating multiple pools. Many large lease blocks were assembled along the mountain fronts of the State and drilling on these prospects for gas is expected during 1970.

Gas production for 1969 was 40,419,948 MCF, an increase of over 30% as compared with 1968. Projected plans by some companies call for the delivery during 1970 of gas from the Tiger Ridge Field which could more than double the natural gas production in Montana.

There were 806 wells drilled in Montana for oil and gas during 1969 resulting in 186 oil wells and 49 gas wells. Of these productive wells, 15 were new oil discoveries and 5 were new gas discoveries. Total footage drilled equalled 3,682,758 feet with an average well depth of 4,569 feet.

The Montana Oil and Gas Conservation Commission during 1969 placed on microfilm most of the well data in Commission files, except production history. On film and available for public use are 7,824 locations with electric, radiation, and sonic logs and well history information from 18,655 locations. The film is contained in 260 cartridges which are indexed by color and township and range for easy well identification and selection.

Copies of the film are available for study in the Commission offices at Billings and Shelby. Equipment in each office permits viewing of the film at scales normal to oil industry use.

Prints may be made from the film with only a six-second delay. A nominal charge is made for prints but use of the film and viewing equipment is free to all interested persons.

Individuals who have used this microfilm system state that it makes immediately available to the viewer a volume of information that would otherwise require unlimited time to assemble and organize.

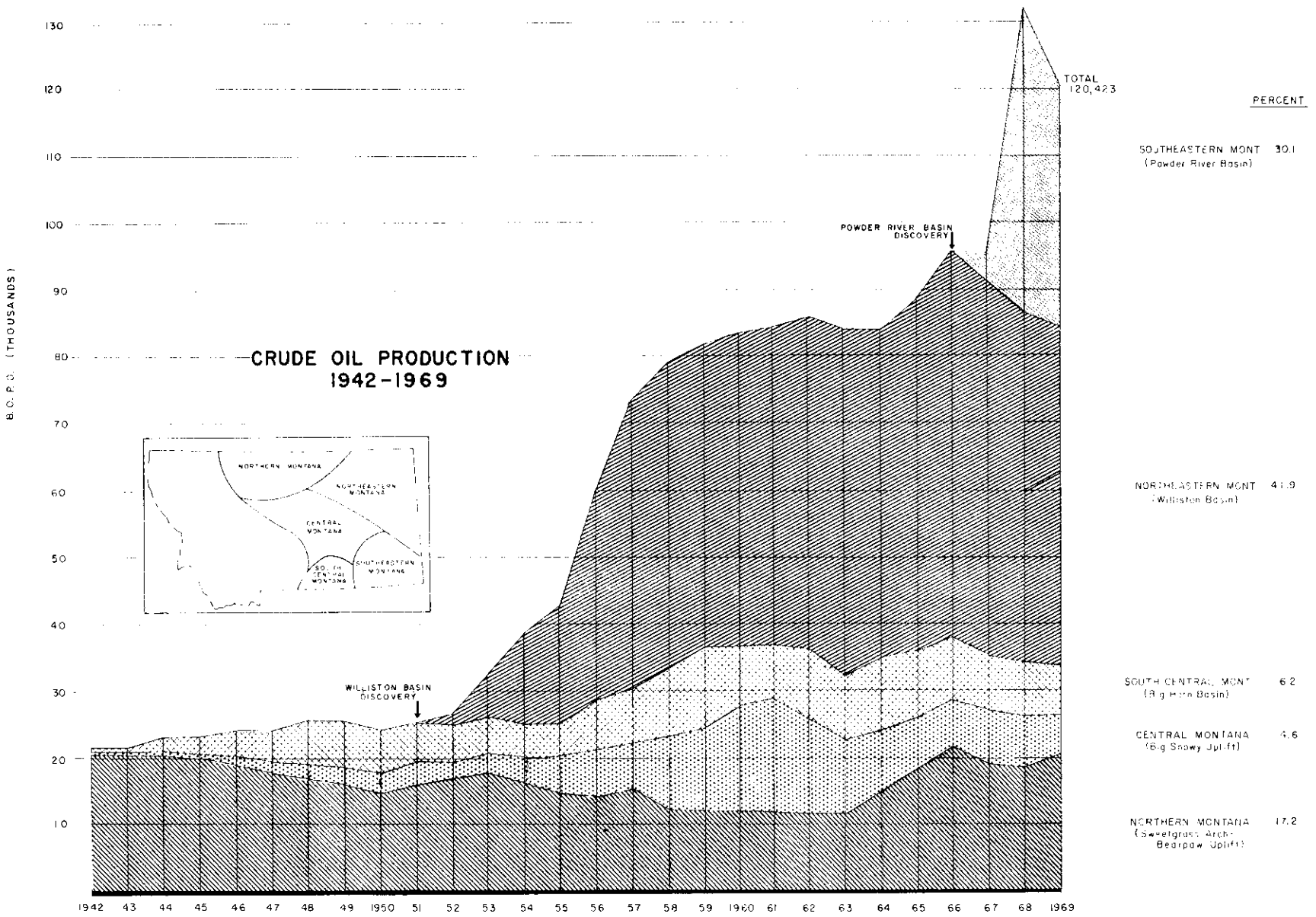
The Commission believes this microfilm data will be of significant assistance to anyone exploring for oil or gas in Montana and welcomes industry use of the film and equipment.

FIVE YEAR SUMMARY

	1965	1966	1967	1968	1969
Production, Northern Montana—Bbls.	6,826,261	7,991,302	6,758,280	6,883,493	7,557,966
South Central—Bbls.	3,597,647	3,392,890	3,181,132	2,885,272	2,739,346
Central—Bbls.	2,849,923	2,710,194	2,872,604	2,728,357	2,011,445
Williston Basin—Bbls.	19,504,287	21,285,732	20,475,733	19,390,652	18,396,618
Powder River Basin—Bbls.	.....	.....	1,671,277	16,572,472	13,248,737
TOTAL	32,778,118	35,380,118	34,959,026	48,460,246	43,954,112
No. of Producing Wells, Northern Montana	2,649	2,308	2,097	1,898	1,827
South Central	101	106	96	99	108
Central	306	301	286	282	244
Williston Basin	754	792	802	784	759
Powder River Basin	.....	.....	109	328	397
TOTAL	3,810	3,507	3,390	3,391	3,335
Average Daily Production/Well—BOPD,					
Northern Montana	7.1	9.5	8.8	9.9	11.3
South Central	97.6	87.7	90.7	79.6	69.5
Central	25.5	24.7	27.5	26.4	22.6
Williston Basin	70.9	73.6	69.9	67.6	66.4
Powder River Basin	.....	.....	70.6	138.0	91.4
STATE AVERAGE	23.6	27.6	28.2	39.0	36.1
Development Wells Drilled, Oil Wells	177	179	162	300	171
Gas Wells	9	9	14	14	44
Dry Holes	107	96	104	89	105
TOTAL	293	284	280	403	320
Exploratory Wells Drilled, Oil Wells	14	10	7	15	15
Gas Wells	1	3	5	13	5
Dry Holes	199	185	191	509	466
TOTAL	214	198	203	537	486
TOTAL WELLS DRILLED	507	482	483	940	806
TOTAL FOOTAGE DRILLED	2,328,865	2,211,369	2,158,964	4,547,691	3,682,758
AVERAGE DEPTH OF ALL WELLS	4,593	4,588	4,470	4,839	4,569

SUMMARY OF DRILLING BY COUNTIES—1969
STATE OF MONTANA

County	Wildcats			Development			Wells	Footage	Average
	Dry	Oil	Gas	Dry	Oil	Gas	Total	Drilled	Depth
Big Horn	20	0	0	0	0	0	20	141,171	7,059
Blaine	39	0	2	5	0	9	55	138,187	2,512
Carbon	0	1	0	3	2	0	6	48,824	8,137
Carter	46	0	0	0	0	0	46	187,622	4,079
Chouteau	13	0	0	0	0	0	13	23,462	1,805
Custer	27	0	0	0	0	0	27	147,180	5,451
Daniels	5	0	0	0	0	0	5	38,726	7,745
Dawson	10	0	0	0	0	0	10	73,917	7,392
Fallon	6	1	0	1	12	0	20	150,837	7,542
Fergus	10	0	0	0	0	0	10	27,837	2,784
Garfield	7	0	0	0	0	0	7	36,489	5,213
Glacier	3	0	0	3	35	0	41	133,826	3,264
Hill	38	0	3	18	0	21	80	129,458	1,618
Lewis & Clark	1	0	0	0	0	0	1	3,728	3,728
Liberty	8	0	0	7	3	7	25	60,814	2,433
McCone	18	1	0	0	0	0	19	112,073	5,899
Meagher	1	0	0	0	0	0	1	1,841	1,841
Musselshell	10	0	0	4	2	0	16	80,292	5,018
Petroleum	2	0	0	1	3	0	6	11,930	1,988
Phillips	14	0	0	0	0	0	14	50,316	3,594
Pondera	8	0	0	6	30	0	44	142,009	3,227
Powder River	74	2	0	30	58	0	164	849,714	5,181
Prairie	6	0	0	0	0	0	6	34,452	5,742
Richland	12	4	0	4	7	0	27	288,067	10,669
Roosevelt	12	4	0	4	2	0	22	209,443	9,520
Rosebud	19	0	0	5	1	0	25	143,589	5,744
Sheridan	9	1	0	6	8	0	24	202,808	8,450
Stillwater	1	0	0	0	0	0	1	3,300	3,300
Teton	5	0	0	0	0	0	5	12,783	2,557
Toole	23	0	0	8	7	7	45	88,274	1,962
Treasure	1	0	0	0	0	0	1	6,591	6,591
Valley	6	0	0	0	0	0	6	23,302	3,884
Wheatland	1	0	0	0	0	0	1	2,320	2,320
Wibaux	5	1	0	0	1	0	7	48,936	6,991
Yellowstone	6	0	0	0	0	0	6	28,640	4,773
TOTALS	466	15	5	105	171	44	806	3,682,758	4,569


CRUDE OIL PRODUCTION
1942-1969
B.O.P.D. (THOUSANDS)
130
120
110
100
90
80
70
60
50
40
30
20
10
1942
43
44
45
46
47
48
49
1950
51
52
53
54
55
56
57
58
59
1960
61
62
63
64
65
66
67
68
1969
TOTAL
120,423
POWDER RIVER BASIN
DISCOVERY
WILLISTON BASIN
DISCOVERY
NORTHERN MONTANA
NORTHEASTERN
MONTANA
CENTRAL
MONTANA
SOUTHEASTERN
MONTANA
PERCENT
SOUTHEASTERN MONT 30.1
(Powder River Basin)
NORTHEASTERN MONT 41.9
(Williston Basin)
SOUTH CENTRAL MONT 6.2
(Big Horn Basin)
CENTRAL MONTANA 4.6
(Big Snowy Uplift)
NORTHERN MONTANA 17.2
(Sweetgrass Arch-
Bearpaw Uplift)

GAS PRODUCTION DATA—1969

Field	County	Producing Formations	1969 Production M.C.F.
Bell Creek	Powder River	Muddy	9,177,024
Big Coulee	Golden Valley & Stillwater	Lakota & Morrison	1,038,834
Blackjack	Liberty	Sunburst & Swift	542,161
Box Elder	Blaine	Eagle	20,338
Bowdoin	Phillips & Valley	Colorado	1,947,951
Bowes	Blaine	Eagle	427,417
Cabin Creek	Fallon	Interlake & Red River	1,278,159
Cedar Creek	Fallon & Wibaux	Judith River & Eagle	5,344,311
Clark's Fork South	Carbon	Greybull	84,182
Cut Bank & Reagan	Glacier & Toole	Cut Bank & Madison	7,308,722
Dry Creek	Carbon	Eagle & Frontier	450,222
Elk Basin	Carbon	Tensleep	945,218
Flat Coulee	Liberty	Blackleaf & Swift	140,761
Gold Butte	Toole	Swift	51,043
Grandview	Liberty	Blackleaf & Kootenai	678,776
Hardin	Big Horn	Frontier	30,514
Keith Block	Liberty	Blackleaf & Sawtooth	2,340,071
Kevin Sunburst	Toole	Kootenai	665,569
Lake Basin	Stillwater	Frontier	1,220,808
Middle Butte	Toole	Blackleaf	36,308
Mt. Lilly	Liberty	Madison	401,642
Pine	Dawson, Prairie, Fallon & Wibaux	Interlake & Red River	730,956
Plevna	Fallon	Judith River	46,468
Squaw Coulee	Hill	Eagle	523,768
Tiger Ridge	Blaine, Hill	Judith River, Eagle	225,948
Utopia	Liberty	Blackleaf, Kootenai & Ellis	764,659
Whitlash	Liberty	Blackleaf, Kootenai	1,059,814
Miscellaneous			2,938,304
	TOTAL ALL FIELDS		40,419,948

REFINING

	Year 1969 Total Bbls.
Big West Oil Company	1,101,106
Continental Oil Company	13,561,918
Diamond Asphalt Company	174,469
Farmers Union Central Exchange, Inc.	8,261,495
Humble Oil & Refining Company	13,564,287
Jet Fuel Refinery	29,652
Phillips Petroleum Company	1,609,094
Tesoro Petroleum Company	861,309
Union Oil Company	1,274,207
TOTAL Barrels Oil Refined in Montana, 1969	40,437,537

SUMMARY OF SECONDARY RECOVERY PROJECTS
(Date Effective To January 1, 1970)

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000' Bbls. or MMCF	Dec. 1969 Avg. Daily Injection Rate	No. of Injection Wells	Source of Injection Media
Ash Creek, Shannon	McDermott	Waterflood	Peripheral	10-15-64	612	280	4	Parkman, Data for Montana portion
Big Wall, Tyler	Texaco, Inc.	Waterflood	Modified Peripheral	8-20-66	6,000	5,240	2	Produced water from Amsden & Tyler
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Dispersed	5-23-61	3,154	483	3	Madison
Cabin Creek, Siluro-Ordovician	Shell Oil	Waterflood	Modified Peripheral	6-12-59	44,890	41,564	30	Produced Water & Fox Hills
Cat Creek, 1st & 2nd CC (Unit 1)	Farmers Union	Waterflood	Peripheral	10-10-62	6,535	--	4	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 2)	Farmers Union	Waterflood	Peripheral	12-1-59	15,771	--	4	Third Cat Creek
Coral Creek (included as part of Lookout Butte Field)								
Cut Bank, NE Unit, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	6-2-63	9,313	3,441	31	Madison
Cut Bank, NW Unit, Cut Bank	Humble Oil	Waterflood	5-Spot	1-30-62	10,703	2,131	19	Madison
Cut Bank, So. Central, Cut Bank	Union Oil	Waterflood	5-Spot	5-63	15,300	7,070	49	Madison
Cut Bank, SE Unit, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	4-62	24,000	10,615	51	Madison
Cut Bank, SW Unit, Cut Bank	Phillips Petr.	Waterflood	5-Spot	9-62	20,900	23,516	140	Madison
Cut Bank, Tribal, Lander	Humble Oil	Waterflood	Dispersed	6-51	4,759	0	0	Eagle
Cut Bank, H. C. Lander, Lander	Humble Oil	Waterflood	Dispersed	4-65	962	514	2	Eagle
Cut Bank, Lander Sand, Lander	Texaco, Inc.	Waterflood	Dispersed	7-64	2,943	1,637	6	Eagle
Cut Bank, McGuiness-Moulton	Union Oil	Waterflood	Dispersed	12-62	1,882	472	1	Madison
Cut Bank, Moulton	Union Oil	Waterflood	Dispersed	8-68	2,123	4,310	6	Madison
Cut Bank, Two Medicine, Cut Bank	Miami Oil	Waterflood	5-Spot	12-67	7,835	14,692	84	Madison
Darling, State Unit, Moulton	B. G. & O. Co.	Waterflood	Dispersed	2-67	716	1,149	1	Produced Water
Darling, NE Unit, Moulton	Ralph Fair	Waterflood	Dispersed	2-68	872	1,184	3	Madison
Darling, South, Swenson, Moulton	B. G. & O. Co.	Waterflood	Dispersed	2-67	2,322	3,426	6	Madison
Dwyer, Ratcliffe	Phillips Petr.	Waterflood	Pilot	10-68	145	319	2	Produced Water
Elk Basin, Frontier	Pan American	Gas Injection	Crestal	1926	All Injection Wells in Wyoming			Purchased Gas
Elk Basin, Embar-Tensleep	Pan American	Gas Injection	Crestal	1949	All Injection Wells in Wyoming			Inert Gas
Elk Basin, Madison	Pan American	Waterflood	Peripheral	1962	25,763	11,596	6	Madison
Elk Basin, NW Unit, Frontier	Atlantic Richfield	Waterflood	Peripheral	10-57	4,667	780	3	Madison
Elk Basin, NW Unit, Tensleep	Atlantic Richfield	Waterflood	Modified Peripheral	5-67	557	800	1	Produced Water & Madison
Gas City, Red River	Shell Oil	Waterflood	Semi-Peripheral	10-31-69	161	2,090	5	Mission Canyon
Keg Coulee West, Tyler	Pan American	Waterflood	Modified Peripheral	8-31-66	2,128	1,963	2	Madison
Keg Coulee East, Tyler	Continental Oil	Waterflood	Semi-Peripheral	12-24-69	24	3,445	3	Third Cat Creek
Keg Coulee South East, Tyler	B. G. & O. Co.	Waterflood	Semi-Peripheral		No Injection in 1969			Madison
Kelley, Tyler "B"	McAlester	Waterflood	Random	7-69	58	287	1	Third Cat Creek
Kevin-Sunburst, Madison	Cardinal Petroleum	Waterflood	Dispersed	6-65	657	376	7	Madison
Kevin-Sunburst, Madison	B. G. & O. Co.	Waterflood	Dispersed	8-64	1,253	1,573	7	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	Waterflood	Peripheral	8-64	3,824	2,349	10	Madison
Kevin-Sunburst, Madison	Lon Crumley	Waterflood	Dispersed	9-63	529	269	3	Madison
Little Beaver, Red River	Shell Oil	Waterflood	Semi-Peripheral	8-7-66	7,520	4,599	7	Minnelusa
Little Beaver East, Red River	Shell Oil	Waterflood	Semi-Peripheral	4-65	4,254	3,271	3	Minnelusa
Lookout Butte, Siluro-Ord.	Shell Oil	Waterflood	Modified Peripheral	4-67	6,186	7,684	11	Minnelusa
Mosby Dome, 2nd Cat Creek	Farmers Union	Waterflood	Dispersed	5-68	59	183	2	Third Cat Creek
Mosby Dome, Swift	Farmers Union	Waterflood	Dispersed	7-67	783	1,073	4	Third Cat Creek
Moulton, Moulton	Union Oil	Waterflood	Dispersed	8-68	2,123	4,310	6	Madison
Pennel, Red River	Shell Oil	Waterflood	Dispersed	6-28-69	2,000	12,355	38	Dakota & Produced Water
Pine, North, Red River	Shell Oil	Waterflood	Semi-Peripheral	3-68	2,800	3,851	10	Lodgepole
Pine, South, Red River	Shell Oil	Waterflood	Semi-Peripheral	3-59	51,700	24,102	50	Produced & Fox Hills
Pondera, Madison	Phillips Petr.	Waterflood	Dispersed	8-61	911	452	1	Madison
Ragged Point, Tyler "A"	B. G. & O. Co.	Waterflood	Modified Peripheral	2-3-66	2,600	1,198	6	Third Cat Creek
Red Creek, Cut Bank	Humble Oil	Waterflood	5-Spot	6-65	4,065	1,573	8	Madison
Reagan, Madison	Union Oil	Gas Injection	Crestal	8-61	2,843	1,220	2	Purchased Gas
Richey SW, Dawson Bay-Interlake	Atlantic Richfield	Waterflood	Dispersed	12-65	1,674	1,330	3	Fox Hills
Stensvad, Tyler "B"	Pan American	Waterflood	Peripheral	2-63	12,800	6,494	6	Madison
Sumatra, West, Tyler "B"	Continental Oil	Waterflood	Peripheral	10-68	1,701	2,800	6	Madison
Sumatra, Central, Tyler "B"	Texaco, Inc.	Waterflood	Peripheral	9-16-69	718	12,633	15	Madison
Sumatra, NE, Tyler "B"	Texaco, Inc.	Waterflood	Peripheral	9-16-69	38	409	1	Madison
Sumatra, SE Unit, Tyler	B. G. & O. Co.	Waterflood	Peripheral	12-1-69	61	1,960	4	Madison
TOTAL 54					W 1,194,937 G 2,843	W 237,848 G 1,220	679	

OIL AND GAS DISCOVERIES IN 1969

County	Operator—Well Name and Location	Field	Total Depth	Initial Potential Oil B/D	Initial Potential Gas MCF	Producing Formation	Completed
Blaine	Basin Petr., Cow Creek Federal 1, NE SW 3-25N-21E	Unnamed	4,011		500	Eagle	4-21-69
Blaine	El Santo Petr., Bearpaw Federal 1-18, NW NW 18-23N-19E	Unnamed	1,502		960	Eagle	6-17-69
Carbon	Nyvatex, Federal 2, SW NE 26-9S-22E	Clark's Fork South	9,480	458 F	2,520	Greybull	10- 2-69
Fallon	Buttes Gas & Oil, NPRR 1-15, SE NW 15-9N-59E	Unnamed	9,650	130 P		Red River	9-18-69
Hill	C. J. Iverson, Kafka 1, SE NW 13-32N-14E	Tiger Ridge (extension)	1,300		1,500	Eagle	12-16-68
Hill	High Crest, Boyce 21-3, NE SW 21-30N-15E	Tiger Ridge (extension)	1,684		unknown	Eagle	9- 3-69
Hill	High Crest, State 36-13, NW SE 36-32N-14E	Tiger Ridge (extension)	1,233		unknown	Eagle	9- 3-69
McCone	Resources Capital, NP 1-20, SW SW 20-22N-47E	Cow Creek	6,987	235 P		Charles	5-16-69
Powder River	Petroleum Inc., Fed.-Sawtooth B, NE SW 35-8S-51E	Leary	5,766	297 F		Muddy	7-22-69
Powder River	Davis Oil Co., Anderson-Federal, NW NW 9-8S-53E	Wright Creek	4,758	114 P		Muddy	8-15-69
Roosevelt	Consolidated Oil, Moore et al, SW NE 32-28N-56E	Culbertson	11,850	314 F		Red River	6- 2-69
Roosevelt	Pan American, Robinson 1, NW SE 28-28N-58E	Bainville	12,512	587 F		Red River	3-21-69
Roosevelt	E. A. Polumbus, No. 5, SW NE 10-28N-51E	East Poplar	7,307	52 F		Nisku (New Pay)	2- 6-69
Roosevelt	E. A. Polumbus, Huber 1, SE NE 10-28N-51E	East Poplar	4,864 PBD	245 P		Heath (New Pay)	5- 5-69
Richland	Consolidated Oil, Henderson 13-24, NE SW 13-24N-58E	Hay Creek	9,625	327 P		Mission Canyon	3- 7-69
Richland	Consolidated Oil, Ullman 1, SW NW 13-34N-58E	Hay Creek	12,810	730 F		Red River	1-30-69
Richland	King Resources, Dayton 1, NE SE 23-25N-56E	Hardscrabble Creek	12,640	80 P		Mission Canyon	10-21-69
Richland	King Resources, Putnam 1, NW SE 20-23N-57E	Unnamed	12,530	600 F		Red River & Silurian	11-11-69
Sheridan	Chevron Oil Co., Melby 1, NW SW 1-33N-58E	Brush Lake	11,758	679 F		Red River	11- 5-69
Wibaux	King Resources, Knight 42-30, SE NE 30-14N-60E	Wibaux	11,200	65 P		Red River	1-28-69

OIL AND GAS FIELDS

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
ANTELOPE					
Swift (U. Jur.)	5	Structural	Water Drive	(Listed as part of Cat Creek Field.)	None
ARCH APEX					
Bow Island (L. Cret.) Gas	16	Strat.	Volumetric	330' from legal subdivision; 2400' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order 4-60.) (Sometimes called Colorado Blackleaf pool.) (Swift) State-wide.	None
Swift (Jurassic) Gas (Shut-in)	1	Strat.	Volumetric		
ASH CREEK					
Shannon (U. Cret.)	6	Structural	Partial Water Drive and Depletion	Spacing waived within unitized portion of field except no well may be drilled closer than 660' from unit boundary. (Order 4-65.)	Waterflood started October, 1964. (Orders 22-64, 15-66.)
BAINVILLE					
Red River (Ord.)	2	Structural-Strat.	Depletion-Water Drive	State-wide.	None
BANNATYNE					
Swift (U. Jur.)	2	Structural	Comb. Water Drive and Volumetric	Center of 10-acre tracts, 50' topographic tolerance. Commingling permitted. (Order 20-58.)	Pilot waterflood of Swift suspended in 1963.
Sun River (U. Miss.) (Shut-in)	2	Structural			
BASCOM					
Amsden (Penn.) (behind pipe)		Strat.	Water Drive	State-wide. (Order 10-63.)	None
Tyler (L. Penn.)	1	Struct.-Strat.	Depletion		
BEARS DEN					
Sunburst (L. Cret.) Gas	2	Structural	Depletion and Gas Cap Drive	State-wide.	None
Swift (U. Jur.) Oil	5				
Sawtooth (Jur.) Gas (Shut-in)	1				
BELL CREEK					
Muddy (L. Cret.) (Oil & Gas)	385	Strat.	Depletion	40-acre spacing units with location 660' from unit boundary with 150' tolerance for topographic reasons only. 300 barrel per well per day MER. Semi-annual bottom-hole pressure surveys. Quarterly gas-oil ratio tests. (Orders 37-67, 39-67, 50-67, 1-69.) Gas extraction plant.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BENRUD					
Nisku (Dev.)	1	Structural	Water Drive	160-acre spacing units with permitted location within a 1320' square in center of quarter section. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62.)
BENRUD, EAST					
Nisku (Dev.)	2	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62, 32-66.)
BENRUD, NORTHEAST					
Nisku (Dev.)	1	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 32-66.)
BERTHELOTE					
Sunburst (L. Cret.)	1	Strat.	Depletion	40-acre spacing units with well no closer than 330' from lease or property line and not closer than 660' between wells. (Order 18-66.)	None
BIG COULEE					
3rd Cat Creek (L. Cret.) Gas	3	Structural	Water Drive	State-wide.	None
Morrison (U. Jur.) Gas	2	Structural	Water Drive		
BIG WALL					
Amsden (Penn.) (Shut-in)	2	Structural	Water Drive	Spaced by old state-wide spacing; 330' from lease or property line, 990' between wells in same reservoir. (Order 12-54.)	Previous disposal into Tyler "A" stopped in 1961. Waterflood of Tyler "B" sand started Aug. 1966. (Order 22-66.)
Tyler (Penn.)	9	Struct.-Strat.	Depletion		
BLACKFOOT					
Cut Bank (L. Cret.) (Shut-in)		Strat.	Depletion	One well only per 40-acre spacing unit, 300' tolerance from center of spacing unit. Dual completion in Cut Bank and Madison with administrative approval. (Order 3-57.)	None
Sun River (Miss.)	7	Structural	Water Drive		
BLACK JACK					
Sunburst (L. Cret.) Gas	9	Strat.	Depletion	One gas well per 160-acres, no closer than 660' from boundary of each unit. (Order 3-69.) Oil: State-wide spacing.	None
Swift (U. Jur.) (Gas & Oil)	1				

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BORDER					
Cut Bank (L. Cret.) (Oil & Gas)	3	Strat.	Depletion	Oil: 220' from boundary of legal subdivision and 430' between wells in same formation; 75' topographic tolerance. Gas: 330' from boundary of legal subdivision, 2400' between wells in same formation on same lease. 75' topographic tolerance. (Order 7-54.)	None
Moulton (L. Cret.) (Oil & Gas)	13	Strat.	Depletion		
BOWDOIN					
Bowdoin & Phillips sands in Colorado shale (U. Cret.) Gas	346	Structural	Volumetric	One well per quarter section not less than 1000' from lease boundary or less than 2000' from any gas well in same horizon. (Order 29-55.)	None
BOWES					
Eagle (U. Cret.) Gas	20	Structural	Volumetric	660' from boundary of legal subdivision, 1320' from other wells in same formation. 75' topographic tolerance. (Order 23-54.)	None
Sawtooth (M. Jur.)	52	Structural	Partial Water Drive	330' from lease or property line, 990' between wells in same formation. (Order 13-54.)	Pilot waterflood initiated in 1961 and expanded to field-wide waterflood in 1965. (Order 5-61.) Water from Madison.
BRADLEY					
Sun River (Miss.)	1	Structural	Water Drive	State-wide.	None
BRADY					
Sunburst (L. Cret.)	2	Strat.	Depletion, Partial Water Drive	10-acre spacing units with 75' topographic tolerance from center of spacing unit. (Order 34-62, 55-62.)	None
BRORSON					
Mission Canyon (Miss.) (Oil & Gas)	1	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from boundary (Mission Canyon and Red River). (Order 5-69.)	None
Red River (Ord.) (Oil & Gas)	9				
BRORSON, SOUTH					
Red River (Ord.) Oil & Gas	3	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary. (Order 26-68.) Gas sold to Omega Gas Company.	None
BRUSH LAKE					
Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CABIN CREEK					
Mission Canyon (Miss.) (Oil & Gas)	21	Structural	Water Drive, Depletion	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended until present Unit Agreement becomes inoperative. (Order 36-62.) Many wells produce from both Interlake and Red River by dual completion. Gas to gas plant.	Waterflood of Siluro-Ordovician reservoir has been expanded to a full scale peripheral flood. (Orders 60-62, 30-63.)
Interlake (Sil.) (Oil & Gas)	7	Structural	Water Drive, Depletion		
Red River (Ord.) (Oil & Gas)	77	Structural	Water Drive, Depletion		
CAT CREEK					
Kootenai (L. Cret.) (3 sands)	41	Structural-Strat.	Water Drive	220' from lease or property line, 440' from every other well in same formation. (Order 17-55.) Five separate producing areas, East, Antelope, Mosby, West and Landheim Domes.	Three Kootenai waterfloods and one Ellis waterflood in progress. (Orders 17-56, 18-59, 13-62, 8-68.) Water from Third Cat Creek sand. Pilot flood East Dome, Ellis sand.
Morrison (U. Jur.)	2	Structural-Strat.	Water Drive		
Ellis (U. Jur.)	21	Structural	Depletion-Water Drive		
Amsden (Penn.)	2	Structural-Strat.	Water Drive	State-wide.	
CEDAR CREEK					
Judith River (U. Cret.) Gas	176	Structural	Volumetric	1200' from legal subdivision line, 2400' from every other well in same formation. (Order 33-54.)	None
Eagle (U. Cret.) Gas	60	Structural	Volumetric	320-acre spacing units. Wells in center of NW¼ and SE¼ of each section with 200' topographic tolerance. (Order 1-61.)	None
CLARK'S FORK					
Frontier (U. Cret.)	1	Structural-Strat.	Depletion	330' from quarter-quarter section line, 1320' between wells with 75' topographic tolerance. (Order 17-54.)	None
CLARK'S FORK SOUTH					
Greybull (L. Cret.) (Oil & Gas)	1	Structural-Strat.	Depletion-Water Drive	160-acre spacing, location no closer than 330' from quarter section line or 1320' from any other well.	None
CONRAD, SOUTH					
Dakota (L. Cret.) (Shut-in)	1	Strat.	Depletion	10-acre spacing units. Wells in center of each unit with 75' topographic tolerance. (Orders 34-62, 31-63.)	None
COW CREEK					
Charles (Miss.)	1	Structural	Water Drive	80-acre spacing units, direction at option of operator but wells to be in SW¼ and NE¼ of each quarter section. (Order 11-69.)	None
CULBERTSON					
Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CUPTON					
Red River (Ord.)	2	Structural-Strat.	Water Drive	80-acre spacing units consisting of E½ and W½ of quarter section; well location in SE¼ and NW¼ of quarter section with 75' topographic tolerance. (Order 31-55.)	None
CUT BANK					
Kootenai (L. Cret.) Oil & Gas	714	Strat.	Depletion	(Kootenai formation includes Moulton, Sunburst, and Cut Band sands.) Oil: 330' from legal subdivision line. 650' between wells in same formation. 5-spot on 40-acre tract permitted. 75' topographic tolerance. (Order 10-54.)	There are 15 waterfloods in progress. Water from Eagle and Madison, or produced.
(Gas Only)	133				
Madison (Miss.) Oil & Gas	33		Water Drive		
(Gas Only)	2 (?)			Gas: 330' from legal subdivision, 2400' between wells in same formation. 75' topographic tolerance. (Order 10-54.)	
DARLING (Included as part of Cut Bank Field)					
DEAN DOME					
Greybull (L. Cret.) Gas	1	Structural	Water Drive	State-wide. Oil ring below gas cap. One each shut-in gas and oil well.	None
Oil	1				
DEER CREEK					
Interlake (Sil.)	1	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Well location in NE¼ and SW¼ of each quarter section with 75' topographic tolerance. (Orders 23-55 & 14-59.) Commingling of production permitted upon approval of Comm. Petr. Engr. (Order 18-63.)	Excess produced water is disposed into Dakota and Lakota formations. (Orders 6-56 & 3-58.) Two Silurian wells shut-in.
Red River (Ord.)	1	Structural	Water Drive		
DELPHIA					
Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
DEVIL'S BASIN					
Heath (U. Miss.) (Shut-in)	5	Structural	Depletion	State-wide.	None
DEVON					
Blackleaf, (L. Cret.)					
Gas (Shut-in)	12	Strat.	Volumetric	State-wide.	None
Kootenai (L. Cret.) Oil Depleted		Strat.	Depletion	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
DRY CREEK					
Eagle (U. Cret.) Gas	1	Structural-Strat.	Volumetric	State-wide.	None
Frontier (U. Cret.) Gas	6	Structural	Volumetric		Six additional gas storage wells, west end of structure.
Greybull (L. Cret.) Gas, some oil	1	Structural-Strat.	Volumetric-Depletion	Depleted. Plugged and Abandoned.	
DWYER					
Ratcliffe (Miss.)	12	Structural-Strat.	Water Drive-Volumetric	160-acre spacing units; well location in center of SE¼ of spacing unit with 175' topographic tolerance. (Orders 25-60, 29-61.)	Produced water disposed into Dakota formation. (Order 26-63.) Waterflood (Order 20-68.)
EAST KEITH & KEITH					
Bow Island (L. Cret.) Gas	11	Structural	Water Drive	State-wide, except unitized portions spaced by (Order 22-62). Pooling (Order 19-66).	None
Sawtooth-Madison (Jur.-Miss.) Gas	2				
ELK BASIN (Mont. Portion)					
Frontier (U. Cret.)	18	Structural	Gravity Drainage	Rule No 203 (Spacing) is waived within Unit Area. (Order 10-61.)	Frontier: Crestal gas injection. Embar - Tensleep; Pressure maintenance by crestal gas in injection. Waterflood approved in 1966. (Order 5-66.) Madison: Water injection.
Dakota (L. Cret.)	3	Structural	Gravity Drainage		
Embar-Tensleep (Perm., Penn.)	20	Structural	Gravity Drainage		
Madison (Miss)	20	Structural	Water Drive		
ELK BASIN, NORTHWEST					
Frontier (U. Cret.)	6	Structural	Depletion	Spacing waived within unitized portion except that bottom of hole be no closer than 330' from unit boundary and there be at least 1320' surface distance between wells in same formation; 75' topographic tolerance. (Orders 43-63, 28-64.)	Frontier: Waterflood in progress. Embar-Tensleep: Waterflood and gas injection in progress. (Order 3-67.) Madison, produced water.
Embar-Tensleep (Perm., Penn.)	6	Structural	Gravity Drainage		
Madison (Miss.)	2	Structural	Water Drive		
ETHRIDGE					
Swift (U. Jur.) Gas (Shut-in)	6	Strat.	Water Drive	State-wide, except two wells by (Order 28-65).	None
FAIRVIEW					
Winnipegosis (Dev.) (Oil & Gas)	1	Structural	Water Drive	160-acre spacing unit. Well location anywhere in spacing unit but no closer than 660' from unit boundary. (Order 48-65, 1-67, 43-67, 44-67.) Gas to Fairview plant.	None
Red River (Ord.) (Oil & Gas)	10	Structural	Water Drive		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
FERTILE PRAIRIE					
Red River (Ord.)	2	Structural-Strat.	Water Drive	80-acre spacing units consisting of north-south rectangular units. Well location in NW¼ and SE¼ of quarter section with 75' topographic tolerance. (Orders 3-56, 7-62.)	None
FLAT COULEE					
Bow Island (L. Cret.) Gas	1	Structural and Strat.	Depletion	330' from boundary of legal subdivision and 1320' from other wells in same reservoir. (Order 16-55.)	None
Dakota (L. Cret.) Gas	1	Strat.	Depletion	State-wide, exception Order 11-66.	
Swift (Jur.) Gas (Shut-in)		Strat.	Depletion	State-wide gas spacing.	
Swift (Jur.) Oil	34	Strat.	Depletion	40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.)	
Sawtooth (Jur.) Gas	1	Strat.	Depletion	State-wide.	
FLAT LAKE					
Ratcliffe (Miss.)	60	Structural-Strat.	Partial Water Drive	160-acre spacing units; well location in center of NE¼ of quarter section with 200' topographic tolerance. Wells no closer than 961' to No. Dakota state line and no closer than 1600' to Canadian line. (Orders 10-65 amended, 43-65, 23-66, 33-66.)	Excess salt water disposed into Muddy, Dakota, or Lakota formations. (Orders 39-64, 39-66.)
FLAT LAKE, SOUTH					
Ratcliffe (Miss.)	4	Structural-Strat.	Partial Water Drive	Same as Flat Lake spacing. (Order 2-67.)	Excess salt water disposed into Muddy, Dakota, or Lakota. (Order 19-67.)
FRANNIE (Mont. Portion)					
Tensleep (Penn.)	2	Structural	Comb. Water Drive and Gravity Drainage	10-acre spacing units; well location in center of each unit with 100' topographic tolerance. (Order 35-63.)	None
FRED & GEORGE CREEK					
Sunburst (L. Cret.) (Oil & Gas)	29	Strat.	Depletion	Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.)	None
Swift (U. Jur.) (Oil & Gas)	23	Strat.	Depletion	State-wide.	
GAGE					
Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
GAGE, SOUTHWEST					
Amsden (Penn.) (Shut-in)		Unknown	Water Drive	Temporary 160-acre spacing expired. State-wide spacing now applies. (Order 50-65.)	None
GAS CITY					
Red River (Ord.)	17	Structural	Depletion-Water Drive	80-acre spacing units consisting of E½ and W½ of quarter sections; well location in NW¼ and SE¼ of quarter section; 150' topographic tolerance. Spacing waived and state-wide Rules 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are waived in unitized portion of field. (Order 29-62.)	Excess produced water disposed into Judith River formation. (Orders 32-61, 20-64.) Waterflood using produced water and Madison water (Order 16-69.)
GIRARD					
Red River (Ord.)	2	Structural-Strat.	Depletion-Water Drive	State-wide.	None
GLENDIVE					
Red River (Ord.) Oil & Gas	14	Structural-Strat.	Depletion-Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; wells located in center of NE¼ and SW¼ of each quarter section with 75' topographic tolerance. (Orders 27-55, 19-62, 58-62, 20-66.)	Excess produced water disposed into Swift and Dakota formations. (Orders 16-56, 16-63.)
GOLD BUTTE					
Swift (U. Jur.) Gas	1	Structural	Water Drive ?	640-acre spacing, well location any quarter-quarter section cornering on center of section. (Order 26-59.)	None
GOOSE LAKE					
Ratcliffe (Miss.) Oil & Gas	33	Structural-Strat.	Partial Water Drive	160-acre spacing units; well locations according to areas: Area I, center of NW¼ of quarter section; Area II, center of SE¼ of quarter section; Area III, center of NE¼ of quarter section. 200' topographic tolerance. (Orders 42-63, 40-66, 47-67, 16-68.)	Excess produced water disposed into Mission Canyon and Dakota formations. (Orders 12-64, 14-66, 12-68.)
GRABEN COULEE					
Sunburst (L. Cret.)	2	Structural-Strat.	Depletion	40-acre spacing units; well location no closer than 330' from legal subdivision.	None
Cut Bank (L. Cret.)	18	Structural-Strat.	Depletion	(Cut Bank and Madison) Oil: 330' from boundary of legal subdivision and 650' from other well in same reservoir and on same lease. 75' topographic tolerance. (Order 73-62.)	
Cut Bank-Madison (Dual)	17	Structural-Strat.	Depletion		
Madison (Miss.)	7	Structural-Strat.	Depletion		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
GRANDVIEW					
Bow Island (L. Cret.) Gas (2 Zones)	1	Structural	Unknown	320-acre spacing units aligned in a north-south direction; well locations no closer than 660' to a spacing unit boundary. (Order 49-67.)	None
Madison (Miss.) Gas	1	Structural	Unknown	Oil: State-wide. (3 shut-in wells.)	
GYPSY BASIN					
Sunburst (L. Cret.) Oil & Gas	1	Structural-Strat.	Comb. Water Drive and Depletion	330' from lease lines and 660' between wells in same formation. Only two wells per quarter-quarter section. (Order 7-66.)	Order 6-64 permits injection of excessive gas (produced with oil) into the Sunburst gas cap.
Swift (U. Jur.)	1	Structural-Strat.	Comb. Water Drive and Depletion	Same as Sunburst.	
Sawtooth-Madison Oil & Gas (Jur. & Miss.)	2	Structural-Strat.	Comb. Water Drive and Depletion	(Sawtooth-Madison) Oil: 40-acre spacing units; wells no closer than 330' from lease line. (Order 7-66.) (Sawtooth-Madison) Gas: 160-acre spacing units; well locations in center of any quarter-quarter section in each 160-acre unit, 2340' between gas wells. 150' topographic tolerance. (Order 13-59.)	
HARDIN					
Frontier (U. Cret.) Gas	17	Strat.	Volumetric	State-wide.	None
(Shut-in)	31				
HARDSCRABBLE CREEK					
Mission Canyon (Miss.)	1	Structural-Strat.	Water Drive	State-wide.	None
HAY CREEK					
Mission Canyon (Miss.)	1	Structure	Depletion	320-acre spacing, governmental half section, direction to be determined by operator. Location no closer than 660' from unit boundary. (Order 15-69.)	None
Red River (Ord.)	2				
HIAWATHA					
Tyler (L. Penn.) (2 Sands)	7	Structural-Strat.	Depletion	State-wide.	None
HIBBARD					
Amsden (Penn.)	1	Unknown	Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
INJUN CREEK					
Tyler (Penn.)	1	Strat.	Depletion	State-wide.	None
IVANHOE					
Morrison (U. Jur.)	2	Structural and Strat.	Depletion	40-acre spacing unit for production from any one common formation; well location in center of unit with 200' topographic tolerance. (Order 7-60.)	Waterflood of Tyler B & C discontinued.
Amsden (L. Penn.)	1	Structural and Strat.	Water Drive		
Tyler (L. Penn.)	8	Structural and Strat.	Depletion		
KATY LAKE					
Ratcliffe (Miss.)	1	Structural-Strat.	Water Drive	State-wide. Formerly called Dwyer West.	None
KEG COULEE					
Tyler (Penn.) Oil & Gas	22	Strat.	Depletion	40-acre spacing in southwest portion of field except that spacing is waived in unitized portion. (Orders 3-64, 4-64, 23-64.) 80-acre spacing in remainder of field with variable pattern. (Orders 11-60, 28-62.) Topographic tolerance varies from 100' to 150'. (Orders 11-60, 4-64, 23-64.) Buffer zone waived. (Order 16-65.) Gas to extraction plant in Sumatra field.	Three waterflood units. (Orders 3-64, 23-66, 10-69, 14-69.) Madison water injected.
KEG COULEE, NORTH					
Tyler (Penn.)	2	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 150' topographic tolerance. (Order 46-64.) Buffer zone waived. (Order 16-65.) Gas to extraction plant.	None
KEITH (See East Keith)					
KELLEY					
Tyler (Penn.)	5	Strat.	Depletion	State-wide, 250' tolerance. (Order 15-67.)	Waterflood using Third Cat Creek water. (Order 8-69.)
KEVIN-SUNBURST					
Sunburst (L. Cret.) Oil & Gas	600+	Strat.	Depletion	9 wells per 40-acre tract; only 3 wells on any side of tract set back at least 220' from line. Field delineated by Orders 8-54, 28-55. (Estimated 400 wells shut-in.)	There are four waterfloods in operation, using Madison water.
Sun River (Miss.) Oil & Gas (part above)					

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
LAIRD CREEK					
Swift (U. Jur.) Oil & Gas	10	Strat.	Depletion	State-wide. One shut-in gas well.	None
LAKE BASIN, NORTH					
Eagle, Frontier (U. Cret.) Gas	1	Structural	Unknown	640-acre gas spacing units consisting of one section. Well locations in center of NW¼ or SE¼ of each section with 75' topographic tolerance. (Order 6-58.)	None
LANDSLIDE BUTTE					
Sun River (Miss.)	2	Unknown	Water Drive	State-wide.	None
LEARY					
Muddy (L. Cret.)	2	Structural-Strat.	Depletion	80-acre spacing, subject to review in one year, locations in NE¼ and SW¼ of each quarter section, 200' topographic tolerance. (Order 12-69.)	None
LISCOM CREEK					
Shannon (U. Cret.) Gas (Shut-in)	5	Structural-Strat.	Depletion Water Drive	Spacing, one well per 640 acres within 40-acre square centered SE NW (T. 1 N.) and SE¼ (T. 2 N). (Order 5-67.)	None
LITTLE BEAVER (Mont. Portion)					
Red River (Ord.)	28	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended until present Unit Agreement becomes inoperative. (Order 41-62.)	Waterflood of the Red River was commenced in August, 1967. (Order 3-66.) Minnelusa water.
LITTLE BEAVER, EAST (Mont. Portion)					
Red River (Ord.)	13	Structural	Comb. Depletion and Water Drive	Same as for Little Beaver. (Order 42-62.)	Waterflood of the Red River was commenced in April, 1965. (Order 33-64.)
LODGE GRASS					
Tensleep (Penn.)	2	Structural-Strat.	Water Drive	160-acre spacing units; well locations vary according to areas; 250' topographic tolerance. (Orders 26-64, 26-65.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
LOOKOUT BUTTE (Includes Coral Creek Unit)					
Madison (Miss.)	12	Structural	Water Drive	State-wide spacing.	Water disposal into Madison. (Order 68-62.)
Interlake, Red River (Sil.-Ord.)	22	Structural	Comb. Depletion and Water Drive	160-acre spacing; well location in center of SE¼ of each quarter section with 150' topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Re-delineated per Order 7-63.	Waterflood of Silurian-Ordovician approved in 1966. (Order 35-66.) Water from Minnelusa.
MACKAY DOME					
Greybull (L. Cret.) Gas & Oil (Shut-in)	2	Structural	Depletion and Water Drive	State-wide.	Bottom-hole heat, (steam).
MASON LAKE					
Lakota (L. Cret.)	2	Structural	Water Drive	State-wide.	None
MELSTONE					
Tyler (Penn.)	4	Structural-Strat.	Depletion	State-wide.	None
MIDDLE BUTTE					
Blackleaf (Cret.) Gas	1	Structural	Volumetric	320-acre spacing units consisting of E½ & W½ of each section; well location in center of either of the inside quarter-quarter sections located in E½ of each spacing unit. 75' topographic tolerance. (Order 3-60.)	None
(Bow Island) (Shut-in)	2				
MINERAL BENCH					
Duperow (Dev.)	1	Structural	Water Drive	State-wide.	Water disposal into Dakota-Lakota per Order 18-65.
MINERS COULEE					
Sunburst (L. Cret.)	1	Strat.	Depletion	40-acre spacing units consisting of quarter-quarter sections; well location no closer than 330' from lease or property line and 660' from any other well. (Order 9-66.)	None
Swift (U. Jur.) (Shut-in)	3	Strat.	Depletion		
Madison (Miss.) (Shut-in)	1	Strat. ?	Water Drive		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
MONARCH					
Mission Canyon (Miss.)	2	Structural-Strat.	Water Drive	80-acre spacing units consisting of east and west halfs of quarter section. Well location in SW¼ & NE¼ of quarter section. Location within 660' square at center of quarter section. (Order 18-61.)	Produced water is disposed into the salt water disposal system for the Pennel Field.
Interlake, Red River (Sil.-Ord.)	14	Structural-Strat.		160-acre spacing units consisting of a quarter section; well location in center of SW¼ of each quarter section with 175' topographic tolerance. (Orders 12-59, 4-63.)	
MOSBY					
(See Cat Creek)	15	Structural-Strat.	Water Drive	Listed as part of Cat Creek.	Waterflood, 2nd Cat Creek sand. (Order 8-68.)
MOSSER					
Greybull (L. Cret.)	4	Structural	Water Drive	Spacing waived. Future development required administrative approval of the Commission. (Order 27-62.)	None
MT. LILLY					
Madison (Miss.) Gas	2	Structural	Water Drive	640-acre, well location in approximate center of any of the four quarter-quarter sections adjoining center of section; 250' topographic tolerance. (Order 37-63.)	None
NORTH LAKE BASIN					
(See Lake Basin, North)					
OUTLOOK					
Mission Canyon (Miss.)	1	Strat.	Water Drive	State-wide spacing.	Produced water is disposed into Dakota and Siluro-Devonian formations. (Orders 16-59, 17-65, 36-66.)
Duperow (Dev.)	2	Strat. and Structural	Water Drive	State-wide spacing.	
Silurian-Devonian	7	Strat. and Structural	Water Drive	160-acre spacing units; well location in center of either SW¼ or NE¼ of each quarter section; 175' topographic tolerance. (Order 19-59A.)	
OUTLOOK, SOUTH					
Winnipegosis (Dev.) Interlake (Sil.) (Dual completion with Dev. zone)	1	Strcctural	Water Drive	160-acre spacing; permitted wells in either SW¼ or NE¼ of quarter section; 175' topographic tolerance. (Order 19-59A.) Commingling permitted. (Order 45-64.)	Produced water disposed into Muddy and Dakota formations. (Orders 19-59, 17-65.)
Red River (Ord.) (Shut-in)	1	Structural	Water Drive		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
OUTLOOK, WEST					
Winnipegosis (Dev.)	2	Structural	Water Drive	160-acre spacing units consisting of quarter sections; permitted wells in either SW¼ or NE¼ with a tolerance of 175'. (Order 7-67.)	Produced water disposed into Dakota formation. (Order 42-66.)
PENNEL					
Mission Canyon (Miss.)	3	Structural	Water Drive	(Miss.) 80-acre spacing units consisting of east and west half of quarter section; wells located in center of SE¼ and NW¼ of quarter sections with 150' topographic tolerance. (Order 15-61.)	Produced water is being injected into Dakota, Siluro-Ordovician and Madison formations. (Orders 16-60, 46-62, 68-62, 36-63, 13-64.) Waterflood approved Nov. 1968. (Order 24-68.)
Lodgepole (Miss.)		Structural-Strat.			
Siluro-Ordovician Oil & Gas	110	Structural	Comb. Depletion and Water Drive	80-acre spacing units on west side and 160-acre spacing units on east side of pool. Wells to be located in SE¼ and NW¼ of each quarter section (80 acres) and in SE¼ of each quarter section on 160-acre spacing (Orders 1-56, 8-56, 15-61, 20-62, 4-63, 7-63.) Commingling approved. (Order 59-62.)	
PINE					
Mission Canyon (Miss.) Oil & Gas	1	Structural	Water Drive	Spacing and General Rules 213, 218 and 219 are waived within the Pine Unit. 80-acre spacing units outside of unit area; well location in NW¼ and SE¼ of quarter section; 150' topographic tolerance. (Order 37-62.) Gas through extraction plant.	A waterflood program for the south area was started in 1959. A waterflood of the north area was approved in 1967. (Orders 13-68, 1-60, 8-62, 32-67.)
Siluro-Ordovician Oil & Gas	117	Structural	Comb. Depletion and Water Drive		
PLEVNA					
Eagle, Judith River (U. Cret.) Gas	25	Structural	Water Drive	1200' from legal subdivision line; 2400' from other wells on same lease or unit; 75' topographic tolerance. (Orders 34-54, 4-57.)	None
POLE CREEK					
Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
PONDERA					
Sun River (Miss.) Oil & Gas	273	Structural and Strat.	Comb. Depletion and Water Drive	Oil: 220' from legal subdivision, 430' from other wells in same reservoir on same lease; 75' topographic tolerance. Porter Bench Extension: 330' from legal subdivision line; 650' from other wells in same reservoir on same lease or unit; 75' topographic tolerance. (Order 9-54.) Gas: 1320' from legal subdivision line; 3700' from other wells on same lease or unit; 75' topographic tolerance. (Order 9-54.) General Rules 207, 211, 219, 221, 223, and 224 do not apply.	Produced water injected into lower Madison. (Orders 11-56, 15-56, 4-65, 4-66.) A small waterflood project has been in operation since 1959, using Madison water.

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
PONDERA COULEE						
Sun River (Miss.)	(Shut-in)	4	Structural	Water Drive	330' from legal subdivision lines or upon a 10-acre spacing pattern; 75' topographic tolerance. (Order 5-62.)	None
POPLAR, EAST						
Madison (Miss.) (Charles & Mission Canyon fms.)		58	Structural	Water Drive	State-wide spacing; field delineated by Order 7-55, 33 shut-in oil wells, 6 shut-in gas wells.	Excess produced water has been injected into the Dakota and Judith River formations. (Orders 1-55, 5-57, 7-57, 14-61, 21-61, 34-61, 10-62, 51-67.)
Heath (Tyler) (Penn.)		4	Structural-Strat.	Water Drive		
Nisku (Dev.)		1	Structural	Water Drive		
POPLAR, NORTHWEST						
Charles (Miss.) ("C" or McGowan Zone)		1	Structural	Water Drive	80-acre spacing units consisting of E½ and W½ of each quarter section; permitted wells in NW¼ and SE¼ of quarter section. 75' topographic tolerance. (Order 18-55.)	None
PRAIRIE ELK						
Charles "C" (Miss.)	(Shut-in)	1	Unknown	Water Drive	State-wide.	None
PUMPKIN CREEK						
Shannon (U. Cret.) Gas	(Shut-in)	7	Structural-Strat.	Depletion	State-wide.	None
RAGGED POINT						
Tyler (Penn.)		11	Strat.	Depletion	40-acre spacing units; 75' topographic tolerance. (Order 8-59.) Spacing waived for Tyler "A" sand reservoir within Tyler "A" Sand Unit except no well can be closer than 660' to Unit boundary. (Order 35-65.)	A waterflood project of the Tyler "A" sand was commenced in February, 1966, using Third Cat Creek sand water. (Order 35-65.) Water disposal into Kibbey. (Order 19-65.)
Kibbey (Miss.)		1	Structural	Water Drive	State-wide spacing. (Order 15-54.) Commingling of production from Tyler and Kibbey permitted in one well per Order 11-65.	
RATTLESNAKE COULEE						
Sunburst (L. Cret.)		2	Strat.	Depletion	State-wide.	None

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
REAGAN						
Sun River (Miss.)	Oil Gas	48 1	Structural	Comb. Gas Cap and Water Drive	State-wide. Two shut-in oil wells. (Order 17-54.)	A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.)
RED CREEK						
Cut Bank (L. Cret.) Oil & Gas		9	Strat.	Depletion	40-acre spacing units; wells in center of spacing unit with 75' topographic or obstruction tolerance; spacing waived for unitized portion. (Orders 16-58, 73-62, 31-64.)	Excess produced water injected into Bow Island and Madison. (Orders 22-63, 37-64.) A waterflood project in the Cut Bank sand was initiated in June, 1965, using Madison water.
Sun River (Miss.) Oil & Gas		14	Structural	Water Drive		
RED FOX						
Nisku (Dev.)		1	Structural	Water Drive	Field consists of one 160-acre spacing unit which straddles the section line. (Order 20-67.)	None
REDSTONE						
Winnipegosis (Dev.)		1	Unknown	Water Drive	One well per 160-acre unit, but no closer than 660' from unit boundary.	None
REPEAT						
Red River (Ord.)		1	Unknown	Water Drive	State-wide.	None
RESERVE						
Winnipegosis (Dev.)		1	Structural-Strat.	Water Drive	160-acre spacing units; permitted well within 1320' square in center of quarter section. Commingling of Red River and Interlake production permitted on individual well basis. (Orders 34-66, 27-67.)	None
Interlake (Sil.)	(Shut-in)		Structural-Strat.	Water Drive		
Red River (Ord.)		4	Structural-Strat.	Water Drive		
RICHEY						
Charles (Miss.)	(Shut-in)	1	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NW¼ and SE¼ of each quarter section; 75' topographic tolerance. (Order 21-55.)	Part of produced water is being injected into the Dakota formation. (Orders 10-58, 19-61.)

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
RICHEY, SOUTHWEST						
Interlake, Dawson Bay (Sil.) (Dev.)		6	Structural	Depletion	160-acre spacing units; wells no closer than 900' from boundary of spacing unit. (Order 25-62.)	A waterflood project in the Interlake and Dawson Bay was started in 1965. (Order 34-65.)
ROSCOE						
Lakota (L. Cret.)	(Shut-in)	1	Structural	Water Drive	State-wide.	None
ROUGH CREEK						
Muddy (L. Cret.)	(Shut-in)	1	Structural-Strat.	Depletion	State-wide. Formerly called Duncan Creek.	None
RUDYARD						
Sawtooth (M. Jur.) Gas	(Shut-in)	3	Structural	Volumetric	640-acre spacing units consisting of one section; well location in center of NW¼ of section with 75' topographic tolerance. (Order 2-58.)	None
RUSH MOUNTAIN						
Winnipegosis (M. Dev.) Red River (Ord.)		1	Structural	Volumetric-Water Drive	State-wide. Dual zone completion in discovery well.	None
SAND CREEK						
Interlake, Red River (Sil.) (Ord.)		8	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Wells located in center of NW¼ and SE¼ of each quarter section. (Order 16-59.) Commingling of production from Interlake and Red River authorized per Order 49-62.	Excess produced water is injected into the Swift formation. (Order 9-61.)
SHELBY AREA						
Sunburst (L. Cret.) Gas		51	Structural-Strat.	Depletion	State-wide. Field outline not delineated.	None
SHOTGUN CREEK						
Ratcliffe (Miss.)		1	Structural	Water Drive	State-wide.	None
SIDNEY-BRORSON						
(See Brorson and Brorson, South)						

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SMOKE CREEK						
Charles (Miss.)	(Shut-in)	3	Structural	Water Drive	State-wide.	None
SNYDER						
Tensleep (Penn.)		4	Structural	Water Drive	10-acre spacing units with center 5-spot permitted; 150' topographic tolerance. (Order 45-62.)	None
SOAP CREEK						
Tensleep, Amsden, Madison (Penn.) (Penn.) (Miss.)		17	Structural	Water Drive	One well per 10-acre spacing unit per production formation; well location in center of spacing unit with 100' topographic tolerance. (Order 26-60.)	None
SPRING LAKE						
Nisku (Dev.)	(Shut-in)	1	Structural	Depletion	One well per 160-acre spacing unit. Well location anywhere within 840' square in center of spacing unit. (Order 6-63.)	None
Red River (Ord.)		2	Structural	Depletion		
SQUAW COULEE						
Eagle (U. Cret.) Gas		7	Structural-Strat.	Volumetric	State-wide. In T. 32N., R. 15E., not delineated.	None
STENSVAD						
Tyler (Penn.)		12	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 200' tolerance. (Orders 2-59, 7-60.) Wells may be drilled anywhere within waterflood unit boundary, no closer than 660' from unit boundary. (Order 5-65 Amended.)	A waterflood operation has been in progress since 1963, using Madison water. (Orders 53-62, 9-67.)
SUMATRA						
Tyler (Penn.) Oil & Gas		70	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' tolerance. (Order 14-58.) Gas extraction plant in field. Gas plant burned down in July.	Four waterflood units using Madison water. (Orders 48-67, 6-69, 15-69, 19-69.)
TIGER RIDGE						
Judith River (U. Cret.) Gas	(Shut-in)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None
Eagle (U. Cret.) Gas		2	Structural-Strat.	Water-Drive-Depletion	One well per section within 2640' square in center of each unit and no closer than 1320' from boundary of unit.	
	(Shut-in)	55				
Sawtooth (Jur.) Oil	(Shut-in)	1	Structural-Strat.	Water Drive	State-wide.	

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
TULE CREEK					
Nisku (Dev.)	6	Structural	Water Drive	160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 26-62, 6-65, 11-67.)	Produced water injected into Dakota & Judith River formations. (Orders 12-66, 24-67.)
TULE CREEK, EAST					
Nisku (Dev.)	2	Structural	Water Drive	160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 40-64, 6-65.)	Water injected into Judith River formation. (Order 13-68.)
TULE CREEK, SOUTH					
Nisku (Dev.)	3	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit.	Authority given to dispose of produced water into Dakota. (Order 44-64.) Into Judith River formation. (Order 29-67.)
UTOPIA (Under Ethridge Field)					
VIDA					
Interlake (Sil.)	2	Structural	Water Drive	160-acre spacing units with permitted well anywhere within an 840' square in center of each unit. (Order 39-63.)	Water injected into Lakota formation. (Order 14-68.)
VOLT					
Nisku (Dev.)	4	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit. (Orders 27-64, 6-65, 32-65.)	Excess produced water is disposed into Judith River. (Order 3-65.)
Charles "C" (Miss.)	1	Structural	Water Drive	State-wide.	
WEED CREEK					
Amsden (L. Penn.)	2	Structural	Water Drive	State-wide.	None
WELDON					
Kibbey (Miss.)	9	Structural	Partial Water Drive	80-acre spacing unit; each quarter section divided into two separate units running in either a north-south or east-west direction; well location in center of NE¼ and SW¼ of quarter section with 200' topographic tolerance. (Order 9-65.)	Excess produced water is disposed into the Dakota, Lakota, Morrison, and Charles formations. (Orders 31-65, 47-65, 37-66, 16-67.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WEST BUTTE					
Sunburst (L. Cret.) Oil	1	Structural-Strat.	Depletion	State-wide.	None
Sawtooth (Jur.) Gas Madison (Miss.) Gas (Shut-in)	2	Structure	Water Drive	Sawtooth-Madison gas commingled, 320-acre unit, no closer than 330' from unit boundary. (Order 29-68.)	
WHITLASH					
Bow Island, Kootenai, Swift (Cret.) (Jur.)	Oil 44 Gas 40	Comb. Strat. and Struct.	Volumetric	Gas: 300' from legal subdivision line and 2400' between wells, 75' topographic tolerance. Oil: 330' from legal subdivision line and 650' between wells; 5-spot location at center of 40-acre tract permitted; 75' topographic tolerance. General Rules 207, 211, 219, 221, 223, and 224 suspended. (Order 16-54.)	None
WHITLASH, WEST					
Sunburst, Swift (Cret.) (Jur.)	Oil 1 Gas 9	Structural and Strat.	Volumetric	Gas: 160-acre spacing units consisting of quarter sections; well location anywhere within a 660' square in center of spacing unit. Oil: 330' from legal subdivision line, 650' between wells in same reservoir on same lease; 5-spot location permitted. (Order 61-62.)	None
WIBAUX					
Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None
WILLS CREEK, SOUTH					
Interlake (Sil.)	2	Structural	Partial Water Drive	160-acre spacing units. Well location in center of SE¼ of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)	None
WRIGHT CREEK					
Muddy (L. Cret.)	5	Structural-Strat.	Depletion-Water Drive	80-acre spacing consisting of N½ and S½ of quarter section with locations in NW¼ and SE¼ of each quarter section with 200' tolerance.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WOLF SPRINGS					
Amsden (Penn.)	9	Structural	Water Drive	80-acre spacing units consisting of N½ and S½ of each quarter section. Well location in center of NW¼ and SE¼ of each quarter section with 75' topographic tolerance. (Orders 4-56, 9-59.)	None
WOODROW					
Charles, Duperow, Interlake	1	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NE¼ and SW¼ of each quarter section with 200' topographic tolerance. (Order 47-62.) One Charles well; one Interlake well; one commingled Interlake-Duperow well; one Red River well.	Produced water injected into Dakota. (Order 48-62.)
Red River (Ord.)	1				

STATE OF MONTANA — SUMMARY

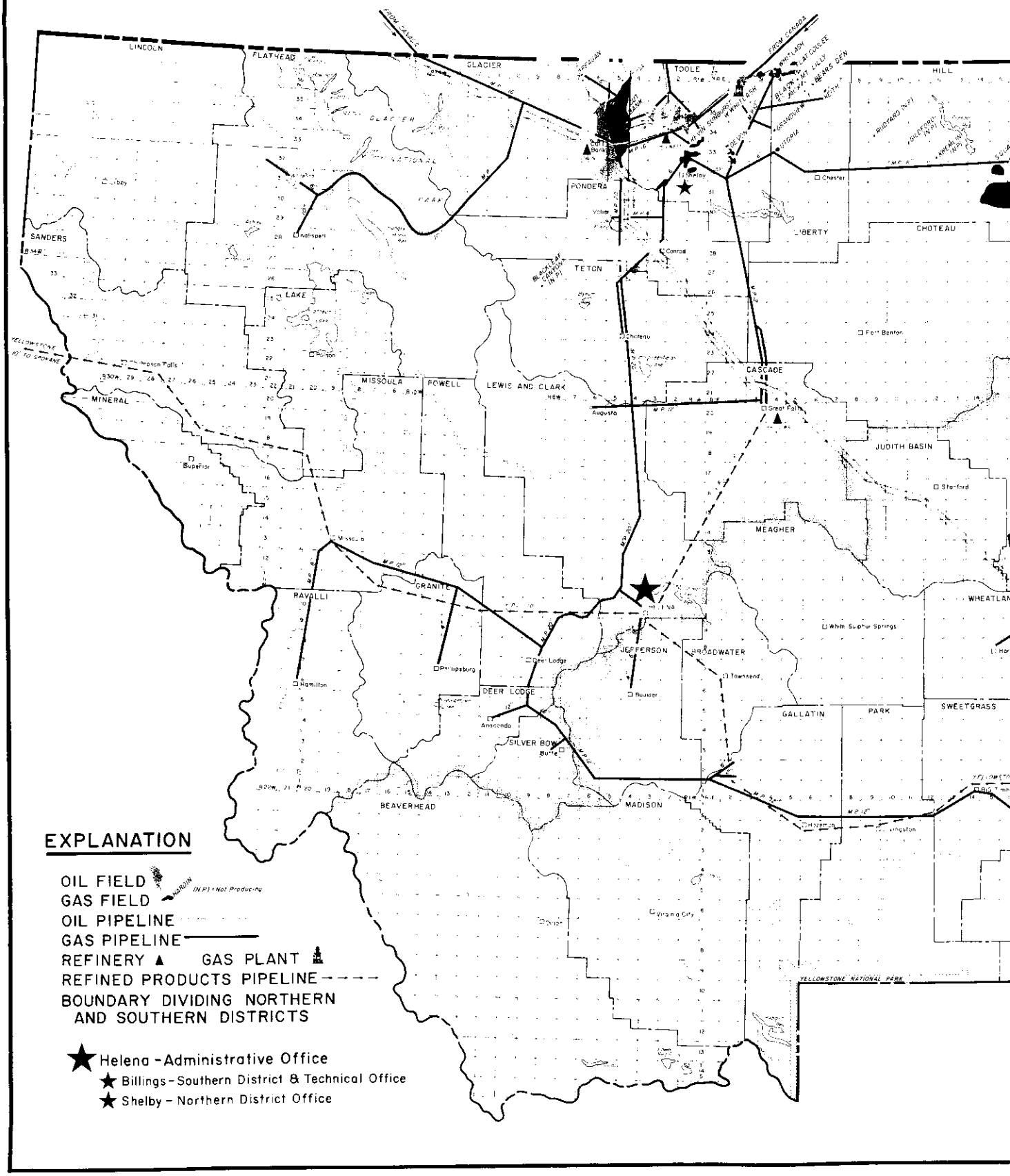
MONTANA OIL AND GAS CONS
1969

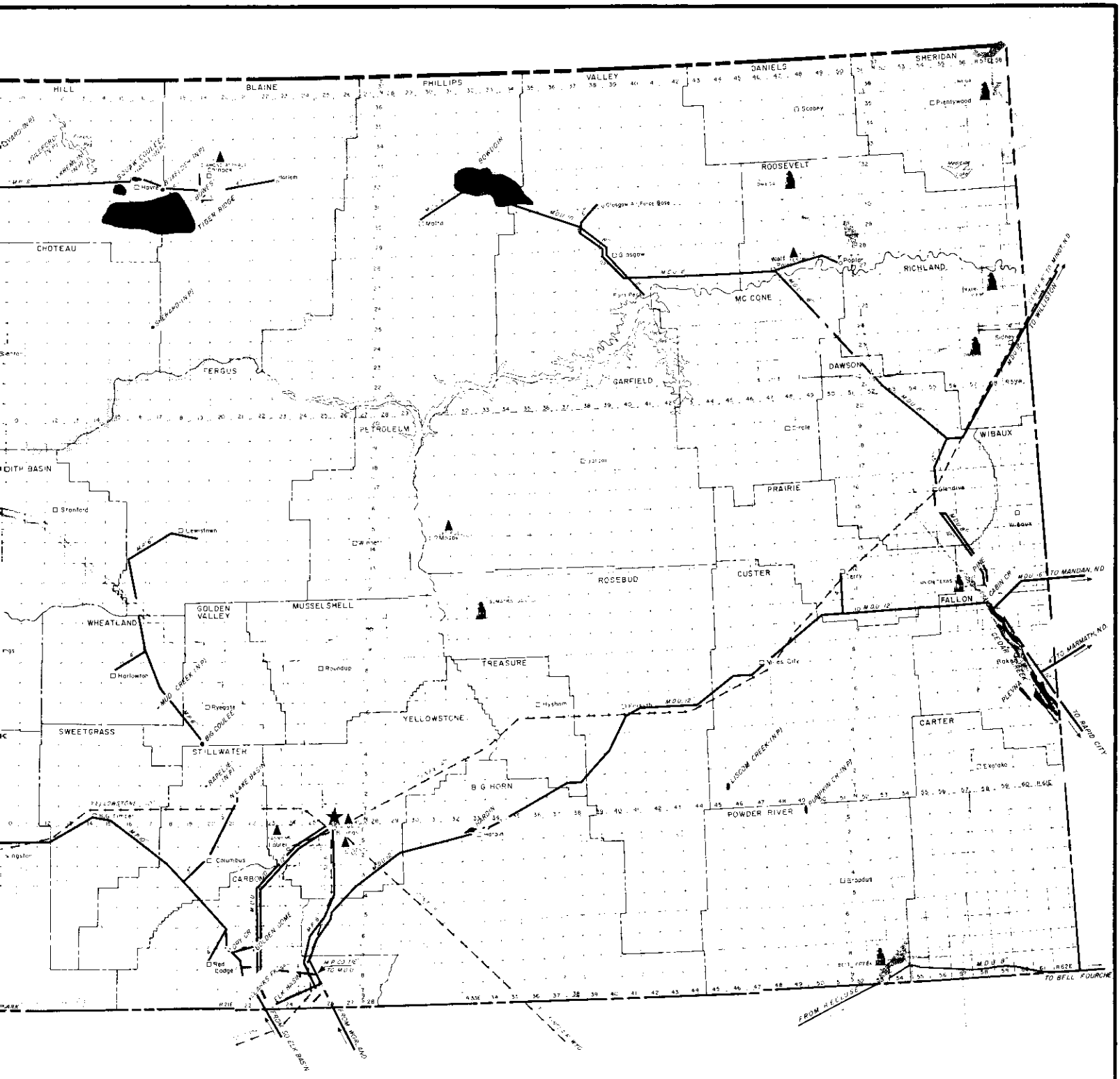
LINE NO.	FIELD (OR POOL)	COUNTY	YEAR DISCOVERED	PRODUCING FORMATION	APPROX. DEPTH	A.P.I. GRAVITY	VOLUME FACTOR	AVG. NET PAY FT.	AVG. POROSITY %	AVG. CONNATE WATER %	ORIGINAL OIL IN PLACE BBLS/ACRE	PR
1.	Ash Creek (Montana)	Big Horn	1952	Shannon (U. Cret.)	4,500	34	1.05	14	22	42	13,200	
2.	Bears Den	Liberty	1924	Sunburst (L. Cret.)	2,300	39	1.08	20	12	35	11,200	
3.	Bell Creek	Powder River	1967	Muddy (Cret.)	4,400	36	1.11	10	26	23	14,000	
4.	Benrud	Roosevelt	1961	Nisku (Dev.)	7,700	43	1.41	22	16	30	13,550	
5.	Benrud, East	Roosevelt	1962	Nisku (Dev.)	7,500	46	1.37	22	15	30	13,080	
6.	Benrud, Northeast	Roosevelt	1964	Nisku (Dev.)	7,600	46	1.40	45	16	30	27,930	
7.	Big Wall	Musselshell	1953	Amsden (Penn.)	2,500	31	1.61	17	16	35	8,520	
8.	Big Wall	Musselshell	1948	Tyler (Penn.)	3,000	19	1.02	22	17	40	17,070	
9.	Blackfoot	Glacier	1955	Madison (Miss.)	3,600	25	1.15	8	14	40	4,530	
10.	Blackfoot	Glacier	1955	Cut Bank (L. Cret.)	3,500	30	1.11	15	15	35	10,220	
11.	Bowes	Blaine	1949	Sawtooth (M. Jur.)	3,300	19	1.02	37	12	31	23,300	
12.	Brorson	Richland	1954	Madison (Miss.)	9,600	32	1.40	40	5	40	6,650	
13.	Brorson	Richland	1968	Red River (Ord.)	12,600	48	1.70	20	10	35	5,930	
14.	Brorson, South	Richland	1968	Red River (Ord.)	12,600	48	1.70	20	12	30	7,670	
15.	Cabin Creek	Fallon	1953	Siluro-Ordovician	9,000	33	1.20	50	13	30	29,420	
16.	Cabin Creek	Fallon	1956	Madison (Miss.)	7,300	33	1.13	25	11	30	13,220	
17.	Cat Creek (West Dome)	Petroleum	1920	Kootenai (L. Cret.)	1,100	52	1.10	51	21	19	61,180	
18.	Cat Creek (Antelope-Mosby)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1,200	52	1.10	10	21	19	12,000	
19.	Cat Creek	Petroleum, Garfield	1945	Morrison (U. Jur.)	1,600	52	1.10	6	22	40	5,590	
20.	Cat Creek	Petroleum, Garfield	1945	Ellis (U. Jur.)	1,800	52	1.10	25	18	40	19,040	
21.	Cat Creek	Petroleum	1967	Amsden (Penn.)	2,000	52	1.00	10	8	30	4,340	
22.	Cut Bank	Glacier, Toole	1932	Kootenai (L. Cret.)	2,900	31	1.09	18	15	35	12,490	
23.	Cut Bank	Glacier, Toole	1945	Madison (Miss.)	3,000	34	1.10	10	14	30	6,910	
24.	Deer Creek	Dawson	1952	Red River (Ord.)	9,900	41	1.20	90	7	30	28,510	
25.	Deer Creek	Dawson	1956	Interlake (Sil.)	9,400	43	1.20	38	7	30	12,040	
26.	Dwyer	Sheridan	1960	Mission Canyon (Miss.)	8,000	33	1.12	30	12	55	12,570	
27.	Elk Basin (Montana Portion)	Carbon	1915	Frontier (U. Cret.)	1,200	45	1.16	30	21	20	33,710	
28.	Elk Basin (Montana Portion)	Carbon	1942	Tensleep (Penn.)	5,000	29	1.16	124	11	10	82,100	
29.	Elk Basin (Montana Portion)	Carbon	1942	Madison (Miss.)	5,300	28	1.12	224	12	9	169,400	
30.	Elk Basin, Northwest	Carbon	1947	Frontier (U. Cret.)	3,400	47	1.29	28	19	30	22,400	
31.	Elk Basin, Northwest	Carbon	1947	Madison (Miss.)	6,200	35	1.08	124	12	35	69,480	
32.	Elk Basin, Northwest	Carbon	1964	Tensleep (Penn.)	6,000	37	1.15	27	12	22	17,050	
33.	Fairview	Richland	1967	Winnipegosis (Dev.)	11,500	43	1.10	27	7	30	9,330	
34.	Fairview	Richland	1965	Red River (Ord.)	12,700	47	1.70	35	11	28	12,650	
35.	Fertile Prairie	Fallon	1952	Red River (Ord.)	9,300	29	1.20	6	14	27	3,960	
36.	Flat Coulee	Liberty	1933	Swift (U. Jur.)	2,900	37	1.10	18	21	35	17,330	
37.	Flat Lake	Sheridan	1964	Ratcliffe (Miss.)	6,500	33	1.26	14	15	45	7,110	
38.	Flat Lake, South	Sheridan	1966	Ratcliffe (Miss.)	6,500	32	1.26	9	12	45	3,660	
39.	Fred and George Creek	Toole	1963	Sunburst (L. Cret.)	2,600	39	1.20	31	27	30	37,880	
40.	Fred and George Creek	Toole	1963	Swift (U. Jur.)	2,700	39	1.10	8	14	30	5,530	
41.	Gas City	Dawson	1955	Red River (U. Ord.)	8,900	38	1.28	25	12	35	11,820	
42.	Glendive	Dawson	1952	Siluro-Ordovician	8,900	38	1.25	147	8	35	47,440	
43.	Goose Lake	Sheridan	1962	Ratcliffe (Miss.)	7,000	34	1.20	40	16	55	18,620	
44.	Graben Coulee	Glacier	1961	Sunburst, Cut Bank, Madison	2,900	34	1.10	15	12	30	8,890	
45.	Hay Creek	Richland	1969	Red River (Ord.)	12,600	46	1.90	53	12	25	19,480	
46.	Hay Creek	Richland	1969	Madison (Miss.)	9,600	39	1.15	40	5	30	9,050	
47.	Hiawatha	Musselshell	1967	Tyler (L. Penn.)	5,000	33	1.15	34	12	30	19,270	
48.	Ivanhoe	Musselshell	1953	Morrison (U. Jur.)	2,800	30	1.08	10	15	35	7,000	
49.	Ivanhoe	Musselshell	1960	Amsden (L. Penn.)	3,600	32	1.08	9	17	40	6,590	
50.	Ivanhoe	Musselshell	1956	Tyler (L. Penn.)	4,100	33	1.08	29	15	20	25,000	
51.	Keg Coulee (West Portion)	Musselshell	1960	Tyler (L. Penn.)	4,600	32	1.15	22	15	25	16,700	
52.	Keg Coulee (East Portion)	Musselshell	1960	Tyler (L. Penn.)	4,600	32	1.15	17	15	25	12,900	
53.	Keg Coulee (North Portion)	Musselshell	1964	Tyler (L. Penn.)	4,600	33	1.15	14	12	32	7,710	
54.	Kelley	Musselshell	1966	Tyler (L. Penn.)	4,400	33	1.15	50	13	30	30,690	
55.	Kevin-Sunburst	Toole	1922	Madison-Sunburst (Miss.-L.Cret.)	1,500	32	1.08	7	20	35	6,540	
56.	Laird Creek	Liberty	1968	Swift (U. Jur.)	2,800	39	1.10	14	16	25	11,850	
57.	Little Beaver	Fallon	1952	Red River (Ord.)	8,300	29	1.40	37	12	35	15,990	
58.	Little Beaver, East	Fallon	1954	Red River (Ord.)	8,300	30	1.50	24	13	35	10,490	
59.	Lodge Grass	Big Horn	1964	Tensleep (Penn.)	6,500	22	1.16	15	15	34	9,930	
60.	Lookout Butte	Fallon	1961	Red River (Ord.)	8,900	33	1.15	15	15	25	11,380	
61.	Lookout Butte	Fallon	1966	Lodgepole--Mission Canyon (Miss.)	8,000	26	1.13	26	10	35	11,600	
62.	Mason Lake	Musselshell	1964	3rd Cat Creek (L. Cret.)	4,400	36	1.00	16	20	45	13,650	
63.	Melstone	Musselshell	1948	Tyler (Penn.)	4,300	34	1.09	25	15	30	18,680	
64.	Mineral Bench	Roosevelt	1965	Duperow (Dev.)	8,800	33	1.80	24	11	30	7,970	
65.	Mineral Bench	Roosevelt	1965	Charles "C" (Miss.)	7,100	36	1.10	16	11	30	8,690	
66.	Miner's Coulee	Toole	1966	Swift (U. Jur.)	2,400	39	1.10	6	14	30	4,150	
67.	Monarch	Fallon	1958	Siluro-Ordovician	8,400	32	1.10	31	7	35	9,950	
68.	Monarch	Fallon	1961	Mission Canyon (Miss.)	6,700	34	1.08	17	19	60	9,280	
69.	Outlook	Sheridan	1956	Siluro-Devonian	9,000	38	1.12	20	8	30	7,760	
70.	Outlook	Sheridan	1964	Duperow (Dev.)	8,200	39	1.50	15	10	25	5,820	
71.	Outlook, South	Sheridan	1957	Red River (Ord.)	9,900	33	1.21	35	8	45	9,870	
72.	Outlook, South	Sheridan	1957	Winnipegosis (Dev.)	9,100	39	1.12	18	8	30	6,980	
73.	Outlook, West	Sheridan	1958	Winnipegosis (Dev.)	9,100	39	1.12	16	8	30	6,210	
74.	Pennel	Fallon	1955	Siluro-Ordovician	8,800	33	1.14	25	11	35	12,160	
75.	Pennel	Fallon	1957	Mission Canyon (Miss.)	7,000	31	1.10	38	3	30	5,630	
76.	Pennel	Fallon	1960	Lodgepole (Miss.)	7,500	36	1.13	30	8	35	10,710	
77.	Pine	Dawson, Wibaux, Fallon, Prairie	1952	Siluro-Ordovician	8,400	34	1.17	32	12	30	17,870	
78.	Pole Creek	Musselshell	1964	Amsden (Penn.)	3,600	18	1.05	10	7	30	3,620	
79.	Pondera	Pondera, Teton	1927	Madison (Miss.)	2,100	34	1.20	15	16	31	10,710	
80.	Poplar	Roosevelt	1952	Madison (Miss.)	5,500	40	1.10	25	11	30	13,580	
81.	Poplar	Roosevelt	1969	Heath (Penn.)	4,900	38	1.10	8	11	50	3,100	
82.	Poplar	Roosevelt	1969	Nisku (Dev.)	7,300	42	1.40	12	8	50	2,660	
83.	Poplar, Northwest	Roosevelt	1952	Madison (Miss.)	6,300	40	1.10	16	10	45	6,210	
84.	Ragged Point	Musselshell	1947	Kibbey (U. Miss.)	4,400	33	1.09	28	11	40	13,150	
85.	Ragged Point	Musselshell	1956	Tyler (Penn.)	3,600	32	1.11	13	14	32	8,650	
86.	Rattlesnake Coulee	Toole	1966	Sunburst (L. Cret.)	1,900	42	1.10	10	12	30	5,920	
87.	Reagan	Glacier	1947	Madison (Miss.)	3,700	38	1.10	11	12	30	6,520	
88.	Red Creek	Glacier	1958	Cut Bank (L. Cret.)	2,600	31	1.08	20	19	30	19,110	
89.	Red Creek	Glacier	1958	Madison (Miss.)	2,800	28	1.10	32	13	30	20,540	
90.	Red Fox	Roosevelt	1967	Nisku (Dev.)	7,700	46	1.40	10	18	30	6,980	
91.	Redstone	Sheridan	1958	Winnipegosis (Dev.)	9,400	42	1.10	34	8	30	13,430	
92.	Reserve	Sheridan	1967	Winnipegosis (Dev.)	10,200	45	1.17	7	8	30	2,600	
93.	Reserve	Sheridan	1966	Red River (Ord.)	11,100	39	1.30	18	6	30	4,510	
94.	Richey, Southwest	McCone	1952	Siluro-Devonian	9,200	48	1.37	27	9	30	9,630	
95.	Sand Creek	Dawson	1959	Siluro-Ordovician	9,000	39	1.30	25	10	40	8,950	
96.	Soap Creek	Big Horn	1952	Tensleep-Amsden-Madison	1,900	20	1.05	20	15	35	14,410	
97.	Spring Lake	Richland	1963	Red River (Ord.)	11,700	51	2.00	9	12	30	2,930	
98.	Stensvad	Musselshell, Rosebud	1958	Tyler (Penn.)	5,500	33	1.17	25	14	20	18,570	
99.	Sumatra	Rosebud	1949	Tyler (Penn.)	4,500	32	1.16	30	19	35	24,780	
100.	Tule Creek	Roosevelt	1960	Nisku (Dev.)	7,500	46	1.41	25	15	30	14,440	
101.	Tule Creek, East	Roosevelt	1964	Nisku (Dev.)	7,500	43	1.91	30	18	30	15,350	
102.	Tule Creek, South	Roosevelt	1964	Nisku (Dev.)	7,600	43	1.40	8	12	30	3,720	
103.	Volt	Roosevelt	1964	Nisku (Dev.)	7,300	47	1.40	14	20	30	10,860	
104.	Weed Creek	Yellowstone	1966	Amsden (L. Penn.)	6,200	35	1.07	12	8	23	5,360	
105.	Weldon	McCone	1964	Kibbey (U. Miss.)	5,900	39	1.01	14	16	35	11,180	
106.	Whitlash	Liberty	1927	Swift-Sunburst (L.Cret., U.Jur.)	2,600	38	1.13	15	16	20	13,180	
107.	Wills Creek, South	Fallon	1964	Silurian	8,700	33	1.20	12	18	35	9,080	
108.	Wolf Springs	Yellowstone	1955	Amsden (L. Penn.)	6,200	30	1.07	11	6	23	3,720	
109.	Miscellaneous											

SUMMARY OF PRODUCING OIL FIELDS

NA OIL AND GAS CONSERVATION COMMISSION
1969

AVG. CONNATE WATER %	ORIGINAL OIL IN PLACE BBLS/ACRE	PRODUCTIVE AREA 1-1-70 ACRES	ORIGINAL OIL IN PLACE 1000 BBLS.	ESTIMATED RECOVERY FACTOR % PRIMARY	ESTIMATED RECOVERY FACTOR % SECONDARY	ORIGINAL RESERVES 1000 BBLS. PRIMARY	ORIGINAL RESERVES 1000 BBLS. SECONDARY	TOTAL ORIGINAL RESERVES 1000 BBLS.	CUMULATIVE PRODUCTION 1-1-70 1000 BBLS.	REMAINING RESERVES 1-1-70 1000 BBLS.	1969 PRODUCTION TOTAL BBLS.	1969 PRODUCTION AVG. DAILY BOPD.	ORIGINAL RECOVERABLE RESERVES BBLS./ ACRE	ORIGINAL RECOVERABLE RESERVES BBLS. ACRE/FT.	LINE NO.
42	13,200	200	2,640	25	6	660	158	818	649	169	30,149	83	4,089	292	1
35	11,200	200	2,240	17	--	390	--	390	340	50	13,764	38	1,950	98	2
23	14,000	16,000	224,000	26	26	58,000	58,000	116,000	31,466	84,534	13,183,438	36,119	7,249	724	3
30	13,550	80	1,080	17	--	185	--	185	172	13	5,455	15	2,320	105	4
30	13,080	320	4,190	42	--	1,780	--	1,780	1,009	771	175,605	481	5,490	250	5
30	27,930	160	4,470	18	--	810	--	810	702	108	50,629	139	4,720	105	6
35	8,520	280	2,390	26	--	630	--	630	561	69	14,785	41	2,215	130	7
40	17,070	1,220	20,820	26	2	5,500	500	6,000	5,510	490	157,932	433	4,920	224	8
40	4,530	480	2,170	32	--	700	--	1,030	923	107	29,653	81	1,460	183	9
35	10,220	160	1,640	20	--	330	--						2,060	137	10
31	23,300	3,760	87,610	8	2	6,840	2,020	8,860	7,238	1,622	152,802	419	2,360	64	11
40	6,650	1,120	7,450	9	--	640	--	640	289	351	62,414	171	571	14	12
35	5,930	1,440	8,540	37	--	3,150	--	3,150	888	2,262	551,458	1,511	2,190	110	13
30	7,670	480	3,680	24	--	900	--	900	353	547	270,586	741	1,875	94	14
30	29,420	7,620	224,180	22	10	49,310	22,420	71,730	43,060	28,670	2,456,208	6,729	9,410	188	15
30	13,220	2,260	29,880	50	--	14,490	--	14,490	9,050	5,440	1,116,993	3,116	6,610	264	16
19	61,180	900	55,060	27	6	14,900	3,100	18,000	16,787	1,213	63,587	174	20,000	392	17
19	12,000	200	2,400	22	11	528	264						3,960	396	18
40	5,590	240	1,340	32	--	428	--	6,249	4,632	1,617	100,558	276	1,785	298	19
40	19,040	880	16,760	30	--	5,029	--						5,712	228	20
30	4,340	80	350	21	--	75	--	75	25	50	14,241	39	930	93	21
35	12,490	49,000	612,100	20	11	122,500	67,300	189,800	112,321	77,479	4,837,708	13,254	3,872	215	22
30	6,910	3,200	22,110	28	--	6,200	--	6,200	5,852	348	115,756	317	1,938	194	23
30	28,510	400	11,400	10	--	1,130	--	1,130	1,050	80	7,323	20	2,825	31	24
30	12,040	320	3,850	32	--	1,250	--	1,250	1,101	149	21,852	60	3,908	103	25
55	12,570	4,800	60,330	10	--	6,000	--	6,000	4,215	1,785	228,454	626	1,249	42	26
20	33,710	120	4,050	--	37	--	1,500	1,500	1,357	143	40,958	112	12,482	416	27
10	82,100	1,400	114,900	--	57	--	65,500	65,500	47,006	18,494	1,598,500	4,379	46,797	377	28
9	169,400	920	155,850	14	3	21,800	4,600	26,400	13,910	12,490	800,976	2,194	28,679	128	29
30	22,400	120	2,690	25	21	672	564	1,236	1,083	153	14,071	39	10,291	368	30
35	69,480	200	13,900	8	--	1,071	--	1,071	878	193	13,146	36	5,350	43	31
22	17,050	580	9,890	14	12	1,421	1,232	2,653	877	1,776	114,574	314	4,573	169	32
30	9,330	160	1,490	13	--	200	--	200	153	47	22,862	63	1,252	46	33
28	12,650	1,760	22,260	18	9	4,010	2,000	6,010	2,102	3,908	696,621	1,909	3,414	98	34
27	3,960	400	1,580	25	--	400	--	400	302	98	16,110	44	1,002	167	35
35	17,330	1,280	22,180	13	11	2,800	2,440	5,240	2,064	3,176	148,204	406	4,094	227	36
45	7,110	9,920	70,530	13	--	9,275	--	9,275	5,161	4,114	779,856	2,137	935	67	37
45	3,660	640	2,340	26	--	620	--	620	109	511	69,735	191	969	108	38
30	37,880	880	33,330	23	20	7,667	6,667	14,334	6,068	8,266	562,920	1,542	16,289	525	39
30	5,530	840	4,640	26	--	1,200	--	1,200	840	360	77,417	212	1,429	179	40
35	11,820	2,800	33,100	26	3	8,609	993	9,602	6,767	2,835	327,090	896	3,429	137	41
35	47,440	1,280	60,720	20	--	12,155	--	12,155	8,440	3,715	364,122	998	9,496	65	42
55	18,620	4,320	80,440	12	--	9,653	--	9,653	3,914	5,739	608,227	1,666	2,234	56	43
30	8,890	760	6,760	15	--	1,000	--	1,000	717	283	68,800	188	1,316	88	44
25	19,480	640	12,470	15	--	1,870	--	1,870	209	1,661	209,223	573	2,922	55	45
30	9,050	160	1,450	14	--	200	--	200	38	162	38,241	105	1,250	31	46
30	19,270	360	6,940	17	--	1,200	--	1,200	672	528	189,990	521	3,333	98	47
35	7,000	100	700	24	--	170	--	170	161	9	4,800	13	1,700	170	48
40	6,590	160	1,050	34	--	359	--	359	305	54	8,730	23	2,244	249	49
20	25,000	600	15,000	25	--	3,746	--	3,746	3,529	217	80,642	224	6,243	215	50
25	16,700	680	11,360	23	16	2,611	1,816	4,427	2,581	1,846	100,014	274	6,510	296	51
25	12,900	440	5,680	15	15	875	875	1,750	802	948	24,879	68	3,977	234	52
32	7,710	120	930	17	15	157	139	296	152	144	11,183	31	2,467	176	53
30	30,690	200	6,140	8	4	500	250	750	432	318	100,269	275	3,750	75	54
35	6,540	40,200	262,910	28	5	73,141	12,190	85,331	69,778	15,553	303,816	832	2,123	303	55
25	11,850	480	5,690	15	--	853	--	853	199	654	93,653	257	1,777	127	56
35	15,990	2,390	38,220	17	10	6,497	3,822	10,319	4,584	5,735	335,407	919	4,318	117	57
35	10,490	1,600	16,780	23	12	3,873	1,936	5,809	2,965	2,844	216,966	594	3,631	151	58
34	9,930	200	1,990	10	--	204	--	204	162	42	18,739	51	1,020	68	59
25	11,380	6,100	69,420	21	14	14,782	9,098	23,880	10,902	12,978	634,504	1,738	3,915	261	60
35	11,600	1,920	22,270	9	--	2,000	--	2,000	1,115	885	161,107	441	1,041	40	61
45	13,650	80	1,090	15	--	166	--	166	122	44	12,672	35	2,075	130	62
30	18,680	360	6,730	25	--	1,682	--	1,682	1,548	134	27,144	74	4,672	187	63
30	7,970	40	320	10	--	32	--	129	108	21	8,551	23	800	33	64
30	8,690	160	1,390	7	--	97	--						606	38	65
30	4,150	160	660	16	--	106	--	106	93	13	5,380	15	663	110	66
35	9,950	2,240	22,290	18	--	4,000	--	4,000	2,503	1,497	232,495	637	1,786	58	67
60	9,280	160	1,490	10	--	149	--	149	128	21	3,901	11	931	55	68
30	7,760	1,600	12,420	45	--	5,563	--	5,563	4,580	983	154,688	424	3,477	174	69
25	5,820	640	3,730	54	--	2,000	--	2,000	624	1,376	101,623	278	3,125	208	70
45	9,870	160	1,580	19	--	305	--	305	305	--	--	--	1,906	55	71
30	6,980	240	1,680	18	--	300	--	300	262	38	38,757	106	1,250	70	72
30	6,210	320	1,990	22	--	442	--	442	347	95	47,908	131	1,381	86	73
35	12,160	22,380	272,140	12	7	33,095	19,659						2,357	94	74
30	5,630	720	4,050	17	--	689	--	54,128	19,905	34,223	1,722,992	4,721	957	25	75
35	10,710	320	3,430	20	--	685	--						2,141	71	76
30	17,820	13,320	237,360	24	12	56,870	29,572	86,442	63,628	22,814	3,550,873	9,728	6,490	203	77
30	3,620	320	1,160	18	--	206	--	206	167	39	11,505	32	644	64	78
31	10,710	5,560	59,550	35	--	20,834	--	20,834	18,579	2,255	316,477	867	3,747	250	79
30	13,580	17,910	250,380	18	--	46,288	--	46,288	38,226	8,062	620,002	1,699	2,584	103	80
50	3,100	480	1,490	34	--	500	--	500	66	434	66,023	181	1,040	130	81
50	2,660	320	850	40	--	340	--	340	45	295	44,633	122	1,060	88	82
45	6,210	400	2,480	20	--	500	--	500	424	76	14,432	40	1,250	78	83
40	13,150	160	2,100	25	--	526	--	526	512	14	2,830	8	3,288	117	84
32	8,650	680	5,880	21	20	1,262	1,200	2,462	1,499	963	80,726	221	3,621	279	85
30	5,970	80	470	21	--	100	--	100	41	59	10,604	29	1,250	125	86
30	6,520	2,520	16,430	33	6	5,419	1,000	6,419	4,617	1,802	270,257	740	2,548	232	87
30	19,110	770	14,720	15	10	2,224	1,483	3,707	1,579	2,128	139,648	383	4,814	241	88
30	20,540	640	13,150	20	--	2,629	--	2,629	2,263	366	114,967	315	4,108	128	89
30	6,980	160	1,120	43	--	485	--	485	281	204	73,838	202	3,031	303	90
30	13,430	160	2,150	44	--	951	--	951	265	686	59,720	164	5,944	175	91
30	2,600	480	1,250	40	--	499	--	499	387	112	100,008	274	1,040	149	92
30	4,510	960	4,330	15	--	660	--	660	223	437	98,309	269	688	38	93
30	9,630	1,160	11,170	15	2	1,675	175	1,850	1,688	162	52,783	145	1,595	60	94
40	8,950	880	7,880	30	--	2,364	--	2,364	1,825	539	120,884	331	2,686	107	95
35	14,410	600	8,650	24	--	2,075	--	2,075	1,540	535	61,882	170	3,458	173	96
30	2,930	900	2,640	23	--	600	--	660	475	125	28,110	77	667	74	97
20	18,570	1,380	25,630	26	14	6,671	3,592	10,263	8,062	2,201	163,661	448	7,437	297	98
35	24,780	4,040	100,110	26	13	26,000	13,000	39,000	24,067	14,933	673,021	1,844	9,406	314	99
30	14,440	1,160	16,750	54	--	9,000	--	9,000	5,126	3,874	448,749	1,229	7,759	310	100
30	15,350	400	6,140	37	--	2,277	--	2,277	1,451	826	175,056	480	5,693	190	101
30	3,720	400	1,490	44	--	650	--	650	416	234	81,583	224	1,625	203	102
30	10,860	800	8,690	23	--	2,000	--	2,000	1,075	925	176,867	485	2,500	179	103
23	5,360	640	3,430	30	--	1,029	--	1,029	438	591	89,486	245	1,608	134	104
35	11,180	1,560	17,440	47	--	8,203	--	8,203	6,100	2,103	502,808	1,378	5,258	376	105
20	13,180	1,920	25,310	14	--	3,543	--	3,543	2,772	771	173,667	476	1,845	123	106
35	9,080	320	2,910	25	--	726	--	726	505	221	46,505	127	2,269	189	107
23	3,720	3,840	14,280	35	--	4,953	--	4,953	4,290	663	67,776	172	1,290	117	108
										3,084	647,609	1,774			109
										429,781	43,954,112	120,422			


LINCOLN
FLATHEAD
GLACIER
TOOLE
HILL
SANDERS
LAKE
PONDERA
LIBERTY
CHOTEAU
TETON
MINERAL
MISSOULA
POWELL
LEWIS AND CLARK
CASCADE
JUDITH BASIN
MEAGHER
RAVALLI
GRANITE
WHEATLAND
JEFFERSON
BROADWATER
DEER LODGE
GALLATIN
PARK
SWEETGRASS
SILVER BOW
BEAVERHEAD
MADISON
YELLOWSTONE NATIONAL PARK
EXPLANATION
OIL FIELD
GAS FIELD
(N.P.) = Not Producing
OIL PIPELINE
GAS PIPELINE
REFINERY
GAS PLANT
REFINED PRODUCTS PIPELINE
BOUNDARY DIVIDING NORTHERN AND SOUTHERN DISTRICTS
Helena - Administrative Office
Billings - Southern District & Technical Office
Shelby - Northern District Office



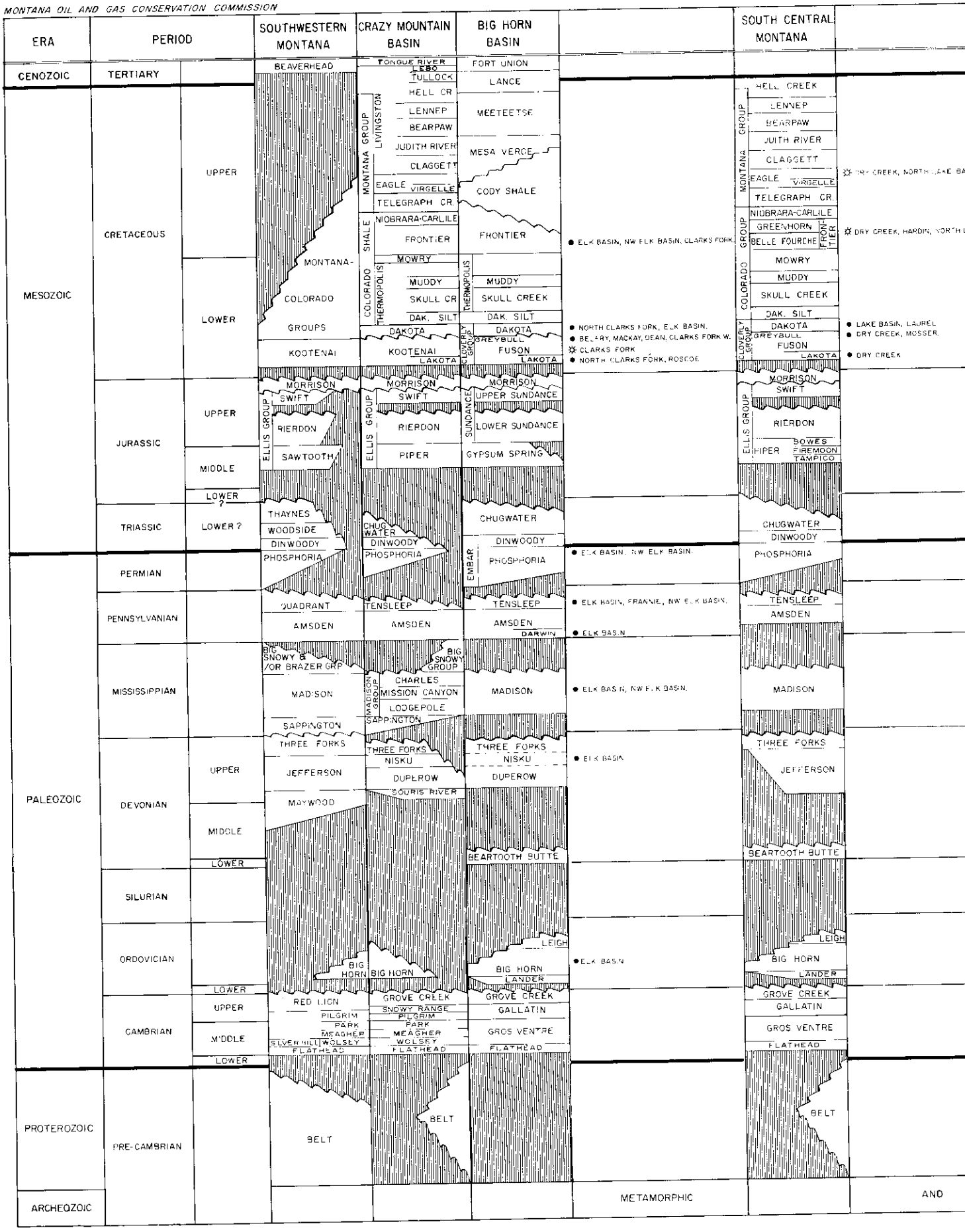
MONTANA

OIL AND GAS FIELDS, PIPELINES AND REFINERIES

1969

THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA

GENERAL


MONTANA OIL AND GAS CONSERVATION COMMISSION
ERA
PERIOD
SOUTHWESTERN MONTANA
CRAZY MOUNTAIN BASIN
BIG HORN BASIN
SOUTH CENTRAL MONTANA
CENOZOIC
TERTIARY
BEAVERHEAD
TONGUE RIVER
LEBO
TULLOCK
HELL CR
LENNEP
BEARPAW
JUDITH RIVER
CLAGGETT
EAGLE
VIRGELLE
TELEGRAPH CR.
NIOBRARA-CARLILE
FRONTIER
MOWRY
MUDDY
SKULL CR
DAK. SILT
DAKOTA
KOOTENAI
LAKOTA
FORT UNION
LANCE
MEETEETSE
MESA VERDE
CODY SHALE
FRONTIER
THERMOPOLIS
MUDDY
SKULL CREEK
DAK. SILT
DAKOTA
GREYBULL
FUSON
LAKOTA
HELL CREEK
LENNEP
BEARPAW
JUITH RIVER
CLAGGETT
EAGLE
VIRGELLE
TELEGRAPH CR.
NIOBRARA-CARLILE
GREENHORN
BELLE FOURCHE
FRONTIER
MOWRY
MUDDY
SKULL CREEK
DAK. SILT
DAKOTA
GREYBULL
FUSON
LAKOTA
MESOZOIC
CRETACEOUS
UPPER
LOWER
MONTANA GROUP
LIVINGSTON
COLORADO SHALE
MONTANA-COLORADO GROUPS
CLOVERLY GROUP
● ELK BASIN, NW ELK BASIN, CLARKS FORK
● NORTH CLARKS FORK, ELK BASIN.
● BEARY, MACKAY, DEAN, CLARKS FORK W.
☼ CLARKS FORK
● NORTH CLARKS FORK, ROSCOE
☼ DRY CREEK, NORTH LAKE BA
☼ DRY CREEK, HARDIN, NORTH L
● LAKE BASIN, LAUREL
● DRY CREEK, MOSSER
● DRY CREEK
JURASSIC
UPPER
MIDDLE
LOWER ?
MORRISON
SWIFT
RIERDON
SAWTOOTH
PIPER
UPPER SUNDANCE
LOWER SUNDANCE
GYPSUM SPRING
ELLIS GROUP
SUNDANCE
BOWES
FIREMOON
TAWPICO
TRIASSIC
LOWER ?
THAYNES
WOODSIDE
DINWOODY
PHOSPHORIA
CHUGWATER
EMBAR
● ELK BASIN, NW ELK BASIN.
PERMIAN
PENNSYLVANIAN
QUADRANT
AMSDEN
TENSLEEP
DARWIN
● ELK BASIN, FRANNIE, NW ELK BASIN.
● ELK BASIN
MISSISSIPPIAN
BIG SNOWY & /OR BRAZER GRP
BIG SNOWY GROUP
MADISON
CHARLES
MISSION CANYON
LODGEPOLE
SAPPINGTON
● ELK BASIN, NW ELK BASIN.
PALEOZOIC
DEVONIAN
UPPER
MIDDLE
LOWER
THREE FORKS
JEFFERSON
NISKU
DUPEROW
SOURIS RIVER
MAYWOOD
BEARTOOTH BUTTE
● ELK BASIN
SILURIAN
ORDOVICIAN
LEIGH
BIG HORN
LANDER
GROVE CREEK
GALLATIN
GROS VENTRE
FLATHEAD
● ELK BASIN
CAMBRIAN
RED LION
PILGRIM
PARK
MEAGHER
WOLSEY
SILVER HILL
PROTEROZOIC
PRE-CAMBRIAN
BELT
ARCHEOZOIC
METAMORPHIC
AND

GENERALIZED STRATIGRAPHIC CORRELATION CHAR

SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS

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HERBERT D. HADLEY, GEOLOGIST JUDSON D. SWEET, PETROLEUM ENGINEER