

**DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA**

**Oil and Gas
Conservation Division**



ANNUAL REVIEW FOR THE YEAR 1971

Relating to

OIL AND GAS

Volume 15

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Annual Review for the Year 1971 Volume 15

INTRODUCTION

Oil production in Montana during 1971 totaled 34,598,723 barrels. This is an 8.65 per cent decrease in production as compared to 1970. Most of this reduction is due to the decline of the Bell Creek Field in southeastern Montana. Production from the Williston Basin portion of the State declined approximately 1,000,000 barrels during the year. However, the Bell Creek Field is now completely unitized for secondary recovery by water flooding and the rate of production decline should lessen significantly during 1972. Also, several discoveries in the Williston Basin during the early part of 1972 indicate substantial new reserves for this part of the State. Waterfloods in Central and Northern Montana fields continue to be effective and three additional floods for the Cut Bank Field were approved by the Board during 1971.

Production in Central Montana increased over 350,000 barrels in 1971 partly due to the discovery of a new Tyler sandstone field. This field has been named Jim Coulee and at the end of the year had a total of twelve productive wells with the north and west edge of the field not determined.

The East Cow Creek Field in McCone County was discovered in 1971. This field produces from two sand zones in the Kibbey formation. By the end of the year three productive and three dry wells had been drilled.

The relatively untested Crazy Mountain Basin area of central-southern Montana attracted interest following shows of gas and high gravity oil in a well drilled in Gallatin County west of the town of Wilsall.

Natural gas produced in Montana during 1971 totaled 37,387,761 MCF. This is a slight increase over production during 1970. The huge Tiger Ridge Gas Field in north-central Montana with over 100 wells continued to be "shut-in" awaiting approval for an interstate pipeline outlet. There is reason to believe that approval for the transport of this gas will be forthcoming during 1972. At least a dozen wildcat wells in central-northern Montana found gas outside of the Tiger Ridge Field during 1971 and are now shut-in waiting for a market outlet.

The South Devon Gas Field in Toole County was unitized and approved for production by the Board. This represents the first time in Montana that a gas field has been unitized prior to initial production and represents a procedure that probably will be followed by other operators.

Possibly the most significant action taken by the Board during 1971 was the approval of 320 acre State-wide spacing units for wells with a projected depth greater than eleven thousand (11,000) feet. As a practical matter, this ruling effects only the northeastern portion of Montana where production is found in the Red River formations at depths to 12,500 feet.

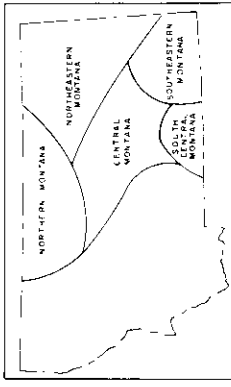
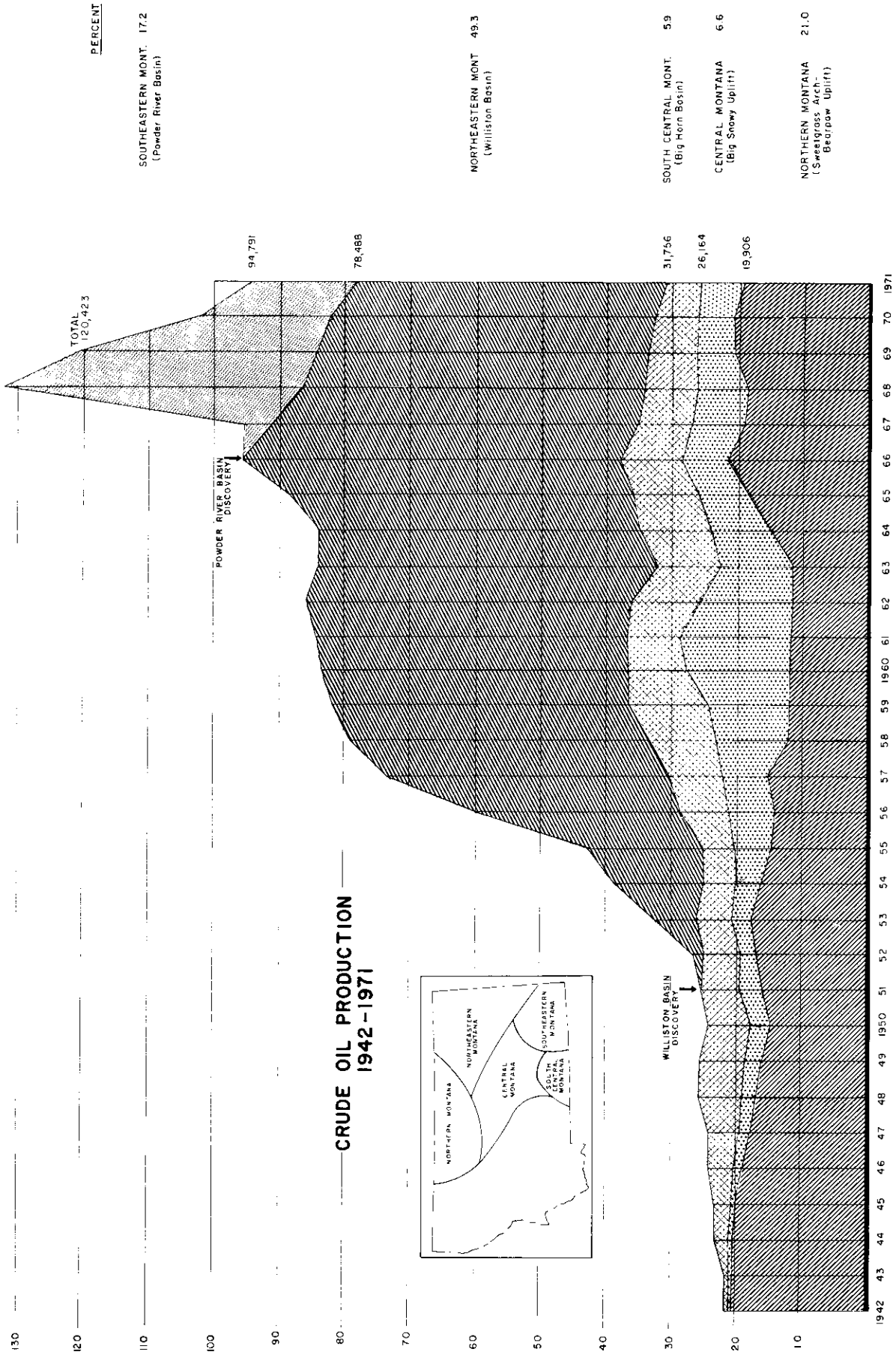
Inquiries to the Board and use of Board records increased during the latter part of 1971 which could indicate increased exploration activity for 1972.

FIVE YEAR SUMMARY

	1967	1968	1969	1970	1971
Production, Northern Montana—Bbls.....	6,758,280	6,883,493	7,557,966	7,680,831	7,292,476
South Central—Bbls.....	3,181,132	2,885,272	2,739,346	2,329,187	2,028,304
Central—Bbls.....	2,872,604	2,728,357	2,011,445	1,915,273	2,274,124
Williston Basin—Bbls.....	20,475,733	19,390,652	18,396,618	18,110,147	17,042,703
Powder River Basin—Bbls.....	1,671,277	16,572,472	13,248,737	7,843,259	5,961,116
TOTAL.....	34,959,026	48,460,246	43,954,112	37,878,697	34,598,723
No. of Producing Wells, Northern Montana.....	2,097	1,898	1,827	1,806	1,768
South Central.....	96	99	108	92	96
Central.....	286	282	244	200	212
Williston Basin.....	802	784	759	743	748
Powder River Basin.....	109	328	397	371	321
TOTAL.....	3,390	3,391	3,335	3,212	3,145
Average Daily Production/Well—BOPD, Northern Montana.....	8.8	9.9	11.3	11.6	11.3
South Central.....	90.7	79.6	69.5	69.3	57.9
Central.....	27.5	26.4	22.6	26.2	29.4
Williston Basin.....	69.9	67.6	66.4	66.8	62.4
Powder River Basin.....	70.6	138.0	91.4	57.9	50.9
STATE AVERAGE.....	28.2	39.0	36.1	32.3	30.1
Development Wells Drilled, Oil Wells.....	162	300	171	60	49
Gas Wells.....	14	14	44	30	36
Dry Holes.....	104	89	105	63	34
TOTAL.....	280	403	320	153	119
Exploratory Wells Drilled, Oil Wells.....	7	15	15	12	3
Gas Wells.....	5	13	5	11	22
Dry Holes.....	191	509	466	272	323
TOTAL.....	203	537	486	295	348
TOTAL WELLS DRILLED.....	483	940	806	488	467
TOTAL FOOTAGE DRILLED.....	2,158,964	4,547,691	3,682,758	1,969,583	1,735,222
AVERAGE DEPTH OF ALL WELLS.....	4,470	4,839	4,569	4,396	3,716

**SUMMARY OF DRILLING BY COUNTIES—1971
STATE OF MONTANA**

County	Wildcats		Development		Total Wells	Footage Drilled	Average Depth
	Dry	Oil	Dry	Oil			
Big Horn	6	0	0	0	6	34,328	5,721
Blaine	44	0	1	0	67	123,548	1,844
Carbon	3	0	3	0	7	42,728	6,104
Carter	8	0	0	0	8	22,917	2,865
Chouteau	17	0	0	0	19	36,868	1,940
Custer	1	0	0	0	1	2,680	2,680
Dawson	3	0	0	0	3	30,010	10,003
Fallon	1	0	0	1	2	19,860	9,930
Fergus	7	0	0	0	7	23,147	3,307
Gallatin	1	0	0	0	1	6,938	6,938
Garfield	5	0	0	0	5	30,972	6,194
Glacier	8	0	4	16	29	108,740	3,750
Golden Valley	1	0	0	0	1	2,707	2,707
Hill	70	0	2	0	91	149,734	1,645
Liberty	21	0	1	0	25	76,342	3,054
McCone	11	2	3	1	17	107,388	6,317
Meagher	1	0	0	0	1	2,272	2,272
Musselshell	11	1	8	7	27	105,202	3,896
Petroleum	2	0	1	0	3	5,645	1,882
Phillips	12	0	0	0	17	41,809	2,459
Pondera	6	0	1	2	9	34,841	3,871
Powder River	9	0	5	3	18	102,616	5,701
Richland	5	0	1	4	10	125,664	12,566
Roosevelt	8	0	1	0	9	89,085	9,898
Rosebud	13	0	1	3	17	89,465	5,263
Sheridan	3	0	0	9	12	92,488	7,707
Stillwater	6	0	0	0	6	27,863	4,644
Sweetgrass	4	0	0	0	4	23,220	5,805
Toole	11	0	2	3	16	39,696	2,481
Treasure	1	0	0	0	1	6,764	6,764
Valley	20	0	0	0	24	106,182	4,424
Wibaux	1	0	0	0	1	7,900	7,900
Yellowstone	3	0	0	0	3	15,603	5,201
TOTALS	323	3	34	49	467	1,735,222	3,716



B. O. P. D. (THOUSANDS)

GAS PRODUCTION DATA—1971

Field	County	Producing Formations	1971 Production M.C.F.
Bell Creek*	Powder River	Muddy	2,702,107
Big Coulee	Golden Valley & Stillwater	Lakota & Morrison	1,110,189
Blackjack	Liberty	Sunburst & Swift	704,548
Bowdoin	Phillips & Valley	Bowdoin & Phillips	2,394,978
Bowes	Blaine	Eagle	293,312
Cabin Creek*	Fallon	Interlake & Red River	1,173,985
Cedar Creek	Fallon & Wibaux	Judith R. & Eagle	6,398,400
Cut Bank & Reagan	Glacier & Toole	Cut Bank, Madison & Blackleaf	11,072,365
Dry Creek	Carbon	Eagle & Frontier	427,736
Elk Basin*	Carbon	Tensleep	813,162
Flat Coulee	Liberty	Blackleaf & Swift	211,453
Gold Butte	Toole	Swift	21,611
Grandview	Liberty	Blackleaf & Kootenai	409,718
Hardin	Big Horn	Frontier	29,742
Keith Block	Liberty	Blackleaf & Sawtooth	1,688,612
Kevin Sunburst	Toole	Kootenai	457,345
Lake Basin	Stillwater	Frontier & Eagle	820,416
Middle Butte	Toole	Blackleaf	28,993
Mt. Lilly	Liberty	Madison	392,464
Pine*	Dawson, Prairie, Fallon & Wibaux	Interlake & Red River	600,265
Plevna	Fallon	Judith River	65,752
Tiger Ridge	Blaine & Hill	Judith River & Eagle	1,578,194
Trail Creek	Liberty & Toole	Sunburst	150,103
Utopia	Liberty	Blackleaf, Kootenai & Ellis	371,663
Whitlash	Liberty	Blackleaf & Kootenai	1,142,356
Miscellaneous			2,328,292
*Associated Gas		TOTAL ALL FIELDS	<u>37,387,761</u>

REFINING—1971

	Year 1971 Total Bbls.
Big West Oil Company	1,136,202
Continental Oil Company	14,832,684
Diamond Asphalt Company	189,851
Farmers Union Central Exchange, Inc.	10,037,838
Humble Oil & Refining Company	14,607,094
Jet Fuel Refinery	25,285
Phillips Petroleum Company	1,954,525
Spruce Oil Company	842,787
Westco Refining Company	1,370,594
	<u>44,996,860</u>

Refining Five Year Comparison

<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
37,077,747	40,951,393	40,437,537	42,330,220	44,996,860

SUMMARY OF SECONDARY RECOVERY PROJECTS
(Date Effective to January 1, 1972)

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MCF	Dec. 1971 Avg. Daily Inj. Rate Bbls. or MCF	No. of Injection Wells	Source of Injection Media and Remarks
Ash Creek, Shannon	McDermott	Waterflood	Peripheral	10-15-64	734	130	4	Parkman
Bell Creek, Unit "A", Muddy	Gary	Waterflood	Peripheral	7- 1-70	17,430	34,393	21	Madison
Bell Creek, Unit "B", Muddy	Gary	Waterflood	Peripheral	11- 1-70	3,000	12,292	10	Madison
Bell Creek, Ranch Creek, Muddy	Gary	Waterflood	Peripheral	7- 1-71	2,655	13,897	8	Madison
Bell Creek, Unit "C", Muddy	Gary	Waterflood	Peripheral	7- 1-71	119	3,862	6	Madison
Big Wall, Tyler "B"	Texaco, Inc.	Waterflood	Peripheral	8-20-66	9,880	4,781	2	Produced, Amsden & Tyler
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Random	5-23-61	3,615	632	6	Madison
Cabin Creek, Siluro-Ordovician	Shell	Waterflood	Semi-Peripheral	6-12-59	78,735	50,987	30	Produced and Fox Hills
Cat Creek, Swift	Hoss	Waterflood	Semi-Peripheral	7-30-70	49	83	1	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 1)	Farmers Union	Waterflood	Semi-Peripheral	10-10-62	7,383	1,900	7	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 2)	Farmers Union	Waterflood	Semi-Peripheral	12- 1-59	16,210	842	5	Third Cat Creek
Cut Bank NE, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	6- 2-63	10,720	1,980	14	Madison
Cut Bank NW, Cut Bank	Phillips	Waterflood	5-Spot	1-30-62	11,927	1,792	17	Madison
Cut Bank SE, Cut Bank	Union Oil	Waterflood	5-Spot	5-63	20,038	6,000	56	Madison
Cut Bank SW, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	4-62	33,652	13,381	53	Madison
Cut Bank Tribal, Lander	Humble	Waterflood	Random	6-51	Shut-in	--	--	Eagle
Cut Bank, Lander Unit "A", Lander	Phillips	Waterflood	Random	4-65	1,129	197	1	Madison
Cut Bank, Lander	Texaco	Waterflood	Random	7-64	4,413	1,500	8	Eagle
Cut Bank, McGuinness-Moulton	Union Oil	Waterflood	Random	12-62	2,440	833	2	Madison
Cut Bank Two Medicine, Cut Bank	Miami	Waterflood	5-Spot	12-67	19,514	19,000	97	Madison
Darling State Unit, Moulton	BGGD	Waterflood	Random	2-67	1,308	465	1	Produced Water
Darling NE Unit, Moulton	Ralph Fair	Waterflood	Random	2-68	2,180	1,972	4	Madison
Darling South, Swenson-Moulton	BGGD	Waterflood	Random	2-67	4,297	1,450	6	Madison
Denver, Ratcliffe	Phillips	Waterflood	Pilot	10-68	461	315	2	Madison
Elk Basin, Frontier	Pan American	Waterflood	Gas Injection	1926	All injection wells in Wyoming			Purchased Gas
Elk Basin, Embar-Tensleep	Pan American	Waterflood	Gas Injection	1949	All injection wells in Wyoming			Gas and water
Elk Basin, Madison	Pan American	Waterflood	Peripheral	1962	34,114	11,064	8	Produced Water
Elk Basin NW, Frontier	Atlantic Richfield	Waterflood	Peripheral	10-57	4,961	119	2	Shut-in 6-8-71
Elk Basin NW, Tensleep	Atlantic Richfield	Waterflood	Semi-Peripheral	5-67	1,443	1,196	1	Madison
Fairview NW, Red River	Superior Oil	Gas Injection	Crestal	10-25-70	200	643	1	Purchased Gas
Fiat Lake, Ratcliffe	Chevron Oil	Waterflood	Random	6- 1-71	914	5,300	11	Produced Water
Frannie, Tensleep	Continental Oil	Waterflood	Random	9- 70	527	724	1	Produced Water
Fred & George, Sunburst	Fulton Producing	Waterflood	Random	7- 70	1,855	5,938	1	Madison and Eagle
Gas City, Siluro-Ordovician	Shell Oil	Waterflood	Semi-Peripheral	10-31-69	2,330	3,495	7	Mission Canyon
Keg Coulee West, Tyler	Pan American	Waterflood	Semi-Peripheral	8-31-66	3,461	1,903	2	Madison
Keg Coulee East, Tyler	Continental Oil	Waterflood	Semi-Peripheral	12-24-69	1,400	1,781	4	Third Cat Creek
Keg Coulee South, Tyler	BGGD	Waterflood	Semi-Peripheral	1- 1-70	396	1,226	1	Madison
Kelley, Tyler	McAlester Fuel	Waterflood	Random	7-69	418	692	2	Third Cat Creek
Kevin-Sunburst, Madison	BGGD	Waterflood	Random	8-64	2,386	1,400	7	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	Waterflood	Semi-Peripheral	8-64	5,719	2,655	10	Madison
Kevin-Sunburst, Madison	Lon Crumley	Waterflood	Random	9-63	692	152	3	Madison
Little Beaver, Red River	Shell Oil	Waterflood	Semi-Peripheral	8- 7-66	12,540	9,022	13	Madison
Little Beaver East, Siluro-Ord.	Shell Oil	Waterflood	Semi-Peripheral	4-65	5,500	1,790	3	Madison
Lookout Butte, Siluro-Ordovician	Shell Oil	Waterflood	Semi-Peripheral	4-67	11,000	5,833	13	Kinnelusa
Mosby Dome, Second Cat Creek	Farmers Union	Waterflood	Random	5-68	200	284	2	Third Cat Creek
Mosby Dome, Swift	Farmers Union	Waterflood	Random	7-67	1,620	1,237	5	Third Cat Creek
Mosby Dome, Amsden	Farmers Union	Waterflood	Random	6- 1-71	13	47	1	Third Cat Creek
Moulton, Moulton	Union Oil	Gas Injection	Random	5-15-71	5,900	5,163 (W) 1,160 (G)	7	Madison
Pennel, Red River	Shell Oil	Waterflood	Random	6-28-69	11,000	19,080	38	Dakota & Produced
Pine South, Red River	Shell Oil	Waterflood	Semi-Peripheral	3-59	68,581	23,239	39	Fox Hills & Produced
Pine North, Red River	Shell Oil	Waterflood	Semi-Peripheral	3-68	6,272	5,051	11	Lodgepole
Ragged Point, Tyler "A"	BGGD	Waterflood	Semi-Peripheral	12- 3-66	3,720	1,896	6	Third Cat Creek
Reagan, Madison	Union Oil	Gas Injection	Pilot	8-61	3,600	738	2	Madison
Red Creek, Cut Bank	Humble Oil	Waterflood	5-Spot	6-65	5,356	2,469	7	Madison
Richey SW, Dawson Bay-Interlake	Atlantic Richfield	Waterflood	Random	12-65	2,000	189	1	Fox Hills
Stensvad, Tyler "B"	Pan American	Waterflood	Semi-Peripheral	2-63	18,823	8,400	5	Madison
Sumatra West, Tyler	Continental Oil	Waterflood	Semi-Peripheral	10-68	5,103	4,832	11	Madison
Sumatra Central, Tyler "B"	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	13,947	15,350	13	Madison
Sumatra NE, Tyler "B"	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	1,089	1,076	3	Madison
Sumatra SE, Tyler "B"	Texaco, Inc.	Waterflood	Semi-Peripheral	12- 1-69	2,123	1,453	4	Madison
Wilcox West, Moulton Unit *	Decalta	Waterflood	Random	2-71	101	421	2	Madison
TOTAL 62					(W) 526,476 (G) 50,035	(W) 341,077 (G) 2,541	720	

* Part of Cut Bank Field

OIL AND GAS DISCOVERIES IN 1971

County	Operator--Well Name and Location	Field	Total Depth	Oil B/D	Initial Potential Gas MCF	Producing Formation	Date Completed		
Blaine	Bond & Lone Star, State 1-16, SE NW 16-27N-19E	Wildcat	1,608		Shut-in	Eagle	5-27-71		
	Bond & Lone Star, Federal 1-2, SW NE 2-26N-20E	Wildcat	1,339		Shut-in	Eagle	5-21-71		
	Bond & Lone Star, Federal 1-5, SW NE 5-26N-20E	Wildcat	1,489		Shut-in	Eagle	Not Available		
	Bond & Lone Star, G. F. Read 1-11, NE SW 11-27N-18E	Wildcat	2,091		Shut-in	Eagle	Not Available		
	Ralph Spence, State 33-1, SW NE NE 33-33N-18E	Wildcat	1,249		Shut-in	Eagle	7-9-71		
	Ralph Spence, Wright 6-1, NE SW SW 6-32N-19E	Wildcat	1,356		Shut-in	Eagle	7-12-71		
	Wise Oil, Robinson 11-34, NE SW 34-26N-19E	Wildcat	1,777		5,400 489	Eagle Judith River	8-30-71		
	Wise Oil, Biebinger 7-11, SW NE 11-25N-17E	Wildcat	2,018		Shut-in	Eagle	10-13-71		
	Wise Oil, Fed. M-1504 11-15, NE SW 15-25N-18E	Wildcat	1,755		Shut-in	Eagle	9-22-71		
	Wise Oil, Robinson 11-13, NE SW 13-26N-19E	Wildcat	1,100		Shut-in	Eagle	10-3-71		
Choteau	Bond & Lone Star, State 3-16, SW NE SE 16-27N-20E	Wildcat	1,084		Shut-in	Eagle	Not Available		
	Bond & Lone Star, Federal 5-31, NE SE 31-28N-19E	Wildcat	2,274		Shut-in	Eagle	Not Available		
	Wise Oil, U.S.A. 727-A, SW NE 27-26N-19E	Wildcat	1,811		Shut-in	Eagle	10-29-71		
	Bond & Lone Star, Fed. 8-1, SW SW 1-26N-20E	Wildcat	1,020		Shut-in	Eagle	Not Available		
	Clay H. McCartney, Mueller 1, SE NW 19-32N-19E	Wildcat	1,424		Shut-in	Eagle	12-9-71		
	Wise Oil, Fed. 1496, NW SE 29-26N-17E	Wildcat	1,670		Shut-in	Eagle	9-30-71		
	Bond & Lone Star, Weaver 2-28, C SE 2-28-27N-16E	Wildcat	2,043		Shut-in	Eagle	Not Available		
	Oil Resources, Dewald-Rice-Iverson 23-10, NW SE 23-34N-14E	Wildcat	1,350		Shut-in	Eagle	1-29-71		
	Comanche Drilling, Martinson 1, NW SE SE 29-34N-17E	Wildcat	1,500		Shut-in	Eagle	4-25-71		
	Bond & Lone Star, Rocky Boy 1-10, SW SW 10-29N-15E	Wildcat	1,445		Shut-in	Eagle	Not Available		
Hill	Western Natural Gas, Donovan 1-3, SE NW NW 3-33N-13E	Wildcat	1,401		Shut-in	Eagle	11-21-71		
	Petroleum, Inc., Milner 1, SE NE NW 33-35N-7E	Wildcat	3,321		Shut-in	Sawtooth	8-20-71		
	Soape Drilling, Sawtooth-Gibbs 1, SW SE 25-22N-46E	Wildcat	7,060	85 P		Charles '18"	7-22-71		
	True Oil, Hintz 32-16, SW NE 16-22N-47E	East Cow Creek	9,621	300 F		Kibbey ss	10-30-71		
	McAlester Fuel, BNI 29-15, NW SW SE 29-11N-27E	Jim Coulee	3,740	266 P		Tyler '18"	7-24-71		
	Liberty	Snyder, BNI 1-19, NW 2-19-1N-45E	Liscom Creek	2,936		1,300	Shannon	Not Available	
		Union Oil, Tribal 355, SW 2-9-37N-7W	West Reagan	2,232		800	Blackleaf	1-5-72	
		Anschutz, Fed. 565-1, NW 2-22-31N-33E	Bowdoin	1,456		Shut-in	Phillips	11-3-71	
		Anschutz, Loberg 1, NW 2-26-30N-36E	Wildcat	1,903		Shut-in	Bowdoin	11-22-71	
		McCone	SIGNIFICANT EXTENSIONS IN 1971						
Musselshell			SIGNIFICANT EXTENSIONS IN 1971						

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.)	3	Structural	Water Drive	(Listed as part of Cat Creek Field.)	None
ARCH APEX Bow Island (L. Cret.) Gas Swift (Jurassic) Gas (Shut-in)	6 3	Strat. Strat.	Volumetric 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
ASH CREEK Shannon (U. Cret.)	3	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.)	1 1	Structural- Strat.	Depletion- Water Drive	State-wide.	None
BANNATYNE Swift (U. Jur.) Sun River (U. Miss.)	2 2	Structural 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.
BEARS DEN Sumburst (L. Cret.) Gas Swift (U. Jur.) Oil Sawtooth (Jur.) Gas	2 5 1	Structural	Depletion and Gas Cap Drive	State-wide.	None
BELL CREEK Muddy (L. Cret.) Oil & Gas Gas	313 2	Strat.	Depletion	Originally 40-acre spacing units with location 660' from unit boundary with 150' tolerance for topographic reasons only. (Orders 37-67, 39-67, 50-67, 1-69, 17-70.) Gas extraction plant. Field now unitized.	Six areas unitized (Unit "A", "B", Ranch Creek, "C", "D", and "E".) Floods use Madison water. (Orders 7-70, 23-70, 8-71, 26-71, 35-71, 36-71.)
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.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
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 no closer than 660' between wells. (Order 18-66.)	None
BIG COULEE 3rd Cat Creek (L. Cret.) Gas Morrison (U. Jur.) Gas	5 1	Structural Structural	Water Drive Water Drive	State-wide.	None
BIG WALL Amsden (Penn.) Tyler (Penn.)	1 16 4	Structural Struct.- Strat.	Water Drive Depletion	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 August, 1966. (Order 22-66.)
BLACKFOOT Cut Bank (L. Cret.) Sun River (Miss.)	6 4	Strat. Structural	Depletion Water Drive	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
BLACK JACK Sunburst (L. Cret.) Gas Swift (U. Jur.) Gas & Oil	10 1	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
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

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BOWDOIN Bowdoin & Phillips sands in Gas Colorado Shale (U. Cret.)	305 (Shut-in) 52	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	18	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.)	43 (Shut-in) 33	Structural	Partial Water Drive	330' from lease or property line, 990' between wells in the 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 (Shut-in) 1	Structural	Water Drive	State-wide.	None
BRADY Sunburst (L. Cret.)	1 (Shut-in) 1	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 Red River (Ord.) Oil & Gas	4 6	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary (Mission Canyon and Red River). (Order 5-69.) Gas to Brorson Field plant.	None
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 to Brorson Field plant.	None
BRUSH LAKE Red River (Ord.) Oil & Gas	7	Structural-Strat.	Depletion Water Drive	320-acre spacing with initial nine spacing units described in (Order 15-71 corrected).	None
CABIN CREEK Mission Canyon (Miss.) Oil & Gas Interlake-Red River Oil & Gas	21 70	Structural Structural	Water Drive, Depletion Water Drive, Depletion	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingle) 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 completions. Gas through extraction plant.	Waterflood of Siluro-Ordovician reservoir has been expanded to a full scale peripheral flood. (Orders 60-62, 30-63.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CANAL Red River (Ord.)	1	Structural	Water Drive Depletion	320-acre spacing units consisting of East half and West half of governmental section. (Order 34-70.)	None
CAT CREEK Kootenai (L. Cret.) (3 sands)	36 4	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. State-wide.	Three Kootenai, two Ellis and one Amsden waterfloods in progress. (Orders 17-56, 18-59, 13-62, 8-68, 38-70, 11-71.) Water from Third Cat Creek sand.
Morrison (U. Jur.)	2	Structural-Strat.	Water Drive		
Ellis (U. Jur.)	14	Structural	Depletion-		
(Shut-in)	5	Water Drive			
Amsden (Penn.)	1	Structural-Strat.	Water Drive		
CEDAR CREEK Judith River (U. Cret.) Gas	180	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 NW $\frac{1}{4}$ and SE $\frac{1}{4}$ 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.)	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.)	3	Structural	Water Drive	80-acre spacing units, direction at option of operator but wells to be in SW $\frac{1}{4}$ and NE $\frac{1}{4}$ of each quarter section. (Order 11-69.)	None
COW CREEK, EAST Kibbey (Miss.)	2 1	Structural	Water Drive	80-acre spacing units east half and west half of quarter section, wells NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section with 150' topographic tolerance. (Order 32-71.)	None
CULBERTSON Red River (Ord.)	1	Structural-Strat.	Depletion- Water Drive	State-wide in part. Utilized as to SE $\frac{1}{4}$ of Section 32, SW $\frac{1}{4}$ of Section 33, N $\frac{1}{2}$ NW $\frac{1}{4}$ of Section 4, and N $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 5. (Order 29-70.)	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.)	6	Structural-Strat.	Water Drive	80-acre spacing units consisting of E $\frac{1}{2}$ and W $\frac{1}{2}$ of quarter section; well location SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of quarter section with 75' topographic tolerance. (Order 31-55.)	None
CUT BANK Kootenai (L. Cret.) Oil & Gas (Gas only)	830 135	Strat.	Depletion	(Kootenai formation includes Moulton, Sunburst, and Cut Bank 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.) Gas: 330' feet from legal subdivision, 2400' between wells in same formation. 75' topographic tolerance. (Order 10-54.) Sections 20, 29, and 32 of Township 36 North, Range 4 West spaced 320-acres (N $\frac{1}{2}$ & S $\frac{1}{2}$). (Order 26-70.)	There are 18 waterfloods in progress. Water from Eagle and Madison, or produced.
DARLING (Included as part of Cut Bank Field)					
DEAN DOME Greybull (L. Cret.) Gas (Shut-in) Oil (Shut-in)	1 1	Structural	Water Drive	State-wide. Oil ring below gas cap.	None
DEER CREEK Interlake (Sil.)	1 4	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Well location in NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section with 75' topographic tolerance. (Orders 23-55 & 14-59.) Commingling of production permitted upon approval of Commission Petroleum Engineer. (Order 18-63.)	Excess produced water is disposed into Dakota and Lakota formations. (Orders 6-56 & 3-58.) Two Silurian wells shut-in.
DEER CREEK Red River (Ord.)	2	Structural	Water Drive		
DELPHIA Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
DEVIL'S BASIN Heath (U. Miss.)	6	Structural	Depletion	State-wide.	None
DEVON Blackleaf (U. Cret.) Gas (Shut-in) Kootenai (L. Cret.) Oil Depleted	23	Strat. Strat.	Volumetric Depletion	State-wide. State-wide.	None None
DEVON, SOUTH Bow Island (L. Cret.) Gas (Shut-in)	10	Strat.	Volumetric	Drilled on state-wide spacing. Unitized for primary production. (Order 28-71, corrected.)	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. Field re-delineated. (Order 8-70.)	None
Frontier (U. Cret.) Gas	8	Structural	Volumetric	Six additional gas storage wells, west end of structure.	
Greybull (L. Cret.) Gas, (Shut-in) some oil	1	Structural-Strat.	Volumetric-Depletion		
DWYER					
Ratcliffe (Miss.)	14	Structural-Strat.	Water Drive-Volumetric	160-acre spacing units; well location in center of SE 1/4 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	7	Structural	Water Drive	State-wide, except unitized portions spaced by (Order 22-62). Pooling (Order 19-66).	None
Dakota (L. Cret.)	1				
Sawtooth-Madison (Jur.-Miss.) Gas	5				
ELK BASIN (Mont. Portion) *					
Frontier (U. Cret.)	7	Structural	Gravity Drainage	Rule No. 203 (Spacing) is waived within Unit Area. (Order 10-61.) Gas to Elk Basin gasoline plant.	Frontier: Crestal gas injection. Embar-Tensleep; pressure maintenance by crestal gas injection. Waterflood approved in 1966. (Order 5-66.) Madison: Water injection.
(Shut-in)	14				
Embar-Tensleep (Perm., Penn.)	18	Structural	Gravity Drainage		
Oil and Gas	13				
Madison (Miss.)	20	Structural	Water Drive		
ELK BASIN, NORTHWEST					
Frontier (U. Cret.)	2	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.) Gas to Elk Basin gasoline plant.	Frontier: Waterflood in progress.
(Shut-in)	5				
Embar-Tensleep (Perm., Penn.)	5	Structural	Gravity Drainage		Embar-Tensleep: Waterflood and gas injection in progress. (Order 3-67.) Madison, produced water.
Oil and Gas					
Madison (Miss.)	2	Structural	Water Drive		
ETHRIDGE AREA					
Bow Island (L. Cret.) Gas	7	Strat.	Water Drive	State-wide.	None
Swift (U. Jur.) Gas	5	Strat.	Water Drive	State-wide, except two wells by (Order 28-65).	
(Shut-in)	1				
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.	Northwest part of field unitized for gas injection. Gas from Fairview and Branson fields. (Order 11-70.) Salt water disposal into Dakota. (Orders 9-A-71, 24-A-71.)
Red River (Ord.) Oil & Gas	11	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 NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of quarter section with 75' topographic tolerance. (Orders 3-56, 7-62.)	None
FLAT COULEE Bow Island (L. Cret.) Gas	2	Structural and Strat.	Depletion	330' from boundary of legal subdivision and 1320' from other wells in same reservoir. (Order 16-55.)	Waterflood unit and redelination approved for Swift sandstone. (Orders 13-71, 17-A-71, 22-71.)
Dakota (L. Cret.) Gas	1	Strat.	Depletion	State-wide, exception (Order 11-66.)	
Swift (Jur.) Gas	1	Strat.	Depletion	State-wide gas spacing.	
Swift (Jur.) Oil	21	Strat.	Depletion	40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.)	
Sawtooth (Jur.) Gas	12	Strat.	Depletion	State-wide.	
FLAT LAKE Nesson (Miss.)	1	Strat.	Partial Water Drive	160-acre spacing units; well location in center of NE $\frac{1}{4}$ of quarter section with 200' topographic tolerance. Wells no closer than 961' to North Dakota state line and no closer than 1600' to Canadian line except unitized portion. (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.) Unit operation for eastern part of field. (Order 7-71.)
Ratcliffe (Miss.)	52	Structural-Strat.	Partial Water Drive		
	5				
FLAT LAKE, SOUTH Ratcliffe (Miss.)	6	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.)	1	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.)	Unitized for waterflood of Phosporia-Tensleep formations using produced fluids. (Order 21-70.)
FRED & GEORGE CREEK Sunburst (L. Cret.) Oil & Gas	21	Strat.	Depletion	Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.)	Sunburst waterflood initiated July, 1970, using water from Madison, (Order 13-70) and Eagle water. (Order 27-71.)
Swift (U. Jur.) Oil & Gas	2	Strat.	Depletion	State-wide.	
	17				
FROID, SOUTH Red River (Ord.)	1	Structural-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
FT. GILBERT Red River (Ord.)	2 (Shut-in) 1	Structural-Strat.	Depletion	State-wide.	None
GAGE Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
GAS CITY Red River (Ord.)	17	Structural	Depletion-Water Drive	80-acre spacing units consisting of E $\frac{1}{2}$ and W $\frac{1}{2}$ of quarter sections; well location in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ 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 (Shut-in) 1	15 (Shut-in) 1	Structural-Strat.	Depletion-Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; wells located in center of NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section with 75' topographic tolerance. (Orders 27-55, 19-62, 58-62, 20-66.)	Excess produced water disposed into Swift, Dakota and Judith River formations. (Orders 16-56, 16-63, 40-A-70.)
GOLD BUTTE Bow Island (L. Cret.)	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 (Shut-in) 4	34 (Shut-in) 4	Structural-Strat.	Partial Water Drive	160-acre spacing units; well locations according to areas: Area I, center of NW $\frac{1}{4}$ of quarter section; Area II, center of SE $\frac{1}{4}$ of quarter section; Area III, center of NE $\frac{1}{4}$ 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.)	1	Structural-Strat.	Depletion	40-acre spacing units; well location no closer than 330' from legal subdivision.	None
Cut Bank (L. Cret.)	23	Structural-Strat.	Depletion	(Cut Bank and Madison) Oil: 330' from boundary of legal subdivision and 650' from any other well in same reservoir and on same lease. 75' topographic tolerance. (Order 73-62.)	
Cut Bank-Madison (Dual)	3	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) Madison (Miss.) Gas	5 1	Structural Structural	Unknown 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.) Dual completion with Bow Island.	None
GYPSY BASIN Sunburst (L. Cret.) Oil & Gas Swift (U. Jur.)	1 1	Structural-Strat. Structural-Strat.	Comb. Water Drive and Depletion 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.) Same as Sunburst	Order 6-64 permits injection of excessive gas (produced with oil) into the Sunburst gas cap.
Sawtooth-Madison (Jur. & Miss.) Oil & Gas	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	35 (Shut-in) 13	Strat.	Volumetric	State-wide.	None
HAYRE Eagle (U. Cret.)	1	Structural-Strat.	Water Drive Depletion	State-wide. Single well used in town of Havre.	None
HAY CREEK Mission Canyon (Miss.) Red River (Ord.)	1 2	Structural Structural	Depletion Volumetric Water Drive	320-acre spacing, governmental half section, direction to be determined by operator. Location no closer than 660' from unit boundary. (Order 15-69.) Gas to Bronson plant.	None
HIAWATHA Tyler (L. Penn.) (2 Sands)	4	Structural-Strat.	Depletion	State-wide.	None
HIBBARD Amsden (Penn.)	1	Unknown	Water Drive	State-wide.	None
INJUN CREEK Tyler (Penn.)	1	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
IVANHOE Morrison (U. Jur.)	1	Structural-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 sands discontinued.
Amsden (L. Penn.)	1	Structural-Strat.	Water Drive		
Tyler (L. Penn.)	10	Structural-Strat.	Depletion		
JIM COULEE Tyler (L. Penn.)	12	Structural-Strat.	Depletion Water Drive	State-wide.	None
KEG COULEE Tyler (Penn.) Oil & Gas (Shut-in)	19 2	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, 28-66, 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.)	4	Strat.	Depletion	State-wide, 250' topographic tolerance. (Order 15-67.)	Waterflood using Third Cat Creek water. (Order 8-69.)
KEVIN-SUNBURST Sunburst (L. Cret.) Oil & Gas	38?	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 five waterfloods in operation, using Madison water. (Orders 9-64, 17-64, 30-64, 36-65, 29-71.)
Swift (U. Jur.)	?	Structure	Depletion		
Sun River (Miss.) Oil & Gas Gas only (Shut-in)	333? 12 ?	Structure-Strat.	Depletion		
LAIRD CREEK Swift (U. Jur.) Oil & Gas (Shut-in)	10 1	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
LAKE BASIN, NORTH Eagle, Frontier (U. Cret.) Gas (Shut-in)	1 1	Structural	Unknown	640-acre gas spacing units consisting of one section. Well locations in center of NW $\frac{1}{4}$ or SE $\frac{1}{4}$ of each section with 75' topographic tolerance. (Order 6-58.)	None
LANDSLIDE BUTTE Sun River (Miss.)	2 1	Unknown	Water Drive	State-wide.	None
LEARY Muddy (L. Cret.)	3	Structural-Strat.	Depletion	80-acre spacing with locations in NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section, 200' topographic tolerance. (Order 12-69, 19-70.)	None
LISCOM CREEK Shannon (U. Cret.) Gas (Shut-in)	6	Structural-Strat.	Depletion	Spacing, one well per 640 acres within 40-acre square centered around SE $\frac{1}{4}$ NW $\frac{1}{4}$ (T. 1N.) and SE $\frac{1}{4}$ (T. 2N.). (Order 5-67.)	None
LITTLE BEAVER (Mont. Portion) Red River (Ord.)	23	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules 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 (Montana Portion) Red River (Ord.)	12	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.)
LITTLE WALL CREEK Tyler (Penn.)	1	Strat.	Depletion Water Drive	State-wide.	None
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
LONETREE CREEK Red River (Ord.)	3	Structural	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
LOOKOUT BUTTE (Includes Coral Creek Unit) Madison (Miss.)	4	Structural	Water Drive	State-wide spacing.	Water disposal into Madison. (Order 68-62.)
Interlake, Red River (Sil.-Ord.)	28	Structural	Comb. Depletion and Water Drive	160-acre spacing; well location in center of SE $\frac{1}{4}$ of each quarter section with 150' topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Redelineated per (Order 7-63.)	Waterflood of Silurian-Ordovician approved in 1966. (Order 35-66.) Water from Minnesota.
MASON LAKE Lakota (L. Cret.)	2	Structural	Water Drive	State-wide.	None
MELSTONE Tyler (Penn.)	3 (Shut-in) 1	Structural-Strat.	Depletion	State-wide.	None
MIDDLE BUTTE Blackleaf (Cret.) Gas Bow Island	1 (Shut-in) 2	Structural	Volumetric	320-acre spacing units consisting of E $\frac{1}{2}$ & W $\frac{1}{2}$ of each section; well location in center of either of the inside quarter-quarter sections located in E $\frac{1}{2}$ of each spacing unit. 75' topographic tolerance. (Order 3-60.)	None
MINERAL BENCH Duperow (Dev.)	1	Structural	Water Drive	State-wide.	Water disposal into Dakota-Lakota per (Order 18-65.)
MINERS COULEE Sunburst (L. Cret.) Swift (U. Jur.) Madison (Miss.)	1 (Shut-in) 3 (Shut-in) 1	Strat. Strat. Strat.?	Depletion Depletion Water Drive	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
MONARCH Mission Canyon (Miss.)	1	Structural-Strat.	Water Drive	80-acre spacing units consisting of east and west half of quarter section. Well location in SW $\frac{1}{4}$ & NE $\frac{1}{4}$ 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.)	13	Structural-Strat.		160-acre spacing units consisting of a quarter section; well location in center of SW $\frac{1}{4}$ of each quarter section with 175' topographic tolerance. (Orders 12-59, 4-63.)	
MOSBY (See Cat Creek)	14 (Shut-in) 4	Structural-Strat.	Water Drive	Listed as part of Cat Creek.	Waterflood, 2nd Cat Creek sand. (Order 8-68.) Waterflood in Amsden. (Order 11-71.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
MOSSER Greybull (L. Cret.)	3	Structural	Water Drive	Spacing waived. Future development requires administrative approval of the Commission. (Order 27-62.)	None
MT. LILLY Madison (Miss.) Gas	2	Structural	Water Drive	640-acre spacing, 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)					
NORTH WILLOW CREEK (See Willow Creek, North)					
OTIS CREEK Red River (Ord.)	2	Structural	Depletion	State-wide.	None
OUTLOOK Duperow (Dev.)	2	Structural-Strat.	Water Drive	State-wide.	Produced water is disposed into Dakota and Siluro - Devonian formations. (Orders 16-59, 17-65, 36-66.)
Winnipegosis (Dev.)	1	Structural-Strat.	Water Drive	State-wide.	
Silurian-Devonian (Shut-in)	5 2	Structural-Strat.	Water Drive	160-acre spacing units; well location in center of either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of each quarter section; 175' topographic tolerance. (Order 19-59A.)	
OUTLOOK, SOUTH Winnipegosis (Dev.) Interlake (Sil.) (Dual Completion with Dev. zone)	1	Structural	Water Drive	160-acre spacing; permitted wells in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ 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		
OUTLOOK, WEST Winnipegosis (Dev.)	2	Structural	Water Drive	160-acre spacing units consisting of quarter sections; permitted wells in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ with a topographic tolerance of 175'. (Order 7-67.)	Produced water disposed into Dakota formation. (Order 42-66.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
PENNEL					
Mission Canyon (Miss.)	8	Structural	Depletion-Water Drive	80-acre spacing units consisting of east and west half of quarter section; wells located in center of SE $\frac{1}{4}$ and NW $\frac{1}{4}$ 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 for Siluro-Ordovician approved Nov. 1968. (Order 24-68.)
Siluro-Ordovician Oil & Gas	104	Structural	Depletion-Water Drive	80-acre spacing units on west side and 160-acre spacing units on east side of pool. Wells to be located in SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of each quarter section (80 acres) and in SE $\frac{1}{4}$ 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 NW $\frac{1}{4}$ and SE $\frac{1}{4}$ 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	110	Structural	Depletion-Water Drive		
PLEVNA					
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
PONDERA					
Sun River (Miss.) Oil & Gas	280	Structural-Strat.	Depletion-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; 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, 20-A-71.) A small waterflood project has been in operation since 1959, using Madison water.
PONDERA COULEE					
Sun River (Miss.)	4 (Shut-in)	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.)	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.)	2	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
POPLAR, NORTHWEST Charles (Miss.) ("C" or McGowan Zone)	3	Structural	Water Drive	80-acre spacing units consisting of E $\frac{1}{2}$ and W $\frac{1}{2}$ of each quarter section; permitted wells in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of quarter section. 75' topographic tolerance. (Order 18-55.)	None
PRAIRIE ELK Charles "C" (Miss.)	1 (Shut-in)	Unknown	Water Drive	State-wide.	None
PRICHARD CREEK Sunburst (L. Cret.) Oil & Gas (Shut-in)	2 4	Strat.	Depletion	State-wide.	None
PUMPKIN CREEK Shannon (U. Cret.) Gas (Shut-in)	8	Structural-Strat.	Depletion	State-wide. Delineated. (Order 10-71.)	None
PUTNAM Interlake (Sil.)	1	Structural	Volumetric Water Drive	State-wide.	None. Gas to McCulloch Gas Processing Corp. Branson Plant.
Red River (Ord.)	1 (Shut-in)	Structural	Volumetric Water Drive		
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 Cot Creek water. (Order 35-65.) Water disposal into Kibbey. (Order 19-65.)
Kibbey (Miss.)	1	Structural	Water Drive	State-wide spacing. (Order 15-55.) 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
REAGAN Sun River (Miss.) Oil Gas (Shut-in)	46 19 1	Structural	Gas Cap-Water Drive	State-wide. (Order 17-54.)	A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.)
REAGAN, WEST Blackleaf (U. Cret.) Gas	8	Strat.	Depletion	State-wide. Injected into Reagan field as secondary recovery agent.	None

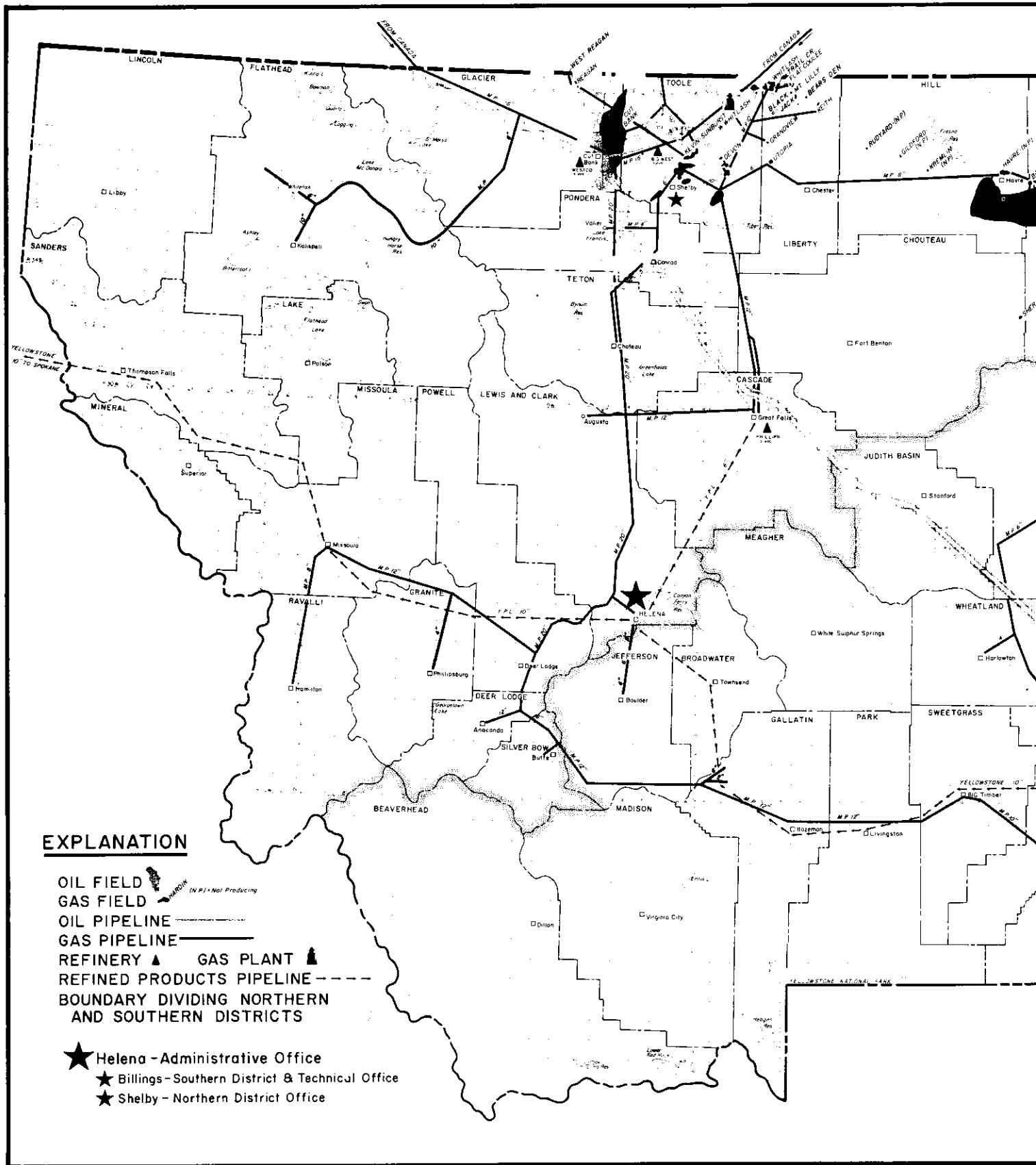
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
RED CREEK Cut Bank (L. Cret.) Oil & Gas (Shut-in) Sun River (Miss.) Oil & Gas (Shut-in)	8 2 12 9	Strat. Structural	Depletion Water Drive	40-acre spacing units; wells in center of spacing unit with 75' topographic or obstruction tolerance; spacing and field rules waived for unitized portion. (Orders 16-58, 73-62, 31-64, 5-70.)	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.
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.) Interlake (Sil.) Red River (Ord.)	1 1 4 1	Structural-Strat. Structural-Strat. Structural-Strat.	Water Drive Water Drive 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.)	Excess water injected into Dakota sand. (Order 23-A-67.)
RICHEY Charles (Miss.)	1	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NW ¹ / ₄ and SE ¹ / ₄ 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.)
RICHEY, SOUTHWEST Interlake, Dawson Bay (Sil.) (Dev.)	6 1	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.)	1	Structural	Water Drive	State-wide.	None
ROUGH CREEK Muddy (L. Cret.)	1	Structural Strat.	Depletion	State-wide. Formerly called Duncan Creek.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
RUDYARD Sawtooth (M. Jur.) Gas (Shut-in)	1	Structural	Volumetric	640-acre spacing units consisting of one section; well location in center of NW $\frac{1}{4}$ 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.	Excess water injected into Dakota sand. (Order 5-A-71.)
SALT LAKE Bakken-Nisku (Miss.-Dev.)	3	Structural	Water Drive	State-wide.	None
SAND CREEK Interlake, Red River (Sil.) (Ord.)	6 4 (Shut-in)	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Wells located in center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ 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 Swift (Jur.) Gas	33	Structural-Strat.	Depletion	State-wide. Field outline not delineated. A few small Swift sand wells commingled with Sunburst.	None
SHOTGUN CREEK Ratcliffe (Miss.)	1 (Shut-in)	Structural	Water Drive	State-wide.	None
SIDNEY Mission Canyon (Miss.)	1	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.)	18	Structural	Water Drive	One well per 10-acre spacing unit per producing formation; well location in center of spacing unit with 100' topographic tolerance. (Order 26-60.)	None
SPRING LAKE Nisku (Dev.) Red River (Ord.)	1 (Shut-in) 2	Structural Structural	Depletion Depletion	One well per 160-acre spacing unit. Well location anywhere within 840' square in center of spacing unit. (Order 6-63.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SQUAW COULÉE (Now included as part of Tiger Ridge Field.) (Order 10-70.)					
STENSVAD Tyler (Penn.)	5 (Shut-in) 12	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 200' topographic 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 48-67, 9-67.)
SUMATRA Tyler (Penn.) Oil & Gas	74	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' topographic tolerance. (Order 14-58.) Gas extraction plant in field.	Four waterflood units using Madison water. (Orders 48-67, 6-69, 15-69, 19-69, 3-70.)
TIGER RIDGE Judith River (U. Cret.) Gas Eagle (U. Cret.) Gas Sawtooth (Jur.) Oil	1 (Shut-in) 5 13 (Shut-in) 126	Structural-Strat. Structural-Strat. Structural-Strat.	Depletion-Water Drive Depletion-Water Drive Water Drive	State-wide. Originally one well per section within 2640' square in center of each unit and no closer than 1320' from boundary of unit. Changed to state-wide spacing by (Order 10-70.) State-wide.	None (Orders 17-67, 23-68, 10-70.)
TRAIL CREEK Sunburst (L. Cret.) Gas	2	Structural-Strat.	Water Drive-Depletion	One well per 320 acres consisting of S½ and N½ of each governmental section but no closer than 990' from spacing boundary. (Order 33-70.)	None
TULE CREEK Nisku (Dev.)	6 (Shut-in) 1	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 and 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.)

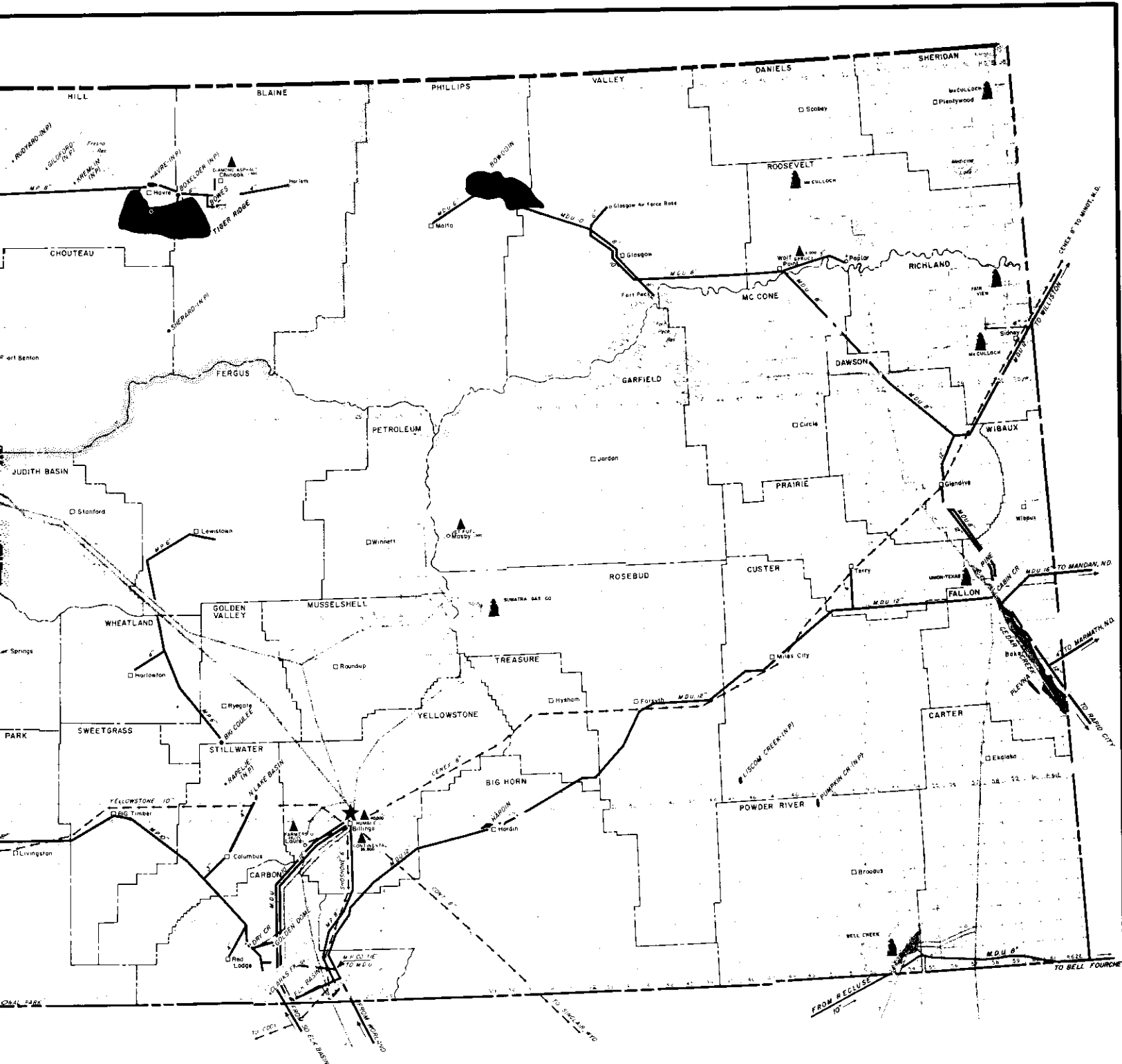
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
UTOPIA Sawtooth (Jur.) Madison (Miss.)	{ 4	Structural	Depletion Water Drive	State-wide.	None
VIDA Interlake (Sil.)	2	Structural	Water Drive	160-acre 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 (Shut-in) 2	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 (Shut-in)	Structural	Water Drive	State-wide.	
WEED CREEK Amsden (L. Penn.)	2 (Shut-in) 2	Structural	Water Drive	State-wide.	None
WELDON Kibbey (Miss.)	6 (Shut-in) 6	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 NE $\frac{1}{4}$ and SW $\frac{1}{4}$ 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.)
WEST BUTTE Sunburst (L. Cret.) Oil	1	Structural-Strat.	Depletion	State-wide, except W $\frac{1}{2}$ Section 16 is considered a single spacing unit.	None
Sawtooth (Jur.) Gas Madison (Miss.) Gas	2 (Shut-in)	Structural	Water Drive	Sawtooth-Madison gas commingled, 640-acre unit, no well closer than 330' from unit boundary, and in SE $\frac{1}{4}$ SE $\frac{1}{4}$. One well permitted for each producing formation. (Orders 29-68, 4-70.)	
WEST REAGAN (See Reagan, West)					
WHITLASH Bow Island, Kootenai, Swift (Cret.) (Jur.)	Oil 40 (Shut-in) 8 Gas 26	Structural-Strat.	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. (Orders 16-54, 27-70.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WHITLASH, WEST Sunburst, Swift (Cret.) (Jur.) Sawtooth (Jur.)	Oil 1 Gas 9	Structural-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. (Orders 61-62, 22-65 as amended.)	None
WILLOW CREEK, NORTH Tyler (Penn.) Oil	4	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 SE $\frac{1}{4}$ of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)	None
WOLF SPRINGS Amsden (Penn.)	7 (Shut-in) 5	Structural	Water Drive	80-acre spacing units consisting of N $\frac{1}{2}$ and S $\frac{1}{2}$ of each quarter section. Well location in center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section with 75' topographic tolerance. (Orders 4-56, 9-59.)	None
WOODROW Charles, Duperow, Interlake Red River (Ord.)	1 1 (Shut-in) 4	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section with 200' topographic tolerance. (Order 47-62.)	Produced water injected into Dakota. (Order 48-62.)
WRIGHT CREEK Muddy (L. Cret.)	5 (Shut-in) 1	Structural-Strat.	Depletion Water Drive	80-acre spacing consisting of N $\frac{1}{2}$ and S $\frac{1}{2}$ of quarter section with locations in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section with 200' topographic tolerance. (Order 27-69.)	None



EXPLANATION

- OIL FIELD
- GAS FIELD
- 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
 1971
 BOARD OF OIL AND GAS CONSERVATION

GENERA

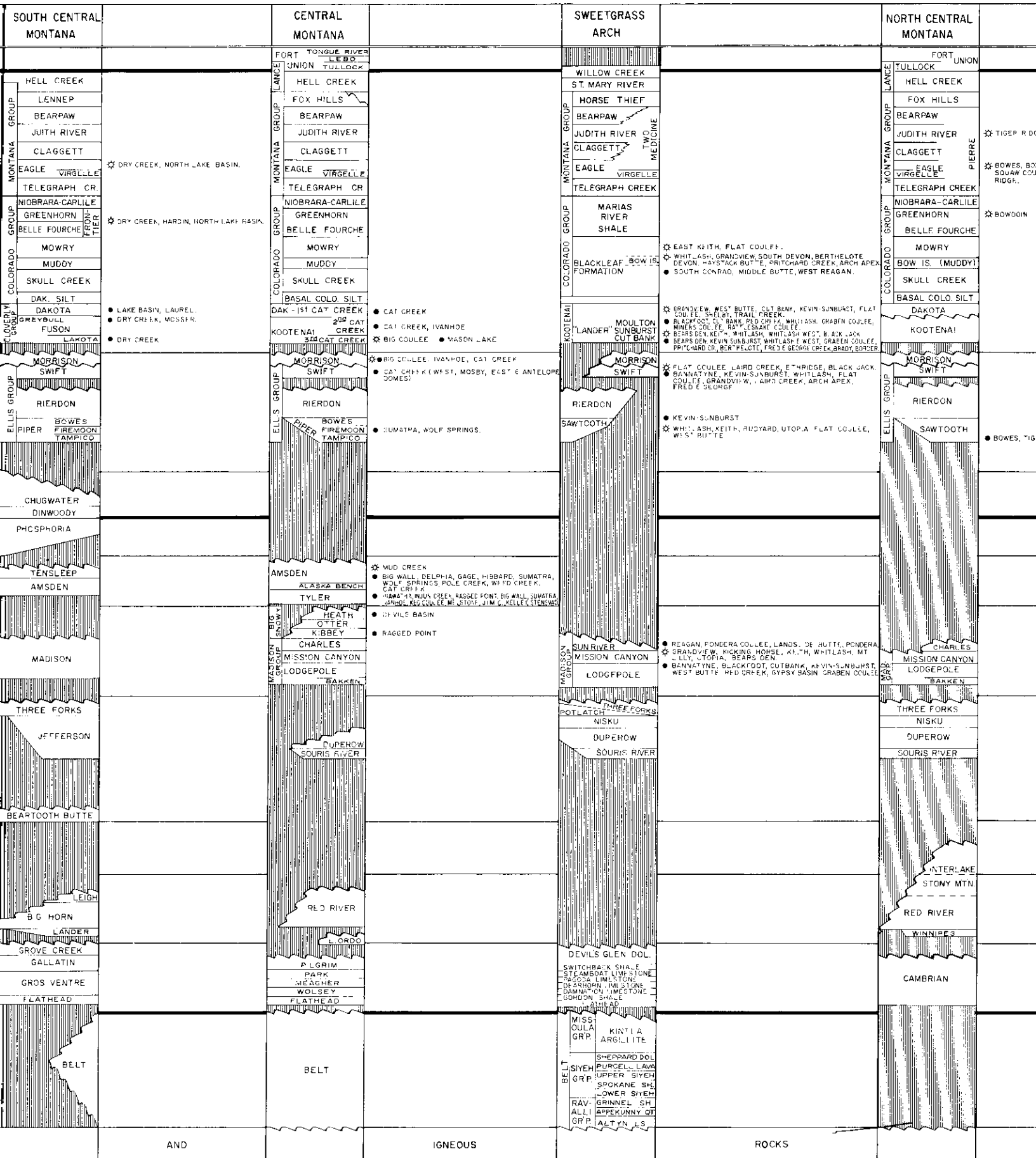
MONTANA OIL AND GAS CONSERVATION COMMISSION

ERA	PERIOD	SOUTHWESTERN MONTANA	CRAZY MOUNTAIN BASIN	BIG HORN BASIN		SOUTH CENTRAL MONTANA			
CENOZOIC	TERTIARY	BEAVERHEAD	TONGUE RIVER	FORT UNION					
			LEAS	LANCE					
		MESOZOIC	CRETACEOUS		LIVINGSTON	MEETEETSE		HELL CREEK	
					JUDITH RIVER	MESA VERDE		LENNEP	
					CLAGGETT			BEARPAW	
					EAGLE	CODY SHALE		JUDITH RIVER	
					VIRGELLE			CLAGGETT	
					TELEGRAPH CR.	FRONTIER		EAGLE	✱ DRY CREEK, NORTH LA
					NIOBRARA-CARLILE			VIRGELLE	
					FRONTIER			TELEGRAPH CR.	
					MOWRY			NIOBRARA-CARLILE	✱ DRY CREEK, HAHN, HO
					MOUDY			GREENHORN	
			LOWER	COLORADO	MUDDY	MUDDY		BELLE FOURCHE	
					SKULL CR.	SKULL CREEK		MOUDY	
					DAK. SILT	DAK SILT		MOUDY	
					DAKOTA	DAKOTA		SKULL CREEK	
					KOOTENAI	KOOTENAI		DAK. SILT	
						LAKOTA		DAKOTA	● LAKE BASIN, I.A.-REL.
						LAKOTA		GREYBULL	● DRY CREEK, MOSSER.
						LAKOTA		FUSON	
				LAKOTA		LAKOTA	● DRY CREEK		
				LAKOTA		LAKOTA			
	UPPER	MORRISON	MORRISON	MORRISON		MORRISON			
		SWIFT	SWIFT	UPPER SUNDANCE		SWIFT			
		RIERDON	RIERDON	LOWER SUNDANCE		RIERDON			
		SAWTOOTH	PIPER	GYPSEUM SPRING		PIPER			
						BOWEN			
						FIREWOOD			
	MIDDLE					TAMPICO			
	LOWER ?								
	TRIASSIC	THAYNES	CHUGWATER	CHUGWATER		CHUGWATER			
		WOODSIDE	DINWOODY	DINWOODY		DINWOODY			
		DINWOODY	PHOSPHORIA	PHOSPHORIA		PHOSPHORIA	● ELK BASIN, NW ELK BASIN.		
		PHOSPHORIA	TENSLEEP	TENSLEEP		TENSLEEP	● ELK BASIN, FRANNIE, NW ELK BASIN.		
			AMSDEN	AMSDEN		AMSDEN	● ELK BASIN		
			AMSDEN	AMSDEN		AMSDEN			
			MADISON	MADISON		MADISON	● ELK BASIN, NW ELK BASIN.		
			SAPPINGTON	SAPPINGTON		SAPPINGTON			
			THREE FORKS	THREE FORKS		THREE FORKS	● ELK BASIN		
			JEFFERSON	DUPEROW	DUPEROW		JEFFERSON		
			MAYWOOD	SOUIS RIVER		JEFFERSON			
						BEAR TOOTH BUTTE			
	PERMIAN	QUADRANT	PHOSPHORIA	PHOSPHORIA		PHOSPHORIA			
			TENSLEEP	TENSLEEP		TENSLEEP			
			AMSDEN	AMSDEN		AMSDEN			
			AMSDEN	AMSDEN		AMSDEN			
			MADISON	MADISON		MADISON			
			SAPPINGTON	SAPPINGTON		SAPPINGTON			
			THREE FORKS	THREE FORKS		THREE FORKS			
			JEFFERSON	DUPEROW	DUPEROW		JEFFERSON		
			MAYWOOD	SOUIS RIVER		JEFFERSON			
						BEAR TOOTH BUTTE			
	PENNSYLVANIAN	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	MISSISSIPPIAN	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	DEVONIAN	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	SILURIAN	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	ORDOVICIAN	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	CAMBRIAN	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	PROTEROZOIC	AMSDEN	AMSDEN	AMSDEN		AMSDEN			
	PRE-CAMBRIAN	BELT	BELT	BELT		BELT			
ARCHEOZOIC				METAMORPHIC		AND			

GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS *

● OIL ★ GAS
1971



FORMATION CHART

FIELDS *

HERBERT D. HADLEY, GEOLOGIST

JUDSON D. SWEET, PETROLEUM ENGINEER

NORTH CENTRAL MONTANA			NORTH POWDER RIVER BASIN			WILLISTON BASIN			PERIOD		ERA
MONTANA GROUP	FOOT WALL	FOOT WALL	FOOT WALL	FOOT WALL	FOOT WALL	FOOT WALL	FOOT WALL	UPPER	CRETACEOUS	MESOZOIC	
	LANCE	LANCE	LANCE	LANCE	LANCE	LANCE	LANCE				
MONTANA GROUP	HELL CREEK	HELL CREEK	HELL CREEK	HELL CREEK	HELL CREEK	HELL CREEK	HELL CREEK	LOWER			
	FOX HILLS	FOX HILLS	FOX HILLS	FOX HILLS	FOX HILLS	FOX HILLS	FOX HILLS				
	BEARPAW	BEARPAW	BEARPAW	BEARPAW	BEARPAW	BEARPAW	BEARPAW	UPPER			
	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER				
	CLAGGETT	CLAGGETT	CLAGGETT	CLAGGETT	CLAGGETT	CLAGGETT	CLAGGETT				
MONTANA GROUP	EAGLE	EAGLE	EAGLE	EAGLE	EAGLE	EAGLE	EAGLE	LOWER			
	TELEGRAPH CREEK	TELEGRAPH CREEK	TELEGRAPH CREEK	TELEGRAPH CREEK	TELEGRAPH CREEK	TELEGRAPH CREEK	TELEGRAPH CREEK				
	NIORARA-CARLILE	NIORARA-CARLILE	NIORARA-CARLILE	NIORARA-CARLILE	NIORARA-CARLILE	NIORARA-CARLILE	NIORARA-CARLILE				
	GREENHORN	GREENHORN	GREENHORN	GREENHORN	GREENHORN	GREENHORN	GREENHORN				
COLORADO GROUP	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	UPPER			
	MOWRY	MOWRY	MOWRY	MOWRY	MOWRY	MOWRY	MOWRY				
	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)				
	SKULL CREEK	SKULL CREEK	SKULL CREEK	SKULL CREEK	SKULL CREEK	SKULL CREEK	SKULL CREEK				
MONTANA GROUP	BASAL COLO. SILT	BASAL COLO. SILT	BASAL COLO. SILT	BASAL COLO. SILT	BASAL COLO. SILT	BASAL COLO. SILT	BASAL COLO. SILT	LOWER			
	DAKOTA	DAKOTA	DAKOTA	DAKOTA	DAKOTA	DAKOTA	DAKOTA				
	FUSON (KOOTENAI)	FUSON (KOOTENAI)	FUSON (KOOTENAI)	FUSON (KOOTENAI)	FUSON (KOOTENAI)	FUSON (KOOTENAI)	FUSON (KOOTENAI)	UPPER			
	LAKOTA	LAKOTA	LAKOTA	LAKOTA	LAKOTA	LAKOTA	LAKOTA				
	MORRISON	MORRISON	MORRISON	MORRISON	MORRISON	MORRISON	MORRISON				
ELLIS GROUP	SWIFT	SWIFT	SWIFT	SWIFT	SWIFT	SWIFT	SWIFT	MIDDLE			
	RIERDON	RIERDON	RIERDON	RIERDON	RIERDON	RIERDON	RIERDON				
ELLIS GROUP	SAWTOOTH	SAWTOOTH	SAWTOOTH	SAWTOOTH	SAWTOOTH	SAWTOOTH	SAWTOOTH	LOWER			
	CHUGWATER	CHUGWATER	CHUGWATER	CHUGWATER	CHUGWATER	CHUGWATER	CHUGWATER				
ELLIS GROUP	SPEARFISH	SPEARFISH	SPEARFISH	SPEARFISH	SPEARFISH	SPEARFISH	SPEARFISH	LOWER ?			
	MINNEKAHTA	MINNEKAHTA	MINNEKAHTA	MINNEKAHTA	MINNEKAHTA	MINNEKAHTA	MINNEKAHTA				
	OPECHE	OPECHE	OPECHE	OPECHE	OPECHE	OPECHE	OPECHE				
MONTANA GROUP	TENSLEEP	TENSLEEP	TENSLEEP	TENSLEEP	TENSLEEP	TENSLEEP	TENSLEEP	UPPER			
	AMSDEN	AMSDEN	AMSDEN	AMSDEN	AMSDEN	AMSDEN	AMSDEN				
MONTANA GROUP	CHARLES	CHARLES	CHARLES	CHARLES	CHARLES	CHARLES	CHARLES	MIDDLE			
	MISSION CANYON	MISSION CANYON	MISSION CANYON	MISSION CANYON	MISSION CANYON	MISSION CANYON	MISSION CANYON				
	LODGEPOLE	LODGEPOLE	LODGEPOLE	LODGEPOLE	LODGEPOLE	LODGEPOLE	LODGEPOLE				
MONTANA GROUP	THREE FORKS	THREE FORKS	THREE FORKS	THREE FORKS	THREE FORKS	THREE FORKS	THREE FORKS	UPPER			
	NISKU	NISKU	NISKU	NISKU	NISKU	NISKU	NISKU				
MONTANA GROUP	DUPEROW	DUPEROW	DUPEROW	DUPEROW	DUPEROW	DUPEROW	DUPEROW	MIDDLE			
	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER				
	INTERLAKE	INTERLAKE	INTERLAKE	INTERLAKE	INTERLAKE	INTERLAKE	INTERLAKE				
MONTANA GROUP	STONY MTN.	STONY MTN.	STONY MTN.	STONY MTN.	STONY MTN.	STONY MTN.	STONY MTN.	LOWER			
	RED RIVER	RED RIVER	RED RIVER	RED RIVER	RED RIVER	RED RIVER	RED RIVER				
MONTANA GROUP	BIG HORN	BIG HORN	BIG HORN	BIG HORN	BIG HORN	BIG HORN	BIG HORN	UPPER			
	WINNIEG	WINNIEG	WINNIEG	WINNIEG	WINNIEG	WINNIEG	WINNIEG				
MONTANA GROUP	GROVE CREEK	GROVE CREEK	GROVE CREEK	GROVE CREEK	GROVE CREEK	GROVE CREEK	GROVE CREEK	MIDDLE			
	GALLATIN	GALLATIN	GALLATIN	GALLATIN	GALLATIN	GALLATIN	GALLATIN				
MONTANA GROUP	GROS VENTRE	GROS VENTRE	GROS VENTRE	GROS VENTRE	GROS VENTRE	GROS VENTRE	GROS VENTRE	LOWER			
	DEADWOOD	DEADWOOD	DEADWOOD	DEADWOOD	DEADWOOD	DEADWOOD	DEADWOOD				

* SOME FIELDS SHOWN ARE DEPLETED OR NOT PRODUCTIVE DURING 1971