

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

Oil and Gas Conservation Division

Thomas L. Judge, Governor



ANNUAL REVIEW FOR THE YEAR 1972

Relating to

OIL AND GAS

Volume 16

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Annual Review for the Year 1972 Volume 16

INTRODUCTION

Oil production in Montana during 1972 totaled 33,904,139 barrels. This is less than a two per cent decrease in production as compared to 1971. Several factors contributed to the maintaining of production in 1972 at essentially the 1971 level.

- A. Secondary recovery efforts at the Bell Creek Field during 1972 showed a generally good response and production during the year increased by nearly 4,000 barrels per day for the entire field.
- B. Production from the central Montana Jim Coulee Field discovered in 1971 increased to 1,400 barrels per day.
- C. The Nohly, Chelsea Creek, Second Creek and Raymond fields, all discovered in the Williston Basin area during 1972, added 1,400 barrels per day to 1972 production. The most significant of these fields was Raymond with production found in four zones, Nisku, Duperow, Winnipegosis and Red River.

Extensions to the Jim Coulee, Keg Coulee and Sumatra fields in central Montana indicated separate new productive pools from the Tyler formation which could become important during 1973.

Five new areas were unitized for secondary oil recovery and it is estimated that during 1972 one-third of Montana's production resulted from secondary recovery programs.

Natural gas produced in Montana during 1972 totaled 34,906,596 MCF. This is a decrease from 1971 due to greatly reduced production from the Cut Bank and Reagan fields in Glacier and Toole counties. However during 1972 two large portions of the Tiger Ridge Gas Field were unitized and the field went on stream during November. Production at Tiger Ridge for December, 1972, amounted to 1,895,411 MCF indicating total gas production in Montana during 1973 will show a substantial increase.

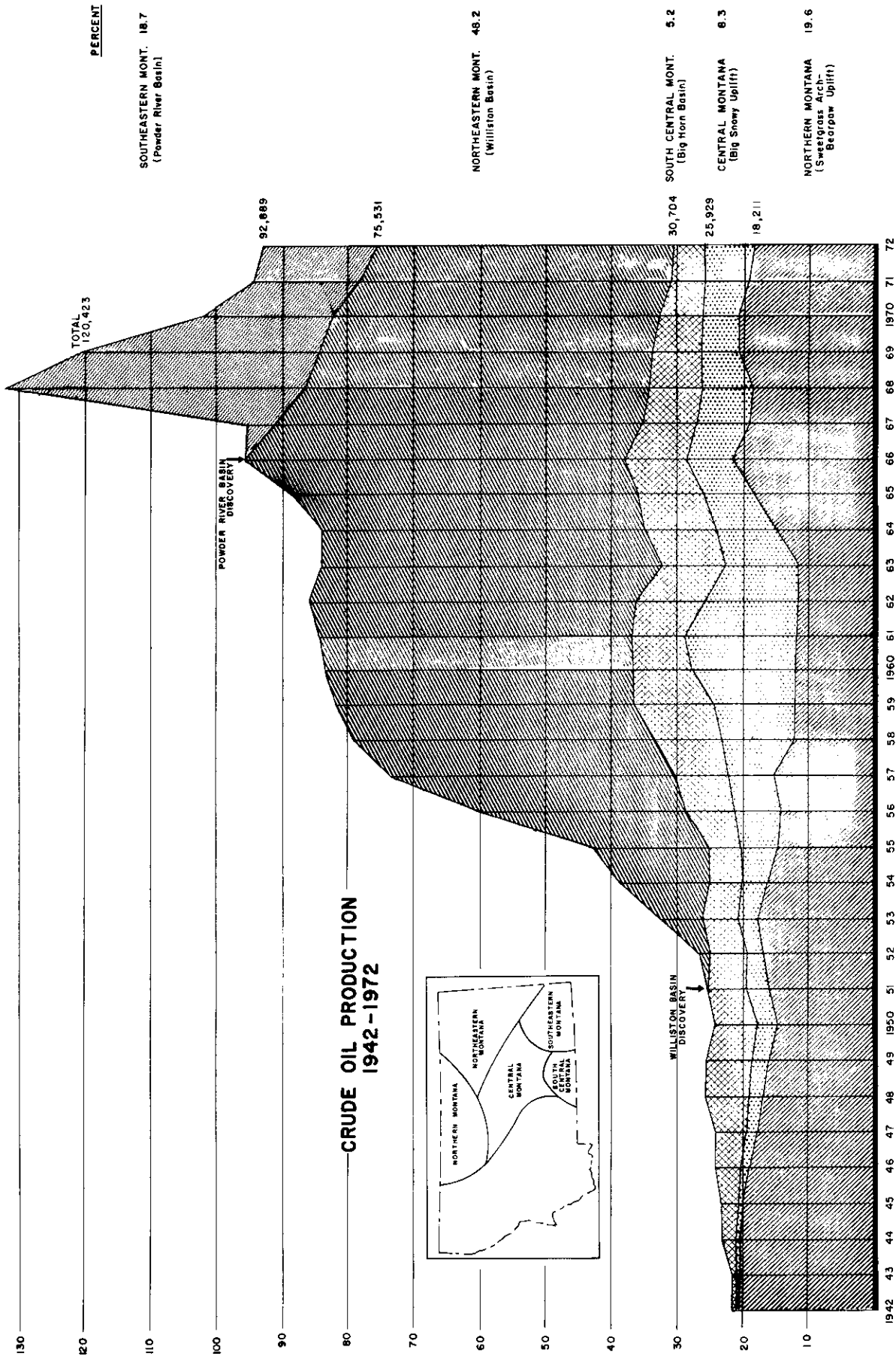
Leasing of lands for oil and gas exploration increased during 1972 and by the year's end most of the potentially productive areas were almost solidly held by the major companies plus many independents that were looking at Montana for the first time. Multiple well programs were being discussed by several operators and the outlook for 1973 appeared bright for an expanded State-wide exploration effort.

FIVE YEAR SUMMARY

	1968	1969	1970	1971	1972
Production, Northern Montana—Bbls.....	6,883,493	7,557,966	7,680,831	7,292,476	6,646,908
South Central—Bbls.....	2,885,272	2,739,346	2,329,187	2,028,304	1,742,749
Central—Bbls.....	2,728,357	2,011,445	1,915,273	2,274,124	2,817,045
Williston Basin—Bbls.....	19,390,652	18,396,618	18,110,147	17,042,703	16,361,771
Powder River Basin—Bbls.....	16,572,472	13,248,737	7,843,259	5,961,116	6,335,666
TOTAL.....	48,460,246	43,954,112	37,878,697	34,598,723	33,904,139
No. of Producing Wells, Northern Montana.....	1,898	1,827	1,806	1,768	1,856
South Central.....	99	108	92	96	83
Central.....	282	244	200	212	224
Williston Basin.....	784	759	743	748	706
Powder River Basin.....	328	397	371	321	265
TOTAL.....	3,391	3,335	3,212	3,145	3,134
Average Daily Production/Well—BOPD,					
Northern Montana.....	9.9	11.3	11.6	11.3	9.8
South Central.....	79.6	69.5	69.3	57.9	57.4
Central.....	26.4	22.6	26.2	29.4	34.4
Williston Basin.....	67.6	66.4	66.8	62.4	63.3
Powder River Basin.....	138.0	91.4	57.9	50.9	65.3
STATE AVERAGE.....	39.0	36.1	32.3	30.1	29.6
Development Wells Drilled, Oil Wells.....	300	171	60	49	79
Gas Wells.....	14	44	30	36	97
Dry Holes.....	89	105	63	34	87
TOTAL.....	403	320	153	119	263
Exploratory Wells Drilled, Oil Wells.....	15	15	12	3	7
Gas Wells.....	13	5	11	22	19
Dry Holes.....	509	466	272	323	435
TOTAL.....	537	486	295	348	461
TOTAL WELLS DRILLED.....	940	806	488	467	724
TOTAL FOOTAGE DRILLED.....	4,547,691	3,682,758	1,969,583	1,735,222	2,300,075
AVERAGE DEPTH OF ALL WELLS.....	4,839	4,569	4,396	3,716	3,177

**SUMMARY OF DRILLING BY COUNTIES—1972
STATE OF MONTANA**

County	Wildcats		Development		Total Wells	Footage Drilled	Average Depth
	Dry	Oil	Dry	Oil			
Big Horn	5	0	0	0	5	24,402	4,880
Blaine	95	1	15	1	177	310,747	1,755
Carbon	6	0	0	0	7	41,000	5,857
Carter	9	0	0	1	10	29,642	2,964
Cascade	3	0	0	0	3	8,002	2,667
Chouteau	36	0	0	0	46	88,556	1,925
Custer	11	0	3	0	17	56,241	3,308
Daniels	1	0	0	0	1	7,411	7,411
Dawson	3	1	0	0	4	39,475	9,856
Fallon	6	0	0	1	7	39,341	5,620
Fergus	24	0	0	0	26	51,426	1,978
Gallatin	1	0	0	0	1	7,153	7,153
Garfield	2	0	0	0	2	12,966	6,483
Glacier	2	0	6	27	39	120,832	3,098
Golden Valley	4	0	0	0	4	11,916	2,979
Hill	73	0	25	0	123	207,740	1,688
Liberty	27	0	4	1	32	101,355	3,167
McCone	13	0	8	3	24	156,429	6,518
Musselshell	13	0	9	17	39	157,356	4,035
Petroleum	1	0	0	0	1	2,144	2,144
Phillips	9	0	0	0	9	18,365	2,040
Pondera	8	0	1	4	14	35,139	2,509
Powder River	7	0	3	1	12	68,641	5,720
Richland	4	2	0	4	10	113,910	11,391
Roosevelt	9	1	1	3	14	124,489	8,892
Rosebud	16	0	4	8	28	133,286	4,760
Sheridan	11	1	5	4	21	187,176	8,913
Stillwater	1	0	1	0	2	7,412	3,706
Teton	4	0	0	0	4	9,370	2,342
Toole	18	1	2	4	29	66,534	2,294
Valley	7	0	0	0	7	28,428	4,004
Wheatland	1	0	0	0	1	5,028	5,028
Wibaux	2	0	0	0	2	18,900	9,450
Yellowstone	3	0	0	0	3	9,263	3,087
TOTALS	435	7	87	79	724	2,300,075	3,177



B. O. P. D. (THOUSANDS)

GAS PRODUCTION DATA—1972

Field	County	Producing Formations	1972 Production M.C.F.
Bell Creek*	Powder River	Muddy	838,373
Big Coulee	Golden Valley & Stillwater	Lakota & Morrison	1,215,817
Blackjack	Liberty	Sunburst & Swift	604,773
Bowdoin	Phillips & Valley	Bowdoin & Phillips	2,624,413
Bowes	Blaine	Eagle	280,333
Cabin Creek*	Fallon	Interlake & Red River	1,074,441
Cedar Creek	Fallon	Judith River & Eagle	9,708,933
Cut Bank & Reagan	Glacier & Toole	Cut Bank, Madison	4,068,780
Dry Creek	Carbon	Eagle & Frontier	412,539
Elk Basin*	Carbon	Tensleep	476,402
Flat Coulee	Liberty	Blackleaf & Swift	119,827
Gold Butte	Toole	Bow Island	8,785
Grandview	Liberty	Bow Island & Madison	243,537
Hardin	Big Horn	Frontier	21,120
Keith Block	Liberty	Bow Island, Sawtooth	1,130,642
Kevin Sunburst	Toole	Sunburst & Sun River	293,157
Lake Basin	Stillwater	Frontier & Eagle	544,026
Liscom Creek	Custer	Shannon	19,058
Middle Butte	Toole	Blackleaf	21,059
Mt. Lilly	Liberty	Madison	298,038
Pine*	Dawson, Prairie, Fallon & Wibaux	Interlake & Red River	503,105
Plevna	Fallon	Judith River	48,490
South Devon	Toole	Bow Island	240,684
Tiger Ridge	Blaine & Hill	Judith River & Eagle	5,104,476
Trail Creek	Liberty & Toole	Sunburst	122,892
Utopia	Liberty	Ellis, Sawtooth, Madison	420,198
Whitlash	Liberty	Bow Island, Kootenai & Swift	664,491
West Butte	Toole	Sawtooth, Madison	590,011
Miscellaneous**	Various	Various	3,208,196
TOTAL ALL FIELDS			34,906,596

*Associated Gas.

**Brorson, Tule Creek, Fairview Areas Produced Associated Gas. Devon and Fred & George Creek included under Miscellaneous.

REFINING—1972

	Year 1972 Total Bbls.
Big West Oil Company	1,162,981
Continental Oil Company	17,153,998
Diamond Asphalt Company	143,728
Farmers Union Central Exchange, Inc.	10,556,260
Humble Oil & Refining Company	15,375,650
Jet Fuel Refinery	19,202
Phillips Petroleum Company	2,119,510
Spruce Oil Company	764,744
Westco Refining Company	1,168,648
	48,464,721

Refining Five Year Comparison

1968	1969	1970	1971	1972
40,951,393	40,437,537	42,330,220	44,996,860	48,464,721

SUMMARY OF SECONDARY RECOVERY PROJECTS — JANUARY 1, 1973

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MCF	Dec. 1972 Avg. Daily Inj. Rate bbls. or MCF	No. of Injection Wells	Source of Injection Media and Remarks
Ash Creek, Shannon	McBarnett	Waterflood	Peripheral	10-15-64	821	102	2	Partman
Bell Creek, Unit "A", Muddy	Gary	Waterflood	Peripheral	7- 1-70	28,934	36,512	26	Madison
Bell Creek, Unit "B", Muddy	Gary	Waterflood	Peripheral	11- 1-70	7,014	11,071	11	Madison
Bell Creek, Ranch Creek, Muddy	Gary	Waterflood	Peripheral	7- 1-71	7,718	10,379	14	Madison
Bell Creek, Unit "C", Muddy	Gary	Waterflood	Peripheral	7- 1-71	1,782	7,213	6	Madison
Bell Creek, Unit "D", Muddy	Gary	Waterflood	Peripheral	8-72	1,904	13,553	11	Madison
Bell Creek, Unit "E", Muddy	Gary	Waterflood	Peripheral	8-72	1,193	7,686	12	Madison
Big Wall, Tyler "B"	Texaco, Inc.	Waterflood	Peripheral	8-20-66	11,732	3,477	2	Produced, Amsden & Tyler
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Random	5-23-61	3,850	384	3	Madison
Cabin Creek, Siluro-Ordovician	Shell	Waterflood	Semi-Peripheral	6-12-59	97,637	5,393	30	Produced and Fox Hills
Cat Creek, Swift	Hoss	Waterflood	Semi-Peripheral	7-30-70	74	80	2	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 1)	Farmers Union	Waterflood	Semi-Peripheral	10-10-62	8,000	1,677	7	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 2)	Farmers Union	Waterflood	Semi-Peripheral	12- 1-59	16,600	747	5	Third Cat Creek
Cut Bank NE, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	6- 2-63	11,441	1,844	14	Madison
Cut Bank NW, Cut Bank	Phillips	Waterflood	5-Spot	1-30-62	12,400	824	15	Madison
Cut Bank SE, Cut Bank	Union Oil	Waterflood	5-Spot	5-63	22,258	6,981	55	Madison
Cut Bank SW, Cut Bank	Phillips	Waterflood	5-Spot	4-62	38,534	14,040	51	Madison
Cut Bank SW, Cut Bank	Phillips	Waterflood	5-Spot	9-62	48,000	23,207	114	Madison
Cut Bank Tribal, Lander	Humble	Waterflood	Random	6-51	Shut-in	--	--	Eagle
Cut Bank, Lander Unit "A", Lander	Phillips	Waterflood	Random	4-65	1,200	118	2	Madison
Cut Bank, Lander	Texaco, Inc.	Waterflood	Random	7-64	5,094	1,639	8	Eagle
Cut Bank, McGulness, Moulton	Union Oil	Waterflood	Random	12-62	2,646	486	1	Madison
Cut Bank, Tesoro, Cut Bank	Tesoro	Waterflood	5-Spot	9- 1-71	106	1,196	17	Madison
Cut Bank, Two Medicine Unit, Cut Bank	Miami	Waterflood	Random	12-67	26,013	17,359	99	Madison
Cut Bank, West Wilcox, Moulton	Decalta	Waterflood	Random	2-71	848	740	1	Madison
Darling, State, Moulton	BG&O	Waterflood	Random	2-67	1,521	469	1	Madison
Darling NE Unit, Moulton	Ralph Fair	Waterflood	Random	2-68	2,800	1,876	4	Produced Water
Darling South Swenson, Moulton	BG&O	Waterflood	Random	2-67	5,220	2,692	5	Madison
Dwyer, Ratcliffe	Phillips	Waterflood	Peripheral	10-68	600	740	1	Madison
Elk Basin, Frontier	Amoco	Waterflood	Random	1926	696	2,182	2	Madison
Elk Basin, Unit 2, Tensleep	Amoco	Waterflood	Random	1949	2,954	692	2	Produced Water
Elk Basin, Madison	Amoco	Waterflood	Peripheral	1962	37,883	9,652	8	Produced Water
Elk Basin NW, Frontier	Atlantic Richfield	Waterflood	Peripheral	10-57	Shut-in	--	--	Shut-in 6-8-71
Elk Basin NW, Tensleep	Atlantic Richfield	Waterflood	Semi-Peripheral	5-67	1,973	1,368	1	Madison
Fairview, NW Unit, Red River	Superior	Gas Injection	Crestal	10-25-70	777	1,695 (G)	1	Purchased Gas
Flat Coulee, Swift	Cardinal	Waterflood	Peripheral	2- 1-72	556	2,332	15	Eagle
Flat Lake, Ratcliffe	Chevron	Waterflood	Random	6- 1-71	3,556	4,832	11	Produced Water
Frankie, Tensleep	Continental	Waterflood	Random	9-70	743	933	1	Produced Water
Fred & George Creek, Sunburst	Fulton Producing	Waterflood	Random	7-70	3,944	6,184	1	Madison and Eagle
Gas City, Red River	Shell	Waterflood	Semi-Peripheral	10-31-69	3,548	3,738	7	Mission Canyon
Jim Coulee, Tyler "B"	McAlester Fuel	Waterflood	Semi-Peripheral	6- 1-72	291	2,227	4	Third Cat Creek Water
Keg Coulee NW Unit, Tyler	Amoco	Waterflood	Semi-Peripheral	8-31-66	3,941	1,258	2	Madison
Keg Coulee East, Tyler	Continental	Waterflood	Semi-Peripheral	12-24-69	2,220	1,896	5	Third Cat Creek Water
Keg Coulee South, Tyler	BG&O	Waterflood	Semi-Peripheral	1- 1-70	809	725	2	Madison
Kelley, Tyler	McAlester Fuel	Waterflood	Random	7-69	679	890	3	Third Cat Creek
Kevin-Sunburst, Madison	Lon Crumley	Waterflood	Random	9-63	763	293	2	Madison
Kevin-Sunburst, Madison	BG&O	Waterflood	Random	8-64	2,916	1,467	7	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	Waterflood	Semi-Peripheral	8-64	6,674	2,463	10	Madison
Little Beaver, Red River	Shell	Waterflood	Semi-Peripheral	8- 7-66	15,223	5,715	13	Madison
Little Beaver East, Red River	Shell	Waterflood	Semi-Peripheral	4-65	6,183	1,558	3	Madison
Lookout Butte, Red River	Shell	Waterflood	Semi-Peripheral	4-67	13,059	5,668	13	Minnelusa
Mosby, Second Cat Creek *	Farmers Union	Waterflood	Random	5-68	267	170	2	Third Cat Creek Water
Mosby, Swift *	Farmers Union	Waterflood	Random	7-67	2,000	1,106	5	Third Cat Creek Water
Mosby, Amsden *	Farmers Union	Waterflood	Random	6- 1-71	24	25	1	Third Cat Creek Water
Moulton, Moulton **	Union	Waterflood Gas Injection	Random Random	11-69 5-15-71	8,460 477	7,119 (W) 644 (G)	9	Water Inj. into Madison Gas Inj. into Moulton
Pennel, Red River	Shell	Waterflood	Random	6-28-69	17,490	18,020	38	Dakota and Produced Water
Pine South, Red River	Shell	Waterflood	Semi-Peripheral	3-59	79,826	34,892	41	Fox Hills & Produced
Pine North, Red River	Shell	Waterflood	Semi-Peripheral	3-68	8,041	3,963	11	Lodgepole
Ragged Point, Tyler "A"	BG&O	Waterflood	Semi-Peripheral	12- 3-66	4,346	1,341	4	Third Cat Creek Water
Reagan, Madison	Union	Gas Injection	Random	8-61	3,858	1,042 (G)	2	Gas Injection
Red Creek, Cut Bank Sand	Humble	Waterflood	5-Spot	6-65	6,500	3,322	6	Madison
Richey SW, Dawson Bay-Interlake	Atlantic Richfield	Waterflood	Random	12-65	1,967	207	1	Fox Hills
Stensvad, Tyler "B"	Amoco	Waterflood	Semi-Peripheral	2-63	20,983	5,263	7	Madison
Sunatra West, Tyler "B"	Continental	Waterflood	Semi-Peripheral	10-68	6,795	2,998	6	Madison
Sunatra Central, Tyler "B"	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	20,163	19,718	14	Madison
Sunatra NE, Tyler "B"	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	1,690	1,049	6	Madison
Sunatra SE, Tyler "B"	BG&O	Waterflood	Semi-Peripheral	12- 1-69	2,392	2,553	6	Madison
TOTAL PROJECTS 67					(W) 656,102 (W) 329,364	(W) 782		
					(G) 5,112 (G) 3,381	(G) 11		

* Part of Cat Creek Field

** Part of Cut Bank Field

OIL AND GAS DISCOVERIES IN 1972

County	Operator-Well Name and Location	Field	Total Depth	Initial Oil B/D	Potential Gas MCF	Producing Formation	Date Completed
Blaine	Fulton Producing, Flynn 24-21, SE SW 21-33N-20E	Wildcat	1,500		Shut-in	Eagle	5-16-72
	Texas Gas Explor., Federal 34-1, NW SE 34-26N-20E	Wildcat	1,922		Shut-in	Eagle	7-2-72
	True Oil, Thorstead 32-19, SW NE 19-28N-19E	Wildcat	1,930		Shut-in	Eagle	7-12-72
	Amoco, Sonneberg 1, SE NW 24-34N-19E	Rabbit Hills	4,038	114 P	Shut-in	Sawtooth	9-18-72
	Wise Oil, Williamson 31-8, SW SW NE 8-26N-19E	Wildcat	2,229		1,200	Eagle	3-30-72
	U.S. Signal Oil & Gas, Federal 3001, SW SE 30-24N-21E	Wildcat	1,400		Shut-in	Eagle-Judith River	2-26-72
	Probe Oil, Putnam 1, NW SW 20-33N-19E	Wildcat	1,276		Shut-in	Judith River	10-13-72
Chouteau	Roland S. Bond-Lone Starr, Weaver 2-28, SE E 28-27N-16E	Wildcat	2,043		Shut-in	Eagle	1-16-72
	Universal Resources, State 1-30, NE NE 30-27N-14E	Wildcat	1,603		200	Eagle	7-29-72
	Love Oil, Hagen 1-28, SE NW 28-29N-13E	Wildcat	1,011		Shut-in	Eagle	9-9-72
Dawson	Lamar Hunt, Hubing Ranch 1, NE NE 26-20N-56E	Burns Creek	11,575	168 F		Red River	2-14-72
Fergus	Texas Gas Explor., Manuel 1, SE NE SW 10-22N-18E	Wildcat	1,879		707	Eagle	8-9-72
	Texas Gas Explor., Osburnsen 2, NW NW 25-23N-19E	Wildcat	1,980		3,500	Eagle	8-30-72
Hill	Fulton Producing, Higgins 33-8, NW SE 8-33N-14E	Wildcat	1,452		Shut-in	Eagle	6-6-72
	Wainoco, Nichols 1-28, SW NE NE 28-34N-15E	Wildcat	1,006		Shut-in	Eagle	2-24-72
	Colorado Oil & Gas, Dobbie 1, C NW E 15-31N-13E	Wildcat	1,202		Shut-in	Eagle	9-30-72
	Love Oil Company, Anderson 1-9, NW NW 9-33N-15E	Wildcat	1,663		Shut-in	Eagle	7-16-72
	Love Oil Company, Niederregger 1-29, NW SE 29-30N-13E	Wildcat	930		Shut-in	Eagle	9-9-72
	Webb Resources, Lipp 18-16, SE SE 18-32N-11E	Wildcat	3,750		Shut-in	Eagle	7-28-72
	Love Oil Company, Brownlee 1-7, SW NE 7-31N-11E	Wildcat	1,261		Shut-in	Eagle	9-22-72
Pondera	Milhan Ayers, Federal M-12623 1, SW NE 21-31N-3W	Wildcat	2,350		Shut-in	Blackleaf	Unknown
Richland	Pennzoil, Nohly 1, SW SW 26-26N-59E	Nohly	12,980	1,120 F		Red River	2-5-72
	Pennzoil, Sundheim 1, SW SE 8-24N-59E	Second Creek	12,804	2,162 F		Red River	12-28-72
Roosevelt	Calvert-Petro Funds, Federal 1, SE SW 33-30N-48E	Chelsea Creek	7,545	160 P		Misku	4-29-72
Sheridan	Oil Development of Texas, State 1-16, NW NE 16-36N-54E	Raymond	10,203	940 F 1,636 F		Red River Winnipegosis	3-26-72
Toole	Fulton Producing, State 32-36, SW NE 36-35N-1E	Wildcat	2,064		5 P	Sawtooth	5-15-72

SIGNIFICANT EXTENSIONS IN 1972 AND NEW PAY ZONES

Carbon	Montana Power, Robinson 15-3, NE SW SE 3-75-21E	Dry Creek	2,000		90	Judith River	9-1-72
Musselshell	McAlester Fuel, Foxley 28-6, SE NW 28-11N-27E	Jim Coulee	3,775	70 P		Stensvad	11-1-72
	Exeter Drilling, Stensvad 11-35, NE SW 35-11N-30E	Keg Coulee	4,680	92 P		Stensvad	7-25-72
	Cardinal Petroleum, Houghton 1, NW NE 17-10N-29E	Kelley	4,390	143 P		Lower Tyler	10-3-72
Richland	Tenneco, Daniels-Federal 1, Lot 1, Sec. 6-24N-57E	Lone Tree Creek	12,610	204 F		Red River	10-25-72
Roosevelt	Petroleum, Inc., Bigtrack Little 1, NW NE 6-30N-48E	East Benrud	7,606	101 P		Misku	11-26-72
Rosebud	North American Royalties, Grebe 2, Lot 20, Sec. 5-11N-32E	Stensvad	5,684	25 P		Lower Tyler	9-2-72
	Farmers Union, Grebe 15X-17, SE SW SE 17-11N-32E	Sumatra	5,100	410 P		Lower Tyler	9-9-72

P = Initial Potential Pumping
 F = Initial Potential Flowing
 MCF/D = Thousands of Cubic Feet of Gas Per Day

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)	4 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	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 Sunburst (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	256 1	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.) 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.)
BELL CREEK, SOUTHEAST Muddy (L. Cret.) Gas	4	Strat.	Depletion	160-acre spacing units, wells 660' from spacing boundary. (Order 31-72.)	None
BENRUD Nisku (Dev.)	1 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.)	3	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 (Shut-in)	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 1 12 4 (Shut-in) (Shut-in)	Structural Struct.- Strat.	Water Drive Depletion 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.)	5 5 (Shut-in)	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	7	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 Colorado Shale (U. Cret.) Gas (Shut-in)	327 19	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.) Oil (Shut-in)	47 29	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 1 (Shut-in)	Structural	Water Drive	State-wide.	None
BRADY Sunburst (L. Cret.)	1 1 (Shut-in)	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 5	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	5	Structural-Strat.	Depletion Water Drive	320-acre spacing with initial nine spacing units described in (Order 15-71 corrected).	None
BURNS CREEK Red River (Ord.)	1	Structural	Depletion Water Drive	State-wide.	None
CABIN CREEK Mission Canyon (Miss.) Oil & Gas Interlake-Red River Oil & Gas	19 71	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 Situro-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)	30	Structural-	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, 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.)	4 2	Strat.	Water Drive		
Ellis (U. Jur.)	11	Structural	Depletion-		
Amsden (Penn.)	5 1	Water Drive Strat.	Water Drive	State-wide.	
CEDAR CREEK Judith River (U. Cret.) Gas	188	Structural	Volumetric	1200' from legal subdivision line, 2400' from every other well in same formation. (Order 33-54.)	None
Eagle (U. Cret.) Gas	50	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
CHELSEA CREEK Nisku (Dev.)	1	Structural	Water Drive	State-wide.	None
CLARK'S FORK Frontier (U. Cret.)	1	Structural-	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-	Depletion-	160-acre spacing, location no closer than 330' from quarter section line or 1320' from any other well.	None
		Strat.	Water Drive		
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.)	2	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.)	5 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

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CULBERTSON Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide in part. Utilized as to SE 1/4 of Section 32, SW 1/4 of Section 33, N 1/2 NW 1/4 of Section 4, and N 1/2 NE 1/4 of Section 5. (Order 29-70.)	None
CUPTON Red River (Ord.)	7	Structural-Strat.	Water Drive	80-acre spacing units consisting of E 1/2 and W 1/2 of quarter section; well location SE 1/4 and NW 1/4 of quarter section with 75' topographic tolerance. (Order 31-55.)	None
CUT BANK Kootenai (L. Cret.) Oil & Gas (Gas only)	926 129	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' 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 1/2 & S 1/2.) (Order 26-70.)	There are 19 waterfloods in progress. Water from Eagle and Madison, or produced.
Madison (Miss.) Oil & Gas (Shut-in)	27 29	Strat.	Water Drive		
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 1/4 and SW 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.
Red River (Ord.)	2	Structural	Water Drive		
DELPHIA Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
DEVIL'S BASIN Heath (U. Miss.)	5	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)	1 9	Strat.	Volumetric	Drilled on state-wide spacing. Utilized 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.)	12	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.)	9	Structural	Gravity	Rule No. 203 (Spacing) is waived within Unit Area. (Order 10-61.) Gas to Elk Basin gasoline plant.	Frontier: Water injection. (Order 1-72.) Embar - Tensleep; pressure maintenance by crestal gas injection. Waterflood approved in 1966. (Order 5-66.) Madison: Water injection.
(Shut-in)	14		Drainage		
Embar-Tensleep (Perm., Penn.)	16	Structural	Gravity		
Oil and Gas (Shut-in)	13		Drainage		
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. Embar - Tensleep: Waterflood. (Order 3-67.) Madison, produced water.
(Shut-in)	5				
Embar-Tensleep (Perm., Penn.)	4	Structural	Gravity		
Oil and Gas			Drainage		
Madison (Miss.)	2	Structural	Water Drive		
ETHRIDGE AREA					
Bow Island (L. Cret.) Gas	5	Strat.	Water Drive	State-wide. State-wide, except two wells by (Order 28-65).	None
Swift (U. Jur.) Gas (Shut-in)	5	Strat.	Water Drive		
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 (Shut-in)	3	Structural and Strat.	Depletion	330' from boundary of legal subdivision and 1320' from other wells in same reservoir. (Order 16-55.) State-wide, exception (Order 11-66.)	Waterflood unit and redefinition approved for Swift sandstone. (Orders 13-71, 17-A-71, 22-71.)
Dakota (L. Cret.) Gas	2	Strat.	Depletion	State-wide gas spacing.	
Swift (Jur.) Gas	1	Strat.	Depletion	40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.)	
Swift (Jur.) Oil	20	Strat.	Depletion	State-wide.	
Sunburst (Jur.) Gas	1	Strat.	Depletion		
Sawtooth (Jur.) Gas	1	Strat.	Depletion		
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. (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 (Shut-in)	Structural-Strat.	Partial Water Drive		
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 Phosphoria-Tensleep formations using produced fluids. (Order 21-70.)
FRED & GEORGE CREEK Sunburst (L. Cret.) Oil & Gas (Shut-in)	18	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 11	Strat.	Depletion	State-wide.	
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.)	18	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.) Wa-terflood 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	14 (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
Swift (U. Jur.) Gas	1 (Shut-in)	Structural	Water Drive?		
GOLDEN DOME Eagle (U. Cret.) Gas	2 (Shut-in)	Structural-Strat.		160-acre spacing; 660' from spacing unit boundary.	None
GOOSE LAKE Ratcliffe (Miss.) Oil & Gas (Shut-in) 4	30 (Shut-in) 4	Structural-Strat.	Partial Water Drive	Unitized. (Order 1-72.)	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.)	17	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	6 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 Hayre.	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 (Shut-in)	Structural-Strat.	Water Drive		
Tyler (L. Penn.)	10	Structural-Strat.	Depletion		
JIM COULEE Tyler (L. Penn.)	24	Structural-Strat.	Depletion Water Drive	Unitized. (Order 18-72.) No well closer than 330' from unit boundary.	Waterflood; produced and Third Cat Creek water.
KEG COULEE Tyler (Penn.) Oil & Gas	18 2 (Shut-in)	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 250'. (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.)	3	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	40?	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	333? 12 (Shut-in) ?	Structure-Strat.	Depletion		
LAIRD CREEK Swift (U. Jur.) Oil & Gas	10 1 (Shut-in)	Strat.	Depletion	State-wide. One shut-in gas well.	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.)	2 Gas (Shut-in)	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 (Shut-in)	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.)	6 Gas (Shut-in)	Structural-Strat.	Depletion	Spacing, one well per 640 acres.	None
LITTLE BEAVER (Mont. Portion) Red River (Ord.)	23	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules 213 (Deviation), 218 (Commingle) 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.)	11	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.)	6	Structural	Depletion	320-acre spacing, wells 660' from spacing boundary, 2000' between wells. (Order 29-72.)	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.)	3	Structural	Water Drive	State-wide spacing.	Water disposal into Madison. (Order 68-62.)
Interlake, Red River (Sil.-Ord.)	26	Structural	Comb. Depletion and Water Drive	160-acre spacing; well location in center of SE 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.)	1	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 1/2 & W 1/2 of each section; well location in center of either of the inside quarter-quarter sections located in E 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) (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 1/4 & NE 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 1/4 of each quarter section with 175' topographic tolerance. (Orders 12-59, 4-63.)	
MOSBY (See Cat Creek)	12 (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
NOHLY Red River (Ord.)	1	Structural	Volumetric Water Drive	State-wide.	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
OTIS CREEK, SOUTH Red River (Ord.)	1	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 1/4 or NE 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 1/4 or NE 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 1/4 or NE 1/4 with a 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 1/4 and NW 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 1/4 and NW 1/4 of each quarter section (80 acres) and in SE 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	4	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 1/4 and SE 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	103	Structural	Depletion-Water Drive		
PLEVNA					
Judith River (U. Cret.) Gas	20	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	255	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	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.)	60	Structural	Water Drive	State-wide spacing; field delineated by (Order 7-55.)	Unitized in 1955. (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.)
(Charles & Mission Canyon fms.)	3	Structural-Strat.	Water Drive		
(Heath (Tyler) (Penn.))	1	Structural	Water Drive		
Nisku (Dev.)					

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)	2	Structural	Water Drive	80-acre spacing units consisting of E 1/2 and W 1/2 of each quarter section; permitted wells in NW 1/4 and SE 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. Brorson Plant.
Red River (Ord.)	1 (Shut-in)	Structural	Volumetric Water Drive	State-wide.	None
RABBIT HILLS Sawtooth (Jur.)	1	Structural Strat.	Volumetric Water Drive	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 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.)	None
RATTLESNAKE COULEE Sunburst (L. Cret.)	2	Strat.	Depletion	State-wide.	None
RAYMOND Nisku (Dev.)	1	Structural-Strat.	Depletion Water Drive	320-acre spacing units. Wells 660' from spacing unit boundary. (Order 38-72.)	None
Duperow (Dev.)	1				
Winnepegosis (Dev.)	2				
Red River (Ord.)	1				
REAGAN Sun River (Miss.) Oil Gas	44 19 1 (Shut-in)	Structural	Gas Cap-Water Drive	State-wide. (Order 17-54.)	A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.) Waterflood. (Order 27-72.)
REAGAN, WEST Blackleaf (U. Cret.) Gas	10	Strat.	Depletion	State-wide. Injected into Reagan field as secondary recovery agent.	None

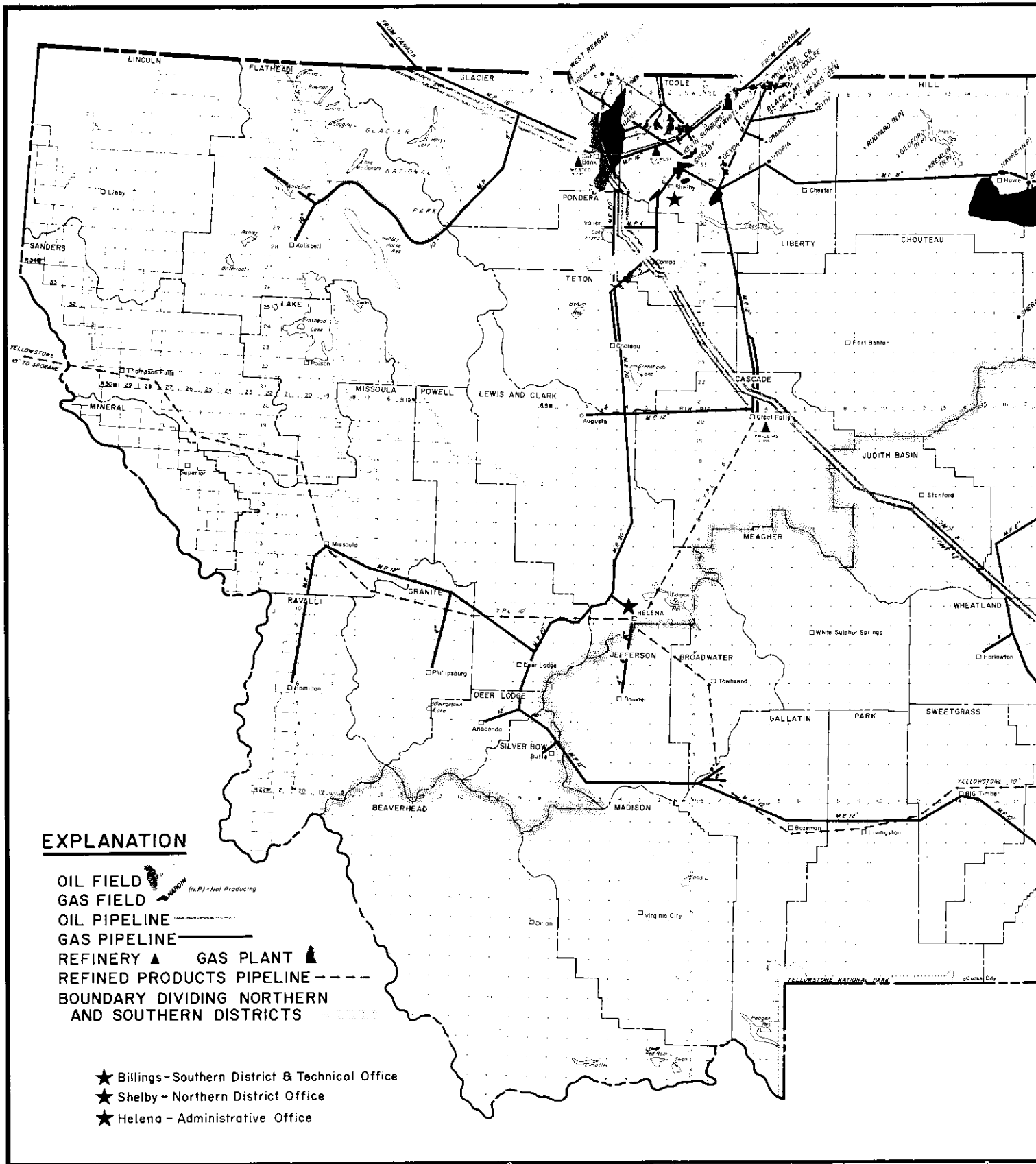
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
RED CREEK Cut Bank (L. Cret.) Oil & Gas (Shut-in) Sun River (Miss.) Oil & Gas (Shut-in)	7 2 12 9	Strat. Structural	Depletion Water Drive	40-acre 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 Winnepegosis (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 Winnepegosis (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 $\frac{1}{4}$ and SE $\frac{1}{4}$ 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.)	5 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 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.)	4 (Shut-in)	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Wells located in center of NW ¹ / ₄ and SE 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.)
SECOND CREEK Red River (Ord.)	1	Structural	Volumetric Water Drive	State-wide.	None
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 production formation; well location in center of spacing unit with 100' topographic tolerance. (Order 26-60.)	None
SPRING LAKE Nisku (Dev.) Red River (Ord.)	1 2 (Shut-in)	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







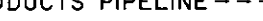

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SQUAW COULEE (Now included as part of Tiger Ridge Field.) (Order 10-70.)					
STENSVAAD Tyler (Penn.)	5 (Shut-in) 12	Strat.	Depletion	40-acre 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. (Orders 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	73	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' tolerance. (Order 14-58.)	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	6 93 (Shut-in) 26 1 (Shut-in)	Structural-Strat. Structural-Strat. Structural-Strat.	Depletion-Water Drive Depletion-Water Drive Water Drive	State-wide, for part not utilized. Two units: (Order 11-72 and 41-72.) Wells 990' from unit boundary. 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.)	5 (Shut-in) 1	Structural	Water Drive	160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 26-52, 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	Structural	Water Drive	State-wide.	
WEED CREEK Amsden (L. Penn.)	3 (Shut-in) 1	Structural	Water Drive	State-wide.	None
WELDON Kibbey (Miss.)	3 (Shut-in) 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 NE 1/4 and SW 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 1/2 Section 16 is considered a single spacing unit.	None
Sawtooth (Jur.) Gas Madison (Miss.) Gas	1	Structural	Water Drive	Sawtooth-Madison gas commingled, unitized. (Order 5-72.) No well closer than 330' from unit boundary.	
WEST REAGAN (See Reagan, West)					
WHITLASH Bow Island, Kootenai, Swift (Cret.) (Jur.)	Oil 35 (Shut-in) 12 Gas 25	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

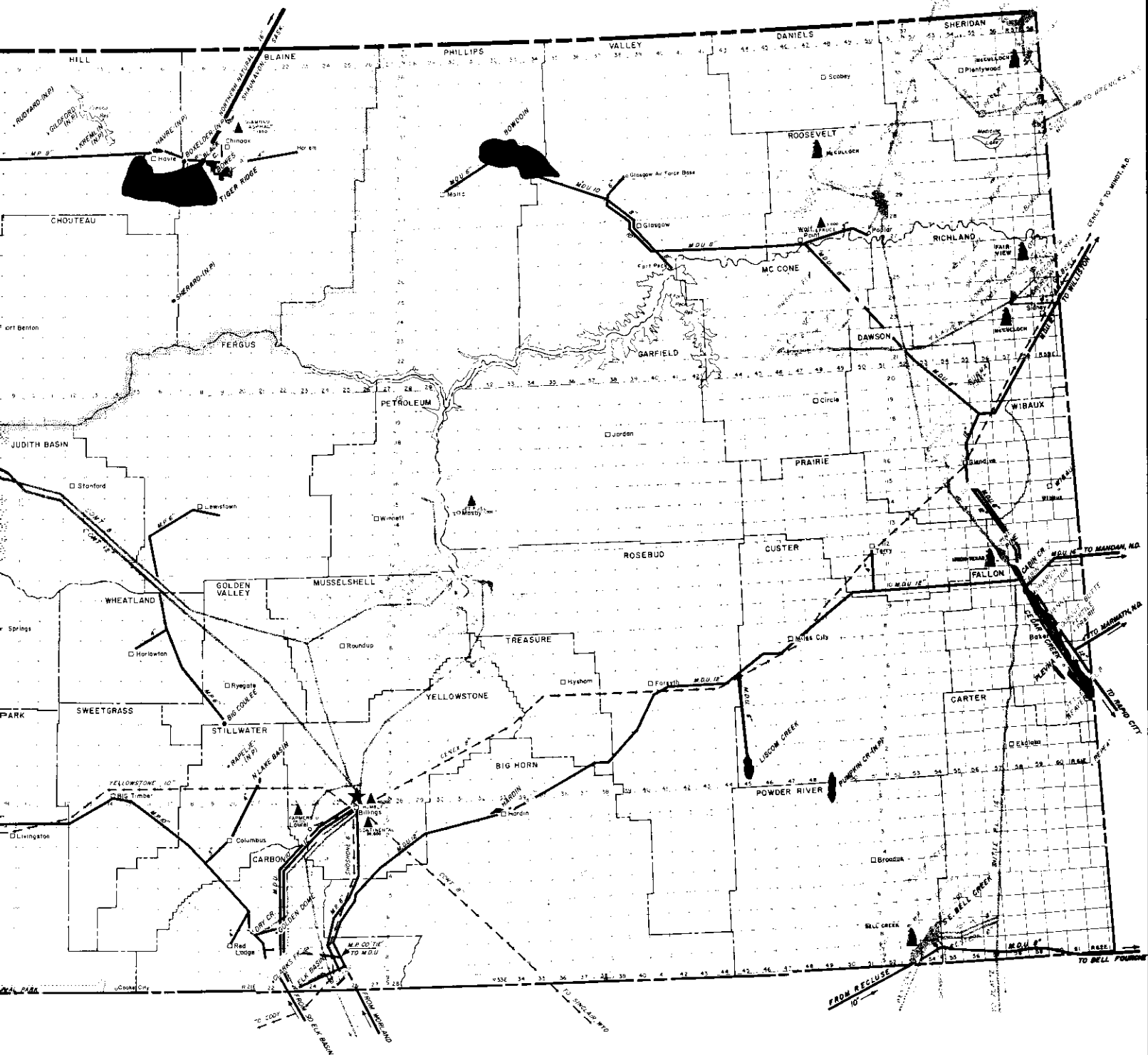
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WHITLASH, WEST Sunburst, Swift (Cret.) (Jur.) Sawtooth (Jur.)	Oil 1 Gas 9	Structural-Strat.	Volumetric	Gas: 160-acre spacing units consisting 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	2	Structural-Strat.	Depletion Water Drive	State-wide.	Pilotflood. (Order 19-72.)
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.)	3 (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' tolerance.	None



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 

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



MONTANA
OIL AND GAS FIELDS, PIPELINES AND REFINERIES
 1972

BOARD OF OIL AND GAS CONSERVATION

STATE OF MONTANA - SUMMARY OF PRODUCING

MONTANA BOARD OF OIL AND GAS CONSERVATION

LINE NO.	FIELD	COUNTY	PRODUCING FORMATION	YEAR OF DISCOVERY	DEPTH	GRAVITY (°API)	F.V.F.	NET PAY FT.	POROSITY (%)	SW (%)	O.O.I.P. (BBL/ACRE)	PRODUCTIVE AREA		
												1-1-73 (ACRES)	O.O.I.P. (M BBL.)	
1	Ash Creek		Big Horn	Shannon (U. Cret.)	1952	4,500	34	1.05	14	22	42	13,200	200	2,640
2	Bainville		Roosevelt	Red River (Ord.)	1969	10,300	45	1.75	38	15	34	16,680	320	3,340
3	Bears Den		Liberty	Sunburst (L. Cret.)	1924	2,300	39	1.08	20	12	35	11,210	200	2,240
4	Bell Creek		Powder River	Muddy (Cret.)	1967	4,400	36	1.11	10	26	23	13,990	16,000	223,840
5	Benrud		Roosevelt	Nisku (Dev.)	1961	7,700	43	1.41	27	16	30	13,580	80	1,080
6	Benrud, East		Roosevelt	Nisku (Dev.)	1962	7,500	46	1.37	22	15	30	13,080	320	4,180
7	Benrud, Northeast		Roosevelt	Nisku (Dev.)	1964	7,600	46	1.40	23	16	30	14,270	160	2,260
8	Big Wall		Musselshell	Amsden (Penn.)	1953	2,500	19	1.61	17	16	35	8,520	2,380	2,350
9	Big Wall		Musselshell	Tyler (Penn.)	1948	3,000	31	1.02	22	17	40	17,070	1,220	20,830
10	Blackfoot		Glacier	Madison (Miss.)	1955	3,600	35	1.15	8	14	40	4,530	480	2,170
11	Blackfoot		Glacier	Cut Bank (L. Cret.)	1955	3,500	30	1.11	15	15	35	10,220	160	1,640
12	Bowes		Blaine	Sawtooth (M. Jur.)	1949	3,300	19	1.02	37	12	31	23,300	3,760	87,610
13	Brorson		Richland	Madison (Miss.)	1954	5,600	32	1.40	40	5	40	6,650	1,120	7,450
14	Brorson		Richland	Red River (Ord.)	1968	12,600	48	1.70	20	10	35	5,930	1,440	8,540
15	Brorson, South		Richland	Red River (Ord.)	1968	12,600	48	1.70	20	12	30	7,670	480	3,680
16	Brush Lake		Sheridan	Red River (Ord.)	1969	11,400	40	1.50	30	14	35	14,120	2,240	31,630
17	Burns Creek		Dawson	Red River (Ord.)	1972	11,400	39	1.25	14	14	40	7,300	320	2,340
18	Cabin Creek		Fallon	Siluro-Ordovician	1953	9,000	33	1.20	50	13	30	29,420	7,620	224,180
19	Cabin Creek		Fallon	Mission Canyon (Miss.)	1956	1,700	33	1.13	25	11	30	13,200	2,160	29,880
20	Cabin		Richland	Red River (Ord.)	1920	12,300	47	2.07	58	8	40	10,430	320	3,340
21	Cat Creek (West Dome)		Garfield	Kootenai (L. Cret.)	1920	1,200	52	1.10	10	21	19	61,180	900	55,060
22	Cat Creek (Antelope Dome)		Garfield	Kootenai (L. Cret.)	1920	1,200	52	1.10	10	21	19	12,000	200	2,400
23	Cat Creek		Petroleum, Garfield	Morrison (U. Jur.)	1945	1,600	52	1.10	6	22	40	5,590	240	1,340
24	Cat Creek		Petroleum, Garfield	Ellis (U. Jur.)	1945	1,800	52	1.10	25	18	40	19,040	880	16,760
25	Cat Creek		Petroleum	Amsden (Penn.)	1967	2,000	52	1.00	10	8	30	4,340	80	350
26	Clark's Fork, South		Carbon	Greybull (L. Cret.)	1969	7,800	54	1.30	10	13	35	5,040	160	810
27	Cow Creek		McCone	Charles (Miss.)	1969	6,800	40	1.20	25	8	48	6,720	400	4,320
28	Cow Creek, East		McCone	Kibbey (Miss.)	1971	6,300	35	1.05	15	15	35	10,810	320	2,780
29	Culbertson		Roosevelt	Red River (Ord.)	1969	11,900	48	1.80	20	12	16	8,690	320	2,780
30	Cupton		Fallon	Red River (Ord.)	1955	12,400	38	1.25	40	12	30	20,850	1,280	26,690
31	Cut Bank		Glacier, Toole, Pondera	Kootenai (L. Cret.)	1932	2,900	31	1.09	18	15	35	12,490	49,000	612,000
32	Cut Bank		Glacier, Toole	Madison (Miss.)	1945	3,000	34	1.10	10	14	30	6,910	3,200	22,110
33	Deer Creek		Dawson	Interlake (Sil.)	1956	9,400	43	1.20	38	7	30	12,040	320	3,850
34	Dwyer		Sheridan	Ratcliffe (Miss.)	1960	8,000	37	1.32	38	11	56	10,810	3,840	41,510
35	Elk Basin		Carbon	Frontier (U. Cret.)	1915	1,200	45	1.16	30	21	20	33,710	120	4,060
36	Elk Basin		Carbon	Tensleep (Penn.)	1942	5,000	29	1.15	124	11	10	82,100	1,400	114,940
37	Elk Basin		Carbon	Madison (Miss.)	1942	5,300	28	1.12	224	12	9	169,430	920	155,860
38	Elk Basin, Northwest		Carbon	Madison (Miss.)	1947	6,200	35	1.08	124	12	35	69,480	200	13,900
39	Elk Basin, Northwest		Carbon	Tensleep (Penn.)	1964	6,000	37	1.15	27	12	22	17,050	580	9,890
40	Fairview		Richland	Winnipegosis (Dev.)	1967	11,700	43	1.10	17	7	30	9,320	160	1,490
41	Fairview		Richland	Red River (Ord.)	1965	12,700	47	1.70	35	11	28	12,650	1,920	24,290
42	Fertile Prairie		Fallon	Red River (Ord.)	1952	9,300	29	1.20	6	14	27	3,960	400	1,580
43	Flat Coulee		Liberty	Swift (U. Jur.)	1933	2,900	37	1.10	18	21	35	17,330	1,280	22,180
44	Flat Lake		Sheridan	Ratcliffe (Miss.)	1964	6,500	33	1.26	14	15	45	7,110	9,600	68,260
45	Flat Lake, South		Sheridan	Ratcliffe (Miss.)	1966	6,500	32	1.26	9	12	45	3,660	1,120	4,100
46	Fort Gilbert		Sheridan	Red River (Ord.)	1970	12,500	48	1.89	68	12	20	26,800	640	17,150
47	Frannie		Carbon	Tensleep (Penn.)	1928	2,700	27	1.02	29	19	16	35,200	80	2,820
48	Fred & George Creek		Toole	Sunburst (L. Cret.)	1963	2,600	39	1.20	31	17	30	37,880	880	33,350
49	Fred & George Creek		Toole	Swift (U. Jur.)	1963	2,600	39	1.10	9	14	30	5,530	840	4,650
50	Froid, South		Roosevelt	Red River (Ord.)	1970	12,400	48	1.55	12	17	25	7,160	160	1,230
51	Gax City		Dawson	Red River (Ord.)	1955	8,900	38	1.28	25	12	35	11,820	2,800	33,100
52	Girard		Richland	Red River (Ord.)	1969	11,900	46	1.15	18	15	40	10,930	320	3,500
53	Glendive		Dawson	Red River (Ord.)	1952	8,900	38	1.25	147	8	35	47,440	1,280	60,720
54	Goose Lake		Sheridan	Ratcliffe (Miss.)	1962	7,000	34	1.20	40	16	55	18,620	6,240	116,190
55	Graben Coulee		Glacier	Sunburst, Cut Bank, Madison	1961	2,900	34	1.10	15	12	30	8,890	760	6,760
56	Hay Creek		Richland	Red River (Ord.)	1969	12,600	46	1.90	53	12	25	19,480	640	12,470
57	Hay Creek		Richland	Mission Canyon (Miss.)	1969	9,600	39	1.15	40	5	30	9,440	160	1,510
58	Hiawatha		Musselshell	Tyler (L. Penn.)	1967	5,000	33	1.15	34	12	30	19,270	360	6,940
59	Ivanhoe		Musselshell	Tyler (L. Penn.)	1956	4,100	33	1.08	29	15	20	25,000	600	15,000
60	Jim Coulee		Musselshell	Tyler (L. Penn.)	1971	3,700	33	1.10	17	15	30	26,320	680	17,840
61	Keg Coulee		Musselshell	Tyler (L. Penn.)	1960	4,600	33	1.15	19	16	32	12,200	1,600	19,520
62	Kalley		Musselshell	Tyler (L. Penn.)	1966	4,400	33	1.15	50	13	30	30,690	200	6,140
63	Kevin-Sunburst		Toole	Madison-Sunburst (Miss.-L.Cret.)	1922	1,500	32	1.08	7	20	35	6,540	40,200	262,910
64	Laird Creek		Liberty	Swift (U. Jur.)	1968	2,800	39	1.10	14	16	25	11,850	480	5,690
65	Leary		Powder River	Muddy (Cret.)	1969	5,800	41	1.15	7	17	33	5,380	240	1,290
66	Little Beaver		Fallon	Red River (Ord.)	1952	8,300	29	1.40	37	12	35	15,990	2,390	38,220
67	Little Beaver, East		Fallon	Red River (Ord.)	1954	8,300	29	1.50	24	13	35	10,490	1,600	16,780
68	Little Wall Creek		Musselshell	Tyler (L. Penn.)	1970	3,700	33	1.10	40	15	33	28,350	400	1,130
69	Lonetree Creek		Richland	Red River (Ord.)	1970	12,500	47	1.86	19	11	30	6,100	1,920	11,710
70	Lookout Butte		Fallon	Red River (Ord.)	1961	8,300	33	1.15	15	15	25	11,320	6,100	69,420
71	Lookout Butte		Fallon	Mission Canyon-Lodgepole (Miss.)	1965	8,600	26	1.13	25	10	35	11,600	1,920	22,270
72	Malstene		Musselshell	Tyler (Penn.)	1948	4,300	34	1.09	25	15	30	18,680	360	6,720
73	Monarch		Fallon	Siluro-Ordovician	1958	8,400	32	1.10	31	7	35	9,950	2,240	22,290
74	Nohly		Richland	Red River (Ord.)	1972	12,900	46	1.43	27	10	40	8,790	320	2,810
75	Otis Creek		Richland	Red River (Ord.)	1970	12,700	48	1.78	23	12	35	7,820	640	5,000
76	Outlook		Sheridan	Siluro-Devonian	1956	5,000	38	1.12	20	8	30	7,760	1,600	12,420
77	Outlook		Sheridan	Duperow (Dev.)	1964	8,200	39	1.50	15	10	25	5,820	640	3,720
78	Outlook		Sheridan	Winnipegosis (Dev.)	1971	9,000	39	1.12	18	8	30	6,980	1,120	1,120
79	Outlook, South		Sheridan	Winnipegosis (Dev.)	1957	9,100	39	1.12	18	8	30	6,980	240	1,680
80	Outlook, West		Sheridan	Winnipegosis (Dev.)	1958	9,100	39	1.12	16	8	30	6,210	320	1,990
81	Penne		Fallon	Siluro-Ordovician	1955	8,800	33	1.14	25	11	35	12,160	22,380	272,140
82	Penne		Fallon	Mission Canyon (Miss.)	1957	7,000	31	1.10	38	3	30	5,630	720	4,050
83	Penne		Fallon	Lodgepole (Miss.)	1960	7,500	36	1.13	30	8	35	10,710	320	3,430
84	Pine		Dawson, Wibaux, Prairie	Siluro-Ordovician	1952	8,400	34	1.17	32	12	30	17,820	13,320	237,360
85	Pondera		Pondera, Teton	Madison (Miss.)	1927	2,100	34	1.20	15	16	31	10,710	5,560	59,550
86	Poplar		Roosevelt	Madison (Miss.)	1952	5,500	40	1.10	25	11	30	13,580	18,070	245,390
87	Poplar		Roosevelt	Neath (Penn.)	1969	4,900	38	1.10	8	11	50	3,100	480	1,480
88	Poplar		Roosevelt	Nisku (Dev.)	1969	7,300	42	1.40	12	8	50	2,660	320	850
89	Poplar, Northwest		Roosevelt	Madison (Miss.)	1952	6,300	40	1.10	16	10	45	6,210	400	2,480
90	Putnam		Richland	Siluro-Ordovician	1959	11,300	40	1.25	16	9	30	44,720	320	1,430
91	Rabbit Hills		Blaine	Sawtooth (Jur.)	1972	4,000	21	1.15	12	18	16	12,240	120	1,470
92	Ragged Point		Musselshell	Tyler (L. Penn.)	1956	3,600	32	1.11	13	14	32	8,650	680	5,880
93	Raymond		Sheridan	Nisku (Dev.)	1972	7,900	50	1.40	22	8	50	4,880	160	780
94	Raymond		Sheridan	Duperow (Dev.)	1972	8,400	46	1.50	19	13	29	9,070	160	1,460
95	Raymond		Sheridan	Winnipegosis (Dev.)	1972	9,300	42	1.17						

MONTANA - SUMMARY OF PRODUCING OIL FIELDS - 1972

MONTANA BOARD OF OIL AND GAS CONSERVATION

GRAVITY API	NET PAY F.W.F.	POROSITY %	SW %	O.O.L.P. (BBL/ACRE)	PRODUCTIVE AREA		RECOVERY FACTOR		ULTIMATE RECOVERY (M. BBL.)		CUMULATIVE PRODUCTION (M. BBL.)	RESERVES (M. BBL.)	1972 PRODUCTION (BOBP)	ULTIMATE RECOVERY		LINE NO.			
					1-1-73 (ACRES)	O.O.L.P. (M. BBL.)	PRIMARY %	SECONDARY %	PRIMARY %	SECONDARY %				(BBL./ACRE)	(ACRE/FT.)				
34	1.05	14	22	42	13,200	200	2,640	23	6	610	150	760	710	50	13,254	36	3,800	271	1
35	1.75	39	15	34	16,650	322	5,340	6	--	300	--	300	231	69	33,536	92	940	25	2
39	1.08	20	12	35	11,210	200	2,240	20	--	450	--	450	374	76	11,151	30	2,250	113	3
36	1.11	10	26	23	13,990	16,000	233,840	26	26	58,000	58,000	116,000	51,392	64,608	6,275,874	17,147	7,250	725	4
43	1.41	22	16	30	13,560	80	1,080	21	--	230	--	230	191	39	16,192	44	2,800	131	5
46	1.37	22	15	30	13,080	320	4,190	68	--	2,850	--	2,850	1,487	1,368	151,549	414	8,910	405	6
46	1.40	23	16	30	14,270	160	2,280	37	--	850	--	850	709	61	23,212	63	5,310	231	7
19	1.61	17	16	35	8,520	280	2,390	29	--	700	--	700	607	93	12,120	33	2,500	147	8
31	1.02	22	17	40	17,070	1,220	70,830	27	2	5,700	500	6,200	5,770	403	63,368	173	5,080	231	9
25	1.15	8	14	40	4,530	430	2,170	35	--	700	--	700	1,200	203	19,812	54	1,630	204	10
10	1.11	15	15	35	10,220	150	1,650	26	--	420	--	420	997	1,200	19,812	54	2,630	175	11
19	1.02	37	12	31	23,300	3,760	87,610	9	2	7,000	1,600	8,600	7,643	957	115,391	315	2,290	62	12
32	1.40	40	5	40	6,650	1,120	7,450	11	--	800	--	800	629	171	42,403	116	710	18	13
48	1.70	20	10	35	5,930	1,440	8,540	23	--	2,000	--	2,000	1,494	506	123,838	338	1,390	70	14
48	1.70	20	12	30	7,670	480	3,680	24	--	900	--	900	678	222	79,666	218	1,880	94	15
40	1.50	30	14	35	14,120	2,450	31,630	8	--	2,450	--	2,450	1,094	1,356	261,820	715	1,050	36	16
39	1.25	14	14	40	7,300	320	2,340	11	--	250	--	250	54	196	54,414	149	780	56	17
33	1.20	50	13	30	29,420	7,620	224,180	23	15	51,000	34,000	85,000	50,565	34,435	2,479,214	6,774	11,160	223	18
33	1.13	25	11	30	13,220	2,260	29,880	50	--	15,500	--	15,500	11,945	3,555	707,966	1,934	6,860	274	19
47	2.07	58	8	40	10,430	320	3,340	18	--	600	--	600	265	335	82,631	226	1,880	32	20
52	1.10	51	21	19	61,180	900	55,060	27	5	14,500	3,000	17,600	17,078	522	115,929	317	19,560	384	21
52	1.10	10	21	19	12,000	200	2,400	21	8	500	200	700	200	712	72,886	199	3,500	350	22
52	1.10	6	22	40	5,590	240	1,340	30	--	400	--	400	5,600	4,888	72,886	199	1,670	278	23
52	1.10	25	18	40	19,040	880	16,760	26	1	4,400	100	4,500	100	58	5,933	16	5,110	204	24
52	1.00	10	8	30	4,340	80	350	17	11	60	40	100	42	58	5,933	16	1,250	125	25
54	1.30	10	13	35	5,040	160	810	7	--	60	--	60	42	18	4,230	12	375	38	26
40	1.20	25	8	48	6,720	240	1,610	7	--	100	--	100	76	24	13,960	38	420	17	27
35	1.05	15	15	35	10,810	400	4,320	23	--	1,000	--	1,000	386	614	366,819	1,002	2,500	167	28
48	1.80	20	12	16	8,690	320	2,780	7	--	200	--	200	128	72	11,419	31	630	32	29
38	1.25	40	12	30	20,880	1,280	26,690	16	--	1,500	--	1,500	616	884	121,284	331	1,170	29	30
31	1.05	18	15	35	12,450	49,000	612,000	20	12	125,000	75,000	200,000	127,733	72,267	4,669,512	12,758	4,080	227	31
34	1.10	10	14	30	6,910	3,200	22,110	32	--	7,000	--	7,000	6,155	845	88,985	243	2,190	219	32
43	1.20	38	7	30	12,040	320	3,850	34	--	1,300	--	1,300	1,154	146	14,695	40	4,060	107	33
37	1.32	38	11	56	10,810	3,840	41,510	11	4	4,500	1,500	6,000	5,008	992	215,100	588	1,560	41	34
45	1.16	30	21	20	33,710	120	4,050	37	30	1,500	1,200	2,700	4,215	1,285	25,640	70	22,500	750	35
29	1.16	124	11	10	82,100	1,400	114,940	--	50	14,000	58,000	58,000	48,520	9,471	1,033,393	2,823	41,430	334	36
28	1.12	224	12	9	169,430	920	155,860	9	6	1,000	9,000	23,000	15,641	7,359	523,618	1,431	25,000	112	37
35	1.08	124	12	35	69,480	200	13,900	7	--	950	--	950	910	402	8,359	23	4,750	38	38
37	1.15	27	12	22	17,050	800	9,890	10	--	1,000	300	1,300	1,098	202	36,823	101	2,240	83	39
43	1.10	27	7	30	9,230	160	1,490	17	--	260	--	260	216	44	15,449	42	1,630	60	40
47	1.70	35	11	28	12,650	1,920	24,290	17	8	4,200	2,000	6,200	3,527	2,673	395,786	1,081	3,230	92	41
29	1.29	6	14	27	3,960	400	1,580	32	--	500	--	500	350	150	15,085	41	1,250	208	42
37	1.10	18	21	35	17,330	1,280	22,180	13	11	2,800	2,400	5,200	2,348	2,852	75,955	208	4,060	226	43
33	1.26	14	15	45	7,110	9,600	68,260	14	5	9,300	3,500	12,800	7,172	5,628	578,933	1,582	1,330	95	44
32	1.26	9	12	45	3,660	1,120	4,100	24	--	1,000	--	1,000	604	396	98,585	269	890	99	45
48	1.89	68	12	20	26,800	640	17,150	8	--	1,300	--	1,300	552	743	268,345	733	2,030	30	46
27	1.02	29	19	16	35,200	800	2,820	27	--	750	--	750	658	92	18,304	50	9,380	494	47
39	1.20	31	27	30	37,880	880	33,250	23	20	7,700	6,700	14,400	7,170	7,230	404,865	1,106	16,360	528	48
39	1.10	8	14	30	5,530	840	4,450	26	--	1,200	--	1,200	954	246	29,011	79	1,430	179	49
48	1.56	12	17	22	7,650	160	1,230	16	--	200	--	200	120	80	15,676	43	1,260	194	50
38	1.22	26	12	22	11,820	2,800	33,100	26	5	8,600	1,600	10,200	7,615	2,585	269,982	738	3,640	146	51
46	1.15	18	15	40	10,930	320	3,500	11	--	400	--	400	259	141	31,881	87	1,250	69	52
38	1.25	14	8	35	47,440	1,280	60,720	23	--	13,700	--	13,700	9,433	4,267	311,586	851	10,700	73	53
34	1.20	40	16	55	18,620	6,240	116,190	7	--	7,850	--	7,850	5,268	4,267	380,675	1,040	1,260	32	54
34	1.10	15	12	30	8,890	760	6,750	15	--	1,200	--	1,200	862	138	45,729	125	1,320	88	55
46	1.90	53	12	25	19,480	640	12,470	13	--	1,500	--	1,500	633	867	116,018	317	2,340	44	56
39	1.15	40	5	30	9,440	160	1,510	13	--	1,500	--	1,500	96	104	16,176	44	1,250	31	57
33	1.15	34	12	30	19,270	360	6,940	22	--	1,500	--	1,500	953	547	77,858	213	4,170	123	58
33	1.08	29	15	20	25,000	600	15,000	27	--	4,000	--	4,000	3,688	312	48,881	134	6,670	230	59
33	1.10	37	16	30	26,230	680	17,840	20	10	3,600	1,800	5,400	610	4,790	529,071	1,446	7,240	215	60
33	1.10	19	14	32	12,200	1,600	19,520	17	14	3,400	2,700	6,100	3,877	2,223	179,839	491	3,820	201	61
33	1.15	50	13	30	60,690	200	6,140	8	4	500	250	750	621	9,313	85,876	235	3,750	75	62
32	1.08	7	20	35	6,540	40,200	262,910	27	4	70,000	10,000	80,000	70,679	3,261	281,261	768	1,990	284	63
49	1.10	14	16	25	11,850	480	5,690	12	--	700	--	700	329	129	35,533	97	1,460	104	64
31	1.15	7	17	33	5,330	240	1,290	16	--	200	--	200	120	80	40,418	110	830	119	65
29	1.40	37	12	35	15,990	2,390	38,220	17	10	6,500	4,000	10,500	5,780	4,720	442,569	1,209	4,390	119	66
30	1.50	24	13	35	10,490	1,600	16,780	23	12	3,900	2,000	5,900	3,473	2,427	155,246	424	3,690	154	67
43	1.10	40	15	33	28,350	40	1,130	18	--	200	--	200	90	110	37,053	101	5,000	125	68
37	1.86	19	11	30	6,100	1,920	11,710	26	--	3,000	--	3,000	923	2,077	417,126	1,140	1,560	60	69
33	1.15	15	15	25	11,380	6,100	59,420	19	12	13,000	8,000								

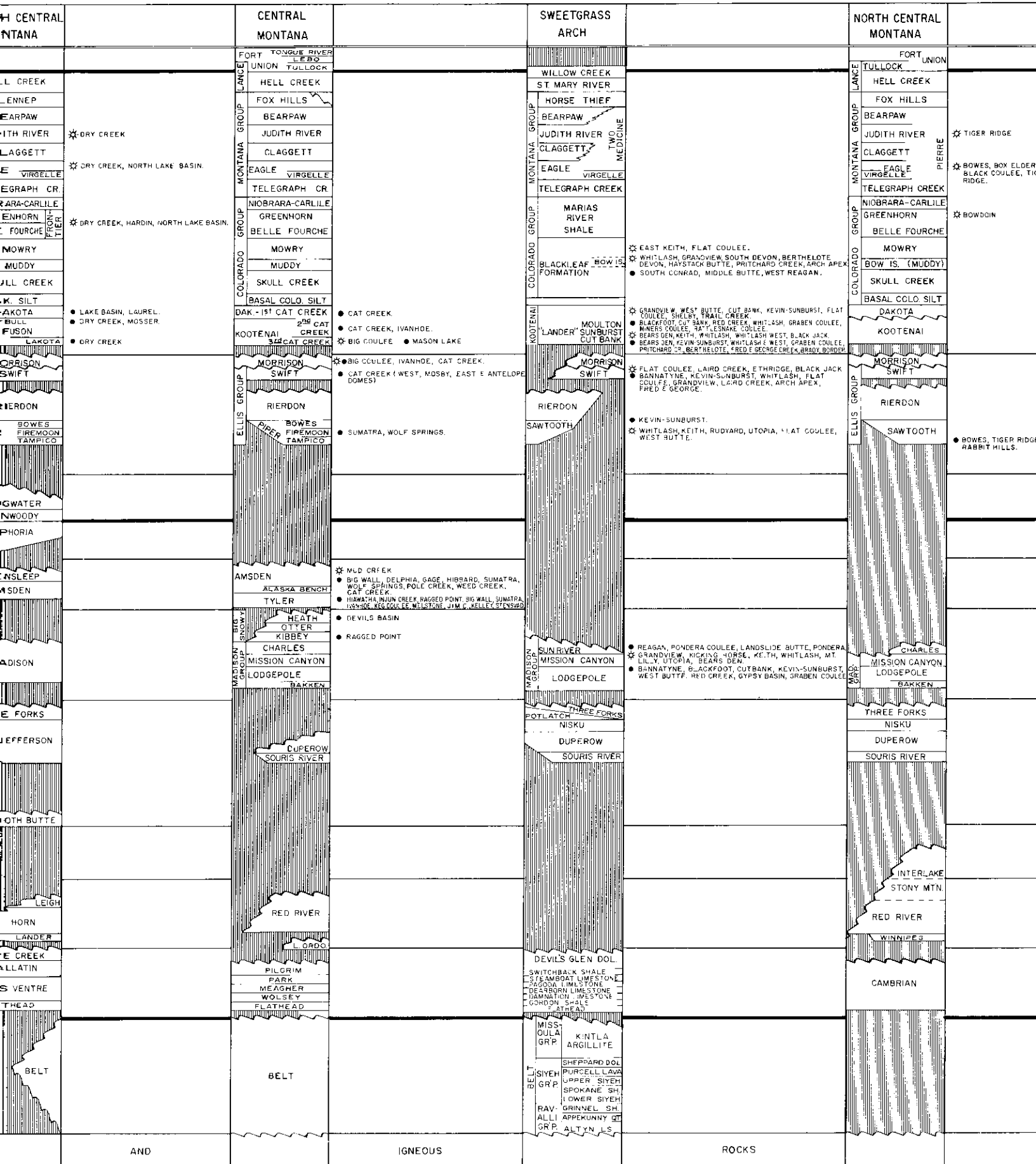
MONTANA BOARD OF OIL AND GAS CONSERVATION

ERA	PERIOD	SOUTHWESTERN MONTANA	CRAZY MOUNTAIN BASIN	BIG HORN BASIN		SOUTH CENTRAL MONTANA		
CENOZOIC	TERTIARY	BEAVERHEAD	TONGUE RIVER	FORT UNION				
			TULLOCK	LANCE				
MESOZOIC	CRETACEOUS	UPPER	LIVINGSTON	HELL CR.	MEETEETSE		HELL CREEK	
			LIVINGSTON	LENNEP			LENNEP	
			LIVINGSTON	BEARPAW			BEARPAW	
			LIVINGSTON	JUDITH RIVER	MESA VERDE		JUDITH RIVER	* DRY CREEK
			LIVINGSTON	CLAGGETT			CLAGGETT	
	LOWER	MONTANA GROUPS	EAGLE	VIRGELLE	CODY SHALE		EAGLE	* DRY CREEK, NORTH LAKE BASIN.
			TELEGRAPH CR.	FRONTIER	FRONTIER		TELEGRAPH CR.	
			FRONTIER	FRONTIER			FRONTIER	* DRY CREEK, HARDIN, NORTH LAKE BASIN.
			MOWRY	MUDDY	MUDDY		MOWRY	
			MUDDY	SKULL CR.	SKULL CREEK		MUDDY	
JURASSIC	UPPER	DAKOTA	DAKOTA	DAKOTA		DAKOTA	* LAKE BASIN, LAUREL.	
		DAKOTA	DAKOTA	DAKOTA		DAKOTA	* DRY CREEK, MOSSER.	
		DAKOTA	DAKOTA	DAKOTA		DAKOTA	* DRY CREEK	
	MIDDLE	ELLIS GROUP	MORRISON	MORRISON	MORRISON		MORRISON	
			SWIFT	SWIFT	SWIFT		SWIFT	
LOWER ?	ELLIS GROUP	RIERDON	RIERDON	RIERDON		RIERDON		
		SAWTOOTH	PIPER	GYPSON SPRING		PIPER		
TRIASSIC	LOWER ?	THAYNES	CHUGWATER	CHUGWATER		CHUGWATER		
		WOODSIDE	DINWOODY	DINWOODY		DINWOODY		
PALEOZOIC	PERMIAN	PHOSPHORIA	PHOSPHORIA	PHOSPHORIA		PHOSPHORIA	* ELK BASIN, NW ELK BASIN.	
			PHOSPHORIA	PHOSPHORIA		PHOSPHORIA		
	PENNSYLVANIAN	AMSDEN	AMSDEN	AMSDEN	AMSDEN		AMSDEN	* ELK BASIN, FRANNIE, NW ELK BASIN, SNYDER.
			AMSDEN	AMSDEN	AMSDEN		AMSDEN	* ELK BASIN
	MISSISSIPPIAN	MADISON	MADISON	MADISON	MADISON		MADISON	* ELK BASIN, NW ELK BASIN.
			MADISON	MADISON	MADISON		MADISON	
			MADISON	MADISON	MADISON		MADISON	
	DEVONIAN	UPPER	THREE FORKS	THREE FORKS	THREE FORKS		THREE FORKS	* ELK BASIN
			JEFFERSON	JEFFERSON	JEFFERSON		JEFFERSON	
			MAYWOOD	MAYWOOD	MAYWOOD		MAYWOOD	
SILURIAN	MIDDLE	BEAR TOOTH BUTTE	BEAR TOOTH BUTTE	BEAR TOOTH BUTTE		BEAR TOOTH BUTTE		
		BEAR TOOTH BUTTE	BEAR TOOTH BUTTE	BEAR TOOTH BUTTE		BEAR TOOTH BUTTE		
ORDOVICIAN	LOWER	LEIGH	LEIGH	LEIGH		LEIGH		
		LEIGH	LEIGH	LEIGH		LEIGH		
CAMBRIAN	UPPER	RED LION	GROVE CREEK	GROVE CREEK		GROVE CREEK		
		RED LION	GROVE CREEK	GROVE CREEK		GROVE CREEK		
	MIDDLE	PILGRIM	PILGRIM	GALLATIN		GALLATIN		
		PILGRIM	PILGRIM	GALLATIN		GALLATIN		
LOWER	FLATHEAD	GROS VENTRE	GROS VENTRE	GROS VENTRE		GROS VENTRE		
		FLATHEAD	FLATHEAD	FLATHEAD		FLATHEAD		
PROTEROZOIC	PRE-CAMBRIAN	BELT	BELT	BELT		BELT		
ARCHEOZOIC					METAMORPHIC		AND	

GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS *

• OIL ☆ GAS
1972



FORMATION CHART

FIELDS *

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

NORTH CENTRAL MONTANA		NORTH POWDER RIVER BASIN		WILLISTON BASIN		PERIOD		ERA	
FORT UNION TULLOCK HELL CREEK FOX HILLS BEARPAW JUDITH RIVER CLAGGETT EAGLE VIRGELLE TELEGRAPH CREEK NIOBRARA-CARLILE GREENHORN BELLE FOURCHE MOWRY BOW IS. (MUDDY) SKULL CREEK BASAL COLO SILT DAKOTA KOOTENAI MORRISON SWIFT RIERDON SAWTOOTH		FORT TONGUE RIVER UNION HELL CREEK FOX HILLS BEARPAW JUDITH RIVER CLAGGETT EAGLE TELEGRAPH CREEK NIOBRARA-CARLILE GREENHORN BELLE FOURCHE MOWRY MUDDY (NEWCASTLE) SKULL CREEK BASAL COLO SILT DAKOTA FUSON (KOOTENAI) LAKOTA MORRISON SUNDANCE GYPSUM SPRING CHUGWATER SPEARFISH MINNEKAHTA OPECHE TENNSLEEP MINNELUSA AMSDEN CHARLES MISSION CANYON LODGEPOLE BAKKEN THREE FORKS NISKU DUPEROW SOURIS RIVER INTERLAKE STONY MTN. RED RIVER WINNIPEG GROVE CREEK GALLATIN GROS VENTRE		FORT TONGUE RIVER UNION HELL CREEK FOX HILLS BEARPAW JUDITH RIVER CLAGGETT EAGLE TELEGRAPH CREEK NIOBRARA-CARLILE GREENHORN BELLE FOURCHE MOWRY MUDDY (NEWCASTLE) SKULL CREEK BASAL COLO SILT DAKOTA FUSON (KOOTENAI) LAKOTA MORRISON SWIFT RIERDON PIPER NESSON SAUDE SPEARFISH MINNEKAHTA OPECHE AMSDEN TYLER HEATH OTTER KIBBEY CHARLES MISSION CANYON LODGEPOLE BAKKEN THREE FORKS BIRDBEAR (NISKU) DUPEROW SOURIS RIVER DAWSON BAY PRAIRIE EVAP WINNIPEG ASHERN INTERLAKE STONY MTN. RED RIVER WINNIPEG LOWER ORDOVICIAN DEADWOOD		UPPER CRETACEOUS LOWER UPPER MIDDLE LOWER LOWER ? PERMIAN PENNSYLVANIAN MISSISSIPPIAN UPPER MIDDLE LOWER SILURIAN ORDOVICIAN LOWER UPPER MIDDLE LOWER PRE-CAMBRIAN		MESOZOIC JURASSIC TRIASSIC PERMIAN PENNSYLVANIAN MISSISSIPPIAN DEVONIAN SILURIAN ORDOVICIAN CAMBRIAN PROTEROZOIC ARCHEOZOIC	
* TIGER RIDGE * BOWES, BOX ELDER, BLACK COULEE, TIGER RIDGE. * BOWDOIN * BOWES, TIGER RIDGE, RABBIT HILLS.		* SHANNON * USN CREEK, LISCOM CREEK, PUMPKIN CREEK. * HARDIN * BELL CREEK, ROUGH CREEK, WRIGHT CREEK, LEARY. * LODGE GRASS, SOAP CREEK, SNYDER * SCAP CREEK.		* CEDAR CREEK, PLEVNA * CEDAR CREEK * FLAT LAKE * WELDON, EAST COW CREEK * FLAT LAKE, SHOTGUN CREEK, SMOKE CREEK, KATY LAKE, DWYER, POPLAR, RICHEY, PRAIRIE ELK, COW CREEK, VOLT, MINERAL BENCH, GAS CITY, GODSE LAKE. * SIGNED, BRORSON, CABIN CREEK, MONARCH, PENNELL, POP-AR, OUTLOOK, HARDSCRABBLE CREEK, SHOTGUN CREEK, SOUTH FLAT LAKE. * PINE, PENNELL, LOOKOUT BUTTE, SALT LAKE. * TULE CREEK, BENRUD, E BENRUD, LONE TREE, SPRING LAKE, NE BENRUD, VOLT, SO TULE CREEK, E TULE CREEK, RED FOX, SALT LAKE, CHELSEA CREEK, RAYMOND. * OUTLOOK, MINERAL BENCH, WOODROW. * SW RICHEY. * RED STONE, OUTLOOK, WEST OUTLOOK, FAIRVIEW, RESERVE, RUSH MOUNTAIN, RAYMOND. * DEER CREEK, MONARCH, OUTLOOK, PENNELL, PINE, SAND CR., SW RICHEY, CABIN CR., LOOKOUT BUTTE, WILLS CR., WOODROW, VIDA, RESERVE. * GLENDIVE, LOOKOUT BUTTE, PENNELL, WOODROW, BURNS CR., NODDY RAYMOND, SECOND CREEK, LUTON, CABIN CR., DEER CR., GLENDIVE, LITTLE BEAVER, LITTLE BEAVER EAST, MONARCH, OUTLOOK, PENNELL, PINE, REPEAT, SAND CR., WILLS CR., FERTILE PRAIRIE, LOOKOUT BUTTE, WOODROW, RESERVE, GAS CITY, FAIRVIEW, BRORSON, RUSH MTN., SPRING LAKE, BRUSH LAKE, BAINEVILLE, CULBERTSON, FROID, HAY CREEK, GIRARD, CANAL, FT. SILBERT, OTIS CR., LONETREE.					

* SOME FIELDS SHOWN ARE DEPLETED OR NOT PRODUCTIVE