

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 1978

Relating to

OIL AND GAS

Volume 22

BOARD OF OIL AND GAS CONSERVATION

R. A. CAMPBELL, Chairman
1222 North 27th Street
Billings, Montana 59101

C. J. IVERSON, Vice-Chairman
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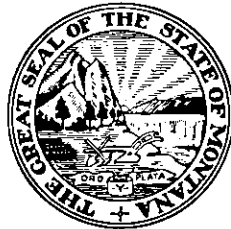
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1978
SUMMARY OF YEAR ACTIVITIES

Oil Produced 30,467,337 Bbls.

Oil Imported (Refined)

Canadian - 21,368,884

North Dakota - 69,286

Wyoming - 17,513,336

38,951,506 Bbls.

Oil Exported (Transporters) 21,383,104 Bbls.

Gas Withdrawals

Natural - 44,615,198

Associated - 2,524,697

47,139,895 Mcf.

Averages (365 days)

Oil Produced 83,472 Bbls.

Oil Imported 106,716 Bbls.

Oil Exported 58,584 Bbls.

Natural Gas 129,150 Mcf.

Board of Oil and Gas Conservation of the State of Montana

Thomas L. Judge, Governor

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Annual Review for the Year 1978 Volume 22

ACTIVITY REVIEW — MONTANA 1978

The number of wells drilled for oil or gas in Montana during 1978 totalled 793, an increase of 115 wells over 1977, with 215 exploratory wells resulting in 11 oil and 11 gas new field discoveries. There were also 4 oil and 3 gas new pay zone wells and 10 oil and 1 gas field extension wells completed. Development drilling during the year proved very successful. A total of 123 oil and 223 gas wells were completed as producers out of the 578 development wells drilled.

The noticeable increase of geological and geophysical exploration now being followed by an acceleration of drilling is expected to continue, and the outlook for future oil and gas development in Montana is very good. Aggressive exploration and leasing along the Overthrust Belt area of Western Montana is expanding and indications are that several wells will be drilled in 1979 along this sparsely tested major structural trend.

There was a high success rate of active wildcat and development well drilling in the Williston Basin portion of Eastern Montana during 1978 including ten of the eleven oil well discoveries. The number of producing wells in this area has noticeably increased from 737 in 1977 to 863 in 1978.

Overall oil production for 1978 was 30.5 million barrels; down 2.2 million barrels from the 32.7 million barrels produced in 1977. Although there was some production decline in fields located in Northern, South Central and Central Montana, the major production decline took place in the secondary recovery projects at Bell Creek Field in the Powder River Basin where oil production dropped from 9.1 million barrels in 1977 to 7.3 million in 1978. A tertiary recovery pilot program is in progress at Bell Creek and the effectiveness of this process has not yet been fully evaluated.

The production of oil however, has been steadily increasing in the Williston Basin of Eastern Montana since 1975 and the 1978 production of 15.1 million barrels exceeded the 1977 production by slightly more than 600,000 barrels.

Total gas production for 1978 was 47.1 billion cubic feet. This includes some 2.5 billion cubic feet of associated gas and is only slightly below the 47.2 billion cubic feet of total gas withdrawn in 1977. However, natural gas withdrawals for 1978, excluding associated gas, was approximately one billion cubic feet greater than the 1977 output of 43.6 billion cubic feet.

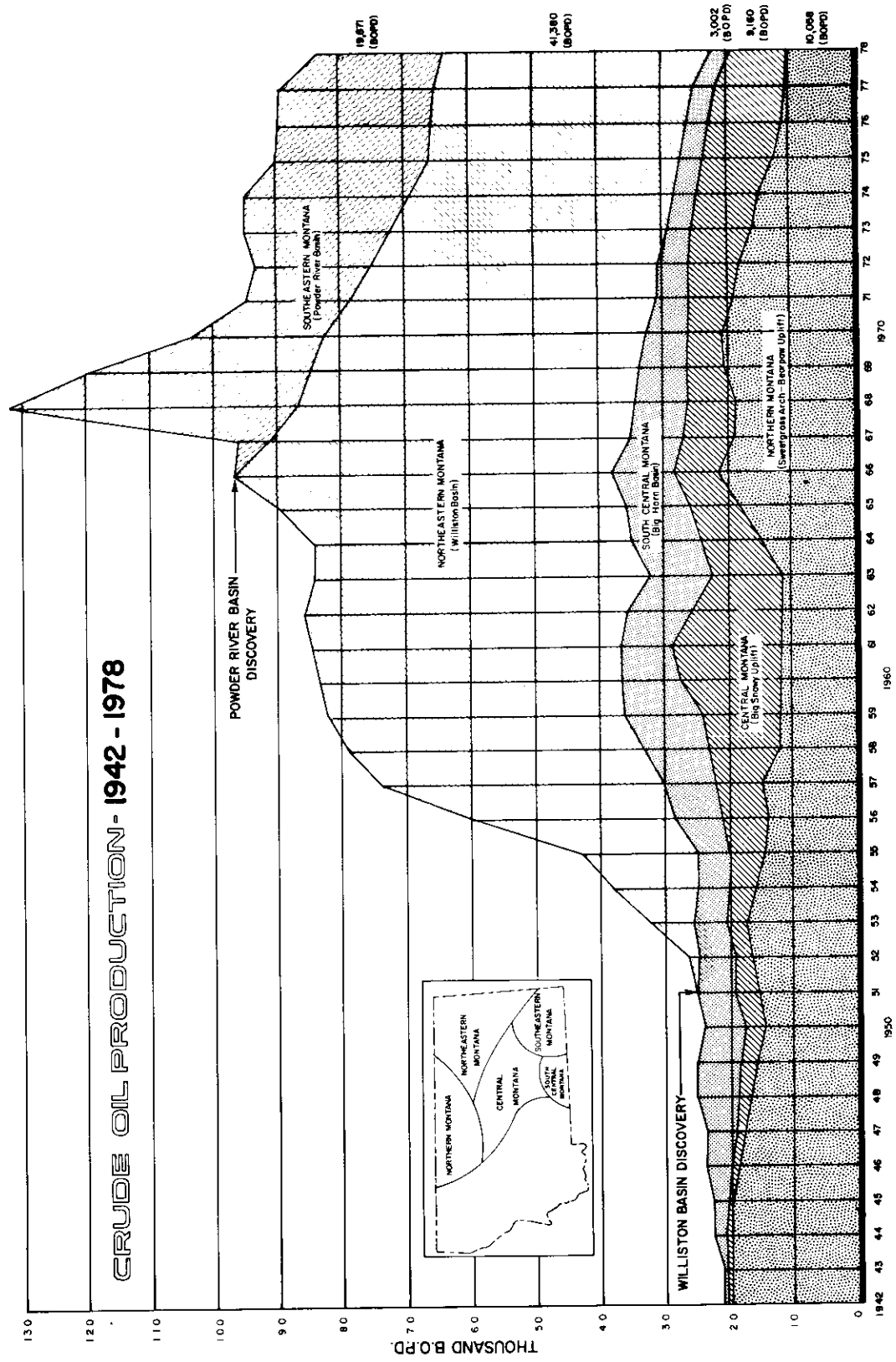
FIVE YEAR SUMMARY

	1974	1975	1976	1977	1978
Production, Northern Montana — Bbls.	5,464,319	4,551,324	4,200,539	4,060,957	3,671,322
South Central — Bbls.	1,432,528	1,318,779	1,246,005	1,210,064	1,095,737
Central — Bbls.	3,334,759	3,954,024	4,063,897	3,677,361	3,343,556
Williston Basin — Bbls.	14,939,292	14,312,685	14,496,380	14,621,635	15,103,853
Powder River Basin — Bbls.	9,383,064	8,706,862	8,807,439	9,110,037	7,252,869
TOTAL.....	34,553,962	32,843,674	32,814,260	32,680,054	30,467,337
No. of Producing Wells, Northern Montana.....	1,802	2,067	1,978	1,999	2,052
South Central.....	86	100	97	109	115
Central.....	267	303	316	343	347
Williston Basin.....	712	734	737	789	863
Powder River Basin.....	233	231	181	178	169
TOTAL.....	3,100	3,435	3,309	3,417	3,546
Average Daily Production/Well — BOPD,					
Northern Montana	8.3	6.0	5.8	5.6	4.9
South Central	45.6	36.1	35.1	30.4	26.1
Central	34.2	35.8	35.2	29.4	26.4
Williston Basin	57.4	53.4	53.8	50.8	48.9
Powder River Basin ...	100.3	103.2	133.3	140.2	117.6
STATE AVG.	30.5	26.2	27.1	26.2	23.5
Development Wells Drilled, Oil Wells	58	105	106	98	123
Gas Wells.....	179	261	264	220	223
Dry Holes.....	212	222	169	188	232
TOTAL.....	449	588	539	506	578
Exploratory Wells Drilled, Oil Wells	7	6	17	24	21
Gas Wells.....	21	15	8	19	15
Dry Holes.....	265	236	223	129	179
TOTAL.....	293	257	248	172	215
TOTAL WELLS DRILLED	742	845	787	678	793
TOTAL FOOTAGE DRILLED	2,173,519	2,467,838	2,826,301	2,482,379	2,968,842
AVERAGE DEPTH OF ALL WELLS	2,929	2,921	3,591	3,661	3,744

SUMMARY OF DRILLING BY COUNTIES — 1978
STATE OF MONTANA

County	Wildcats			Development			Total Wells	Footage Drilled	Average Depth
	Dry	Oil	Gas	Dry	Oil	Gas			
Beaverhead.....	3						3	22,596	7,532
Big Horn.....	3			3	3		9	33,814	3,757
Blaine.....	16			53		42	111	194,027	1,748
Carbon.....	4	1		5	2	4	16	86,677	5,417
Carter.....	2			1			3	8,008	2,669
Cascade.....	3						3	7,096	2,365
Chouteau.....	14		1	3		9	27	48,984	1,814
Daniels.....	1						1	8,300	8,300
Dawson.....	4						4	33,907	8,477
Fallon.....	1			2	7		10	92,966	9,297
Fergus.....	4			2			6	6,802	1,334
Garfield.....	2						2	10,650	5,325
Glacier.....	5			4	17	3	29	100,185	3,455
Granite.....	1						1	6,302	6,302
Hill.....	12		5	23		27	67	117,634	1,756
Liberty.....	6		2	6	7	12	33	87,172	2,642
McCone.....	1						1	9,530	9,530
Musselshell.....	16	1		22	11		50	205,680	4,114
Petroleum.....	10			2	1		13	50,676	3,898
Phillips.....	4			9		44	57	89,776	1,575
Pondera.....	7		5	12	13	14	51	99,393	1,949
Powder River.....	3			5	5		13	59,734	4,595
Richland.....	6	8		3	32		49	540,471	11,030
Roosevelt.....	11	6		6			23	252,779	10,990
Rosebud.....	10			19	8		37	192,369	5,199
Sheridan.....	9	3		4	6		22	221,197	10,054
Stillwater.....	1						1	5,196	5,196
Sweetgrass.....	1						1	5,916	3,746
Teton.....	1			3			4	4,756	1,189
Toole.....	5		2	42	10	50	109	220,938	2,027
Treasure.....	1						1	5,851	5,851
Valley.....	5			2		18	25	53,476	2,139
Wibaux.....	4	2		1			7	74,210	10,601
Yellowstone.....	3				1		4	13,489	3,372
TOTALS.....	179	21	15	232	123	223	793	2,970,557	3,746

CRUDE OIL PRODUCTION - 1942 - 1978



GAS PRODUCTION DATA — 1978

14.73 PSIA @ 60° F

Field	County	Producing Formations	1978
			Production MMCF
Natural Gas			
Alma	Liberty	Blackleaf, Bow Island and Sawtooth	4,643
Battle Creek	Blaine	Eagle	1,033,581
Bears Den	Liberty	Sawtooth and Sunburst	818
Big Coulee	Golden Valley and Stillwater	Lakota and Morrison	1,388,246
Big Rock	Glacier	Blackleaf, Bow Island	1,298,933
Black Coulee	Blaine	Eagle	49,728
Black Jack	Liberty	Sunburst, Swift, and Blackleaf	353,748
Bowdoin	Phillips, Valley	Bowdoin and Phillips	7,220,156
Bowes	Blaine	Eagle	540,002
Browns Coulee	Hill	Judith River and Eagle	27,326
Bullwacker and Area	Blaine and Chouteau	Judith River, Eagle (Virgelle)	1,488,680
Canadian Coulee	Hill, Liberty	Sawtooth	525,662
Cedar Creek	Fallon	Judith River, Eagle	1,771,217
Chip Creek	Chouteau	Eagle and Virgelle	21,810
Coal Coulee	Hill	Eagle	47,877
Conrad Butte (Ledger Field)	Pondera and Toole	Bow Island	121,247
Cutbank and Reagan	Glacier and Toole	Blackleaf, Moulton, Sunburst, Cutbank, and Madison	3,543,513
Dry Creek	Carbon	Judith River, Eagle, Frontier, Greybull, and Lakota	1,089,148
Dunkirk, North	Toole	Bow Island	371,199
East Chinook	Blaine	Judith River, Eagle	44,653
Flat Coulee	Liberty	Bow Island, Dakota, Swift and Sawtooth	83,403
Fresno	Hill	Judith River and Eagle (Virgelle)	299,618
Gold Butte	Toole	Bow Island	7,001
Grandview	Liberty	Bow Island, Madison	125,566
Cypan Basin	Pondera	Sunburst and Swift	316,012
Hardin	Big Horn	Frontier	20,865
Haystack	Liberty	Bow Island	206,060
Highview	Teton	Madison	372,001
Keith Block	Liberty	Blackleaf, Bow Island, Sawtooth	981,653
Kevin-Sunburst-Nisku	Toole	Nisku	154,376
Kevin-Sunburst	Toole	Bow Island, Sunburst, Swift, Sun River	322,958
Kicking Horse	Toole	Bow Island, Sunburst, Sawtooth	154,447
Kinyon Coulee Area	Toole	Bow Island	76,119
Lake Basin	Stillwater	Claggett, Eagle-Virgelle, Telegraph Creek, Frontier	265,594
Leroy	Blaine	Judith River, Eagle-Virgelle	622,024
Liscom Creek	Custer	Shannon	198,438
Lohman	Blaine	Judith River, Eagle	9,166
Middle Butte	Toole	Bow Island	95,850
Middle Dry Creek	Carbon	Frontier, Lakota	25,978
Miners Coulee	Toole	Bow Island, Sunburst, Swift	257,508
Mr. Lilly	Liberty	Madison	62,436
North Clark Fork	Carbon	Lakota	603
Plevna	Fallon	Judith River	39,073
Phantom	Toole	Sunburst, Swift	115,830
Prairie Dell	Toole	Bow Island, Swift	541,945
Pumpkin Creek	Custer	Shannon	164,268
Rapelje	Stillwater	Judith River, Claggett, Eagle-Virgelle	189,490
Rocky Boy Area	Hill	Eagle	119,925
Rudyard	Hill	Sawtooth	139,906
Sage Creek	Liberty	Blackleaf	3,107
Sawtooth Mt. and Area	Blaine	Judith River, Eagle	1,624,173
Sherard	Blaine, Chouteau	Judith River, Eagle	841,631
Snoose Coulee	Liberty	Bow Island	132,894
South Devon	Toole	Bow Island	135,094
South Shelby	Toole	Bow Island	390,962
Strawberry Creek Area	Toole	Bow Island	66,030
Swanson Creek	Phillips	Phillips	51,730
Tiger Ridge	Blaine-Hill	Judith River-Eagle	13,175,221
Utopia	Liberty	Sawtooth	261,145
West Butte	Toole	Bow Island, Sawtooth, Madison	15,935
Whitlash-Arch-Apex	Liberty-Toole	Bow Island, Swift	917,597
Willow Ridge	Toole	Bow Island	89,379
TOTAL NATURAL GAS			44,615,198

TOTAL NATURAL GAS

44,615,198

Associated Gas

Bell Creek	Powder River	Muddy	469,384
Big Muddy	Roosevelt	Interlake, Red River	24,871
Blue Hills	Richland	Red River	26,806
Cabin Creek	Fallon	Mission Canyon, Interlake, Red River	37,189
Culbertson	Roosevelt	Red River	52,529
Elk Basin	Carbon	Ten-Sleep	75,104
Fairview	Richland	Winnipigosis, Red River	390,380
Four Mile Creek	Richland	Red River	33,328
Four Mile Creek West	Richland	Red River	32,104
Glendive	Dawson	Red River	2,637
Mon Dak West	Richland	Mm, Mmc, Si, Or	193,407
Otis Creek	Richland	Red River	31,970
Pennel	Fallon	Mm, Si, Orr	42,584
Pine	Dawson, Prairie, Fallon, Wibaux	Interlake, Red River	....
Richland	Richland, Roosevelt	Mm, Dw, Si, Or	546,771
Sioux Pas	Richland	Mm, Si, Or	162,552
Sioux Pas, East	Richland	Red River	11,782
Sioux Pas, Middle	Richland	Red River	76,460
Sioux Pas, North	Richland	Red River	53,678
South Clarks Fork	Carbon	Greybull	77,322
Sumatra	Rosebud	Tyler	112,314
Tule Creek	Roosevelt	Nisku	71,525

TOTAL ASSOCIATED GAS

2,524,697

44,615,198

TOTAL GAS PRODUCED — 1978

47,139,895

NATURAL GAS IMPORTED MMCF

Canada	28,101
Wyoming	33,889
Dakotas	500
TOTAL	51,490 MMCF

NATURAL GAS EXPORTED MMCF

Canada	13,367
Dakotas	18,325
TOTAL	31,692 MMCF

BARRELS OF CRUDE OIL REFINED IN MONTANA — 1978

	CONTINENTAL OIL CO.	EXXON COMPANY	FARMERS UNION	KENCO REF. INC.	PHILLIPS PET. CO.	WESCO REF. CO.	TOTAL
Total Montana Oil.....	2,969,567	518,778	1,019,311	961,282	1,571,202	1,807,498	8,847,638
Canadian Oil Imported.....	9,057,374	4,413,195	7,350,685	...	547,630	...	21,368,884
North Dakota Oil Imported...	...	...	64,123	5,163	...	...	69,286
Wyoming Oil Imported.....	3,404,129	9,432,447	4,676,760	...	...	...	17,513,336
Total Montana, Canadian North Dakota, & Wyoming Oil	15,464,939	14,485,769	12,838,844	966,445	2,116,422	1,821,428	47,738,947

PERCENTAGE OF CRUDE OIL REFINED

Year:	PERCENTAGE OF CRUDE OIL REFINED			AVERAGE BARRELS PER DAY			
	Montana	Canada	Wyoming	Montana	Canada	Wyoming	Total
1975	18.56%	40.28%	41.16%	24,463	53,077	54,237	131,777
1976	16.93%	46.69%	36.38%	23,272	64,192	50,029	137,493
1977	18.49%	43.32%	37.78%	24,461	57,317	49,994	132,320
1978	18.51%	44.71%	36.64%	24,240	58,545	47,982	130,957

REFINING FIVE YEAR COMPARISON

	1974	1975	1976	1977	1978
	48,052,776	48,098,535	50,322,433	48,297,000	47,738,947

SUMMARY OF SECONDARY RECOVERY PROJECTS - JANUARY 1, 1979

Field, Formation	Operator	Type of Project	Injection Pattern	Base Injections Commenced	Cumulative Injections 1000's bbls. or MCF	Avg. Daily Inj. Rate bbls. or MCF	No. of Injection Wells	Source of Injection Media and Remarks
Ash Creek, Shannon	Transocean, Inc.	Waterflood	Peripheral	10-15-64	1,191	212	8	Partners
Bell Creek, Unit "M", Muddy	Gery	Waterflood	Peripheral	7- 1-70	104,227	38,000	31	Madison
Bell Creek, Unit "M", Muddy	Gery	Waterflood	Peripheral	10- 1-70	27,865	7,852	13	Madison
Bell Creek, Ranch Creek Unit, Muddy	Gery	Waterflood	Peripheral	7- 1-71	32,483	9,200	10	Madison
Bell Creek, Unit "M", Muddy	Gery	Waterflood	Peripheral	12- 1-71	16,780	8,488	6	Madison
Bell Creek, Unit "M", Muddy	Gery	Waterflood	Peripheral	8-72	20,233	7,638	11	Madison
Bell Creek, Unit "M", Muddy	Gery	Waterflood	Peripheral	8-72	15,443	6,055	15	Madison
Big Well, Tyler B	Texaco, Inc.	Waterflood	Peripheral	8-20-66	21,920	5,592	2	Produced, Amson & Tyler
Blackfoot, Cut Bank	Croft Petroleum Co.	Waterflood	Random	11-76	384	545	4	Madison
Border, NW, Cut Bank	B & O Co.	Waterflood	Random	6- 1-73	302	-	Terminated	Madison
Border, Old, Cut Bank	B & O Co.	Waterflood	Random	6- 1-73	812	200	2	Madison
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Random	5-23-61	8,106	207	5	Madison
Cabin Creek, Silurian-Ord.	Shell	Waterflood	Semi-Peripheral	6-12-59	182,334	37,500	28	Produced & Fox Hills
Cat Creek, East Dome, Swift	Hess	Waterflood	Semi-Peripheral	7-30-70	563	299	4	Third Cat Creek
Cat Creek, (Unit 1), 1st & 2nd Cat Creek	Farmers Union	Waterflood	Semi-Peripheral	10-10-62	12,344	1,786	5	Third Cat Creek
Cat Creek, (Unit 2), 1st & 2nd Cat Creek	Farmers Union	Waterflood	Semi-Peripheral	12- 1-59	18,584	1,246	5	Third Cat Creek
Cat Creek, Mosby, Swift	Farmers Union	Waterflood	Random	7-67	4,516	761	6	Third Cat Creek
Cat Creek, Mosby, Amson	Farmers Union	Waterflood	Random	6- 1-71	160	88	7	Third Cat Creek
Cut Bank, Marina West, Cut Bank	B & O Co.	Waterflood	S-Spot	6-72	2,075	479	8	Madison
Cut Bank, Tweedy, Cut Bank	B & O Co.	Waterflood	S-Spot	6-72	986	733	4	Madison
Cut Bank, NE, Cut Bank	Texaco, Inc.	Waterflood	S-Spot	6- 2-63	13,491	227	5	Madison
Cut Bank, NW, Cut Bank	Phillips	Waterflood	S-Spot	1-30-62	16,009	1,364	13	Madison
Cut Bank, NE, Cut Bank	Phillips	Waterflood	S-Spot	5-78	428	1,747	16	Madison
Cut Bank, SE, Cut Bank	Union	Waterflood	S-Spot	1-63	35,799	4,295	23	Madison
Cut Bank, SE, Cut Bank	Texaco, Inc.	Waterflood	S-Spot	4-62	57,671	7,472	67	Madison
Cut Bank, SW, Cut Bank	Phillips	Waterflood	S-Spot	9-62	88,123	15,588	82	Madison
Cut Bank, Lander "A"	Phillips	Waterflood	Random	4-65	1,578	140	2	Madison
Cut Bank, Lander	Texaco, Inc.	Waterflood	Random	7-64	8,128	649	3	Eagle
Cut Bank, McGuinness, Moulton	Union	Waterflood	Random	12-62	4,629	797	1	Madison
Cut Bank, Cut Bank	Texaco	Waterflood	S-Spot	9- 1-71	4,527	1,558	11	Madison
Cut Bank, Two Medicine, Cut Bank	Hess	Waterflood	Random	12-67	43,294	3,495	79	Madison
Cut Bank, Moulton, Moulton	Union	Waterflood	Random	11-69	16,501	-	0	Madison, discontinued
Dalquist Secondary Unit, Cut Bank	Union	Waterflood	Random	-	-	-	-	Madison-Not Initiated
Darling, State, Moulton	B & O Co.	Waterflood	Random	2-67	2,467	-	0	Madison, discontinued
Darling NE Unit, Moulton	Ralph Fair	Waterflood	Random	2-68	5,510	557	2	Produced Water
Darling, South Samsun, Moulton	B & O Co.	Waterflood	Random	2-67	7,548	121	3	Madison
Dwyer, Ratscliffe	Phillips	Waterflood	Peripheral	10-68	2,295	1,041	5	Madison
Elk Basin, Embarras-Tensleep	Amoco	Gas Injection	Random	12-72	2,331	-	0	Produced Gas (Inert)
Elk Basin, Frontier	Amoco	Waterflood	Random	1976	3,612	1,364	2	Madison
Elk Basin, Unit 2, Tensleep	Amoco	Waterflood	Random	1946	2,431	-	-	Produced Water
Elk Basin, Madison	Amoco	Waterflood	Peripheral	1967	69,643	14,117	5	Produced Water
Elk Basin, NW, Tensleep	Atlantic-Richfield	Waterflood	Semi-Peripheral	5-76	4,930	216	2	Madison
Fairview, NW Unit, Red River	Superior	Gas Injection	Crestal	10-25-67	3,711	1,085	1	Purchased Gas
Flat Coulee, Swift	Phillips	Waterflood	Peripheral	2- 1-72	4,876	1,813	14	Eagle
Flat Lake, Ratscliffe	Cleavon	Waterflood	Random	6- 1-71	19,636	12,942	11	Produced Water
Frankie, Tensleep	Continental	Waterflood	Random	9-70	6,743	557	7	Produced Water
Fred & George, Sunburst	Fulton	Waterflood	Random	7-70	20,732	7,612	2	Madison & Eagle
Gas City, Red River	Shell	Waterflood	Semi-Peripheral	10-31-65	12,671	9,233	3	Mission Canyon
Goose Lake, Ratscliffe	Cotton Petroleum	Waterflood	Semi-Peripheral	1-73	6,341	2,394	3	Produced Water
Jim Coulee, Tyler B	McAlester Fuel	Waterflood	Semi-Peripheral	6- 1-72	3,679	1,307	3	Third Cat Creek
Key Coulee, NW Unit, Tyler B	Flats Corporation	Waterflood	Semi-Peripheral	8-31-66	5,283	194	2	Madison
Key Coulee, East A & C, Tyler	Juniper Petroleum Corp.	Waterflood	Semi-Peripheral	12-24-69	3,609	186	3	Third Cat Creek
Key Coulee, South, Tyler	B & O Co.	Waterflood	Semi-Peripheral	1- 1-70	3,015	967	2	Madison
Kelley, Tyler	McAlester Fuel	Waterflood	Random	7-69	2,540	756	3	Third Cat Creek
Kevin-Sunburst, Madison	B & O Co.	Waterflood	Random	8-64	7,374	2,597	10	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	Waterflood	Semi-Peripheral	8-64	9,884	1,619	9	Madison
Laird Creek, Swift	Burlington-Northern, Inc.	Waterflood	Semi-Peripheral	2-25-77	467	485	3	Sawtooth
Little Beaver, Red River	Shell	Waterflood	Semi-Peripheral	8- 7-66	29,866	6,102	13	Produced Water
Little Beaver East, Red River	Shell	Waterflood	Semi-Peripheral	4-65	11,892	2,753	6	Red River-Minnelusa
Lookout Butte, Red River	Shell	Waterflood	Semi-Peripheral	4-67	25,414	7,045	11	Minnelusa
Lookout Butte, Lodgepole	Shell	Waterflood	Semi-Peripheral	2-69	2,928	1,170	1	Minnelusa
Pennel, Red River	Shell	Waterflood	Random	6-28-69	71,130	30,107	52	Dakota & Produced
Pine, South, Red River	Shell	Waterflood	Semi-Peripheral	3-59	157,098	25,395	30	Fox Hills & Produced
Pine, North, Silurian-Ord.	Shell	Waterflood	Semi-Peripheral	3-68	18,256	4,140	10	Lodgepole
Prichard Creek, Sunburst	Fulton Producing Co.	Waterflood	Random	4-73	58	145	1	Eagle
Ragged Point, Tyler	B & O Co.	Waterflood	Semi-Peripheral	12- 3-66	7,101	422	4	Third Cat Creek
Reagan, Madison	Union	Gas Injection	Random	8-67	4,915	451	2	Gas Injection
Reagan, Madison	Union	Waterflood	Random	7-73	1,401	778	4	Produced Water
Red Creek, Cut Bank	Exxon	Waterflood	S-Spot	6-65	12,605	2,591	5	Madison
Richey, SW, Dawson Bay & Interlaka	Atlantic-Richfield	Waterflood	Random	12-65	2,384	197	1	Fox Hills
Stensvad, Tyler	Ada Resources, Inc.	Waterflood	Semi-Peripheral	2-61	28,070	192	2	Madison
Sumatra, Tyler	Buttes Resources	Waterflood	-	-	-	-	-	Not Initiated
Sumatra, West, Tyler	Continental	Waterflood	Semi-Peripheral	10-68	22,858	11,496	9	Produced Water
Sumatra, Central, Tyler	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	80,273	73,618	12	Madison & Produced Water
Sumatra, NE, Tyler	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	5,078	1,780	5	Madison & Produced Water
Sumatra, SE, Tyler	B & O Co.	Waterflood	Semi-Peripheral	12- 1-69	11,091	4,314	7	Madison
Sumatra, Grabe, Tyler	Farmers Union	Waterflood	Random	6-16-75	276	235	1	Judith River
Wimmet Junction, Tyler	Petra-Lewis	Waterflood	Random	10- 1-77	1,272	3,484	1	Produced

1978 - OIL AND GAS DISCOVERIES*, EXTENSIONS**, AND NEW PAY ZONES***

COUNTY	OPERATOR-WELL NAME AND LOCATION	FIELD	TOTAL BIRTH	INITIAL POTENTIAL OIL, B/D GAS, MCF	PRODUCING FORMATION	DATE COMPLETED
HILL	Xeno, Inc., S.E. Saddle 11-16, NE SW 16-35N-14E	Red Rocks*	2,571	Shut-in	Eagle	8-8-78
	Polunbus Petroleum Corporation, Knapp 3-10, NW SE 3-36N-13E	Wild Horse*	2,450	Shut-in	Eagle	1-18-78
	Xeno, Inc., N.E. Saddle 5-32, SW NW 32-36N-14E	Rough Ridge*	2,590	Shut-in	2nd Wht. Spks	9-10-78
	Montana Power Company, State 9-36, NE SE 36-36N-14E	E. Rough Ridge*	3,010	Shut-in	Eagle	7-28-78
	Burton Hawks, Inc., Shettel 1, C SW 1-32N-6E	Chester*	3,265	Shut-in	Sawtooth	8-20-78
LIBERTY	Montana Power Company, Lees 9-15, NE SE 15-33N-4E	Utopia***	1,750	Shut-in	Bow Island	1-16-78
	Juniper Petroleum Corporation, State 3H-3H, SW SE 3H-3N-24E	Meson Lake***	4,285	66	1st Cat Creek	7-26-78
MUSSELSHELL	True Oil Company, Bloom 42-22, SE NE 22-10N-30E	Tippy Butte*	5,257	114	Tyler	6-21-78
	Milan R. Ayers, State 3, SW SE 28-29N-3W	N. Conrad*	1,468	Shut-in	Bow Island	12-12-78
PONDERA	Milan R. Ayers, L. Lightner 1, NE NW 22-29N-4W	Williams*	1,689	490	4th Bow Island	1-28-78
	Milan R. Ayers, Lettenga 2, NE SW 20-30N-3W	S. Marlas Riv.*	1,542	Shut-in	Bo. Isl., 2 Wht. Spk	6-23-78
RICHLAND	Milan R. Ayers, Hughes 1, NE NW 12-30N-4W	Bull Head*	1,755	Shut-in	2nd. Wht. Spks.	7-18-78
	Milan R. Ayers, Shable Ranch 1, NE NW 24-30N-6W	Lake Francis*	2,535	Shut-in	3rd Bow Island	7-2-78
RICHLAND	Lamar Hunt, Clark 1, SW NE 31-20N-57E	Burns Creek**	11,700	95	Red River	5-26-78
	Farmers Union Central Ex., Buxbaum 1, C E 1/2 SE 1-21N-57E	Fox Creek**	12,228	113	L. Interlake	3-15-78
RICHLAND	True Oil Company, Haffner 3H-12, SW SE 12-22N-58E	Vaux**	12,375	117	Ratcliffe, Mis. Cy.	2-12-78
	Texaco, Inc., Burl 1, SW SE 19-22N-58E	N. Fox Creek**	12,302	60	Mission Canyon	11-1-78
RICHLAND	Pennzoil Company, Coon 2, E 1/2 SW 25-23N-57E	E. Putnam***	12,535	50	Mission Canyon	2-15-78
	Amoco Production Company, Alton-Christen 1, NW SW 9-23N-58E	S. Bergeson***	12,552	65	Bakken-Red Riv.	2-12-78
RICHLAND	Farmers Union Central Ex., F. Anderson 2-25, NW NE 25-23N-58E	Vaux**	9,350	68	Mission Canyon	11-27-78
	Petroleum Inc., Candee 1-29, NE NE 29-24N-59E	Ft. Gilbert**	9,804	110	Mission Canyon	8-8-78
RICHLAND	Brownlie, Wallace, Armstrong & Bendet-Johnson 9-16, SWSW 9-25N-59E Fairview**	N. Sioux Pass**	9,550	39	Madison	8-6-78
	Helmerich and Payne, Inc., Anderson 1-30, NW SW 30-26N-58E	Oxbow*	12,692	256	Red River	8-30-78
ROOSEVELT	Terrapet LTD, Inc., Harmon 1-29, NE NE 29-27N-58E	Rocky Point*	12,760	150	Red River	11-27-77
	Terrapet LTD, Inc., Sundheim 1, NE SW NW 35-28N-57E	V. Belinville*	12,316	60	Ratcliffe	9-29-78
ROOSEVELT	Terrapet LTD, Inc., Triplett 1, NW NW 1-29N-55E	McCabe*	11,900	165	Red River	8-6-78
	Terrapet LTD, Inc., Rudolph 1, SW NE 8-29N-57E	Singletree*	12,075	90	Ratcliffe	5-20-78
ROOSEVELT	True Oil Company, Krogedal 31-5, NW NE 5-30N-57E	Anvil*	12,670	398	Red River	6-29-78
	Diamond Shamrock, Summark Crusch 1, NW NW 18-30N-59E	Sunnyhill*	12,000	294	Red River	10-21-78
SHERIDAN	William H. Hunt Trust Est., Miller 1, NE NW 9-31N-58E	Colored Canyon*	11,522	320	Red River	1-23-78
	Patrick Petroleum Corporation, Butler-Spaulding 1, SENW 18-32N-57E	Reserve**	11,322	99	Red River	2-3-78
TOOLE	Gulf Oil Corporation, Brekke 1, W 1/2 NW 27-33N-56E	Clear Lake***	11,410	55	Red River	4-20-78
	Gulf Oil Corporation, Guenther 1-8, SE SE 8-33N-58E	S. Clear Lake*	11,442	290	Ratcliffe	9-29-78
TOOLE	Patrick Petroleum Corporation, Olson-Rasmussen 1, SWSW 28-33N-58E	Unnamed*	1,860	Shut-in	Red River	10-28-78
	Thunderbird Oil and Gas, Inc., Grinde 7-35, SW NE 35-34N-1E	Marlas River**	1,232	Shut-in	Bow Island	5-26-78
VALLEY	Diamond Shamrock, Underdahl 321-33, NE NW 33-31N-2W	Kevin-Sunburst***	2,006	Shut-in	Bow Island	5-19-78
	Westcoast Oil and Gas Corporation, Fee 1, SE SW 14-34N-4W	Vandalia***	1,779	85	Sawtooth	10-3-78
WYBAUX	Joseph J.C. Paine and Associates, Federal 1, Lot 6 2-29N-36E	Caryle*	11,260	290	Eagle-Bowdoin	11-2-78
	Shell Oil Company, Douglas 42-18, SE NE 18-11N-61E	Caryle**	10,914	35	Red River	9-12-78
WYBAUX	Shell Oil Company, Lindstrom 14X-29, SW SW 29-11N-61E	Caryle**	10,914	35	Red River	12-3-78

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
ALMA Blackleaf (L. Cret.) Bow Island (L. Cret.) Sawtooth (M. Jur.)	1 1	Structural Strat.	Depletion	640-acre spacing units. Location to be no closer than 990' from spacing unit boundary. (Order 19-77.)	None
ANTELOPE Swift (U. Jur.) Kootenai (L. Cret.)	7 1	Structural	Water Drive	(Listed as part of Cat Creek Field.)	None
ANVIL Red River (Ord.)	1	Structural-Strat.	Water Drive	State-wide.	None
ARCH APEX Bow Island (L. Cret.) Gas	32	Strat.	Volumetric	330' from legal subdivision; 2400' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order 4-60.) (Sometimes called Colorado Blackleaf pool. (Swift) State-wide.	None
Swift (Jurassic) Gas	1	Strat.	Volumetric		
Sunburst (L. Cret.) Oil	6 (Shut-in)	Strat.	Depletion		
ASH CREEK Shannon (U. Cret.)	3 (Shut-in)	Structural	Partial Water Drive and Depletion	Spacing waived within utilized 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.)
BADLANDS Eagle (U. Cret.) Gas	7	Structural-Strat.	Volumetric	Drilling and spacing units allow one well per governmental section to be located anywhere within a section but no closer than 990' from a section line (Order 22-78.)	None
BAINVILLE Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	Produced water disposed into Red River formation. (Order 7-A-75.)
BAINVILLE, WEST Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	320-acre spacing units to consist of two governmental quarter sections that may be in either one or two governmental sections. Location to be no closer than 660' to the unit boundary or closer than 1650' to another producing well within the field. (Order 19-78.)	None
BANNATYNE Swift (U. Jur.)	8	Structural	Comb. Water Drive and Volumetric	Center of 10-acre tracts, 50' topographic tolerance. Commingling permitted. (Order 20-58.)	Pilot waterflood of Swift suspended in 1963.
Sun River (U. Miss.)	6 (Shut-in)				
BATTLE CREEK Eagle (U. Cret.) Gas	20	Structural	Volumetric	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
BEARS DEN Sunburst (L. Cret.) Gas Swift (U. Jur.) Oil Sawtooth (Jur.) Gas	2 7 1	Structural	Depletion and Gas Cap Drive	State-wide.	None
BELL CREEK Muddy (L. Cret.) Oil & Gas Gas (Shut-in)	172 1	Strat.	Depletion	Originally 40-acre spacing units with location 660' from unit boundary with 150' tolerance for topographic reasons only. (Order 37-67, 39-67, 50-67, 1-69, 17-70.) Field now unitized.	Six areas unitized (Unit "A", "B", "C", "D", and "E") Floods used Madison water. (Orders 7-70, 23-70, 8-71, 26-71, 35-71, 36-71.)
BELL CREEK SOUTHEAST Muddy (L. Cret.) Gas (Shut-in)	1 3	Strat.	Depletion	160-acre spacing units, wells 660' from spacing boundary. (Order 31-72.)	None
BENRUD Nisku (Dev.)	2	Structural	Water Drive	160-acre spacing units with permitted location within a 1320' square in center of quarter section. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62.)
BENRUD, EAST Nisku (Dev.)	3	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62, 32-66, 4-A-73.)
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 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 Frontier (U. Cret.)	8 1 1	Structural Structural Structural-Strat.	Water Drive Water Drive Water Drive	State-wide.	None
BIG GULLY L. Tyler (Penn.)	3	Strat.	Depletion	State-wide.	None
BIG MUDDY CREEK Interlake (Sil.) Red River (Ord.)	1 3	Structural	Water Drive	One well per 320 acre spacing unit with well no closer than 660 feet from boundary of four east-west units. (Order 4-75.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BIG ROCK Blackleaf (L. Cret.) Gas Bow Island (L. Cret.) Gas	19 6 9	Strat.	Depletion	640-acre spacing units for Blackleaf "A" formation. Location to be no closer than 990' to any governmental section line. (Order 31-78.)	None
BIG WALL Amsden (Penn.) Tyler (Penn.)	3 10 5	Structural- 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.) Excess produced water disposed into the Tyler "B" formation. (Order 13-A-77.)
BIG WALL, NORTH Stensvad (Penn.)	1	Structural- Strat.	Water Drive	State-wide.	None
BLACK COULEE Eagle (U. Cret.) Gas	3 1	Structural- Strat.	Water Drive	One well per 320-acre spacing unit, two adjacent quarter sections, direction operator's option. Wells to be at least 990' from unit boundary. (Order 6-73.)	None
BLACKFOOT Cut Bank (L. Cret.)	6	Strat.	Depletion	One well only per 40-acre spacing unit, 300' tolerance from center of spacing unit. Dual completion in Cut Bank and Madison with administrative approval. (Order 3-57.)	Waterflood started November, 1976. (Order 34-76.)
BLACK JACK Sunburst (L. Cret.) Gas Swift (U. Jur.) Gas & Oil Blackleaf (U. Cret.) Gas	12 2 3 1	Strat.	Depletion	One gas well per 160-acres, no closer than 660' from boundary of each unit. (Order 3-69.) State-wide spacing. Order 3-69 amended to include Blackleaf in spacing and field rules for gas. (Order 4-74.) Blackleaf gas pooled. (Order 3-75.)	None
BLUE HILL Red River (Ord.)	1	Structural	Water Drive	State-wide.	None
BORDER Cut Bank (L. Cret.) Oil & Gas	10	Strat.	Depletion	Oil: Unitized into New and Old Border fields. Unitized 6-1-73. (Orders 8-73, 9-73.) Gas: 330' from boundary of legal subdivision. 2,400' between wells in same formation on same lease. 75' topographic tolerance. (Order 7-54.)	Waterflood approved. (Orders 8-73, 9-73, 28-73.)
BOULDER Duperow (Dev.)	1	Structural	Water Drive	Refer to Rule 203 (Order 16-71, Docket 14-71.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BOWDOIN Bowdoin & Phillips sands in Colorado Shale (U. Cret.) Gas (Shut-in) *Gas wells outside boundary.	301 65* 107	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.) Unitized 1958. Delineated. (Order 3-72.)	Produced water injected into Phillips Sand-Ashfield unit. (Order 10-A-77.)
BOWES Eagle (U. Cret.) Gas (Shut-in)	27 3	Structural	Volumetric	660' from boundary of legal subdivision, 1320' from other wells in same formation. 75' topographic tolerance. (Order 23-54.) Order 23-54 amended by establishing 160-acre Eagle spacing units in Sec. 5, 6, 7, 8, 17, 18-31N-19E. (Order 44-75.)	None
Sawtooth (M. Jur.) Oil (Shut-in)	57 17	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 fieldwide waterflood in 1965. (Order 6-61.) Water from Madison.
BRADLEY Sun River (Miss.)	2	Structural	Water Drive	State-wide.	None
BRADY Sunburst (L. Cret.) (Shut-in)	1 2	Strat.	Depletion Partial Water Drive	10-acre spacing units with 75' topographic tolerance from center of spacing unit. (Order 34-62, 55-62.)	None
BREED CREEK Tyler (Penn.)	5	Strat.	Depletion	State-wide.	None
BRORSON Mission Canyon (Miss.) Oil & Gas Red River (Ord.) Oil & Gas	7 3	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	5	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. Reduced Field Area. (Order 26-77.)	None
BROWN'S COULEE Judith River (U. Cret.) Gas Eagle (U. Cret.) Gas (Shut-in)	2 1	Structural	Volumetric	One well per 160-acre unit with well location no closer than 660' from unit boundary. Commingling permitted with administrative approval. (Order 7-74.)	None
BRUSH LAKE Red River (Ord.) Oil & Gas (Shut-in)	5 2	Structural-Strat.	Depletion Water Drive	320-acre spacing with initial nine spacing units described in. (Order 15-71 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
BULLWACKER Judith River (U. Cret.) Gas Eagle-Virgelle (U. Cret.) Gas	6 35 8 (Shut-in)	Structural	Volumetric	One well per 320-acre spacing unit with well location no closer than 660' from unit boundary and 990' from field boundary. (Order 26-74.)	None
BURNS CREEK Red River (Ord.)	2	Structural	Depletion Water Drive	State-wide.	None
CABIN CREEK Mission Canyon (Miss.) Oil & Gas	14 16 (Shut-in)	Structural	Water Drive Depletion	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended until present Unit Agreement becomes inoperative. (Order 36-62.) Many wells produce from both Interlake and Red River by dual completions. Gas through extraction plant.	Waterflood of Siluro-Ordovician reservoir has been expanded to full scale peripheral flood. (Orders 60-62, 30-63.)
CANADIAN COULEE Sawtooth (M. Jur.) Gas	3 1 (Shut-in)	Structural- Strat	Volumetric	320-acre spacing units with well location no closer than 660' from unit boundary, and 990' from field exterior boundaries. (Order 18-76.)	None
CANADIAN COULEE, NORTH Sawtooth (M. Jur.) Gas	3 3 (Shut-in)	Structural- Strat.	Volumetric	640-acre spacing unit. Location to be no closer than 1650' to section line. (Order 15-75.)	None
CANAL Red River (Ord.) Mission Canyon (Miss.)	1 1	Structural Structural	Water Drive Depletion	320-acre spacing units consisting of East half and West half of governmental section. (Order 34-70.)	None
CARLYLE Red River (Ord.)	2	Structural	Water Drive	State-wide.	None
CAT CREEK Kootenai (L. Cret.) (3 sands) Morrison (U. Jur.)	34 2 2 (Shut-in)	Structural- Strat. Structural- Strat.	Water Drive 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 waterflood in progress. (Orders 17-56, 18-59, 13-62, 8-68, 38-70, 11-71.) Water from Third Cat Creek sand. Waterflood modified. (Order 29-74.)
Ellis (U. Jur.) Amsden (Penn.)	16 2 (Shut-in)	Structural Structural- Strat.	Depletion- Water Drive Water Drive	State-wide.	
CEDAR CREEK Judith River (U. Cret.) Gas	75	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.) Field extension (Order 23-76.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CHARLIE CREEK Nisku (Dev.) Duperow (Dev.)	1 1	Structural Structural	Water Drive Water Drive	320-acre spacing units, either east-west or north-south at option of operator, located no closer than 660' from spacing unit boundary and no closer than 1650' from another producing well. Spacing units may not cross section lines. (Order 66-76.)	None
CHELSEA CREEK Nisku (Dev.)	1 (Abandoned)	Structural	Water Drive	State-wide.	None
CHINOOK, EAST Eagle (U. Cret.)	3	Structural-Strat.	Volumetric	State-wide.	None
CHIP CREEK Eagle-Virgelle (U. Cret.)	2	Structural-Strat.	Volumetric	160-acre spacing units: Location no closer than 660' from spacing unit boundary. (Order 89-76.)	None
CLARK'S FORK Frontier (U. Cret.)	1 (Shut-in)	Structural-Strat.	Depletion	330' from quarter-quarter section line, 1320' between wells with 75' topographic tolerance. (Order 17-54.)	None
CLARK'S FORK, NORTH Lakota (L. Cret.) Gas & Oil	1	Structural-Strat.	Volumetric	160-acre quarter section spacing with location no closer than 660' from spacing unit boundary. (Order 23-75.)	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
CLEAR LAKE Red River (Ord.) Mission Canyon	4 2	Structural	Water Drive	State-wide.	None
COAL COULEE Eagle (U. Cret.) Gas	1	Structural-Strat.	Volumetric	One well per governmental section, to be located no closer than 990' from section line and only one well permitted per formation. (Order 25-78.)	None
COLORED CANYON Red River (Ord.)	1	Structural-Strat.	Water Drive	State-wide.	None
CONRAD BUTTE (See Ledger Field)					
CONRAD, SOUTH Dakota (L. Cret.)	1 3 (Shut-in)	Strat.	Depletion	10-acre spacing units. Wells in center of each unit with 75' topographic tolerance. (Orders 34-62, 31-63.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
COW CREEK Charles (Miss.)	1	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.)	11	Structural	Water Drive	40-acre spacing units consisting of quarter-quarter section with permitted well to be at center with 150' topographic tolerance. (Order 35-74.)	Produced water disposed into Dakota formation. (Order 30-A-75 and 61-A-76.)
CULBERTSON Red River (Ord.)	2	Structural-Strat.	Depletion-Water Drive	State-wide in part. Unitized 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.)	Produced water disposed into Red River formation. (Order 13-A-72.)
CUPTON Red River (Ord.)	10	Structural-Strat.	Water Drive	160-acre quarter section spacing units. Location no closer than 660' from spacing unit boundary. (Order 4-72.)	None
CUT BANK Kootenai (L. Cret.) Oil & Gas Madison (Miss.) Oil & Gas (Gas only) Cut Bank (L. Cret.) Gas Sunburst (L. Cret.) Gas Moulton (L. Cret.) Gas	857 33 29 145 16 5 3 17 20	Strat. Strat. Strat. Strat. Strat. Strat.	Depletion Water Drive Depletion Depletion 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-acre (N $\frac{1}{2}$ & S $\frac{1}{2}$). (Order 26-70.) *320-acre spacing units for gas; (Cut Bank) units: (E $\frac{1}{2}$ & W $\frac{1}{2}$) wells to be located no closer than 330' from legal subdivision line nor less than 2400' from drilling or producible well producing from same reservoir. (Orders 82-76, 6-77.)	There are 18 waterfloods in progress. Water from Eagle and Madison, or produced. Produced water disposed into Madison formation. (Order 22-A-74, 55-A-77.)
DAGMAR Red River (Ord.)	2	Structural	Water Drive	State-wide.	None
DARLING (Included as part of Cut Bank Field)					
DEAN DOME Greybull (L. Cret.) Gas	1	Structural	Water Drive	State-wide. Oil ring below gas cap.	None
	1	Structural	Water Drive		
DEER CREEK Interlake (Sil.)	1	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.

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
DELPHIA Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
DEVIL'S BASIN Heath (U. Miss.)	4	Structural	Depletion	State-wide.	None
DEVON Blackleaf (U. Cret.) Gas Kootenai (L. Cret.) Oil	21 (Shut-in) Depleted	Strat. Strat.	Volumetric Depletion	State-wide. State-wide.	None None
DEVON, SOUTH Bow Island (L. Cret.) Gas	1 (Shut-in) 10	Strat.	Volumetric	Drilled on state-wide spacing. Unitized for primary production. (Order 28-71, corrected.)	None
DRY CREEK Eagle (U. Cret.) Gas Judith River (U. Cret.) Frontier (U. Cret.) Gas Greybull (L. Cret.) Gas Greybull (L. Cret.) Oil	1 (Shut-in) 2 2 6	Structural- Strat. Structural- Structural- Strat.	Volumetric Volumetric Volumetric- Depletion	State-wide. Field re-delineated. (Order 8-70.) Six additional gas storage wells, west end of structure.	None
DRY CREEK MIDDLE Frontier (U. Cret.) Gas Lakota (L. Cret.) Gas	1 1	Structural- Structural- Strat.	Volumetric Volumetric	320-acre spacing units consisting of two adjacent governmental quarter sections lying N-S or E-W at operator's option with permitted well no closer than 660' from spacing boundary. (Order 25-75.)	None
DRY CREEK, WEST Greybull (L. Cret.) Oil & Gas (Gas)	1	Structural- Strat.	Volumetric Depletion	160-acre spacing units; well location anywhere in spacing unit but no closer than 660' from unit boundary. (Order 43-78.)	None
DRY CREEK (Shallow Gas) Judith River (U. Cret.) Eagle (U. Cret.) Virgelle (U. Cret.)	2 1 1	Structural Structural- Strat.	Volumetric Volumetric	160-acre spacing units; (all formations capable of producing gas from the top of the Cody to the surface). One well per horizon per spacing unit to be located no closer than 660' from unit boundary. (Order 54-76.)	None
DUNKIRK, NORTH Bow Island (L. Cret.) Gas	9	Strat.	Water Drive	One well per governmental section per zone or horizon. Each producing well to be located anywhere within section but no closer than 990 feet from section line. (Order 25-77.) Field enlargement. (Order 64-78.)	None
DWYER Ratcliffe (Miss.)	10 (Shut-in) 5	Structural- Strat.	Water Drive- Volumetric	160-acre spacing units; well location in center of SE $\frac{1}{4}$ 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.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
EAGLE SPRING Bow Island (L. Cret.) Gas	2	Structural	Depletion	One well per governmental section per zone, located anywhere but no closer than 990' from section line for all gas zones above the top of the Kootenai. (Order 4-78.)	None
EAST KEITH & KEITH Bow Island (L. Cret.) Gas (Shut-in)	7	Structural	Water Drive	State-wide, except unitized portions spaced by (Order 22-62.) Pooling (Order 19-66.)	None
Black Leafe (L. Cret.) Gas Sawtooth (Jur.) Gas (Shut-in)	15 6 1				
ELK BASIN (Mont. Portion) Frontier (U. Cret.) (Shut-in)	12	Structural	Gravity Drainage	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. (Order 17-61.)
Embar-Tensleep (Perm., Penn.) Oil and Gas (Shut-in)	8 18 13	Structural	Gravity Drainage		
Madison (Miss.) (Shut-in)	22	Structural	Water Drive		
ELK BASIN, NORTHWEST Frontier (U. Cret.) (Shut-in)	7	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, 6-74.) Madison, produced water.
Embar-Tensleep (Perm., Penn.) Oil and Gas (Shut-in)	4	Structural	Gravity Drainage		
Madison (Miss.) (Shut-in)	2 1	Structural	Water Drive		
ENID, NORTH Red River (Ord.)	1	Structural-Strat.	Water Drive	State-wide.	None
ETHRIDGE AREA Bow Island (L. Cret.) Gas (Shut-in)	3	Strat.	Water Drive	State-wide, except two wells by (Order 28-65.)	
Swift (U. Jur.) Gas (Shut-in)	5 1	Strat.	Water Drive		
FAIRVIEW Winnipegosis (Dev.) Oil & Gas Red River (Ord.) Oil & Gas (Shut-in)	3 8 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 Bronson fields. (Order 11-70.) Salt water disposal into Dakota. (Orders 9-A-71, 24-A-71.)
Mission Canyon (Miss.) (Shut-in)	1	Structural	Water Drive		
FERTILE PRAIRIE Red River (Ord.)	2	Structural-Strat.	Water Drive	80-acre spacing units consisting of north-south rectangular units. Well location in NW¼ and SE¼ of quarter section with 75' topographic tolerance. (Orders 3-56, 7-62.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
FLAT COULEE Bow Island (L. Cret.) Gas	3 (Shut-in)	Structural 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 redelineation approved for Swift sandstone. (Orders 13-71, 17-A-71, 22-71.)
Dakota (L. Cret.) Gas	2 (Shut-in)	Strat.	Depletion	State-wide gas spacing.	
Swift (Jur.) Gas	1 (Shut-in)	Strat.	Depletion	State-wide gas spacing.	
Swift (Jur.) Oil	20	Strat.	Depletion	40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.)	
Sawtooth (Jur.) Gas	1 (Shut-in)	Strat.	Depletion	State-wide.	
FLAT LAKE Nesson (Miss.)	1 (Shut-in)	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.) Unit operation for western part of field. (Order 32-74.)
Ratcliffe (Miss.)	49 4 (Shut-in)	Structural- Strat.	Partial Water Drive		
FLAT LAKE, SOUTH Ratcliffe (Miss.)	4	Structural- Strat.	Partial Water Drive	Same as Flat Lake spacing. (Order 2-67.)	Excess salt water disposed into Muddy, Dakota, or Lakota. (Order 19-67.)
FOUR MILE CREEK Red River (Ord.)	1	Structural	Depletion	320-acre spacing units. (Order 43-75.)	None
FOUR MILE CREEK, WEST Red River (Ord.)	2	Structural	Depletion	State-wide.	None
FOX CREEK Stony Mtn. (Ord.)	1	Structural	Depletion	State-wide.	None
FOX CREEK, NORTH Mission Canyon (Miss.)	1	Structural	Depletion	State-wide.	None
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)	25 5 (Shut-in)	Strat.	Depletion	Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.) State-wide. Order 29-63 amended by (Order 48-77.)	Sunburst waterflood initiated July, 1970, using water from Madison. (Order 13-70) and Eagle water. (Order 27-71.)
Swift (U. Jur.) Oil & Gas (Shut-in)	9 2 (Shut-in)	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
FRESNO Eagle-Virgelle (U. Cret.)	5	Structural-Strat.	Volumetric	640-acre spacing units, well located no closer than 990' from unit boundary. One well may be drilled within each spacing unit for each production horizon within the spacing unit. (Order 14-76.)	None
FROID, SOUTH Red River (Ord.)	1	Structural-Strat.	Depletion	State-wide.	None
FT. GILBERT Red River (Ord.)	3	Structural-Strat.	Depletion	State-wide.	None
GAGE Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
GAS CITY Red River (Ord.)	10 9 (Shut-in)	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.) Interlake (Sil.)	1 1 (Shut-in)	Structural-Strat.	Depletion-Water Drive	State-wide.	None
GLENDIVE Red River (Ord.) Oil & Gas	14 4 (Shut-in)	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, 7-A-72.)
GOLD BUTTE Bow Island (L. Cret.)	2	Structural	Water Drive?	640-acre spacing, well location any quarter-quarter section cornering on center of section. (Order 26-59.) Amended field boundary. (Order 43-77.)	None
GOLDEN DOME Eagle (U. Cret.) Gas Greybull (L. Cret.) Oil	2 2 (Shut-in)	Structural-Strat.	Water Drive Depletion	160-acre spacing; 660' from spacing unit boundary. (Order 15-72.)	None
GOOSE LAKE Ratcliffe (Miss.) Oil & Gas	19 4 (Shut-in)	Structural-Strat.	Partial Water Drive	Unitized. (Order 17-72.) Reduced field area; (Order 29-77.) Unit production curtailment; (Order 45-77.)	Excess produced water disposed into Mission Canyon and Dakota formations. (Orders 12-64, 14-66, 12-68.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
GRABEN COULEE Sunburst (L. Cret.)	1	Structural-Strat.	Depletion	40-acre spacing units; well location no closer than 330' from legal subdivision.	Excess produced water disposed into Cut Bank formation. (Order 45-A-75.)
	2	(Shut-in)			
	33	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.)	
	7	(Shut-in)			
	3	Structural-Strat.	Depletion		
Cut Bank-Madison (Dual)					
GRANDVIEW Bow Island (L. Cret.) Gas (2 Zones)	8	Structural	Unknown	320-acre spacing units aligned in a north-south direction; well locations no closer than 660' to a spacing unit boundary. (Order 49-67.) Dual completion with Bow Island.	None
Madison (Miss.) Gas	1	Structural	Unknown		
(Shut-in)					
GRANDVIEW, EAST Swift (Jur.)	1	Structural	Water Drive	State-wide.	None
GUMBO RIDGE Tyler (L. Penn.)	6	Structural-Strat.	Unknown	State-wide.	None
GYPSY BASIN Sunburst (L. Cret.) Oil & Gas	6	Structural-Strat.	Comb. Water Drive and Completion	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.
Swift (U. Jur.)	2	Structural-Strat.	Comb. Water Drive and Depletion		
(Shut-in)					
Sawtooth-Madison (Jur. & Miss.) Oil & Gas	2	Structural-Strat.	Comb. Water Drive and Completion	(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.)	None
(Shut-in)					
HARDIN Frontier (U. Cret.) Gas	17	Strat.	Volumetric	State-wide.	Water disposal into Red River. (Order 20-A-70.)
(Shut-in)	31				
HAVRE Eagle (U. Cret.)	1	Structural-Strat.	Water Drive Depletion	State-wide. Single well used in town of Havre.	
HAY CREEK Mission Canyon (Miss.)	1	Structural	Depletion	State-wide.	None
Red River (Ord.)	2	Structural	Volumetric Water Drive	320-acre spacing, any two adjacent quarter sections, direction to be determined by operator. Location no closer than 660' from unit boundary. (Orders 15-69, 27-73.) Gas to Brorson plant.	

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
HAYSTACK BUTTE Eagle-Virg. (U. Cret.) Bow Island (L. Cret.) Kootenai (L. Cret.)	8	Structural-Strat.	Volumetric	640-acre spacing units; one well per each producing horizon above Kootenai. Location no closer than 990' from spacing unit boundary. (Order 85-76.) Amended field boundary. (Order 37-77.)	None
HIAWATHA Tyler (L. Penn.) (2 sands)	4 1 (Shut-in)	Structural-Strat.	Depletion	State-wide.	None
HIBBARD Amsden (Penn.)	1	Unknown	Water Drive	State-wide.	None
HIGH FIVE Tyler (Penn.)	16	Structural-Strat.	Water Drive	State-wide.	Water disposed into Dakota and Stensvad formations (Orders 33-A-77, 70-A-78.)
HIGHVIEW Madison (Miss.) Oil & Gas	1 3 (Shut-in)	Structural	Water Drive	160-acre spacing units, located no closer than 660' from spacing unit boundary, 150' topographic tolerance. (Order 84-76.)	None
HORSE CREEK Swift (U. Jur.)	1	Structural	Water Drive	State-wide.	None
HOWARD COULEE Tyler (L. Penn.) Piper Line (M. Jur.)	3 2	Structural-Strat. Strat.?	Unknown Unknown	State-wide.	Produced water injected into the Piper formation. (Order 69-A-78.)
IVANHOE Morrison (U. Jur.) Amsden (L. Penn.) Tyler (L. Penn.)	1 1 5 4	Structural-Strat. Structural-Strat. Structural-Strat.	Depletion Water Drive 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 and 9-56.)	Waterflood of Tyler B & C sands discontinued. Water disposal into Tyler "A". (Order 8-A-78.)
JIM COULEE Tyler (L. Penn.)	15 3 (Shut-in)	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 3 (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.) (40-acre spacing; W $\frac{1}{2}$ E $\frac{1}{2}$ and W $\frac{1}{2}$ Sec. 35-11N-30E, NW $\frac{1}{4}$ Sec. 2-10N-30E). (Order 23-72.) Topographic tolerance varies from 100' to 250'. (Orders 11-60, 4-64, 23-64.) Buffer zone waived. (Order 16-65.) Field Reduction (Order 2-76.) (Orders 11-60, 4-64, and 2-76) Amended by: (Orders 58-76.)	Three waterflood units. (Orders 3-64, 28-66, 10-69, 14-69.) Madison water injected.

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
KEG COULEE, NORTH Tyler (Penn.)	5 1 (Shut-in)	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.) Field Area amended (Orders 59-76.)	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, 51-76.)
KEVIN-SUNBURST Sunburst (L. Cret.) Oil & Gas Swift (U. Jur.)	51 46 1 (Shut-in)	Strat. Structure	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.)	There are four waterfloods in operation, using Madison water. (Orders 9-64, 17-64, 30-64, 36-65, 29-71.) Sunburst water disposed into Madison (Order 50-76.)
Sun River (Miss.) Oil & Gas Gas only	482 49 ? (Shut-in)	Structure-Strat.	Depletion	640-acre spacing units; location no closer than 990' from spacing unit boundary. (Order 83-76.)	None
Nisku (Dev.) Gas	1				
KEVIN, SOUTHWEST Bow Island (L. Cret.) Gas Sunburst (L. Cret.) Gas Swift (U. Jur.) Gas Bow Island-Swift Bow Island-Sunburst	1 1 1 2 2	Structure-Strat.	Depletion	320-acre one-half section spacing units lying N-S or E-W at operator's option. Location to be no closer than 660' from unit boundary for Sunburst-Swift formations and all formations above the top of the Kootenai. (Orders 26-78, 47-78.)	None
KICKING HORSE Bow Island (L. Cret.) Sawtooth (Jur.) Gas Sunburst (L. Cret.)	8 1 1	Structural Strat.	Depletion Depletion	320-acre spacing with location permitted no closer than 660' from unit boundary and 990' from field boundary. (Order 17-74.) One 640-acre unit. (Order 17-74.)	None
KINYON COULEE Bow Island (L. Cret.)	4	Structural-Strat.	Volumetric	State-wide.	None
LAIRD CREEK Swift (U. Jur.) Oil & Gas	10	Strat.	Depletion	State-wide.	Unitized and waterflood authorized in Swift for oil production. (Order 25-74.) Commenced 2-25-77.
LAKE BASIN Telegraph Creek (U. Cret.) Gas Virgelle (U. Cret.) Gas	9 2 (Shut-in)	Structural-Strat.	Volumetric	160-acre spacing units to base of Virgelle; wells no closer than 660' from unit boundary and 990' from field boundary. Commingling permitted after administrative approval. (Order 9-74.) Gas from Telegraph Creek pooled. (Order 29-75.)	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	2	Structural	Unknown	640-acre spacing units consisting of one section. Locations 990' from section line. (Order 3-74.)	None
Claggett (Shut-in)	5				
Eagle-Virg. (U. Cret.) Gas	1	Structural	Unknown	160-acre spacing units located no closer than 660' from quarter section lines within restricted Sections. (Order 63-76.)	None
(Shut-in)	1				
LANDSLIDE BUTTE					
Sun River (Miss.)	1	Unknown	Water Drive	State-wide.	None
(Shut-in)	2				
LAREDO					
Eagle (U. Cret.)	21	Unknown	Depletion	320-acre spacing with unit consisting of one-half section lying N-S or E-W at operator's option after administrative approval. Well no closer than 990' from unit boundary. (Order 8-74.)	None
Judith River (U. Cret.)	1				
LAUREL					
Dakota (L. Cret.)	2			10-acre spacing unit. Well location to be in center of spacing unit with 75' topographic tolerance. (Order 15-62.)	None
(Shut-in)					
LEARY					
Muddy (L. Cret.)	5	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.) Reduced Field Area (Order 68-76.)	None
(Shut-in)	8				
LEDGER					
Bow Island (L. Cret.) Gas	11	Structural	Volumetric	640-acre spacing: one well per section per Sand to be located no closer than 990' from section line. Permissible to commingle two or more Sands, subject to administrative approval by the Petroleum Engineer. (Order 53-77.)	None
(Shut-in)	8				
LEROY					
Judith River-Eagle	22	Unknown	Depletion	320-acre spacing with unit consisting of one-half section lying N-S or E-W at operator's option after administrative approval. Well no closer than 660' from unit boundary and 990' from field boundary. (Order 19-75.)	None
Virgelle (U. Cret.) Gas	8	Unknown	Depletion		
(Shut-in)					
LISCOM CREEK					
Shannon (U. Cret.) Gas	7	Structural-Strat.	Depletion	Spacing, one well per 640 acres, with location no closer than 990' from section boundary. (Order 20-72.)	None
(Shut-in)	1				
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.
(Shut-in)	1				

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
LITTLE BEAVER, EAST (Mont. Portion) Red River (Ord.)	11 3 (Shut-in)	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 ROCK Blackleaf (L. Cret.) Gas Bow Island (L. Cret.)	1 (Shut-in)	Structural Strat.	Depletion	320-acre north half and south half spacing units. Well location no closer than 990' from west line of Section 14 and 660' from the remaining unit boundary lines. (Order 40-78.)	None
LITTLE WALL CREEK Tyler (Penn.)	17 2 (Shut-in)	Strat.	Depletion Water Drive	State-wide.	Produced water injected into Tyler formation (Order 54-A-77), (Order 63-A-78.)
LODGE GRASS Tensleep (Penn.)	1	Structural-Strat.	Water Drive	160-acre spacing units; well locations vary according to areas; 250' topographic tolerance. (Orders 26-64, 26-65.)	None
LOHMAN Eagle (U. Cret.)	1 4 (Shut-in)	Unknown	Depletion	640-acre spacing; one well per section to be located no closer than 990' from section line. (Order 23-78.)	None
LONE BUTTE Red River (Ord.)	2	Structural	Unknown	320-acre spacing units with well location at least 660' from unit boundary. Not delineated.	None
LONETREE CREEK Red River (Ord.)	7 1 (Shut-in)	Structural	Depletion	320-acre spacing, wells 660' from spacing boundary, 2000' between wells. (Order 29-72.)	None
LONG CREEK Madison (Miss.) Charles	1	Structural	Water Drive	State-wide spacing.	None
LONG CREEK, WEST Nisku (Dev.)	2	Structural	Water Drive	80-acre spacing units comprised to two contiguous quarter quarter sections which may lie in either one or two governmental sections aligned either North-South, East-West with location to be no closer than 330 feet from unit boundary nor less than 1000 feet from any other producing well. (Order 27-77.)	None
LOOKOUT BUTTE (includes Coral Creek Unit) Madison (Miss.)	3 6 27 5 (Shut-in) (Shut-in)	Structural Structural	Water Drive Comb. Depletion and Water Drive	State-wide spacing. 160-acre spacing; well location in center of SE¼ of each quarter section with 150' topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Redelineated per (Order 7-63.)	Water disposal into Madison. (Order 68-62.) Waterflood of Silurian-Orodvician approved in 1966. (Order 35-66.) Water from Minnelusa.

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
MARIAS RIVER Bow Island (L. Cret.)	9	Structural	Depletion	One well per section per horizon above the top of the Kootenai. Location to be no closer than 990' from section line. (Order 18-78.)	None
MASON LAKE Lakota (L. Cret.)	5	Structural	Water Drive	80-acre spacing units consisting of 1/2 of a quarter section lying in either E-W or N-S direction; well location in center of the NE and SW quarter-sections of each quarter section with 75' topographic tolerance. (Order 35-78.) Amending (Order 35-78) for certain lots designated as spacing units. (Order 66-78.)	None
MASON LAKE North Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
McCABE Ratcliffe (Miss.)	1	Structural-Strat.	Depletion	320-acre spacing, any two adjacent quarter sections to be determined by operator. No less than 1650' between wells producing from same horizon. (Order 38-78.)	None
MELSTONE Tyler (Penn.)	9 3 (Shut-in)	Structural-Strat.	Depletion	State-wide.	None.
MIDDLE BUTTE Bow Island (Cret.)	1 2 (Shut-in)	Structural	Volumetric	Orders (3-60, 21-75) Amended to delineated field extension and 320-acre spacing units consisting of the E 1/2 & W 1/2 of each section; well location no closer than 990' from the section line and 660' from the interior boundary. (Order 47-77.)	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.) Oil	2 4 (Shut-in)	Strat.	Depletion	Oil: 40-acre 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.) Order 9-66 amended to comply with Order 5-74.	None
Swift (U. Jur.) Oil	1	Strat. Strat.?	Depletion Water Drive	Gas: 160-acre spacing with wells 990' from unit boundary. (Order 5-74.)	
Sunburst-Swift Gas Sawtooth (M. Jur.) Bow Island (L. Cret.)	1 1 8 (Shut-in)	Strat.	Depletion	Sawtooth gas spacing unit. (Order 43-76.) Field redelineation (Order 44-77.)	

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
MONARCH Mission Canyon (Miss.)	2	Structural-Strat.	Water Drive	80-acre spacing units consisting of east and west half of quarter section. Well location in SW $\frac{1}{4}$ and 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.)	Waterflood initiated 12-1-73. (Order 23-73.)
MON DAK WEST Madison (Miss.) Dawson Bay (Dev.) Winnipegosis (Dev.) Interlake (Sil.) Stony Mtn. (Ord.) Red River (Ord.)	Total-9	Structural Structural	Water Drive Comb. Depletion and Water Drive	320-acre spacing units for Silurian and Ordovician pools. Units to consist of either (N $\frac{1}{2}$, S $\frac{1}{2}$, E $\frac{1}{2}$ or W $\frac{1}{2}$) well location to be no closer than 660' to unit boundary or closer than 1650' to any well drilling or producing from same pool. (Order 42-77.) 320-acre spacing units for Madison and Devonian formations. Units to consist of either (N $\frac{1}{2}$, S $\frac{1}{2}$, E $\frac{1}{2}$ or W $\frac{1}{2}$) well location to be no closer than 660' from a quarter section line or section line and no closer than 1650' to any well drilling or producing from same pool. (Orders 23-77, 33-78.)	Produced water injected into Dakota-Lakota. (Order 49-A-78.)
MOSBY (See Cat Creek)	3 4 (Shut-in)	Structural-Strat.	Water Drive	Listed as part of Cat Creek.	Waterflood, 2nd Cat Creek sand. (Order 8-68.) Water flood in Amsden. (Order 11-71.)
MOSSE Greybull (L. Cret.)	10 3 (Shut-in)	Structural	Water Drive	Spacing waived. Future development requires administrative approval of the Commission. (Order 27-62.)	None
MT. LILLY Madison (Miss.) Gas Sunburst (L. Cret.) Gas	2 1	Structural-Strat.	Water Drive Depletion	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
MUD CREEK Amsden (L. Penn.)	2 (Shut-in)	Structural	Water Drive	640-acre spacing unit. Well location anywhere in 160-acre tract in center of each 640-acre well spacing unit. (Order 9-63.)	None
NOHLY Red River (Ord.)	2	Structural	Volumetric Water Drive	State-wide.	None
NORTH FORK Red River (Ord.) Mission Canyon (Miss.)	1 1	Structural Structural	Water Drive Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
NORTH GILDFORD Sawtooth (M. Jur.)	1 (Shut-in)	Structural	Unknown	320-acre specified spacing units. One well per unit 660' from boundary, 2640' between wells. (Order 9-58.) Boundary reduction. (Order 38-76.)	None
NORTH LAKE BASIN (See Lake Basin, North)					
NORTH WILLOW CREEK (See Willow Creek, North)					
OTIS CREEK Red River (Ord.)	1	Structural	Depletion	State-wide.	None
OTIS CREEK, SOUTH Red River (Ord.)	2	Structural	Depletion	320-acre spacing units; well to be located no closer than 660' to unit boundary. (Order 39-72.) Extended field boundary. (Order 56-76, 67-76.)	None
OUTLOOK Duperow (Dev.)	1	Structural-Strat.	Water Drive	State-wide.	Produced water is disposed into Dakota and Siluro-Devonian formations. (Orders 16-59, 17-65, 36-66, 9-A-77.) Produced water disposed into Madison formation. (Order 59-A-78.)
Winnipegosis (Dev.)	3 (Shut-in)	Structural-Strat.	Water Drive	State-wide.	
Silurian-Devonian	3 1 (Shut-in)	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	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.
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 tolerance of 175'. (Order 7-67.)	Produced water disposed into Dakota formation. (Order 42-66.)
OXBOW Red River (Ord.)	1	Structural-Strat.	Water Drive	320-acre spacing consisting of two contiguous governmental quarter sections which may be in one or two governmental sections lying E-W or N-S at operator's option. Location to be no closer than 660' to the unit boundary or closer than 1650' to a well producing from same pool. (Order 7-78.)	None

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.)	6	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	108	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.)	
PETE CREEK Sunburst (L. Cret.) Oil	1	Strat.	Depletion	State-wide.	None
PHANTOM Sunburst (Cret.) Gas Sunburst (L. Cret.) Oil Swift (U. Jur.) Gas	1 4 2	Structural Strat. Strat.	Depletion Depletion Depletion	*Gas: wells permitted anywhere within the unit but no closer than 990' to the unit boundary. *Oil: projected depths greater than 6000' to be located no closer than 660' to the unit boundary. Projected depths less than 6000' to be located no closer than 330' to the unit boundary. (Order 48-77.)	None
PHANTOM, WEST Sunburst (L. Cret.) Gas	1	Structural	Depletion	One well per spacing unit to be located no closer than 660' to the exterior boundaries of three certain spacing units. (Order 65-78.)	None
PINE Mission Canyon (Miss.) Oil & Gas Siluro-Ordovician Oil & Gas	2 102	Structural Structural	Water Drive Depletion-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.) Produced water injected into Mission Canyon. (Order 10-A-74.)
PINE, EAST Red River (Ord.)	1	Structural	Depletion-Water Drive	State-wide.	None
PLEVNA Judith River (U. Cret.) Gas (Shut-in)	19 1	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

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
POLICE COULEE Bow Island (L. Cret.)	3 (Shut-in)	Structural	Depletion	320-acre spacing units; location no closer than 990' from section line and 660' from half section lines. Spacing units to consist of north half or south half, east half or west half at discretion of operator. (Order 53-76.) Extended Field boundaries. (Order 24-77.)	None
PONDERA Sun River (Miss.) Oil & Gas	274 45 (Shut-in)	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. (Orders 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), (57-A-78), (58-A-78), (62-A-78), (71-A-78.)
PONDERA COULEE Sun River (Miss.)	3 (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.) Heath (Tyler) (Penn.)	60 3 1	Structural Structural-Strat. Structural	Water Drive Water Drive Water Drive	State-wide spacing; field delineated by (Order 7-55.) Re-delineation of field (Order 25-76.)	Unitized in 1955. (Order 7-55.) Excess produced water has been injected into the Dakota Judith River, and Mission Canyon formations. (Orders No. 1-55, 5-57, 7-57, 14-61, 21-61, 34-61, 10-62, 51-67, 10-A-73.)
POPLAR NORTHWEST Charles (Miss.) ("B" & "C" or McGowan Zone)	16	Structural	Water Drive	80-acre spacing units for all zones in Charles formation 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 except for certain specified spacing unit tracts. (Orders 18-55 & 26-76.) Commingling approved. (Order 26-76.)	Produced water disposed into Dakota. (Order 61-A-78.)
PRAIRIE DELL Bow Island (L. Cret.) Sunburst (L. Cret.) Bow Island-Sunburst, Dual Bow Island, Swift, Dual	3 1 15 2	Structural-Strat.	Depletion	320-acre spacing units with well location no closer than 660' to spacing unit boundary. (Order 10-76.) Redelineation and amendment to (Order 10-76) by (Order 28-78.)	None
PRAIRIE DELL, WEST Swift (U. Cret.) Gas	1	Structural-Strat.	Depletion	640-acre spacing unit; well to be no closer than 990' to the spacing unit boundary. (Order 16-78.) Amending (Order 16-78) to include all horizons above the Rierdon formation. (Order 54-78.) Field enlargement. (Order 55-78.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
PRAIRIE ELK Charles "C" (Miss.)	1 1 (Shut-in)	Unknown	Water Drive	State-wide.	None
PRICHARD CREEK Sunburst (L. Cret.) Oil & Gas (Shut-in)	3 3	Strat.	Depletion	Well locations subject to administrative approval.	None. Utilized as to Sunburst for water injection. (Order 7-73.)
Swift (U. Jur.) Oil	1	Strat.	Depletion		None
PUMPKIN CREEK Shannon (U. Cret.) Gas (Shut-in)	3 5	Strat. 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. Bronson Plant.
Red River (Ord.)	1	Structural	Volumetric Water Drive		
PUTNAM, EAST Mission Canyon (Miss.) Red River (Ord.)	1 6	Structural Structural	Water Drive Volumetric Water Drive	State-wide.	None
RABBIT HILLS Sawtooth (Jur.)	2 1 (Shut-in)	Structural Strat.	Volumetric Water Drive	160-acre spacing unit. Well location 660' from spacing unit boundary. (Orders 17-73, 34-74, 33-76.) Re-delineation (Order 47-76.)	Produced water disposed into Eagle formation. (Order 49-A-75.)
RAGGED POINT Tyler (Penn.)	23 1 (Shut-in)	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.)
Kibbey (Miss.)	0	Structural	Water Drive	State-wide spacing. (Order 15-54.) Commingling of production from Tyler and Kibbey permitted in one well per (Order 11-65.)	
RAPELJE Claggett, Eagle, Judith River, Virgelle (U. Cret.)	15 1	Structural- Strat.	Water Drive	160-acre spacing. Wells no closer than 990' to unit boundary. Commingling after administrative approval. (Order 29-73.)	None
RATTLE BUTTE Tyler (Penn.)	2	Strat.	Depletion	State-wide.	None
RATTLESNAKE COULEE Sunburst (L. Cret.) Oil & Gas Bow Island (L. Cret.) Gas (Shut-in)	2 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
RAYMOND Duperow (Dev.)	1	Structural-Strat.	Depletion Water Drive	320-acre spacing units. Wells 660' from spacing unit boundary. (Order 38-72.) Gas Storage. (Order 50-78.)	Produced water injected into Dakota formation. (Order 38-A-74.)
Nisku-Winnepegosis (Dev.) Dual	1				
Winnepegosis (Dev.)	2				
Red River (Ord.)	1				
RAYMOND, NORTHEAST Winnepegosis (Dev.) (Dual)	1	Structural-Strat.	Depletion Water Drive	160-acre spacing units. Wells 660' from spacing unit boundary. (Order 12-74.)	None
Red River (Ord.)					
REAGAN Sun River (Miss.) Oil	49	Structural	Gas Cap-Water Drive	State-wide. (Order 17-54.)	A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.) Water-flood. (Order 27-72.)
(Shut-in)	14				
Gas	2				
REAGAN, WEST Blackleaf (L. Cret.) Gas	1	Strat.	Depletion Volumetric	State-wide. Injected into Reagan field as secondary recovery agent.	None
Bow Island (L. Cret.) Oil	1	Structural-Strat.			
(Shut-in)					
RED CREEK Cut Bank (L. Cret.) Oil & Gas	6	Strat.	Depletion	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 water-flood project in the Cut Bank sand was initiated in June, 1965, using Madison water.
(Shut-in)	2				
Sun River (Miss.) Oil & Gas	13	Structural	Water Drive		
(Shut-in)	8				
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.)	1	Structural-Strat.	Water Drive	160-acre spacing units; permitted well within 1320' square in center of quarter section. Commingling of Red River and Interlake production permitted on individual well basis. (Orders 34-66, 27-67.)	Excess water injected into Dakota sand. (Order 23-A-67.)
Red River (Ord.)	3	Structural-Strat.	Water Drive		
RICHEY Charles (Miss.)	3	Structural	Water Drive	State-wide.	Original 80-acre spacing revoked. (Order 11-73.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
RICHEY, SOUTHWEST Interlake, Dawson Bay (Sil.) (Dev.)	4 2 (Shut-in)	Structural	Depletion	160-acre spacing units; wells no closer than 900' from boundary or spacing unit. (Order 25-62.)	A waterflood project in the Interlake and Dawson Bay was started in 1965. (Order 34-65.)
RIPRAP COULEE Ratcliffe (Miss.)	2	Structural-Strat.	Depletion	State-wide.	None
ROCKY BOY Eagle-Virgelle (U. Cret.) Judith River (U. Cret.)	10 3	Structural-Strat.	Water Drive	State-wide.	None
ROCKY POINT Red River (Ord.)	1	Structural	Volumetric Water Drive	State-wide.	None
ROSCOE Lakota (L. Cret.)	1 (Shut-in)	Structural	Water Drive	State-wide.	None
ROSEBUD Tyler (L. Penn.)	4	Structural-Strat.	Unknown	State-wide.	None
ROUGH CREEK Muddy (L. Cret.)	1 (Shut-in)	Structural-Strat.	Depletion	State-wide. Formerly called Duncan Creek.	None.
RUDYARD Sawtooth (M. Jur.) Gas	5 (Shut-in)	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.) Field boundaries reduced. (Order 39-76.)	None
RUSH MOUNTAIN Winnipegosis (M. Dev.) Red River (Ord.)	1 1	Structural	Volumetric- Water Drive	State-wide. Dual zone completion in discovery well.	Excess water injected into Dakota sand. (Order 5-A-71.)
SAGE CREEK Greenhorn (Cret.) Gas Black Leaf (L. Cret.) Gas	1 1 20 (Shut-in)	Strat.	Depletion	640-acre spacing, one producing well per section per formation above the Kootenai to be located no closer than 990 feet from section line. (Order 38-77.)	None
SALT LAKE Bakken-Nisku (Miss.-Dev.)	3	Structural	Water Drive	State-wide.	None
SAND CREEK Interlake, Red River (Sil.) (Ord.)	4 2 (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.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SANDWICH Sunburst (L. Cret.) Gas Swift (U. Jur.) Gas	1 1 (Shut-in)	Strat.	Depletion	320-acre spacing unit. Well: located no closer than 990' to spacing unit boundaries. (Order 17-77.)	None
SAWTOOTH MOUNTAIN Judith River (U. Cret.) Eagle (U. Cret.)	8 24 1 (Shut-in)	Structural-Strat.	Volumetric Water Drive	640-acre spacing units, one well per section per formation, location to be not less than 990' from governmental section line. (Order 45-76.)	None
SECOND CREEK Red River (Ord.)	1	Structural	Volumetric Water Drive	303.1-acre spacing unit; one well field. (Order 34-78.)	None
SHEEPHERDER Tyler (L. Penn.)	3	Structural-Strat.	Unknown	State-wide.	None
SHELBY AREA Sunburst (L. Cret.) Gas Swift (Jur.) Gas Bow Island (L. Cret.) Gas	33 5	Structural-Strat.	Depletion	State-wide. Field outline not delineated. A few small Swift sand wells commingled with Sunburst.	None
SHERARD Eagle (U. Cret.) Gas Judith River (U. Cret.) Dual	20 9 1 (Shut-in)	Structural-Strat.	Volumetric Water Drive	640-acre spacing units; 990' from section line. (Order 1-74.) 160-acre spacing units; (Eagle) 990' from section line, 660' from quarter section line. (Order 7-77.)	None
SHERARD WEST Eagle, Virgelle (U. Cret.)	1 1 (Shut-in)	Structural-Strat.	Volumetric Water Drive	160-acre spacing units; location no closer than 660' to unit boundary. (Order 90-76.)	None
SHOTGUN CREEK Gunton (Ord.) Red River (Ord.)	1	Structural	Water Drive	State-wide.	None
SHOTGUN CREEK, NORTH Gunton (Ord.) Red River (Ord.)	1	Structural	Water Drive	320-acre spacing units consisting of two contiguous governmental quarter sections which may be in one or two sections with permitted well to be no closer than 600' to the unit exterior boundary and no closer than 1500' to any well producing from the same formation. IF NOT feasible to produce two zones separately, commingling permissible with prior administrative approval. (Order 49-77.)	None
SIDNEY Mission Canyon (Miss.)	4	Structural	Water Drive	State-wide.	Excess water injected into Dakota formation. (Order 41-A-78.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SINGLETREE Red River (Ord.)	1	Structural	Volumetric	State-wide.	None
SIoux PASS Interlake (Sil.) Red River (Ord.) Mission Canyon	Dual 5 (Shut-in)	Structural	Volumetric Water Drive	320-acre spacing units consisting of two adjacent governmental quarter sections lying N-S or E-W at operator's option. Permitted well no closer than 660' from unit boundary. (Interlake and Red River). 160-acre spacing unit (Mission Canyon) with well no closer than 660' from unit boundary. Commingling of Interlake and Red River production authorized. (Order 10-75.) Amended field boundary. (Order 15-77.)	Excess water injected into Dakota formation. (Order 15-A-75.)
SIoux PASS, EAST Red River (Ord.)	1	Structural-Strat.	Water Drive	State-wide.	None
SIoux PASS, MIDDLE Red River (Ord.)	2	Structural	Water Drive	320-acre spacing units to consist of two contiguous governmental quarter sections at operator's option. Location to be no closer than 660' from exterior boundary of unit and no closer than 1650' from well producing from same formation. Commingling permissible with Administrative approval. (Order 55-76.)	None
SIoux PASS, NORTH Interlake (Sil.) Red River (Ord.) Dual Winnipegosis (Dev.) Nisku (Dev.) Red River (Ord.) Dual Red River (Ord.)	1 1 3	Structural	Unknown Water Drive	320-acre spacing units with well location at least 660' from unit boundary. (Order 12-75.) Field enlarged. (Order 16-75.) Commingling from Interlake and Red River approved. (Order 36-76.) Refer to Order 35-75 for modification. Field Extension. (Order 12-77.)	None
SNOOSE COULEE Bow Island (L. Cret.) Gas	5	Structural-Strat.	Volumetric	640-acre spacing units; location no closer than 990' from spacing unit boundary. Bow Island and Shallowen Formations. (Order 18-18-77.)	None
SNOW COULEE Sunburst (L. Cret.) Gas	1	Strat.	Depletion	Spacing units. E½ section 33 and W½ section 34, 36N-4E designated as spacing units. (Order 78-76.)	None
SNYDER Tensleep (Penn.)	3 1	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.)	23 1	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

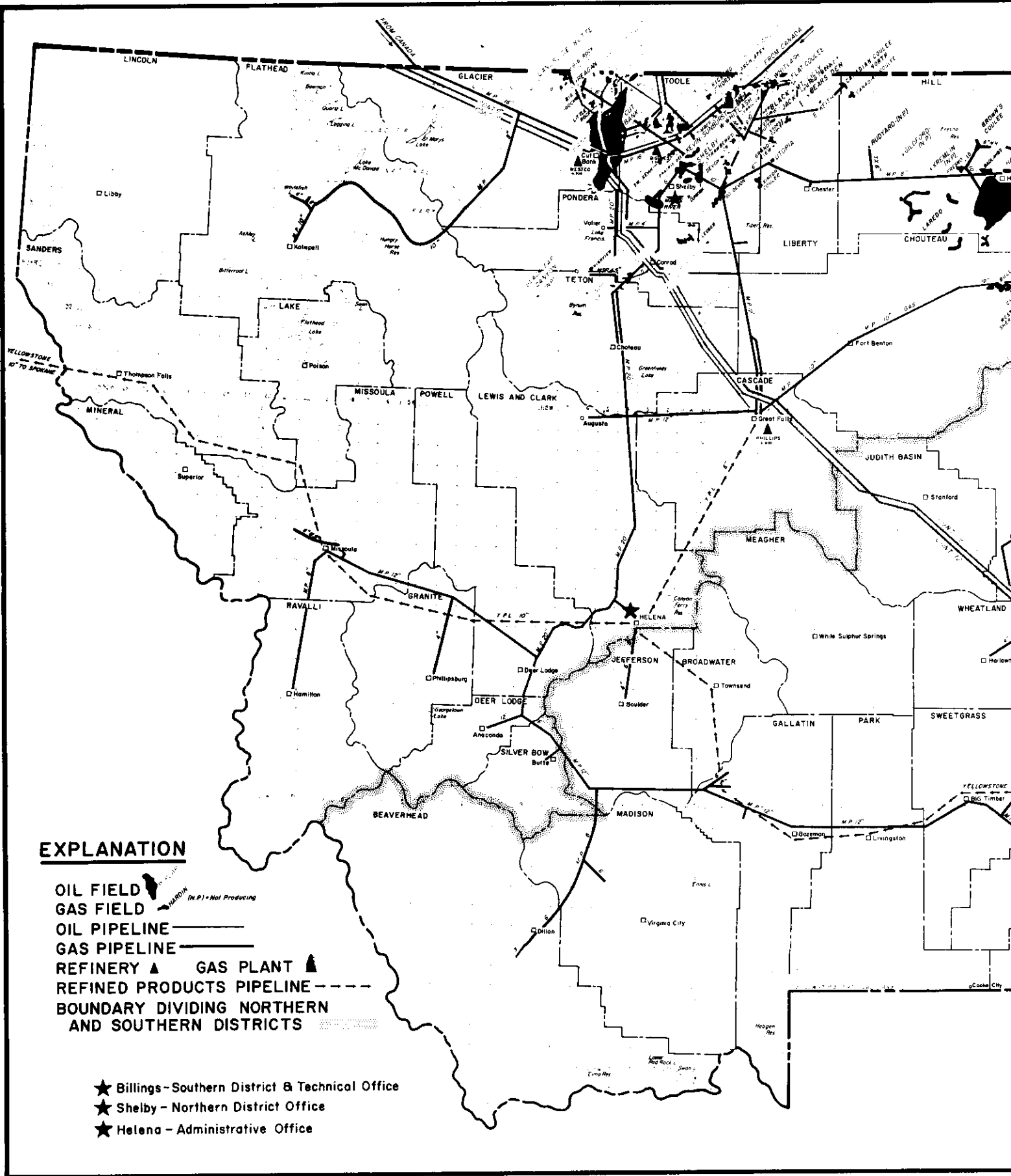
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SOAP CREEK, EAST Tensleep (Penn.)	3	Structural	Water Drive	State-wide.	None
SOUTH FORK Red River (Ord.)	3	Structural	Water Drive	State-wide.	None
SPRING LAKE Nisku (Dev.)	1	Structural	Depletion	One well per 160-acre spacing unit. Well location anywhere within 840' square in center of spacing unit. (Order 6-63.) Field redelineation. (Orders 30-76, 49-76.)	None
SPRING LAKE Red River (Ord.)	2	Structural	Depletion		
SQUAW COULEE (Now included as part of Tiger Ridge Field.) (Order 10-70.)					
STRAWBERRY CREEK Bow Island (l. Cret.) Gas Sawtooth (M. Jur.)	3 1	Structural-Strat.	Volumetric Water Drive	State-wide.	None
STENSVAD Tyler (Penn.)	3 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.) Excess produced water disposed into Madison (Order 70-A-76.)
SUMATRA Tyler (Penn.) Oil & Gas	101 15	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' tolerance. (Order 14-58.) Field re-delineated. (Order 14-75.)	Six waterflood units using Madison water. (Orders 48-67, 6-69, 19-69, 23-69, 5-75, 21-78.) Produced water disposed into Madison formation. (Order 7-A-76.)
SUNNYHILL Red River (Ord.) Oil & Gas	2	Structural	Volumetric Water Drive	320-acre spacing units; location to be no closer than 660' to the section or quarter section line which is the exterior boundary of the unit nor closer than 1650' to any well producing from same formation. (Order 39-78.)	None
SWANSON CREEK Phillips (U. Cret.) Gas	4 6	Strat.	Depletion	320-acre spacing units; (Order 36-75) amended to enlarge field and provide that spacing units may run N-S or E-W at operator's option with permitted wells to be no closer than 990' to section or quarter section line. (Order 11-78.) Field boundaries extended. (Order 32-78.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
TIGER RIDGE Judith River (U. Cret.) Gas	8 (Shut-in)	Structural-Strat.	Volumetric Water Drive	Field delineated; (Orders 17-67, 23-68) re-delineated and established. State-wide spacing. (Order 10-70.)	Excess produced water injected into Eagle formation. (Order 19-A-73, 46-A-75.) (Order 19-A-73) Amended by (Order 60-A-78.)
Eagle (U. Cret.) Gas	231 49 (Shut-in)	Structural-Strat.	Volumetric Water Drive	State-wide for field area not unitized. Two units; wells to be located closer than 990' from unit boundary (Order 11-72, 41-72) 160-acre spacing units; sections 20, 21, 22, 27, 28, 33, 34, 32N-16E (Judith River) locations to be no closer than 660' from unit boundary (Order 32-73) Enlarge and re-delineate Field (Order 13-75) 160-acre spacing units in sections 22, 23, 24, 32N-14E (Eagle & Virgelle) wells to be located no closer than 990' from section line and 660' from quarter section line (Order 37-75) 160-acre spacing units; NW¼ & NE¼ section 30, T-31N, 4-17E well to be located at least 990' from quarter section line. 75' tolerance allowed for topographic reasons (Order 51-77.) 160-acre spacing units; sections 32, 33, 31N-17E & Section 4, 30N-17E (Eagle) to be located no closer than 990' to a section line and 660' to quarter section line. (Order 52-77.) Field enlargement (Order 46-78.)	
TIMBER CREEK Sunburst (L. Cret.) Gas	2 (Shut-in)	Strat.	Depletion	320-acre spacing consisting of two adjacent governmental quarter sections lying N-S or E-W at operator's option. Permitted well no closer than 660' from spacing boundary and 990' from field boundary. (Order 24-75.)	(Orders 17-67, 23-68, 10-70.)
TIMBER CREEK, WEST Sunburst (L. Cret.) Gas	1 (Shut-in)	Strat.	Depletion	640-acre spacing unit located no closer than 660' from unit boundary. (Order 91-76.)	None
TIPPY BUTTES Tyler (Penn.)	1	Strat.	Depletion	State-wide.	None
TRAIL CREEK Sunburst (L. Cret.) Gas Bow Island (L. Cret.) Gas	2 2 (Shut-in)	Structural-Strat.	Water Drive Volumetric	One well per 320 acres consisting of S½ and N½ of each governmental section but no closer than 990' from spacing boundary. (Orders 33-70, 28-76.)	None
TULE CREEK Nisku (Dev.)	5 2 (Shut-in)	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, 5-77.)	Produced water injected into Dakota and Judith River formations. (Orders 12-66, 24-67, 8-A-76.)
TULE CREEK, EAST Nisku (Dev.)	1 1 (Shut-in)	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.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
TULE CREEK, SOUTH Nisku (Dev.)	3	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit.	Authority given to dispose of produced water into Dakota. (Order 44-64.) Into Judith River formation. (Order 29-67.)
UTOPIA SWIFT Sawtooth (Jur.) Gas	3 (Shut-in)	Structural	Depletion Water Drive	40-acre spacing units; location to be in center of quarter-section with no more than 100' topographic tolerance. (Order 9-78.)	None
Swift (U. Jur.) Oil	10 (Shut-in)	Structural	Water Drive		
VAUX Red River (Ord.) Mission Canyon (Miss.)	8 1 2 (Shut-in)	Structural	Water Drive	State-wide.	None
VAUX, SOUTH Interlake (Sil.)	1	Structural-Strat.	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.) Field Area reduction. (Order 79-76.)	Water injected into Lakota formation. (Order 14-68.)
VIKING Dawson Bay (Dev.) Winnipegosis	1	Structural-Strat.	Water Drive	320-acre spacing units, designated; to be located no closer than 660' to the unit exterior boundary and no closer than 1500' to any well producing from the same formation. If not feasible to produce two zones separately, commingling permissible with prior administrative approval. (Order 50-77.)	None
VOLT Nisku (Dev.)	5 (Shut-in)	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, 37-A-74.)
Charles "C" (Miss.)	1	Structural	Water Drive	State-wide.	
WAGON BOX Tyler (Penn.)	1 (Shut-in)	Structural-Strat.	Unknown	State-wide.	None
WEED CREEK Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
WELDON Kibbey (Miss.)	3 (Shut-in)	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.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WEST BUTTE Sunburst (L. Cret.) Oil	1	Structural-Strat.	Depletion	State-wide, except W½ Section 16 is considered a single spacing unit.	None
Bow Island (L. Cret.) Gas (Shut-in)	1				
Sawtooth (Jur.) Gas (Shut-in)	3	Structural	Water Drive	Sawtooth-Madison gas commingled, unitized. (Order 5-72.) No well closer than 330' from unit boundary.	
Madison (Miss.) Gas	1				
WEST BUTTE SHALLOW GAS Bow Island (L. Cret.)	1	Structural-Strat.	Volumetric	160-acre spacing units; with one well to be permitted to produce from each individual gas producing formation above the top of the Kootenai to the surface within each 160-acre spacing unit. Well locations to be anywhere within the spacing unit but not closer than 990 feet from the spacing unit boundaries. (Order 39-77.)	None
WEST REAGAN (See Reagan, West)					
WHITLASH Bow Island, Kootenai, Swift (Cret.) (Jur.)	65 9 41	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
Madison (Miss.) Gas	10				
WHITLASH, WEST Sunburst, Swift (Cret.) (Jur.)	1 8	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.) (Order 61-62) Amended by (Order 48-77.)	None
Sawtooth (Jur.)	1				
WILLOW CREEK, NORTH Tyler (Penn.) Oil	2	Structural-Strat.	Depletion Water Drive	State-wide.	Pilotflood. (Order 19-72.)
WILLOW RIDGE Bow Island (L. Cret.) Gas	6	Structural-Strat.	Volumetric	640-acre spacing units; location to be no closer than 990' to unit boundary for gas production from all formations to the top of the Kootenai. (Order 29-78.)	None
Burwash (Cret.) Oil	2			40-acre spacing units with permitted 5 wells; well may be located in the center of each 10 acre quarter, quarter section and one in the center of each 40-acre subdivision with a 75' topographic tolerance allowed. (Order 30-78.)	

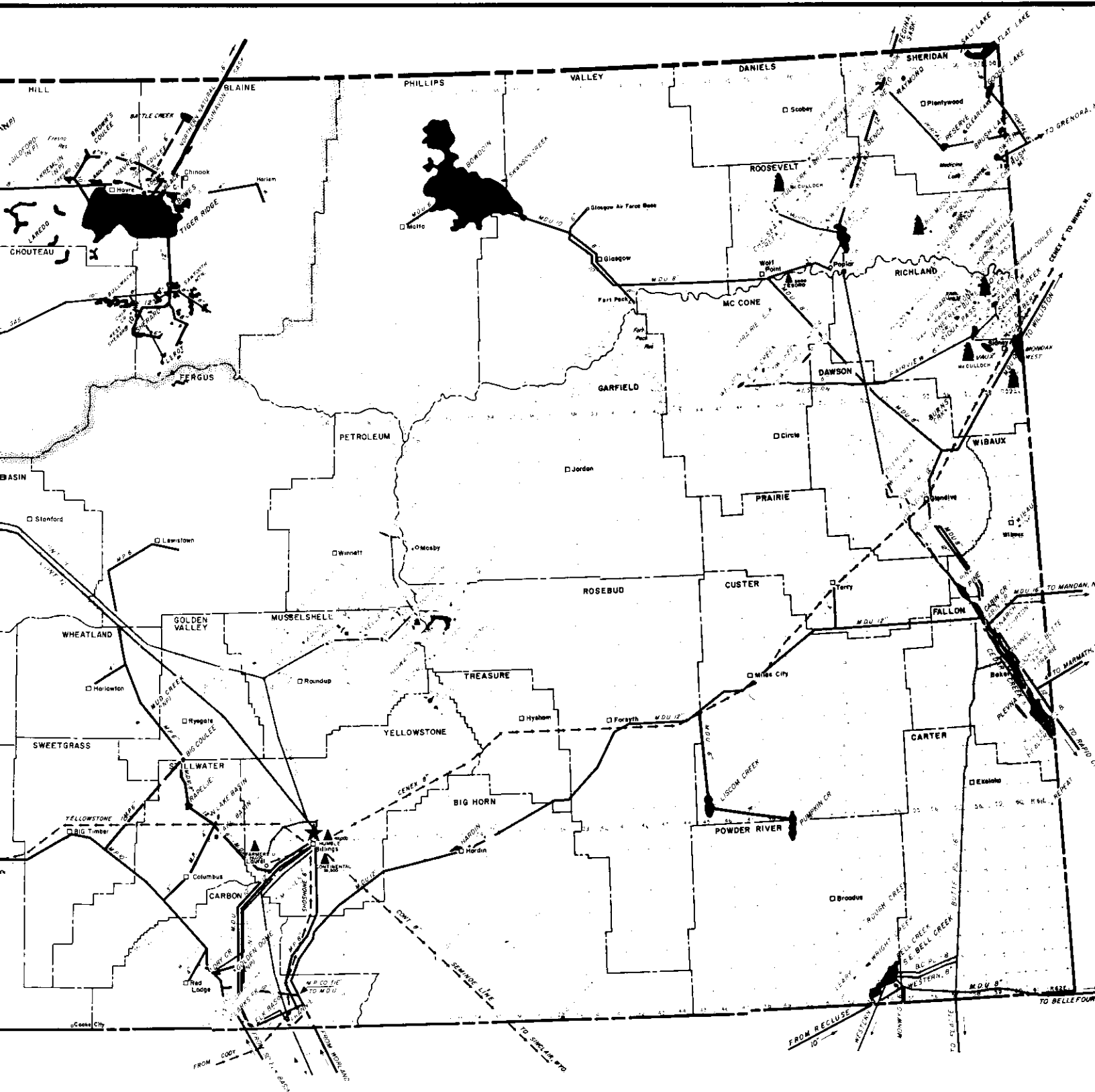
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WILLS CREEK, SOUTH Interlake (Sil.)	3	Structural	Partial Water Drive	160-acre spacing units. Well location in center of SE $\frac{1}{4}$ of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)	Waterflood initiated 12-1-73. (Order 23-73.)
WINNETT JUNCTION Tyler (Penn.)	6	Strat.	Depletion Water Drive	20-acre spacing units. Units to be designated as W $\frac{1}{2}$ and E $\frac{1}{2}$ of quarter-quarter section, no closer than 120' to the boundary of a spacing unit. (Order 57-76.) Certain lands bound by (Order 57-76) vacated by (Order 41-77.)	A waterflood operation commenced October 1, 1977 into Tyler formation. (Order 41-77.)
WOLF SPRINGS Amsden (Penn.)	3 1 (Shut-in)	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. (Order 4-56, 9-59.) Field Area reduction (Order 92-76.)	None
WOODROW Charles, Duperow, Interlake Red River (Ord.)	1 1 1 (Shut-in)	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.)	3 1 (Shut-in)	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. Field Area reduction (Order 69-76.)	Excess produced water is disposed of into the Muddy formation. (Order 8-A-77.)



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

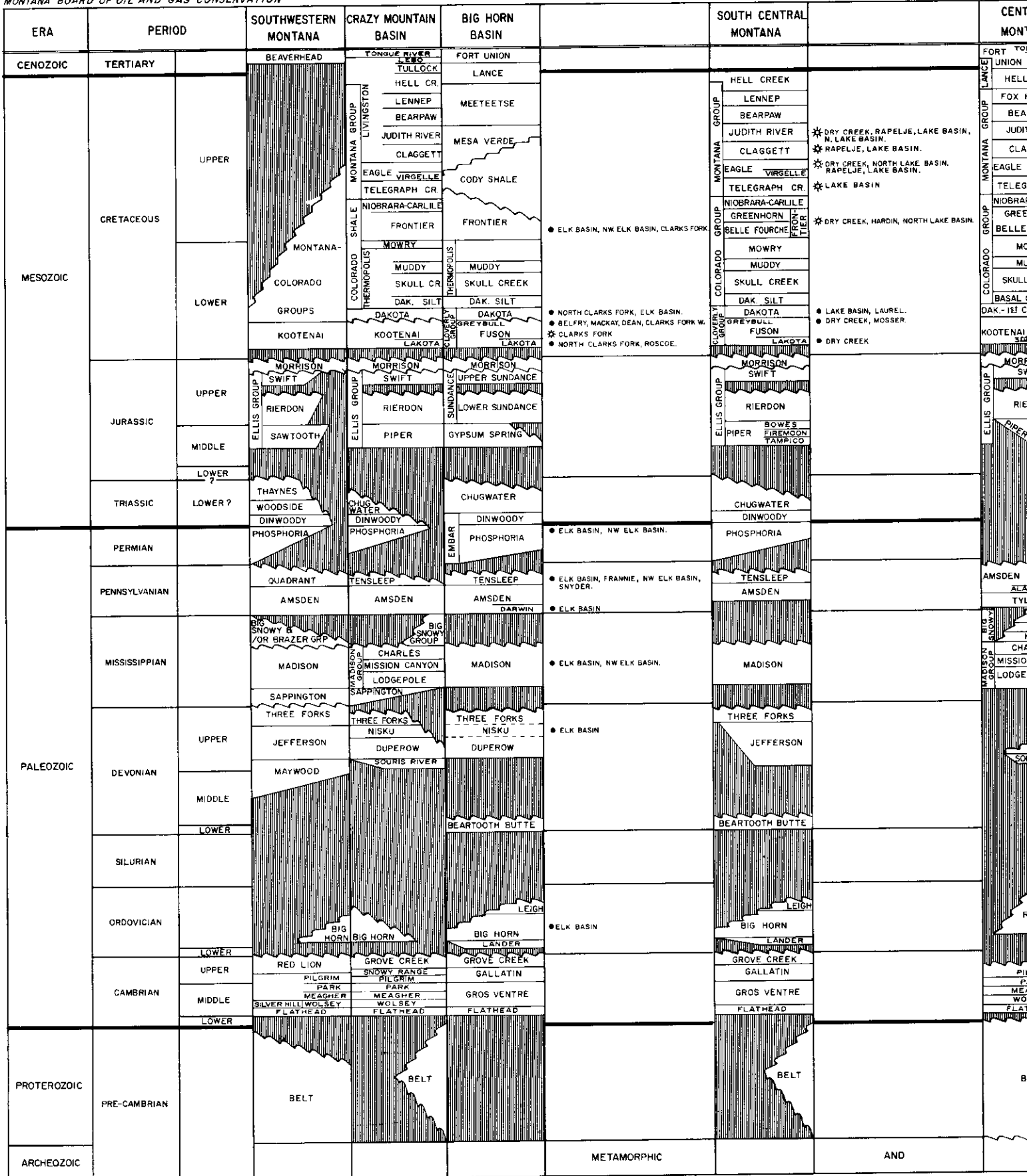
- ★ Billings - Southern District & Technical Office
- ★ Shelby - Northern District Office
- ★ Helena - Administrative Office



MONTANA
OIL AND GAS FIELDS, PIPELINES AND REFINERIES
1978
 BOARD OF OIL AND GAS CONSERVATION

GENERALIZED SHOW

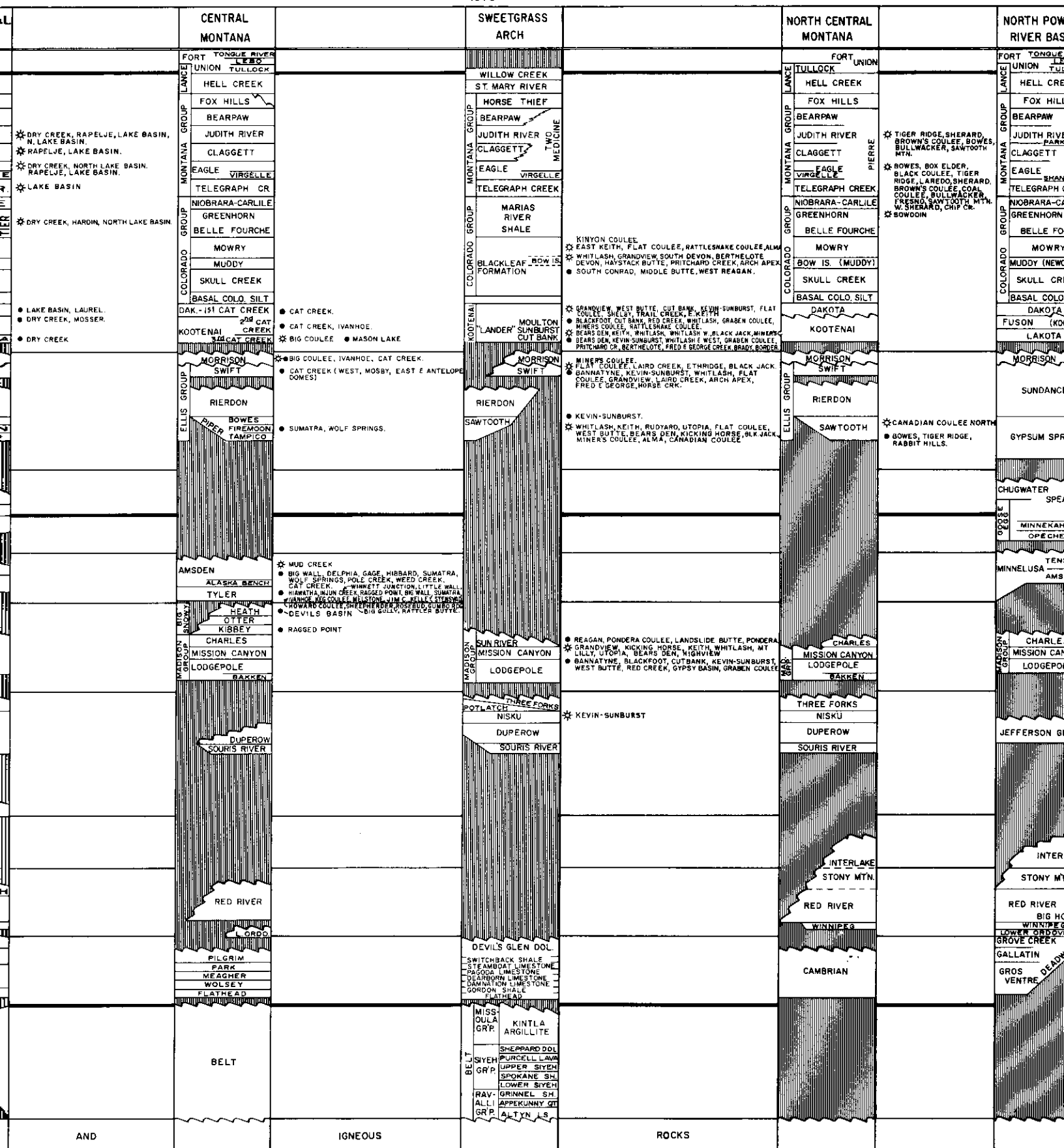
MONTANA BOARD OF OIL AND GAS CONSERVATION



GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS *

• OIL * GAS
1978



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ROCKS

FORMATION CHART

FIELDS *

CHARLES G. MAIO, 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 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 MUDDY (NEWCASTLE) SKULL CREEK BASAL COLO. SILT DAKOTA FUSON (KOOTENAI) LAKOTA MORRISON SUNDANCE GYPSUM SPRING CHUGWATER SPEARFISH MINNEKAHTA OPECHE TENSLEEP MINNELUSA AMSDEN CHARLES MISSION CANYON LODGEPOLE BARKEN THREE FORKS NISKU DUPEROW SOURIS RIVER INTERLAKE STONY MTN. RED RIVER WINNIPEG CAMBRIAN		FORT TONGUE RIVER UNION HELL CREEK FOX HILLS BEARPAW JUDITH RIVER CLAGGETT EAGLE TELEGRAPH CREEK NIOBRARA-CARLILE GREENHORN BELLE FOURCHE MUDDY (NEWCASTLE) SKULL CREEK BASAL COLO. SILT DAKOTA FUSON (KOOTENAI) LAKOTA MORRISON SWIFT RIERDON BOWES FIREMOON TAMPICO KLINE BLAKE ROSE NESSON SAUDE SPEARFISH PINE SALT MINNEKAHTA OPECHE MINNELUSA AMSDEN TYLER HEATH OTTER KIBBEY CHARLES MISSION CANYON LODGEPOLE BARKEN THREE FORKS BIRDBEAR (NISKU) DUPEROW SOURIS RIVER DAWSON BAY PRAIRIE EVAP WINNIPEGOSSE ASHERN INTERLAKE STONY MTN. RED RIVER WINNIPEG LOWER ORDOVICIAN GROVE CREEK GALLATIN DEADWOOD GROS VENTRE		*TIGER RIDGE, SHERARD, BROWN'S COULEE, BOWES, BULLWACKER, SAWTOOTH MTR. *BOWES, BOX ELDER, BLACK COULEE, TIGER RIDGE, LAREDO, SHERARD, BROWN'S COULEE, COAL COULEE, BULLWACKER, FRESNO, SAWTOOTH MTR., W. SHERARD, CHIP CR. *BOWDOIN *CANADIAN COULEE NORTH *BOWES, TIGER RIDGE, RABBIT HILLS.	*ASH CREEK, LISCOM CREEK, PUMPKIN CREEK. *HARDIN *BELL CREEK, BELL CREEK, ROUGH CREEK, WRIGHT CREEK, LEARY.	*CEDAR CREEK, FLEVNA. *CEDAR CREEK	UPPER CRETACEOUS LOWER MESOZOIC UPPER JURASSIC MIDDLE LOWER TRIASSIC PERMIAN PENNSYLVANIAN MISSISSIPPIAN UPPER DEVONIAN MIDDLE LOWER SILURIAN ORDOVICIAN LOWER UPPER MIDDLE LOWER CAMBRIAN PRE-CAMBRIAN PROTEROZOIC ARCHEOZOIC
*WELDON, EAST COW CREEK *FLAT LAKE, SHOTGUN CREEK, SMOKE CREEK, KATY LAKE, DWYER, POPLAR, RICHEY PRAIRIE ELK, COW CREEK, VOL. MINERAL BENCH, GAS CITY, GOOSE LAKE, HIPRAP C. *SIDNEY, BRORSON, CABIN CREEK, MONARCH, PENNEL, POPLAR, OUTLOOK, HAROSCRABBLE CREEK, SHOTGUN CREEK, SOUTH FLAT LAKE, SIOUX PASS. *PINE, PENNEL, LOOKOUT BUTTE, SALT LAKE.		*TULE CREEK, BENRUD, E. BENRUD, LONE TREE, SPRING LAKE, NE. BENRUD, VOLT, SO. TULE CREEK, E. TULE CREEK, HER FOX, SALT LAKE, CHELSEA CREEK, RAYMOND, MIDDLE CR. *SW RICHEY. *RED STONE, OUTLOOK, WEST OUTLOOK, FAIRVIEW, RESERVE, RUSH MOUNTAIN, RAYMOND, NE. RAYMOND N. SIOUX PASS *BIG MUDDY CREEK, SIOUX PASS, N. SIOUX PASS. *DEER CREEK, MONARCH, OUTLOOK, PENNEL, PINE, SAND CR., SW. RICHEY, CABIN CR., LOOKOUT BUTTE, WILLS CR., WOODROW, VIDA RESERVE.		*GLENDALE, LOOKOUT BUTTE, PENNEL, WOODROW, BURNS CR., HOWL RAYMOND, SECOND CREEK, CUTTON, CABIN CR., DEER CR., GLENDALE, LITTLE BEAVER, LITTLE BEAVER EAST, MONARCH, OUTLOOK, PENNEL, PINE, REPEAT, SAND CR., HILLS CR., FERTILE PRAIRIE, LOOKOUT BUTTE, WOODROW, RESERVE, GAS CITY, FAIRVIEW, BRORSON, RUSH MTR., SPRING LAKE, BRUSH LAKE, BAINEVILLE, GILBERTSON, FROID, MAY CREEK, GIRARD, CANAL, F. GILBERT, OTIS CR., LONETREE, SIOUX PASS, N. SIOUX PASS, LONE BUTTE, NE. RAYMOND, BIG MUDDY CREEK, MONDOK WEST, MIDDLE SIOUX PASS.					

* SOME FIELDS SHOWN ARE DEPLETED OR NO LONGER PRODUCTIVE.