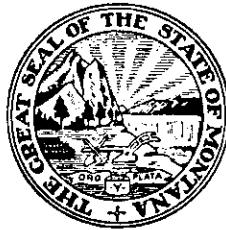


DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION  
OF THE STATE OF MONTANA

# Oil and Gas Conservation Division

Thomas L. Judge, Governor



ANNUAL REVIEW FOR THE YEAR 1976

Relating to

## OIL AND GAS

Volume 20

### BOARD OF OIL AND GAS CONSERVATION

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

C. J. IVERSON, Vice-Chairman  
Whitlash, Montana 59545

MILTON G. ANDERSON  
P.O. Box 73  
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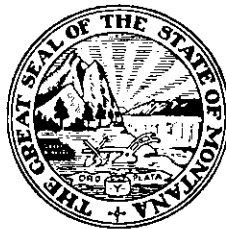
PAUL C. BUNN  
Chester, Montana 59522

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Cut Bank, Montana 59427

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**1976**  
**SUMMARY OF YEAR ACTIVITIES**

Oil Produced		32,814,260
Oil Imported (Refined)		
Canadian	- 23,496,125	
Wyoming	- <u>18,310,652</u>	41,806,777
Oil Exported (Transporters)		24,185,668
Gas Withdrawals		
Natural	40,876,873	
Associated	<u>3,336,001</u>	44,212,874
Averages: (366 days)		
Oil Produced	89,656	
Oil Imported	114,226	
Oil Exported	66,081	
Natural Gas	120,800	

# Board of Oil and Gas Conservation of the State of Montana

Thomas L. Judge, Governor

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Technical Office and

Southern District Field Office ..... 15 Poly Drive, Billings, Montana 59101

Northern District Field Office ..... 218 Main Street, Shelby, Montana 59474

## Annual Review for the Year 1976 Volume 20

### ANNUAL REVIEW — MONTANA 1976

The production of natural gas in Montana was up from 43,622,600 MCF in 1975 to 44,212,874 MCF in 1976. This increase of 590,274 MCF is mainly attributed to the placing of shut-in as well as some newly developed gas wells on stream.

Oil production for 1976 was maintained at near last years total output, 32,814,260 Bbls. as compared to 32,843,674 for 1975. This is largely due to the success of secondary recovery programs, particularly at Bell Creek Field. Powder River County, where production showed a steady increase over the last three months of the year.

There were 787 wells drilled in Montana in 1976, including 17 oil and 8 gas, new field discoveries, and 11 new pay or significant field extensions. A total of 248 exploratory wells resulted in 25 discoveries for a success ratio of 10.1%, up nearly 2% from last years exploratory success ratio of 8.2%. Of the 539 development wells drilled, 106 were completed as oil wells and 264 as gas wells for a success ratio of 68.7%, a substantial success increase of 6.5% over 1975.

Total drilling in 1976 amounted to 58 less wells than in the previous year when Montana recorded its second best year with 845 completions. Although exploratory drilling this year decreased by only 9 wells, the greater difference in drilling activity was in infield drilling where active development programs in 1975 completed 588 wells as compared to 539 during 1976.

Exploratory and development drilling pursued the economic potential of the shallow pay zones in Choteau, Glacier, Hill, Liberty, Pondera and Toole counties of northwestern Montana. A total of 73 wildcats in this area resulted in 11 discoveries or extensions, 4 oil and 7 gas; and of the 281 development wells drilled, 162 were completed as gas producers and 43 for oil. The discoveries include a new gas pay from the Devonian Nisku formation at Kevin-Sunburst field, Toole County, significantly upgrading the potential of the Nisku as a major new gas reservoir in the general area.

Considerable interest was also demonstrated in the shallow Bowdoin and Eagle gas sands along Bowdoin Dome and the Bearpaw Arch in Phillips and Blaine Counties of northcentral Montana. Of the 80 wells drilled in Phillips County 63 were completed as Bowdoin Sand gas producers, and 22 of the 69 wells drilled in Blaine County were completed as gas producers from the Eagle Sand.

The increase in exploratory drilling for the deep Madison, Devonian, Silurian and Red River oil pools in the Williston Basin portion of eastern Montana resulted in the successful completion of 14 new field discoveries, 1 new pay discovery and 2 field extensions. Development and exploration is continuing to increase in the Williston Basin and similar successes are indicated.

Drilling for added oil production from the Pennsylvanian Tyler sands along the central Montana uplift in Musselshell and Rosebud Counties progressed at a high rate. Completions in this area included 2 discoveries, 2 field extensions and 22 development producers.

Interest continues to grow along the Overthrust Belt in western Montana. Subsurface and surface geological interpretations indicate the possible existence of giant oil and or gas fields in this area similar to those immediately north of the state boundary. Aggressive exploratory research needed to delineate drillable prospects along this complex geological structure is in progress and should culminate in the drilling of one or more wells in 1977.

Large prospective areas of Montana, including the Overthrust Belt, are sparsely drilled and it is highly possible that major reserves remain to be found. However, a proper economic atmosphere and an energy policy with a minimum of restrictions and controls in support of expensive sustained exploration programs are necessary to find this much needed oil and gas.

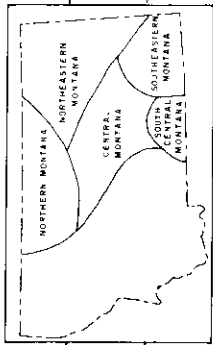
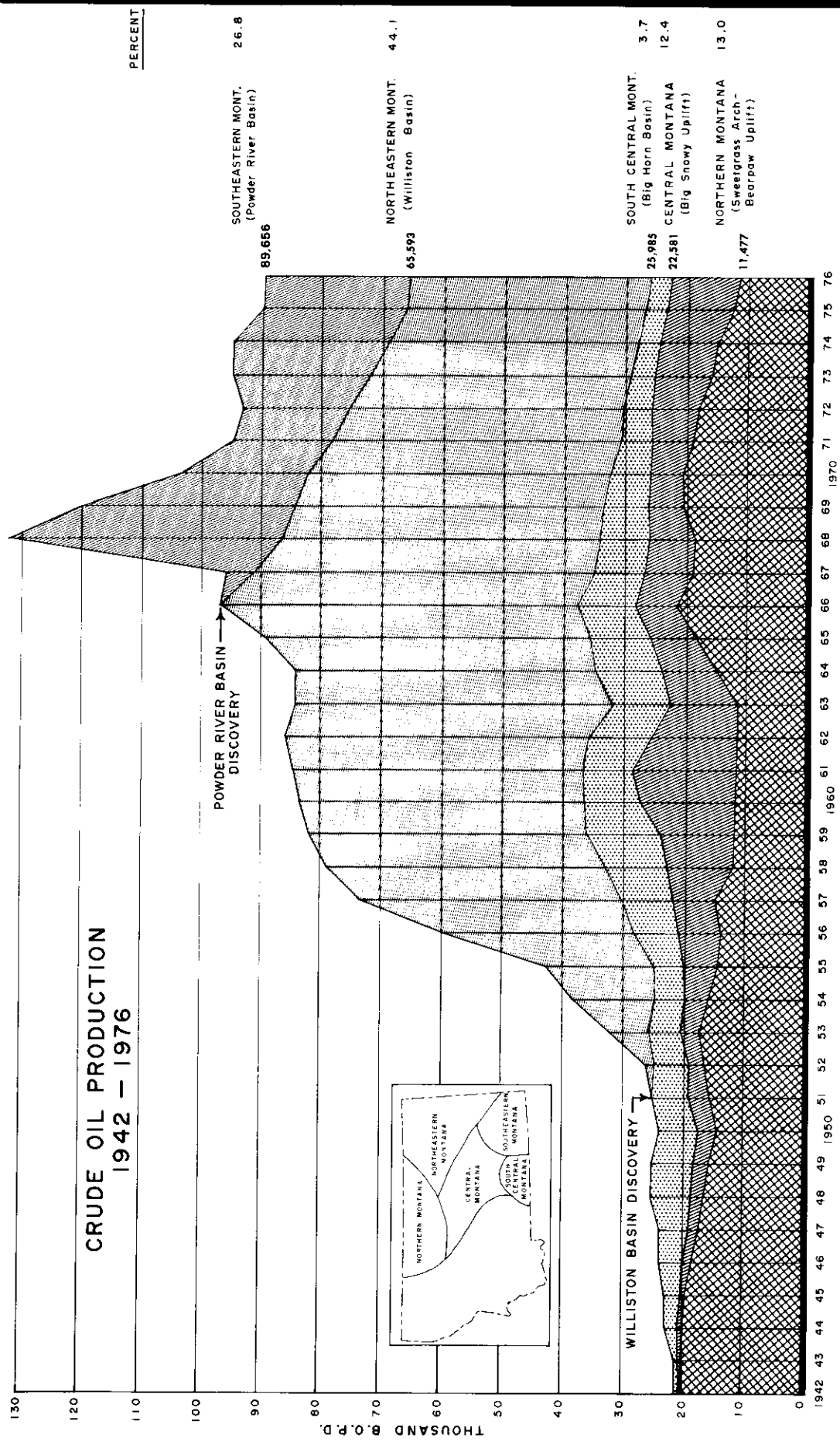
**FIVE YEAR SUMMARY**

	1972	1973	1974	1975	1976
Production, Northern Montana — Bbls. ....	6,646,908	5,948,826	5,464,319	4,551,324	4,200,539
South Central — Bbls. ....	1,742,749	1,515,088	1,432,528	1,318,779	1,246,005
Central — Bbls. ....	2,817,045	3,238,967	3,334,759	3,954,024	4,063,897
Williston Basin — Bbls. ....	16,361,771	15,735,703	14,939,292	14,312,685	14,496,380
Powder River Basin — Bbls. ....	6,335,666	8,181,598	9,383,064	8,706,862	8,807,439
TOTAL .....	33,904,139	34,620,182	34,553,962	32,843,674	32,814,260
No. of Producing Wells, Northern Montana.....	1,856	1,708	1,802	2,067	1,978
South Central.....	83	83	86	100	97
Central .....	224	245	267	303	316
Williston Basin.....	706	709	712	734	737
Powder River Basin.....	265	248	233	231	181
TOTAL .....	3,134	2,993	3,100	3,435	3,309
Average Daily Production/Well — BOPD,					
Northern Montana..	9.8	9.5	8.3	6.0	5.8
South Central .....	57.4	50.0	45.6	36.1	35.1
Central .....	34.4	36.2	34.2	35.8	35.2
Williston Basin.....	63.3	60.8	57.4	53.4	53.8
Powder River Basin .....	65.3	90.4	100.3	103.2	133.3
STATE AVG. ..	29.6	31.7	30.5	26.2	27.1
Development Wells Drilled, Oil Wells.....	79	46	58	105	106
Gas Wells.....	97	165	179	261	264
Dry Holes.....	87	100	212	222	169
TOTAL.....	263	311	449	588	539
Exploratory Wells Drilled, Oil Wells .....	7	6	7	6	17
Gas Wells.....	19	36	21	15	8
Dry Holes .....	435	366	265	236	223
TOTAL WELLS DRILLED .....	461	408	293	257	248
TOTAL WELLS DRILLED .....	724	719	742	845	787
TOTAL FOOTAGE DRILLED .....	2,300,075	1,834,288	2,173,519	2,467,838	2,826,301
AVERAGE DEPTH OF ALL WELLS.....	3,177	2,551	2,929	2,921	3,591

**SUMMARY OF DRILLING BY COUNTIES — 1976**  
**STATE OF MONTANA**

County	Wildcats			Development			Total Wells	Footage Drilled	Average Depth
	Dry	Oil	Gas	Dry	Oil	Gas			
Beaverhead.....	1						1	15,723	15,723
Big Horn.....	2		1				3	10,090	3,363
Blaine.....	19			28		22	69	144,207	2,090
Carbon.....	3			1	1	3	8	53,048	6,631
Carter.....	2						2	5,883	2,941
Cascade.....	4			6		21	4	11,310	2,827
Chouteau.....	16			1			43	87,976	2,046
Custer.....	8						9	38,877	4,319
Daniels.....	1						1	10,455	10,455
Dawson.....	2			2	12	7	3	30,640	10,213
Fallon.....				2			21	140,383	6,685
Garfield.....	4			2			6	26,159	4,359
Glacier.....	3		1	14	10	37	65	182,699	2,810
Golden Valley.....	2						2	10,805	5,402
Granite.....	1						1	5,473	5,473
Hill.....	6		1	22		20	49	95,047	1,939
Liberty.....	10			11	9	30	60	153,377	2,256
McCone.....	3			3	2		8	59,473	7,434
Musselshell.....	21	1		21	7		50	212,305	4,246
Petroleum.....	3						3	8,814	2,938
Phillips.....	17					63	80	135,715	1,696
Pondera.....	10	1		1	12	12	36	75,109	2,086
Powder River.....	6			5	2	3	16	71,803	4,487
Richland.....	8	11		5	7		31	382,305	12,332
Roosevelt.....	7	2		3	5		17	145,684	8,569
Rosebud.....	12	1		12	17		42	222,433	5,296
Sheridan.....	7	1		1	4		13	112,341	8,641
Stillwater.....	5			4		2	11	31,885	2,898
Sweetgrass.....	3		1	1	3		3	21,034	7,011
Teton.....	3		3	22	12	42	8	24,062	3,007
Toole.....	22						101	216,654	2,145
Valley.....	7			2		1	8	44,575	5,572
Wheatland.....	3		1	2	2		5	19,765	3,953
Yellowstone.....	2		1	2	2	1	8	20,192	2,524
<b>TOTALS.....</b>	<b>223</b>	<b>17</b>	<b>8</b>	<b>169</b>	<b>106</b>	<b>264</b>	<b>787</b>	<b>2,826,301</b>	<b>3,591</b>

# CRUDE OIL PRODUCTION 1942 - 1976



## GAS PRODUCTION DATA — 1976

Field	County	Producing Formations	1976 Production MCF	
<b>NATURAL GAS:</b>				
Alma .....	Liberty .....	Blackleaf, Bow Island & Sawtooth .....	18,908	
Bears Den .....	Liberty .....	Sawtooth & Sunburst .....	16,143	
Big Coulee .....	Golden Valley & Stillwater .....	Lakota & Morrison .....	1,486,330	
Black Coulee .....	Blaine .....	Eagle .....	77,203	
Black Jack .....	Liberty .....	Sunburst, Swift & Blackleaf .....	242,461	
Bowdoin .....	Phillips, Valley .....	Bowdoin & Phillips .....	6,320,278	
Bowes .....	Blaine .....	Eagle .....	935,061	
Brown's Coulee .....	Hill .....	Judith River & Eagle .....	51,218	
Bullwacker Area .....	Blaine, Chouteau .....	Judith River, Eagle (Virgelle) .....	447,373	
Canadian Coulee .....	Hill, Liberty .....	Sawtooth .....	842,314	
Cedar Creek .....	Fallon .....	Judith River, Eagle .....	1,753,128	
Coal Coulee .....	Hill .....	Eagle .....	105,860	
Conrad Butte .....	Pondera, Toole .....	Blackleaf, Bow Island & Dakota .....	86,879	
Cut Bank & Reagan .....	Glacier, Toole .....	Blackleaf, Cut Bank & Madison .....	4,366,625	
Dry Creek .....	Carbon .....	Eagle, Frontier, Greybull .....	728,593	
Ethridge .....	Toole .....	Bow Island, Swift .....	80,658	
Flat Coulee .....	Liberty .....	Blackleaf, Sunburst, Sawtooth, Bow Isl. .....	171,032	
Fresno .....	Hill .....	Judith River & Eagle (Virgelle) .....	112,979	
Grandview .....	Liberty .....	Bow Island, Madison .....	96,367	
Hardin .....	Big Horn .....	Frontier .....	28,148	
Keith Block .....	Liberty .....	Bow Island, Sawtooth .....	999,874	
Kevin-Sunburst .....	Toole .....	Sunburst, Swift, Sun River & Nisku .....	391,852	
Kicking Horse .....	Toole .....	Sun River .....	177,704	
Kinyon Coulee Area .....	Toole .....	Bow Island .....	67,243	
Lake Basin .....	Stillwater .....	Kf, Ke, Kve, Ktc .....	649,048	
Liscom Creek .....	Custer .....	Shannon .....	317,682	
Middle Butte .....	Toole .....	Blackleaf .....	17,664	
Middle Dry Creek .....	Carbon .....	Frontier .....	40,732	
Mt. Lilly .....	Liberty .....	Madison .....	154,680	
North Clark's Fork .....	Carbon .....	Lakota .....	22,908	
Plevna .....	Fallon .....	Judith River .....	52,749	
Pumpkin Creek .....	Custer .....	Shannon .....	730,996	
Rapelje .....	Stillwater .....	Judith River, Claggett, Eagle & Virg. .....	490,646	
Sawtooth Mountain .....	Blaine .....	Judith River & Eagle .....	553,457	
Sherard .....	Blaine, Chouteau .....	Eagle, Virgelle .....	1,379,327	
Snoose Coulee .....	Liberty .....	Bow Island .....	11,530	
South Clark's Fork .....	Carbon .....	Greybull .....	34,604	
South Devon .....	Toole .....	Bow Island .....	156,367	
Strawberry Creek Area .....	Toole .....	Bow Island .....	65,003	
Swanson Creek .....	Phillips .....	Phillips .....	61,654	
Tiger Ridge .....	Blaine, Hill .....	Judith River, Eagle .....	14,781,619	
Trail Creek .....	Liberty, Toole .....	Sunburst .....	101,724	
Utopia .....	Liberty .....	Ellis, Sawtooth, Madison .....	273,235	
West Butte .....	Toole .....	Sawtooth, Madison .....	386,994	
Whitlash .....	Liberty .....	Bow Island, Kootenai, Swift .....	989,963	
<b>SUBTOTAL</b>			<b>40,876,873</b>	
<b>Associated Gas:</b>				
Bell Creek .....	Powder River .....	Muddy .....	524,330	
Cabin Creek .....	Fallon .....	Interlake, Red River .....	488,509	
Elk Basin .....	Carbon .....	Tensleep .....	369,660	
Fairview .....	Richland .....	Red River .....	446,218	
Four Mile Creek .....	Richland .....	Red River .....	23,368	
Glendive .....	Dawson .....	Red River .....	1,005	
Keg Coulee .....	Musselshell .....	Tyler .....	2,252	
Middle Sioux Pass .....	Richland .....	Red River .....	31,536	
Otis Creek .....	Richland .....	Red River .....	36,351	
Pine .....	Dawson, Prairie, Fallon & Wibaux .....	Interlake, Red River .....	508,349	
Rattlesnake Coulee .....	Toole .....	Sunburst .....	157	
Richland .....	Richland, Roosevelt .....	Mm, Dw, Si, Orr .....	520,410	
Sioux Pass .....	Richland .....	Mmc, Si, Orr .....	102,245	
Sioux Pass, North .....	Richland .....	Dn, Dw, Si, Orr .....	60,814	
Sumatra .....	Rosebud .....	Tyler .....	160,916	
Tule Creek .....	Roosevelt .....	Nisku .....	59,881	
<b>TOTAL ASSOCIATED GAS</b>			<b>3,336,001</b>	
<b>TOTAL GAS PRODUCED — 1976</b>			<b>44,212,874</b>	
Natural Gas Imported:	Canada MCF	34,934,730	Natural Gas Exported: Midwest States MCF	13,185,083
	Wyoming MCF	379,074	Canada (Couts) MCF	43,926
<b>TOTAL Imported</b>	<b>MCF</b>	<b>35,313,804</b>	<b>TOTAL Exported</b>	<b>MCF 13,229,009</b>



**BARRELS OF CRUDE OIL REFINED IN MONTANA — 1976**

Fields	BIG WEST OIL CO.	CONTINENTAL OIL CO.	EXXON COMPANY	FARMERS UNION	PHILLIPS PETR. CO.	TESORO PETR. CO.	WESTCO REF. CO.	TOTAL
Big Wall		65,089						65,089
Cat Creek		27,049						1,132,410
Cut Bank	57,285			82,759	1,022,602		1,255,077	1,312,362
Devil's Basin				316,599				316,599
Elk Basin		440,511	340,214					780,725
F'lat Coulee					106,765		120,539	120,539
Fed & George Creek	202,345	30,079						309,110
Ivanhoe								30,079
Jim Coulee				188,125				188,125
Keg Coulee		126,244	15,344	25,055				166,643
Kelley			34,355					34,355
Kevin-Sunburst	305,829							305,829
Lodge Grass		7,286						7,286
Mason Lake		4,328						4,328
Melstone				14,709				14,709
Pondera					165,331			165,331
Ragged Point		122,379						122,379
Rosebud		69,422						69,422
Richey, Southwest						24,980		24,980
Snyder		5,502						5,502
Sumatra & Stensvad		947,795	601,534	532,412				2,081,741
Tule Creek & Others						718,036		718,036
Vaux				7,431				7,431
Volt						215,590		215,590
Whitlash					241,955		30,563	272,518
Winnett Junction				33,128				33,128
Wolf Springs			13,262					13,262
Total Montana Oil	565,459	1,845,684	1,004,709	1,200,218	1,536,653	958,606	1,406,179	8,517,508
Canadian Oil Imported	657,534	11,125,216	5,818,126	5,353,950	539,447			23,494,273
Wyoming Oil Imported		4,494,776	7,719,234	6,096,642				18,310,652

TOTAL Montana, Canadian & Wyoming Oil	1,222,993	17,465,676	14,542,069	12,650,810	2,076,100	958,606	1,406,179	50,322,433
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**PERCENTAGE OF CRUDE OIL REFINED**

	AVERAGE BARRELS PER DAY		
	Montana	Canada	Wyoming
Year: 1974	19.40%	35.79%	46.81%
Year: 1975	18.56%	40.28%	41.16%
Year: 1976	16.93%	46.69%	36.38%

**REFINING FIVE YEAR COMPARISON**

	1972	1973	1974	1975	1976
Montana	48,464,721	50,967,206	48,052,776	48,098,535	50,322,433
Canada					
Wyoming					
Total					

## SUMMARY OF SECONDARY RECOVERY PROJECTS-JANUARY 1, 1977

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MCF	Dec. 1976 Avg. Daily Inj. Rate Bbls. or MCF	No. of Injection Wells	Source of Injection Media and Remarks
Ash Creek, Shannon	McDermott	Waterflood	Peripheral	10-15-64	1,077	169	3	Parham
Bell Creek, Unit "A", Muddy	Gary	Waterflood	Peripheral	7- 1-70	75,000	36,471	31	Madison
Bell Creek, Unit "B", Muddy	Gary	Waterflood	Peripheral	10- 1-70	21,252	9,610	12	Madison
Bell Creek, Ranch Creek Unit, Muddy	Gary	Waterflood	Peripheral	7- 1-71	25,500	10,791	11	Madison
Bell Creek, Unit "C", Muddy	Gary	Waterflood	Peripheral	12- 1-71	11,375	8,452	6	Madison
Bell Creek, Unit "D", Muddy	Gary	Waterflood	Peripheral	8-72	14,300	8,813	12	Madison
Bell Creek, Unit "E", Muddy	Gary	Waterflood	Peripheral	8-72	10,600	7,076	16	Madison
Big Wall, Tyler B	Texaco, Inc.	Waterflood	Peripheral	8-20-66	18,100	4,863	2	Produced, Amsden & Tyler
Blackfoot, Cut Bank	Croft	Waterflood	Random	11-76	012	200	2	Madison
Border, New, Cut Bank	BGG Co.	Waterflood	Random	6- 1-73	232	183	7	Madison
Border, Old, Cut Bank	BGG Co.	Waterflood	Random	6- 1-73	622	378	4	Madison
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Random	5-23-61	7,500	10,602	4	Madison
Cabin Creek, Siluro-Ord.	Shell	Waterflood	Semi-Peripheral	6-12-59	157,400	33,128	30	Produced & Fox Hills
Cat Creek, East Dome, Swift	Hess	Waterflood	Semi-Peripheral	7-30-70	368	252	4	Third Cat Creek
Cat Creek, (Unit 1), 1st & 2nd CC	Farmers Union	Waterflood	Semi-Peripheral	10-10-62	11,045	1,972	7	Third Cat Creek
Cat Creek, (Unit 2), 1st & 2nd CC	Farmers Union	Waterflood	Semi-Peripheral	12- 1-59	17,745	1,030	6	Third Cat Creek
Cat Creek, Mosby, Swift	Farmers Union	Waterflood	Random	7-67	3,818	1,191	4	Third Cat Creek
Cat Creek, Mosby, Amsden	Farmers Union	Waterflood	Random	6- 1-71	830	420	1	Third Cat Creek
Cut Bank, Marena, Cut Bank	BGG Co.	Waterflood	S-Spot	6-72	1,673	1,021	8	Madison
Cut Bank, Tweedy, Cut Bank	BGG Co.	Waterflood	S-Spot	6-72	804	249	3	Madison
Cut Bank, NE, Cut Bank	Texaco, Inc.	Waterflood	S-Spot	6- 2-63	13,235	810	5	Madison
Cut Bank, NW, Cut Bank	Phillips	Waterflood	S-Spot	1-30-62	15,000	1,717	15	Madison
Cut Bank, SE, Cut Bank	Union	Waterflood	S-Spot	5-63	32,072	6,326	47	Madison
Cut Bank, SW, Cut Bank	Texaco, Inc.	Waterflood	S-Spot	4-62	52,051	7,939	49	Madison
Cut Bank, Lander "A"	Phillips	Waterflood	Random	9-62	76,000	17,252	87	Madison
Cut Bank, Lander	Texaco, Inc.	Waterflood	Random	4-65	1,475	189	2	Madison
Cut Bank, Lander	Texaco, Inc.	Waterflood	Random	7-64	7,382	1,484	5	Eagle
Cut Bank, McGuinness, Moulton	Union	Waterflood	Random	12-62	4,000	920	1	Madison
Cut Bank, Cut Bank	Tesoro	Waterflood	S-Spot	9- 1-71	3,346	2,109	20	Madison
Cut Bank, Two Medicine, Cut Bank	Miami	Waterflood	Random	12-67	40,557	4,898	74	Madison
Cut Bank, Moulton, Moulton	Union	Waterflood Gas Injection	Random Random	11-69 5-15-71	15,832 Shut-in 0	12,789 0	6 0	Water Inj. into Madison Gas Inj. into Moulton
Darling, State, Moulton	BGG Co.	Waterflood	Random	2-67	2,467	279	1	Madison
Darling, NE Unit, Moulton	Ralph Fair	Waterflood	Random	2-68	4,821	1,156	2	Produced Water
Darling, South Swenson, Moulton	BGG Co.	Waterflood	Random	2-67	7,383	594	3	Madison
Deyer, Ratcliffe	Phillips	Waterflood	Peripheral	10-68	1,487	358	5	Madison
Elk Basin, Embar-Tensleep	Amoco	Waterflood	Random	12-72	2,278 M	54 MCF	1	Produced Gas
Elk Basin, Frontier	Amoco	Waterflood	Random	1926	2,735	1,326	2	Madison
Elk Basin, Unit 2, Tensleep	Amoco	Waterflood	Random	1949	2,171	0	0	Produced Water
Elk Basin, Madison	Amoco	Waterflood	Peripheral	1962	59,885	12,816	8	Produced Water
Elk Basin, NW, Tensleep	Atlantic-Richfield	Waterflood	Semi-Peripheral	5-76	4,333	1,947	2	Madison
Fairview, NW Unit, Red River	Superior	Gas Injection	Crestal	10-25-67	2,857 M	778 MCF	1	Produced Gas
Flat Coulee, Swift	Phillips	Waterflood	Peripheral	2- 1-72	3,525	4,216	15	Eagle
Flat Lake, Ratcliffe	Chevron	Waterflood	Random	6- 1-71	13,000	5,934	11	Produced Water
Frannie, Tensleep	Continental	Waterflood	Random	9-70	2,090	775	1	Produced Water
Fred & George, Sunburst	Fulton	Waterflood	Random	2-70	15,140	7,320	2	Madison & Eagle
Gas City, Red River	Shell	Waterflood	Semi-Peripheral	10-31-69	8,500	3,276	7	Hisson Canyon
Goose Lake, Ratcliffe	Cotton Petroleum	Waterflood	Semi-Peripheral	1-73	4,706	2,561	2	Produced Water
Jim Coulee, Tyler B	McAlester Fuel	Waterflood	Semi-Peripheral	6- 1-72	4,876	3,580	5	Third Cat Creek
Keg Coulee, NW Unit, Tyler B	Ada Oil	Waterflood	Semi-Peripheral	8-31-66	5,053	410	1	Madison
Keg Coulee, East, Tyler	Continental	Waterflood	Semi-Peripheral	12-24-69	3,463	271	2	Third Cat Creek
Keg Coulee, South, Tyler	BGG Co.	Waterflood	Semi-Peripheral	1- 1-70	2,207	1,194	2	Madison
Kelley, Tyler	McAlester Fuel	Waterflood	Random	7-69	1,907	882	2	Third Cat Creek
Kevin-Sunburst, Madison	Lon Crumley	Waterflood	Random	9-63	0	0	2	Madison
Kevin-Sunburst, Madison	BGG Co.	Waterflood	Random	8-64	6,208	1,835	9	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	Waterflood	Semi-Peripheral	8-64	8,823	1,216	10	Madison
Little Beaver, Red River	Shell	Waterflood	Semi-Peripheral	8- 7-66	25,220	6,342	13	Madison
Little Beaver, East, Red River	Shell	Waterflood	Semi-Peripheral	4-65	10,054	1,657	6	Madison
Lookout Butte, Red River	Shell	Waterflood	Semi-Peripheral	4-67	20,966	5,254	11	Hinnelusa
Lookout Butte, Madison	Shell	Waterflood	Semi-Peripheral	2-69	2,058	690	1	Hinnelusa
Monarch, Silurian	Shell	Waterflood	Random	12- 1-73	104	0	3	Siluro-Ord.
Pennel, Red River	Shell	Waterflood	Random	6-28-69	52,446	24,427	46	Dakota and Produced
Pine, South, Red River	Shell	Waterflood	Semi-Peripheral	3-59	138,103	26,224	32	Fox Hills and Produced
Pine, North, Red River	Shell	Waterflood	Semi-Peripheral	3-68	15,182	4,326	10	Lodgepole
Pritchard Creek, Sunburst	Fulton Producing	Waterflood	Random	4-73	230	0	0	Eagle
Ragged Point, Tyler	BGG Co.	Waterflood	Semi-Peripheral	12- 3-66	6,380	365	4	Third Cat Creek
Reagan, Madison	Union	Gas Injection	Random	8-61	4,537 M	490 MCF	2	Gas Injection
Red Creek, Cut Bank	Exxon	Waterflood	S-Spot	6-65	10,716	2,679	5	Madison
Richey SW, Interlake	Atlantic-Richfield	Waterflood	Random	12-65	2,238	175	1	Fox Hills
Stensvad, Tyler	Ada Oil	Waterflood	Semi-Peripheral	2-63	27,401	3,564	7	Madison
Sumatra, West, Tyler	Continental	Waterflood	Semi-Peripheral	10-68	15,575	7,386	9	Madison
Sumatra, Central, Tyler	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	54,632	25,778	16	Madison
Sumatra, NE, Tyler	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	3,924	1,901	7	Madison
Sumatra, SE, Tyler	BGG Co.	Waterflood	Semi-Peripheral	12- 1-69	8,189	3,512	7	Madison
Sumatra, Grebe, Tyler	Farmers Union	Waterflood	Random	6-16-75	157	391	1	Third Cat Creek
Willow Creek, North, Tyler B	Resources Investment	Waterflood	Random	6- 1-72	120	0	1	Produced

OIL AND GAS DISCOVERIES IN 1976

County	Operator-Well Name and Location	Field	Total Depth	Initial Oil, B/D	Potential Gas, MCF	Producing Formation	Date Completed	
Big Horn	West Gas, Inc., Kincaid 3-14, C NW 14-15-32E	Unnamed	1,250			Shut-in	Mowry (Big Elk)	12- 8-75
Glacier	Danson Oil, Tribal B-1, SE NW 2-35N-7W	Unnamed	2,723			Shut-in	Bow Island	8-16-76
Hill	Oil Resources, Bangs 28-15, SW SE 28-36N-8E	Unnamed	2,380			Shut-in	Bow Island	2-18-76
Musselshell	True Oil, Hougou 44-14, C SE SE 14-10N-29E	Unnamed	4,610	214			Tyler	9-25-76
Pondera	Placid Oil, Copenhagen 1, NW NE 32-27N-2E	Unnamed	1,996			Shut-in	Swift	8- 3-76
Richland	Pennzoil, Mexins 1, NE SE 9-23N-57E	South Fork	12,490	110			Red River	5-17-76
	Ensearch Explor., Gartner 1, NW SW 23-23N-58E	Vaux	12,561	93			Red River	5- 4-76
	Shell Oil, BW 21X25, NE NW 25-23N-59E	Big Bend	12,740	189			Red River	4-23-76
	Pennzoil, Watts 1, C NE NE 21-24N-59E	North Fork	12,780	163			Red River	6- 9-76
	Farmers Union, Edeburn 5-24, SW NW 24-25N-54E	Charlie Creek	11,820	95			Nisku	8-26-76
	True Oil, BN 42-1, NW SE NE 1-25N-56E	Unnamed	12,669	720			Red River	11- 4-76
	True Oil, McGinnis 44-1, C SE SE 1-25N-57E	Unnamed	12,720	73			Red River	11-27-75
	True Oil, Delaney 41-4, SE NE NE 4-25N-58E	Four Mile Creek	12,616	50			Red River	10-10-76
	Luff, State 1-27, NE NW SW 27-26N-57E	Middle Sioux Pass	12,770	235			Red River	2-14-76
	Helmerich & Payne, Anderson 1-32, NE NW 32-26N-58E	Unnamed	12,630	165			Red River	12-14-76
	R. L. Burns, Montana-Federal 1, SE SW 24-27N-55E	Boulder	11,962	1,203			Duperow	1-12-76
Roosevelt	True Oil, State 42-20, SW SE NE 20-28N-56E	Unnamed	12,090	440			Red River	10- 1-76
	Farmland Int'l., Jacobsen 2-13, SE NW 13-30N-57E	Unnamed	12,353	120			Red River	10-29-76
Rosebud	True Oil, 71 Ranch Co 42-10, C SE NE 10-12N-33E	Breed Creek	4,990	192			Tyler	9- 5-76
Sheridan	Bonac Exploration, Miller 1, SE NW 28-33N-57E	Daguer	11,430	40			Red River	10-10-76
Teton	Danson Oil, State 1, SE NE 17-27N-7W	Unnamed	3,000			Shut-in	Bow Island	12- 9-76
Toole	Jerry Branch, Flesch 1, NE NE NW 35-34N-2W	Prairie Dell	1,330			70	Swift	1-29-76
	True Oil, Tomayer 43-29, NE SE 29-35N-2E	Unnamed	2,190			Shut-in	Bow Island	11-12-76
	True Oil, Holtz 33-22, C NW SE 22-37N-2W	Unnamed	2,285			Shut-in	Sunburst	12-23-76
Yellowstone	West Gas, Barber 5-8, NE SW NW 8-35-25E	Unnamed	993			780	Dakota	8-29-76
<u>SIGNIFICANT EXTENSIONS <sup>1/</sup> AND NEW PAY ZONES <sup>2/</sup> IN 1976</u>								
Glacier	Danson Oil, Tribal 5-6, NE SW SW 2-37N-7W	Reagan <sup>2/</sup>	2,800			Shut-in	Bow Island	1-22-76
Liberty	Western Natural, Blair 1-3, NW SW SE 3-34N-4E	Grandview <sup>1/</sup>	2,818	14			Swift	10-28-76
	Burlington Northern, Blair 22-23, NW SE NW 23-34N-4E	Horse Creek <sup>1/</sup>	2,660	42			Swift	6- 9-76
	Rossmiller, Mesch 33-17, C NW SE 17-36N-4E	Middle Butte <sup>1/</sup>	1,871		188		Sunburst	12-12-76
Musselshell	Cardinal Drilling, Hamilton 6-10, NE SE NW 10-10N-27E	Unnamed <sup>1/</sup>	3,860	30			Tyler	8- 3-76
	McAlester Fuel, BN 11-5, C SW NW 11-10N-27E	Unnamed <sup>1/</sup>	3,975	425			Tyler	6-27-76
Phillips	Midlands Gas, State 16-21, SE NW 16-37N-31E	Bowdoin <sup>1/</sup>	1,844		450		Bowdoin	9-10-76
Richland	Pennzoil, Sjoström 1, NE NW 15-25N-57E	Sioux Pass <sup>1/</sup>	12,873	143			Red River	11-16-76
	Luff, Martin 1, NE SE 1-26N-57E	No. Sioux Pass <sup>1/</sup>	12,530	365	488		Red River	2- 1-76
	Luff, Federal 1-B, SE SW 8-26N-58E	No. Sioux Pass <sup>2/</sup>	12,643	125			Nisku	2-22-76
Toole	Energy Reserves, Bashor 1, NE NE 34-35N-1W	Kevin-Sunburst <sup>2/</sup>	3,370		1,400		Nisku	1-13-76

## 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
<b>ALMA</b> Blackleaf (L. Cret.) Bow Island (L. Cret.) Sawtooth (M. Jur.)	1 1	Structural Strat.	Depletion	State-wide.	None
<b>ANTELOPE</b> Swift (U. Jur.) Kootenai (L. Cret.)	4 4	Structural	Water Drive	(Listed as part of Cat Creek Field.)	None
<b>ARCH APEX</b> Bow Island (L. Cret.) Gas Swift (Jurassic) Gas Swift (Jurassic) Oil	8 3 4	Strat. Strat. Strat.	Volumetric Volumetric Volumetric	330' from legal subdivision; 2400' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order 4-60.) (Sometimes called Colorado Blackleaf pool.) (Swift) Statewide.	None
<b>ASH CREEK</b> Shannon (U. Cret.)	3	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.)
<b>BAINVILLE</b> Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	Produced water disposed into Red River formation. (Order 7-A-75).
<b>BANNATYNE</b> Swift (U. Jur.) Sun River (U. Miss.)	1 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.
<b>BEARS DEN</b> Sunburst (L. Cret.) Gas Swift (U. Jur.) Oil Sawtooth (Jur.) Gas	3 5 1	Structural Gas Cap Drive	Depletion and	State-wide.	None
<b>BELL CREEK</b> Muddy (L. Cret.) Oil & Gas Gas	176 4	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", Ranch Creek, "C", "D", and "E.") Floods used Madison water. (Orders 7-70, 23-70, 8-71, 26-71, 35-71, 36-71.)
<b>BELL CREEK SOUTHEAST</b> Muddy (L. Cret.) Gas	4	Strat.	Depletion	160-acre spacing units, wells 660' from spacing boundary. (Order 31-72.)	None
<b>BENRUD</b> 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.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>BENRUD, EAST</b> Nisku (Dev.)	3	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62, 32-66.)
<b>BENRUD, NORTHEAST</b> Nisku (Dev.)	1	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 32-66.)
<b>BERTHELOTE</b> Sunburst (L. Cret.)	1 (Shut-in)	Strat.	Depletion	40-acre spacing units with well no closer than 330' from lease or property line and no closer than 660' between wells. (Order 18-66.)	None
<b>BIG BEND</b> Red River (Ord.)	1	Structural	Water Drive	Refer to Rule 203 (Order 16-71, Docket 14-71.)	None
<b>BIG COULEE</b> 3rd Cat Creek (L. Cret.) Gas Morrison (U. Jur.) Gas	5 1	Structural Structural	Water Drive Water Drive	State-wide.	None
<b>BIG GULLY</b> L. Tyler (Penn.)	2	Strat.	Depletion	State-wide.	None
<b>BIG MUDDY CREEK</b> Interlake (Sil.) Red River (Ord.)	1 3	Structural Structural	Water Drive 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
<b>BIG ROCK</b> Blackleaf (L. Cret.) Gas	6	Strat.	Depletion	State-wide.	None
<b>BIG WALL</b> Amsden (Penn.) Tyler (Penn.)	1 1 13 4	Structural Struct.- Strat.	Water Drive Depletion	Spaced by old state-wide spacing; 330' from lease or property line, 990' between wells in same reservoir. (Order 12-54.)	None Previous disposal into Tyler "A" stopped in 1961. Waterflood of Tyler "B" sand started August, 1966. (Order 22-66.)
<b>BLACK COULEE</b> Eagle (U. Cret.)	4	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
<b>BLACKFOOT</b> Cut Bank (L. Cret.) Sun River (Miss.)	7 1	Strat. Structural	Depletion Water Drive	One well only per 40-acre spacing unit, 300' tolerance from center of spacing unit. Dual completion in Cut Bank and Madison with administrative approval. (Order 3.57.)	Waterflood started November, 1976. (Order 34-76.)
<b>BLACK JACK</b> Sunburst (L. Cret.) Gas Swift (U. Jur.) Gas & Oil Blackleaf (U. Cret.) Gas	10 2 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

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>BORDER</b> 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.)
<b>BOULDER</b> Duperow (Dev.)	1	Structural	Water Drive	Refer to Rule 203 (Order 16-71, Docket 14-71.)	None
<b>BOWDOIN</b> Bowdoin & Phillips sands in Colorado Shale (U. Cret.) Gas (Shut-in) 69 *Gas wells outside boundary.	347 *69 69	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.)	None
<b>BOWES</b> Eagle (U. Cret.) Gas	26	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) 19	52 19	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.
<b>BRADLEY</b> Sun River (Miss.) (Shut-in) 1	1 1	Structural	Water Drive	State-wide.	None
<b>BRADY</b> Sunburst (L. Cret.) (Shut-in) 3	3	Strat.	Depletion Partial Water Drive	10-acre spacing units with 75' topographic tolerance from center of spacing unit. (Order 34-62, 55-62.)	None
<b>BRORSON</b> Mission Canyon (Miss.) Oil & Gas Red River (Ord.) Oil & Gas	4 5	Structural	Volumetric Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary (Mission Canyon and Red River). (Order 5-69.) Gas to Brorson Field Plant.	None
<b>BRORSON, SOUTH</b> Red River (Ord.) Oil & Gas	3	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary. (Order 26-68.) Gas to Brorson Field plant.	None
<b>BROWN'S COULEE</b> Judith River (U. Cret.) Gas Eagle (U. Cret.) Gas	3	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

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>BRUSH LAKE</b> Red River (Ord.) Oil & Gas	5 2 (Shut-in)	Structural-Strat.	Depletion Water Drive	320-acre spacing with initial nine spacing units described in (Order 15-71 corrected.)	None
<b>BULLWACKER</b> Judith River (U. Cret.) Gas Eagle-Virgelle (U. Cret.) Gas	28	Structural	Volumetric	One well per 320-acre spacing unit with well location no closer than 660' from unit boundary & 990' from field boundary. (Order 26-74.)	None
<b>BURNS CREEK</b> Red River (Ord.)	1	Structural	Depletion Water Drive	State-wide.	None
<b>CABIN CREEK</b> Mission Canyon (Miss.) Oil & Gas	14 4 (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.)
<b>CANADIAN COULEE</b> Sawtooth (M. Jur.) Gas	2 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
<b>CANADIAN COULEE, NORTH</b> Sawtooth (M. Jur.)	2	Structural-Strat.	Volumetric	640-acre spacing unit. Location to be no closer than 1650' to section line. (Order 15-74.)	None
<b>CANAL</b> Red River (Ord.)	1	Structural	Water Drive Depletion	320-acre spacing units consisting of East half and West half of governmental section. (Order 34-70.)	None
<b>CAT CREEK</b> Kootenai (L. Cret.) (3 sands) Morrison (U. Jur.)	37 3 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.)
Ellis (U. Jur.) Amsden (Penn.)	16 2	Structural-Strat.	Depletion- Water Drive Water Drive	State-wide.	Water from Third Cat Creek sand. Waterflood modified. (Order 29-74.)
<b>CEDAR CREEK</b> Judith River (U. Cret.) Gas	179	Structural	Volumetric	1200' from legal subdivision line. 2400' from every other well in same formation. (Order 33-54.)	None
Eagle (U. Cret.) Gas	60	Structural	Volumetric	320-acre spacing units. Wells in center of NW¼ and SE¼ of each section with 200' topographic tolerance. (Order 1-61.) Field extension (Order 23-76.)	None
<b>CHARLIE CREEK</b> Nisku (Dev.) Duperow (Dev.)	1	Structural	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

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CHELSEA CREEK Nisku (Dev.)	1	Structural	Water Drive	State-wide.	None
CHIP CREEK Eagle-Virgelle (U. Cret.)	1	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	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		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 (. Cret.) Oil & Gas (Shut-in)	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
COAL COULEE Eagle (U. Cret.) Gas	3	Structural-Strat.	Volumetric	State-wide.	None
CONRAD BUTTE Blackleaf (L. Cret.) Bow Island (L. Cret.) Dakota (L. Cret.)	12	Strat.	Volumetric	State-wide.	None
CONRAD, SOUTH Dakota (L. Cret.)		Strat.	Depletion	10-acre spacing units. Wells in center of each unit with 75' topographic tolerance. (Orders 34-62, 31-63.)	None
COW CREEK Charles Miss.)	2	Structural	Water Drive	80-acre spacing units; direction at option of operator but wells to be in SW $\frac{1}{4}$ and NE $\frac{1}{4}$ of each quarter section. (Order 11-69.)	None
COW CREEK, EAST Kibbey (Miss.)	10	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.)
CULBERTSON Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wise 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.)	None
CUPTON Red River (Ord.)	11	Structural-Strat.	Water Drive	160-acre quarter section spacing units. Location no closer than 660' from spacing unit boundary. (Order 4-72.)	None



Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>DWYER</b> Ratcliffe (Miss.)	10 4 (Shut-in)	Structural- Strat.	Water Drive- Volumetric	160-acre spacing units; well location in center of SE¼ of spacing unit with 175' topographic tolerance. (Orders 25-60, 29-61.)	Produced water disposed into Dakota formation. (Order 26-63.) Waterflood. (Order 20-68.)
<b>EAST KEITH &amp; KEITH</b> Bow Island (L. Cret.) Gas Sawtooth (Jur.) Gas	7 5	Structural	Water Drive	State-wide, except unitized portions spaced by (Order 22-62). Pooling (Order 19-66.)	None
<b>ELK BASIN</b> (Mont. Portion) Frontier (U. Cret.) (Shut-in) Embar-Tensleep (Perm., Penn.) Oil and Gas (Shut-in) Madison (Miss.)	13 7 15 13 21	Structural Structural	Gravity Drainage Gravity Drainage Water Drive	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.)
<b>ELK BASIN, NORTHWEST</b> Frontier (U. Cret.) (Shut-in) Embar-Tensleep (Perm., Penn.) Oil and Gas Madison (Miss.)	1 6 3 1 2	Structural Structural	Depletion Gravity Drainage Water Drive	Spacing waived within unitized portion except that bottom of hole be no closer than 330' from unit boundary and there be at least 1320' surface distance between wells in same formation; 75' topographic tolerance. (Orders 43-63, 28-64.) Gas to Elk Basin gasoline plant.	Frontier: Waterflood in progress. Embar - Tensleep: Waterflood. (Order 3-67.) Madison, produced water.
<b>EHRIDGE AREA</b> Bow Island (L. Cret.) Gas Swift (U. Jur.) Gas	3 5 1	Strat. Strat.	Water Drive Water Drive	State-wide. State-wide, except two wells by (Order 28-65.)	None
<b>FAIRVIEW</b> Winnipegosis (Dev.) Oil & Gas Red River (Ord.) Oil & Gas	1 8	Structural Structural	Water Drive 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 Brorson fields. (Order 11-70.) Salt water disposal into Dakota. (Orders 9-A-71, 24-A-71.)
<b>FERTILE PRAIRIE</b> 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
<b>FLAT COULEE</b> Bow Island (L. Cret.) Gas	3 (Shut-in)	Structural	Depletion	330' from boundary of legal subdivision and 1320' from other wells in same reservoir. (Order 16-55.)	Waterflood unit and redelimitation approved for Swift sandstone. (Orders 13-71, 17-A-71, 22-71.)
Dakota (L. Cret.) Gas	1 (Shut-in)	Strat.	Depletion	State-wide, exception (Order 11-66.)	
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.)	
Sunburst (L. Cret.) Gas	1 (Shut-in)	Strat.	Depletion	State-wide.	
Sawtooth (Jur.) Gas	1 (Shut-in)	Strat.	Depletion		
<b>FLAT LAKE</b> Nesson (Miss.)	1 (Shut-in)	Strat.	Partial Water Drive	160-acre spacing units; well location in center of NE 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 (Shut-in)	Structural-Strat.	Partial Water Drive		
<b>FLAT LAKE, SOUTH</b> Ratcliffe (Miss.)	2 (Shut-in)	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.)
<b>FOUR MILE CREEK</b> Red River (Ord.)	1	Structural	Depletion	320-acre spacing units. (Order 43-75.)	None
<b>FRANNIE</b> (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.)
<b>FRED &amp; GEORGE CREEK</b> Sunburst (L. Cret.) Oil & Gas	15 (Shut-in)	Strat.	Depletion	Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.)	Sunburst waterflood initiated July, 1970, using water from Madison. (Order 13-70) and Eagle water. (Order 27-71.)
Swift (U. Jur.) Oil & Gas	2 (Shut-in)	Strat.	Depletion	State-wide.	
<b>FRESNO</b> Eagle-Virgelle (U. Cret.)	4 (Shut-in)	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
<b>FROID, SOUTH</b> Red River (Ord.)	1	Structural-Strat.	Depletion	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>FT. GILBERT</b> Red River (Ord.)	2 1 (Shut-in)	Structural- Strat.	Depletion	State-wide.	None
<b>GAGE</b> Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
<b>GAS CITY</b> Red River (ord.)	15	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.) Water-flood using produced water and Madison water. (Order 16-69.)
<b>GIRARD</b> Red River (Ord.) Interlake (Sil.)	1 1	Structural- Strat.	Depletion- Water Drive	State-wide.	None
<b>GLENDIVE</b> Red River (Ord.) Oil & Gas	14 2 (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.)
<b>GOLD BUTTE</b> Bow Island (L. Cret.)	1	Structural	Water Drive?	640-acre spacing, well location any quarter-quarter section cornering on center of section. (Order 26-59.)	None
Swift (U. Jur.) Gas	1	Structural	Water Drive?		
<b>GOLDEN DOME</b> Eagle (U. Cret.) Gas	2	Structural- Strat.		160-acre spacing; 660' from spacing unit boundary.	None
<b>GOOSE LAKE</b> Ratcliffe (Miss.) Oil & Gas	19 4 (Shut-in)	Structural- Strat.	Partial Water Drive	Unitized. (Order 17-72.)	Excess produced water disposed into Mission Canyon and Dakota formations. (Orders 12-64, 14-66, 12-68.)
<b>GRABEN COULEE</b> Sunburst (L. Cret.)	1 1 (Shut-in)	Structural- Strat.	Depletion	40-acre spacing units; well location no closer than 330' from legal subdivision.	None
Cut Bank (L. Cret.)	31	Structural- Strat.	Depletion	(Cut Bank and Madison) Oil: 330' from boundary of legal subdivision and 650' from any other well in same reservoir and on same lease. 75' topographic tolerance. (Order 73-62.)	
Cut Bank-Madison (Dual	6 3 Strat.)	Structural- Strat.	Depletion		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>GRANDVIEW</b> Bow Island (L. Cret.) Gas (2 Zones)	5	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		
Swift (U. Jur.) Oil	1	Structural	Unknown		
<b>GUMBO RIDGE</b> Tyler (L. Penn.)	6	Structural-Strat.	Unknown	State-wide.	None
<b>GYPSY BASIN</b> Sunburst (L. Cret.) Oil & Gas	4	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.)	Order 6-64 permits injection of excessive gas (produced with oil) into the Sunburst gas cap.
Swift (U. Jur.)	1	Structural-Strat.	Comb. Water Drive and Depletion	Same as Sunburst	
Sawtooth-Madison (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
<b>HARDIN</b> Frontier (U. Cret.) Gas	17	Strat.	Volumetric	State-wide.	Water disposal into Red River. (Order 20-A-70.)
	31				
<b>HAVRE</b> Eagle (U. Cret.)	1	Structural-Strat.	Water Drive Depletion	State-wide. Single well used in town of Havre.	
<b>HAY CREEK</b> Mission Canyon (Miss.)	1	Structural	Depletion	State-wide.	None
Red River (Ord.)	1	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 Bronson plant.	
	1				
<b>HAYSTACK BUTTE</b> Eagle-Virg. (U. Cret.)	6	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.)	None
Bow Island (L. Cret.)					
Kootenai (L. Cret.)					
<b>HIAWATHA</b> Tyler (L. Penn.)	4	Structural-Strat.	Depletion	State-wide.	None
(2 sands)					

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>HIBBARD</b> Amsden (Penn.)	1	Unknown	Water Drive	State-wide.	None
<b>HIGHVIEW</b> Madison (Miss.) Oil & Gas	1	Structural	Water Drive	160-acre spacing units, located no closer than 660' from spacing unit boundary. 150' topographic tolerance. (Order 84-76.)	None
<b>HORSE CREEK</b> Swift (U. Jur.)	1	Structural	Water Drive	State-wide.	None
<b>HOWARD COULEE</b> Tyler (L. Penn.)	1 (Shut-in)	Structural-Strat.	Unknown	State-wide.	None
<b>INJUN CREEK</b> Tyler (Penn.) Abandoned	0	Strat.	Depletion	State-wide.	None
<b>IVANHOE</b> Morrison (U. Jur.)	2 (Shut-in)	Structural-Strat.	Depletion	40-acre spacing unit for production from any one common formation; well location in center of unit with 200' topographic tolerance. (Order 7-60 and 9-56.)	Waterflood of Tyler B & C sands discontinued.
<b>JIM COULEE</b> Tyler (L. Penn.)	17	Structural-Strat.	Water Drive	State-wide.	Waterflood; produced and Third Cat Creek water.
<b>KEG COULEE</b> Tyler (Penn.) Oil & Gas	18 (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.)	Three waterflood units. (Orders 3-64, 28-66, 10-69, 14-69.) Madison water injected.
<b>KEG COULEE, NORTH</b> Tyler (Penn.)	3	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.)	None
<b>KEITH</b> (see East Keith)					
<b>KELLEY</b> Tyler (Penn.)	3	Strat.	Depletion	State-wide, 250' topographic tolerance. (Order 15-67.)	Waterflood using Third Cat Creek water. (Order 8-69.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>KEVIN-SUNBURST</b> Sunburst (L. Cret.) Oil & Gas Swift (U. Jur.)	51 ?	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.) (Estimated 400 wells shut-in.)	There are five waterfloods in operation, using Madison water. (Orders 9-64, 17-64, 30-64, 36-65, 29-71.)
Sun River (Miss.) Oil & Gas Gas only	468 12 ?	Structure- Strat.	Depletion		
(Shut-in)					
Nisku (Dev.) Gas	1			640-acre spacing units; location no closer than 990' from spacing unit boundary. (Order 83-76.)	None
<b>KICKING HORSE</b> Bow Island (L. Cret.) Sawtooth (Jur.) Gas	3 4	Structural	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
<b>KINYON COULEE</b> Bow Island (L. Cret.)	4	Structural- Strat.	Volumetric	State-wide.	None
<b>LAIRD CREEK</b> Swift (U. Jur.) Oil & Gas	10 2	Strat.	Depletion	State-wide. One shut-in gas well.	Unitized and waterflood authorized in Swift for oil production. (Order 25-74.)
(Shut-in)					
<b>LAKE BASIN</b> Telegraph Creek ? U. Cret. O Gas Virgelle (U. Cret.) Gas	8	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
<b>LAKE BASIN, NORTH</b> Eagle, Frontier (U. Cret.) Gas Claggett Eagle-Virg. (U. Cret.) Gas	2 2 1	Structural Structural	Unknown Unknown	640-acre spacing units consisting of one section. Locations 990' from section line. (Order 3-74.) 160-acre spacing units located no closer than 660' from quarter section lines within restricted Sections. (Order 63-76.)	None None
<b>LANDSLIDE BUTTE</b> Sun River (Miss.)	1 2	Unknown	Water Drive	State-wide.	None
(Shut-in)					
<b>LAREDO</b> Eagle (U. Cret.) Judith River (U. Cret.)	21 1	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
(Shut-in) (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
<b>LEARY</b> Muddy (L. Cret.)	2 (Shut-in)	2 Structural-Strat.	Depletion	80-acre spacing with locations in NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section, 200' topographic tolerance. (Order 12-69, 19-70.)	None
<b>LEROY</b> Judith River-Eagle Virgelle (U. Cret.) Gas	24 (Shut-in)	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
<b>LISCOM CREEK</b> 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
<b>LITTLE BEAVER</b> (Mont. Portion) Red River (Ord.)	23 1 (Shut-in)	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended until present Unit Agreement becomes inoperative. (Order 41-62.)	Waterflood of the Red River was commenced in August, 1967. (Order 3-66.) Minnelusa water.
<b>LITTLE BEAVER, EAST</b> (Montana Portion) Red River (Ord.)	9	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.)
<b>LITTLE WALL CREEK</b> Tyler (Penn.)	13 1 (Shut-in)	Strat.	Depletion Water Drive	State-wide.	None
<b>LODGE GRASS</b> 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
<b>LONE BUTTE</b> Red River (Ord.)	2	Structural	Unknown	320-acre spacing units with well location at least 660' from unit boundary. Not delineated.	None
<b>LONETREE CREEK</b> Red River (Ord.)	6 1 (Shut-in)	Structural	Depletion	320-acre spacing, wells 660' from spacing boundary, 2000' between wells. (Order 29-72.)	None
<b>LONG CREEK</b> Madison (Miss.) Charles	1	Structural	Water Drive	State-wide spacing.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>LOOKOUT BUTTE</b> (Includes Coral Creek Unit) Madison (Miss.)	3	Structural	Water Drive	State-wide spacing.	Water disposal into Madison. (Order 68-62.)
Interlake, Red River (Sil.-Ord.)	28	Structural	Comb. Depletion and Water Drive	160-acre spacing; well location in center of SE $\frac{1}{4}$ of each quarter section with 150' topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Redelineated per (Order 7-63.)	Waterflood of Silurian-Ordovician approved in 1966. (Order 35-66.) Water from Minnelusa.
<b>MASON LAKE</b> Lakota (L. Cret.)	2	Structural	Water Drive	State-wide.	None
<b>MELSTONE</b> Tyler (Penn.)	3 1 (Shut-in)	Structural-Strat.	Depletion	State-wide.	None
<b>MIDDLE BUTTE</b> Bow Island (Cret.)	2	Structural	Volumetric	320-acre spacing units consisting of E $\frac{1}{2}$ & W $\frac{1}{2}$ of each section; well location in center of either of the inside quarter-quarter sections located in E $\frac{1}{2}$ of each spacing unit. 75' topographic tolerance. (Order 3-60.) Re-delineated. (Order 21-75.)	None
<b>MINERAL BENCH</b> Duperow (Dev.)	1	Structural	Water Drive	State-wide.	Water disposal into Dakota-Lakota per (Order 18-65.)
<b>MINERS COULEE</b> Sunburst (L. Cret.) Swift (U. Jur.) Madison (Miss.) Sunburst-Swift Gas Sawtooth (M. Jur.)	2 3 1 1 1 (Shut-in) (Shut-in) (Shut-in) (Shut-in)	Strat. Strat. Strat. Strat. Strat.	Depletion Depletion Water Drive 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. Gas: 160-acre spacing with wells 990' from unit boundary. (Order 5-74.) Sawtooth gas spacing unit. (Order 43-76.)	None
<b>MONARCH</b> 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.)	9	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.)
<b>MOSBY</b> (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.)



Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>MOSSER</b> Greybull (L. Cret.)	10 (Shut-in)	Structural	Water Drive	Spacing waived. Future development requires administrative approval of the Commission. (Order 27-62.)	None
<b>MT. LILLY</b> Madison (Miss.) Gas	3	Structural	Water Drive	640-acre spacing, well location in approximate center of any of the four quarter-quarter sections adjoining center of section; 250' topographic tolerance. (Order 37-63.)	None
<b>MUD CREEK</b> Amsden (L. Penn.)	2	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
<b>NOHLY</b> Red River (Ord.)	2	Structural	Volumetric Water Drive	State-wide.	None
<b>NORTH FORK</b> Red River (Ord.)	1	Structural	Water Drive	State-wide.	None
<b>NORTH GILDFORD</b> 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
<b>NORTH LAKE BASIN</b> (See Lake Basin, North)					
<b>NORTH WILLOW CREEK</b> (See Willow Creek, North)					
<b>OTIS CREEK</b> Red River (Ord.)	2	Structural	Depletion	State-wide.	None
<b>OTIS CREEK, SOUTH</b> Red River (ord.)	2	Structural	Depletion	State-wide.	None
<b>OUTLOOK</b> Duperow (Dev.)	1 (Shut-in)	Structural-Strat.	Water Drive	State-wide.	Produced water is disposed into Dakota and Siluro - Devonian formations. (Orders 16-59, 17-65, 36-66.)
Winnepegosis (Dev.)	3	Structural-Strat.	Water Drive	State-wide.	
Silurian-Devonian	3 (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.)	
<b>OUTLOOK, SOUTH</b> Winnepegosis (Dev.)	1	Structural	Water Drive	160-acre spacing; permitted wells in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of quarter section; 175' topographic tolerance. (Order 19-59A.) Commingling permitted. (Order 45-64.)	Produced water disposed into Muddy and Dakota formations. (Orders 19-59, 17-65.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal	
<b>OUTLOOK, WEST</b> 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.)	
<b>PENNEL</b> Mission Canyon (Miss.)	8	Structural	Depletion-Water Drive	80-acre spacing units consisting of east and west half of quarter section; wells located in center of SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of quarter sections with 150' topographic tolerance. (Order 15-61.)	Produced water is being injected into Dakota, Siluro-Ordovician and Madison formations. (Orders 16-60, 46-62, 68-62, 36-63, 13-64.) Waterflood for Siluro-Ordovician approved Nov. 1968. (Order 24-68.)	
Siluro-Ordovician Oil & Gas	106	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.)		
<b>PINE</b> Mission Canyon (Miss.) Oil & Gas	2	Structural	Water Drive	Spacing and General Rules 213, 218 and 219 are waived within the Pine Unit. 80-acre spacing units outside of unit area; well location in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of quarter section; 150' topographic tolerance. (Order 37-62.) Gas through extraction plant.	A waterflood program for the south area was started in 1969. 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.)	
Siluro-Ordovician Oil & Gas	99	Structural	Depletion-Water Drive			
<b>PLEVNA</b> Judith River (U. Cret.) Gas	19 (Shut-in)	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	
<b>PONDERA</b> Sun River (Miss.) Oil & Gas	292	Structural-Strat.	Depletion-Water Drive	Oil: 220' from legal subdivision, 430' from other wells in same reservoir on same lease; 75' topographic tolerance. Porter Bench Extension: 330' from legal subdivision line; 650' from other wells in same reservoir on same lease or unit; 75' topographic tolerance. (Order 9-54.) Gas: 1320' from legal subdivision; 3700' from other wells on same lease or unit; 75' topographic tolerance. (Order 9-54.) General Rules 207, 211, 219, 221, 223, and 224 do not apply.	Produced water injected into lower Madison. (Orders 11-56, 15-56, 4-65, 4-66, 20-A-71.) A small waterflood project has been in operation since 1959, using Madison water.	
<b>POLICE COULEE</b> Bow Island (L. Cret.)	2 (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.)	None	
<b>PONDERA COULEE</b> Sun River (Miss.)	4 (Shut-in)	Structural	Water Drive	330' from legal subdivision lines or upon a 10-acre spacing pattern; 75' topographic tolerance. (Order 5-62.)	None	

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>POPLAR, EAST</b> Madison (Miss.) (Charles & Mission Canyon fms.) Heath (Tyler) (Penn.)	57	Structural	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.)
<b>POPLAR NORTHWEST</b> Charles (Miss.) ("B" & "C" or McGowan Zone)	11	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.)	None
<b>PRAIRIE DELL</b> Bow Island (L. Cret.) Gas Swift (U. Jur.) (Dual Gas)	3 5	Structural- Strat.	Depletion	320-acre spacing units with well location no closer than 660' from spacing unit boundary. (Order 10-76.)	None
<b>PRAIRIE ELK</b> Charles "C" (Miss.) (Shut-in)	1 1	Unknown	Water Drive	State-wide.	None
<b>PRICHARD CREEK</b> Sunburst (L. Cret.) Oil & Gas (Shut-in)	5 3	Strat.	Depletion	Well locations subject to administrative approval.	None. Unitized as to Sunburst for water injection. (Order 7-73.)
<b>PUMPKIN CREEK</b> Shannon (U. Cret.) Gas (Shut-in)	3 5	Strat. Strat.	Depletion	State-wide. Delineated. (Order 10-71.)	None
<b>PUTNAM</b> Interlake (Sil.) Red River (Ord.)	1 1	Structural Structural	Volumetric Water Drive Volumetric Water Drive	State-wide.	None. Gas to McCulloch Gas Processing Corp. Brorson Plant.
<b>RABBIT HILLS</b> Sawtooth (Jur.)	4	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.
<b>RAGGED POINT</b> Tyler (Penn.) Kibbey (Miss.)	23 0	Strat. Structural	Depletion Water Drive	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.) State-wide spacing. (Order 15-54.) Commingling of production from Tyler and Kibbey permitted in one well per (order 11-65.)	A waterflood project of the Tyler "A" sand was commenced in February, 1966, using Third Cat Creek water. (Order 35-65.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>RAPELJE</b> 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
<b>RATTLER BUTTE</b> Tyler (Penn.)	2	Strat.	Depletion	State-wide.	None
<b>RATTLESLAKE COULEE</b> Sunburst (L. Cret.) Oil & Gas	1	Strat.	Depletion	State-wide.	None
Bow Island (L. Cret.) Gas	1				
<b>RAYMOND</b> Duperow (Dev.) Nisku-Winnepegosis (Dev.) Dual Winnepegosis (Dev.)	1 1 2	Structural- Strat.	Depletion Water Drive	320-acre spacing units. Wells 660' from spacing unit boundary. (Order 38-72.)	Produced water injected into Dakota formation. (Order 39-A-74.)
<b>RAYMOND, NORTHEAST</b> Winnepegosis (Dev.) (Dual) Red River (Ord.)	1	Structural- Strat.	Depletion Water Drive	160-acre spacing units. Wells 660' from spacing unit boundary. (Order 12-74.)	None
<b>REAGAIN</b> Sun River (Miss.) Oil Gas	53 1 5	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.)
<b>REAGAN, WEST</b> Blackleaf (L. Cret.) Gas	10	Strat.	Depletion	State-wide. Injected into Reagan field as secondary recovery agent.	None
Bow Island (L. Cret.) Oil	1	Structural- Strat.	Volumetric		
<b>RED CREEK</b> Cut Bank (L. Cret.) Oil & Gas	7	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.
Sun River (Miss.) Oil & Gas	2 12 9	Structural	Water Drive		
<b>RED FOX</b> Nisku (Dev.)	1	Structural	Water Drive	Field consists of one 160-acre spacing unit which straddles the section line. (Order 20-67.)	None
<b>REDSTONE</b> Winnepegosis (Dev.)	1 1	Unknown	Water Drive	One well per 160-acre unit, but no closer than 660' from unit boundary.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>REPEAT</b> Red River (Ord.)	1	Unknown	Water Drive	State-wide.	None
<b>RESERVE</b> Winnipegosis (Dev.)	1	Structural-Strat.	Water Drive	160-acre spacing units; permitted well within 1320' square in center of quarter section. Commingling of Red River and Interlake production permitted on individual well basis. (Orders 34-66, 27-67.)	Excess water injected into Dakota sand. (Order 23-A-67.)
Interlake (Ord.)	1	Structural-Strat.	Water Drive		
Red River (Ord.)	3	Structural-Strat.	Water Drive		
<b>RICHEY</b> Charles (Miss.)	2	Structural	Water Drive	State-wide.	Original 80-acre spacing revoked. (Order 11-73.)
<b>RICHEY, SOUTHWEST</b> Interlake, Dawson Bay (Sit.) (Dev.)	5	Structural	Depletion	160-acre spacing units; wells no closer than 900' from boundary of spacing unit. (Order 25-62.)	A waterflood project in the Interlake and Dawson Bay was started in 1965. (Order 34-65.)
<b>RIPRAP COULEE</b> Ratcliffe (Miss.)	2	Structural-Strat.	Depletion	State-wide.	None
<b>ROSCOE</b> Lakota (L. Cret.)	1	Structural	Water Drive	State-wide.	None
<b>ROSEBUD</b> Tyler (L. Penn.)	5	Structural-Strat.	Unknown	State-wide	None
<b>ROUGH CREEK</b> Muddy (L. Cret.)	1	Structural Strat.	Depletion	State-wide. Formerly called Duncan Creek.	None
<b>RUDYARD</b> Sawtooth (M. Jur.) Gas	3	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
<b>RUSH MOUNTAIN</b> Winnipegosis (M. Dev.) Red River (Ord.)	1	Structural	Volumetric-Water Drive	State-wide. Dual zone completion in discovery well.	Excess water injected into Dakota sand. (Order 5-A-71.)
<b>SALT LAKE</b> Bakken-Nisku (Miss.-Dev.)	3	Structural	Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>SAND CREEK</b> 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 NW¼ and SE¼ of each quarter section. (Order 16-59.) Commingling of production from Interlake and Red River authorized per (Order 49-62.)	Excess produced water is injected into the Swift formation. (Order 9-61.)
<b>SAWTOOTH MOUNTAIN</b> Judith River (U. Cret.) Eagle (U. Cret.)	5 1 19 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
<b>SECOND CREEK</b> Red River (Ord.)	3	Structural	Volumetric Water Drive	State-wide.	None
<b>SHEEPHERDER</b> Tyler (L. Penn.)	3	Structural-Strat.	Unknown	State-wide.	None
<b>SHELBY AREA</b> Sunburst (L. Cret.) Gas Swift (Jur.) Gas	33	Structural-Strat.	Depletion	State-wide. Field outline not delineated. A few small Swift sand wells commingled with Sunburst.	None
<b>SHERARD</b> Eagle (U. Cret.) Gas Judith River (U. Cret.) Dual	9 6 1 (Shut-in)	Structural-Strat.	Volumetric Water Drive	640-acre spacing units; 990' from section line. (Order 1-74.)	None
<b>SHERRARD WEST</b> Eagle, Virgelle (U. Cret.)	1	Structural-Strat.	Volumetric Water Drive	160-acre spacing units; location no closer than 660' to unit boundary. (Order 90-76.)	None
<b>SHOTGUN CREEK</b> Ratcliffe (Miss.)	1 (Shut-in)	Structural	Water Drive	State-wide.	None
<b>SIDNEY</b> Mission Canyon (Miss.)	1 (Shut-in)	Structural	Water Drive	State-wide.	None
<b>SIOUX PASS</b> Interlake (Sil.) Red River (Ord.) Mission Canyon (Miss.)	3 1 1 Dual	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.)	Excess water injected into Dakota formation. (Order 15-A-75.)

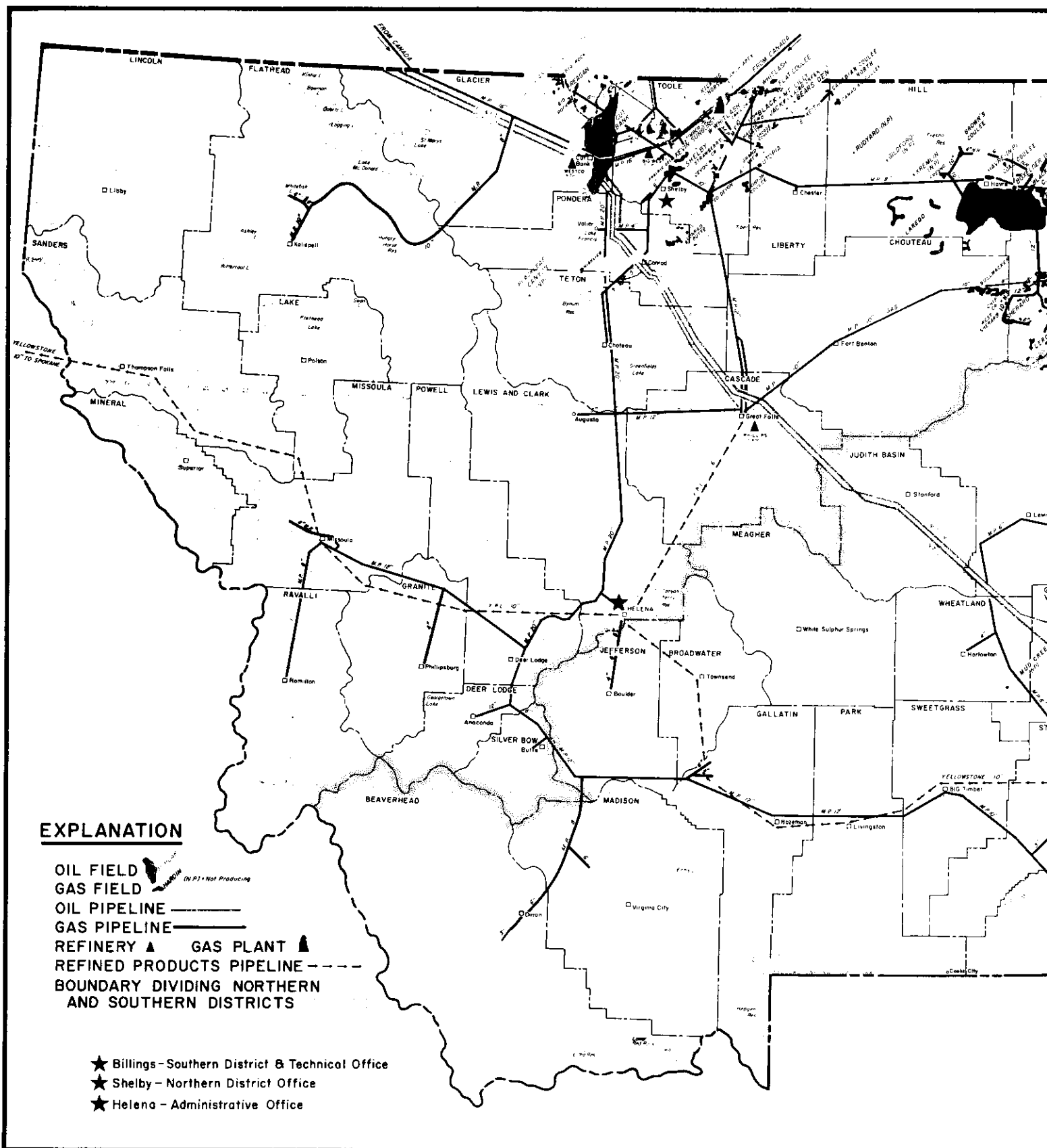
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>SIoux PASS, MIDDLE</b> Red River (Ord.)	2	Structural	Water Drive	320-acre spacing units to consist of two contiguous governmental quarter sections 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
<b>SIoux PASS, NORTH</b> Interlake (Sil.) Red River (Ord.) Dual Winnipegosis (Dev.) Nisku (Dev.) Red River Ord.) Dual Red River (Ord.)	3 1 1 1	Structural Water Drive	Unknown	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 36-74.) Refer to Order 35-75 for modification.	None
<b>SNOOSE COULEE</b> Bow Island (L. Cret.) Gas	4	Structural-Strat.	Volumetric	State-wide.	None
<b>SNYDER</b> Tensleep (Penn.)	3 1	Structural	Water Drive	10-acre spacing units with center 5-spot permitted; 150' topographic tolerance. (Order 45-62.)	None
<b>SOAP CREEK</b> Tensleep, Amsden, Madison (Penn.) (Penn.) (Miss.)	20 2	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
<b>SPRING LAKE</b> Nisku (Dev.) Red River (Ord.)	1 2	Structural Structural	Depletion Depletion	One well per 160-acre spacing unit. Well location anywhere within 840' square in center of spacing unit. (Order 6-63.) Field redelineation. (Orders 30-76, 49-76.)	None
<b>SQUAW COULEE</b> (Now included as part of Tiger Ridge Field.) (Order 10-70.0					
<b>STRAWBERRY CREEK</b> Bow Island (L. Cret.) Gas Sawtooth (M. Jur.)	3 1	Structural-Strat.	Volumetric Water Drive	State-wide.	None
<b>STENSVAD</b> Tyler (Penn.)	12 9	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.)
<b>SWANSON CREEK</b> Phillips (U. Cret.) Gas	1	Strat.	Depletion	320-acre spacing units, well location SE NW each section. Wells no closer than 990' from unit boundary. (Order 36-75.)	None

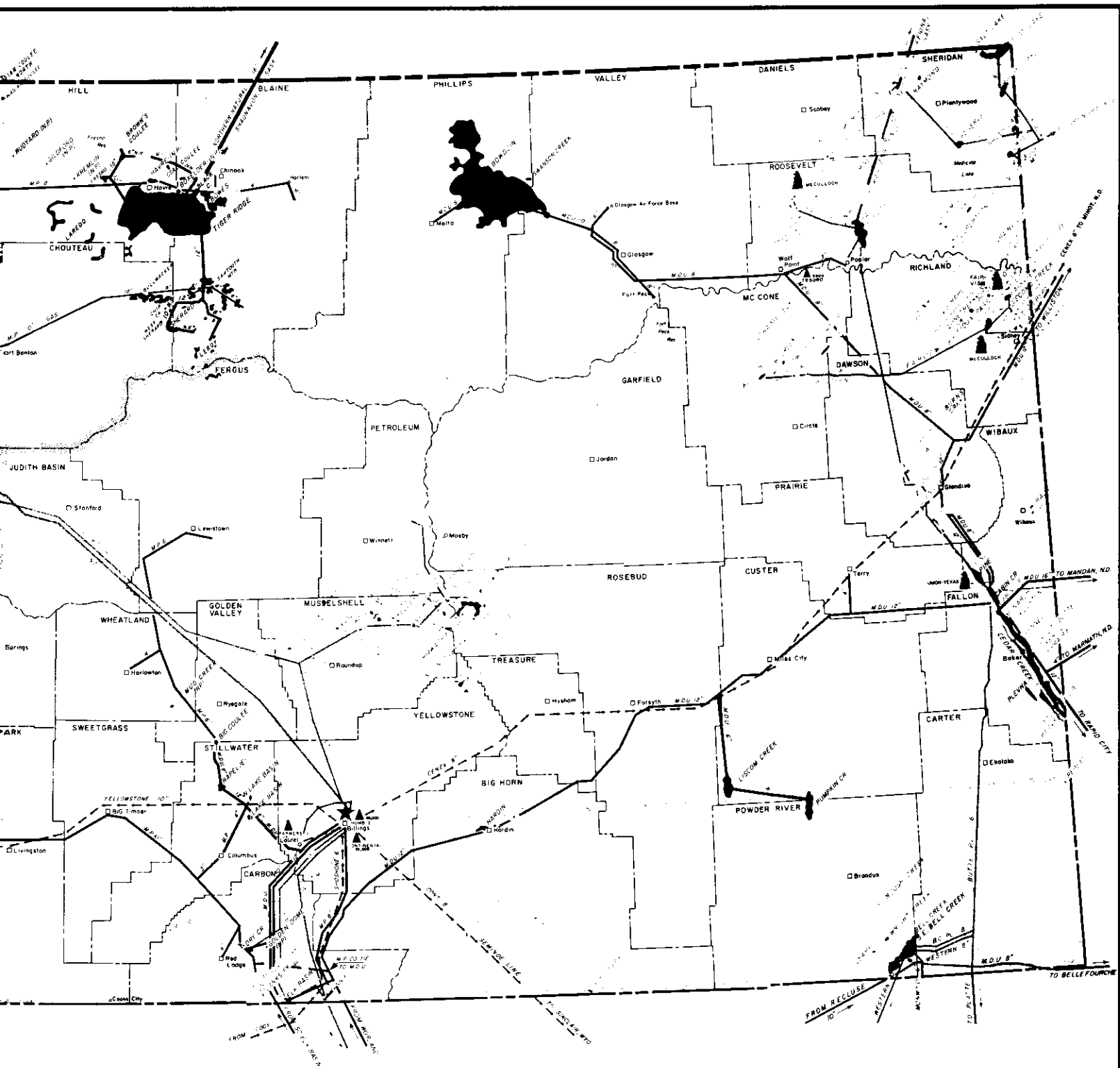
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>SUMATRA</b> Tyler (Penn.) Oil & Gas	103	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' tolerance. (Order 14-58.) Field re-delineated (Order 14-75.)	Four waterflood units using Madison water. (Orders 48-67, 6-69, 15-69, 19-69, 3-70, 16-72, 24-74, 5-75.) Produced water disposed into Madison formation. (Order 7-A-76.)
<b>TIGER RIDGE</b> Judith River (U. Cret.) Gas	5 (Shut-in)	Structural-Strat.	Volumetric Water Drive	160-acre spacing; location no closer than 660' to unit boundary. (Order 32-73.)	
<b>Eagle</b> (U. Cret.) Gas	119 30 (Shut-in)	Structural-Strat.	Volumetric Water Drive	State-wide, for part not unitized. Two units; (Order 11-72 and 41-72.) Wells 990' from unit boundary. Originally one well per section within 2640' square in center of each unit and no closer than 1320' from boundary of unit. Changed to state-wide spacing by (Order 10-70.)	
<b>Sawtooth</b> (Jur.) Oil	1 (Shut-in)	Structural-Strat.	Water Drive	Enlarged and re-delineated (Order 13-75.) 160-acre spacing units in Sections 22, 23, 24, 32N-14E (Eagle and Virgelle) wells at least 990' from section line and 660' from quarter section line (Order 37-75.) (Exception to Order 37-75 by Order 29-76.)	(Orders 17-67, 23-68, 10-70.)
<b>TIMBER CREEK</b> 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.)	None
<b>TIMBER CREEK, WEST</b> 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
<b>TRAIL CREEK</b> Sunburst (L. Cret.) Gas Bow Island (L. Cret.) Gas	2 (Shut-in)	Structural-Strat.	Water Drive Volumetric	One well per 320 acres consisting of S $\frac{1}{2}$ and N $\frac{1}{2}$ of each governmental section but no closer than 990' from spacing boundary. (Orders 33-70, 28-76.)	None
<b>TULE CREEK</b> Nisku (Dev.)	5 1 (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.)	Produced water injected into Dakota and Judith River formations. (Orders 12-66, 24-67, 8-A-76.)
<b>TULE CREEK, EAST</b> Nisku (Dev.)	2	Structural	Water Drive	160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 40-64, 6-65.)	Water injected into Judith River formation. (Order 13-68.)
<b>TULE CREEK, SOUTH</b> 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.)
<b>UTOPIA</b> Sawtooth (Jur.) Gas Madison (Miss.)	3 1 (Shut-in)	Structural	Depletion Water Drive	State-wide. Two wells produced small amount of oil from Swift sand.	None



Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>VAUX</b> Red River (Ord.)	1	Structural	Water Drive	State-wide.	None
<b>VIDA</b> Interlake (Sil.)	2	Structural	Water Drive	160-acre spacing units with permitted well anywhere within an 840' square in center of each unit. (Order 39-63.)	Water injected into Lakota formation. (Order 14-68.)
<b>VOLT</b> Nisku (Dev.)	5 2	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit. (Orders 27-64, 6-65, 32-65.)	Excess produced water is disposed into Judith River. (Order 3-65, 37-A-74.)
Charles "C" (Miss.)	1	Structural	Water Drive	State-wide.	
<b>WAGON BOX</b> Tyler (Penn.)	2	Structural-Strat.	Unknown	State-wide.	None
<b>WEED CREEK</b> Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
<b>WELDON</b> Kibbey (Miss.)	3 9	Structural	Partial Water Drive	80-acre spacing unit; each quarter section divided into two separate units running in either a north-south or east-west direction; well location in center of NE $\frac{1}{4}$ 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.)
<b>WEST BUTTE</b> Sunburst (L. Cret.) Oil	1	Structural-Strat.	Depletion	State-wide, except W $\frac{1}{2}$ Section 16 is considered a single spacing unit.	None
Sawtooth (Jur.) Gas Madison (Miss.) Gas	1	Structural	Water Drive	Sawtooth-Madison gas commingled, unitized. (Order 5-72.) No well closer than 330' from unit boundary.	
<b>WEST REAGAN</b> (See Reagan, West)					
<b>WHITLASH</b> Bow Island, Kootenai, Swift {Cret.} (Jur.)	63 7 7 4	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					
<b>WHITLASH, WEST</b> Sunburst, Swift {Cret.} (Jur.)	1 9 1	Structural-Strat.	Volumetric	Gas: 160-acre spacing units consisting of quarter sections; well location anywhere within a 660' square in center of spacing unit. Oil: 330' from legal subdivision line, 650' between wells in same reservoir on same lease; 5-spot location permitted. (Orders 61-62, 22-65 as amended.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
<b>WILLOW CREEK, NORTH</b> Tyler (Penn.) Oil	2	Structural-Strat.	Depletion Water Drive	State-wide.	Pilotflood. (order 19-72.)
<b>WILLOW RIDGE</b> Bow Island (L. Cret.) Gas Burwash (Cret.) Oil	4 1	Structural-Strat.	Volumetric	State-wide.	None
<b>WILLS CREEK, SOUTH</b> Interlake (Sil.)	2	Structural	Partial Water Drive	160-acre spacing units. Well location in center of SE $\frac{1}{4}$ of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)	Waterflood initiated 12-1-73. (Order 23-73.)
<b>WINNETT JUNCTION</b> Tyler (Penn.)	5	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.)	None
<b>WOLF SPRINGS</b> Amsden (Penn.)	2	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.)	None
<b>WOODROW</b> Charles, Duperow, Interlake Red River (Ord.)	1 1 4	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section with 200' topographic tolerance. (Order 47-62.)	Produced water injected into Dakota. (Order 48-62.)
<b>WRIGHT CREEK</b> Muddy (L. Cret.)	3 2	Structural-Strat.	Depletion Water Drive	80-acre spacing consisting of N $\frac{1}{2}$ and S $\frac{1}{2}$ of quarter section with locations in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section with 200' tolerance.	None





**MONTANA**  
**OIL AND GAS FIELDS, PIPELINES AND REFINERIES**  
 1976

BOARD OF OIL AND GAS CONSERVATION



Main data table with columns: DEPTH, GRAVITY, NET PAY, POROSITY, S.W., O.O.I.P., PRODUCTIVE AREA, RECOVERY FACTOR, ULTIMATE RECOVERY, CUMULATIVE PRODUCTION, RESERVES, 1976 PRODUCTION, ULTIMATE RECOVERY, LINE NO.

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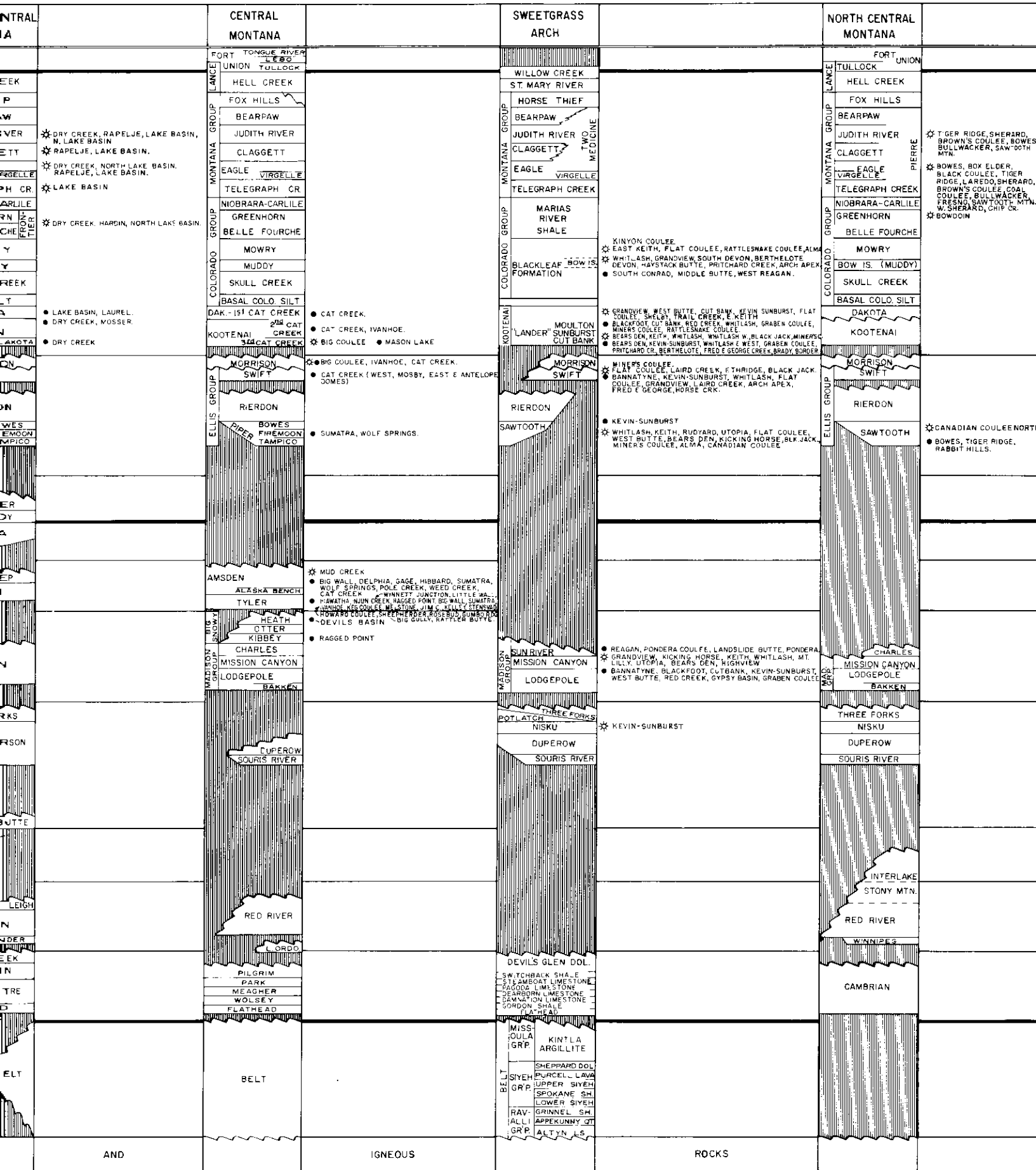
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CENOZOIC	TERTIARY	BEAVERHEAD	TONGUE RIVER LEOP TULLOCK	FORT UNION LANCE			
		MESOZOIC	CRETACEOUS	UPPER	MONTANA GROUP	MONTANA GROUP	HELL CREEK
HELL CR.	HELL CR.				LENNEP		* DRY CREEK, RAPELJE, LAKE BASIN, N. LAKE BASIN.
LENNEP	LENNEP				MEETEETSE		* RAPELJE, LAKE BASIN.
BEARPAW	BEARPAW				MESA VERDE		* DRY CREEK, NORTH LAKE BASIN, RAPELJE, LAKE BASIN.
JUDITH RIVER	JUDITH RIVER				CODY SHALE		* LAKE BASIN
CLAGGETT	CLAGGETT			FRONTIER		* DRY CREEK, HARDIN, NORTH LAKE BASIN.	
LOWER	NIORARA-CARLILE			NIORARA-CARLILE	FRONTIER		
	FRONTIER			FRONTIER	FRONTIER		
	MONTANA-COLORADO GROUPS			FRONTIER	FRONTIER		
	COLORADO			FRONTIER	FRONTIER		
	KOOTENAI	FRONTIER	FRONTIER				
JURASSIC	UPPER	MORRISON	MORRISON	MORRISON			
		SWIFT	SWIFT	UPPER SUNDANCE			
		RIERDON	RIERDON	LOWER SUNDANCE			
		SAWTOOTH	PIPER	GYPSON SPRING			
		THAYNES	CHUGWATER	CHUGWATER			
	MIDDLE	WOODSIDE	DINWOODY	DINWOODY			
		DINWOODY	PHOSPHORIA	PHOSPHORIA			
		PHOSPHORIA	PHOSPHORIA	PHOSPHORIA			
		QUADRANT	TENSLEEP	TENSLEEP			
		AMSDEN	AMSDEN	AMSDEN			
PALEOZOIC	PERMIAN	AMSDEN	AMSDEN	AMSDEN			
		MISSISSIPPIAN	MADISON	MADISON			
		DEVONIAN	UPPER	THREE FORKS	THREE FORKS		
		MIDDLE	JEFFERSON	DUPEROW	DUPEROW		
		LOWER	MAYWOOD	SOURIS RIVER	BEAR TOOTH BUTTE		
	SILURIAN	ORDOVICIAN	LEIGH	LEIGH	LEIGH		
		CAMBRIAN	UPPER	RED LION	GROVE CREEK		
		MIDDLE	PILGRIM	SNOWY RANGE	GALLATIN		
		LOWER	PARK	PARK	GROS VENTRE		
		FLATHEAD	FLATHEAD	FLATHEAD			
PROTEROZOIC	PRE-CAMBRIAN	BELT	BELT	BELT			
ARCHEOZOIC				METAMORPHIC		AND	

# GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS \*

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1978





# FORMATION CHART

FIELDS \*

CHARLES G. MAIO, GEOLOGIST

JUDSON D. SWEET, PETROLEUM ENGINEER

NORTH CENTRAL MONTANA			NORTH POWDER RIVER BASIN			WILLISTON BASIN			PERIOD	ERA
<p>FORT UNION</p> <p>TULLOCK</p> <p>HELL CREEK</p> <p>FOX HILLS</p> <p>BEARPAW</p> <p>JUDITH RIVER</p> <p>CLAGGETT</p> <p>EAGLE</p> <p>TELEGRAPH CREEK</p> <p>NIORRARA-CARLILE</p> <p>GREENHORN</p> <p>BELLE FOURCHE</p> <p>MOWRY</p> <p>BOW IS. (MUDDY)</p> <p>SKULL CREEK</p> <p>BASAL COLO. SILT</p> <p>DAKOTA</p> <p>KOOTENAI</p> <p>MORRISON</p> <p>SWIFT</p> <p>RIERDON</p> <p>SAWTOOTH</p>			<p>FORT TONGUE RIVER</p> <p>UNION</p> <p>HELL CREEK</p> <p>FOX HILLS</p> <p>BEARPAW</p> <p>JUDITH RIVER</p> <p>CLAGGETT</p> <p>EAGLE</p> <p>TELEGRAPH CREEK</p> <p>NIORRARA-CARLILE</p> <p>GREENHORN</p> <p>BELLE FOURCHE</p> <p>MOWRY</p> <p>MUDDY (NEWCASTLE)</p> <p>SKULL CREEK</p> <p>BASAL COLO. SILT</p> <p>DAKOTA</p> <p>FUSON (KOOTENAI)</p> <p>LAKOTA</p> <p>MORRISON</p> <p>SWIFT</p> <p>RIERDON</p> <p>GYPSTUM SPRING</p> <p>CHUGWATER</p> <p>SPEARFISH</p> <p>MINNEKAHTA</p> <p>OPECHE</p> <p>MINNELUSA</p> <p>TENSLEEP</p> <p>AMSDEN</p> <p>CHARLES</p> <p>MISSION CANYON</p> <p>LODGEPOLE</p> <p>JEFFERSON GROUP</p> <p>INTERLAKE</p> <p>STONY MTN.</p> <p>RED RIVER</p> <p>BIG HORN</p> <p>WINNIPEG</p> <p>GROVE CREEK</p> <p>GALLATIN</p> <p>GRDS VENTRE</p>			<p>FORT TONGUE RIVER</p> <p>UNION</p> <p>HELL CREEK</p> <p>FOX HILLS</p> <p>BEARPAW</p> <p>JUDITH RIVER</p> <p>CLAGGETT</p> <p>EAGLE</p> <p>TELEGRAPH CREEK</p> <p>NIORRARA-CARLILE</p> <p>GREENHORN</p> <p>BELLE FOURCHE</p> <p>MOWRY</p> <p>MUDDY (NEWCASTLE)</p> <p>SKULL CREEK</p> <p>BASAL COLO. SILT</p> <p>DAKOTA</p> <p>FUSON (KOOTENAI)</p> <p>LAKOTA</p> <p>MORRISON</p> <p>SWIFT</p> <p>RIERDON</p> <p>GYPSTUM SPRING</p> <p>CHUGWATER</p> <p>SPEARFISH</p> <p>MINNEKAHTA</p> <p>OPECHE</p> <p>MINNELUSA</p> <p>TENSLEEP</p> <p>AMSDEN</p> <p>CHARLES</p> <p>MISSION CANYON</p> <p>LODGEPOLE</p> <p>JEFFERSON GROUP</p> <p>INTERLAKE</p> <p>STONY MTN.</p> <p>RED RIVER</p> <p>BIG HORN</p> <p>WINNIPEG</p> <p>GROVE CREEK</p> <p>GALLATIN</p> <p>GRDS VENTRE</p>				
<p>PIERRE</p> <p>SHANNON</p> <p>HARDIN</p> <p>BELL CREEK</p> <p>BELL CREEK, ROUGH CREEK, WRIGHT CREEK, LEARY</p> <p>ASH CREEK</p> <p>ELISCOM CREEK, PUMPKIN CREEK.</p>			<p>PIERRE</p> <p>SHANNON</p> <p>HARDIN</p> <p>BELL CREEK</p> <p>BELL CREEK, ROUGH CREEK, WRIGHT CREEK, LEARY</p> <p>ASH CREEK</p> <p>ELISCOM CREEK, PUMPKIN CREEK.</p>			<p>PIERRE</p> <p>SHANNON</p> <p>HARDIN</p> <p>BELL CREEK</p> <p>BELL CREEK, ROUGH CREEK, WRIGHT CREEK, LEARY</p> <p>ASH CREEK</p> <p>ELISCOM CREEK, PUMPKIN CREEK.</p>			UPPER	CRETACEOUS
<p>CANADIAN COULEE NORTH</p> <p>BOWES, TIGER RIDGE, RABBIT HILLS.</p>			<p>CANADIAN COULEE NORTH</p> <p>BOWES, TIGER RIDGE, RABBIT HILLS.</p>			<p>CANADIAN COULEE NORTH</p> <p>BOWES, TIGER RIDGE, RABBIT HILLS.</p>			LOWER	
<p>MISSISSIPPIAN</p>			<p>MISSISSIPPIAN</p>			<p>MISSISSIPPIAN</p>			MIDDLE	JURASSIC
<p>TRIASSIC</p>			<p>TRIASSIC</p>			<p>TRIASSIC</p>			LOWER	
<p>PERMIAN</p>			<p>PERMIAN</p>			<p>PERMIAN</p>			LOWER ?	TRIASSIC
<p>PENNSYLVANIAN</p>			<p>PENNSYLVANIAN</p>			<p>PENNSYLVANIAN</p>			LOWER ?	
<p>MISSISSIPPIAN</p>			<p>MISSISSIPPIAN</p>			<p>MISSISSIPPIAN</p>			LOWER ?	TRIASSIC
<p>DEVONIAN</p>			<p>DEVONIAN</p>			<p>DEVONIAN</p>			LOWER ?	
<p>SILURIAN</p>			<p>SILURIAN</p>			<p>SILURIAN</p>			LOWER ?	DEVONIAN
<p>ORDOVICIAN</p>			<p>ORDOVICIAN</p>			<p>ORDOVICIAN</p>			LOWER ?	
<p>CAMBRIAN</p>			<p>CAMBRIAN</p>			<p>CAMBRIAN</p>			LOWER ?	DEVONIAN
<p>PRE-CAMBRIAN</p>			<p>PRE-CAMBRIAN</p>			<p>PRE-CAMBRIAN</p>			LOWER ?	
<p>PROTEROZOIC</p>			<p>PROTEROZOIC</p>			<p>PROTEROZOIC</p>			LOWER ?	DEVONIAN
<p>ARCHEOZOIC</p>			<p>ARCHEOZOIC</p>			<p>ARCHEOZOIC</p>			LOWER ?	

\* SOME FIELDS SHOWN ARE DEPLETED OR NO LONGER PRODUCTIVE.