

Oil and Gas Conservation Commission

OF THE STATE OF MONTANA

TIM BABCOCK
GOVERNOR



ANNUAL REVIEW FOR THE YEAR 1966

Relating to

OIL AND GAS

Volume 10

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Annual Review for the Year 1966 Volume 10

INTRODUCTION

This is the tenth Annual Review of drilling and producing operations in Montana.

Production during 1966 reached an all time high of 35,380,000 barrels as compared to the previous high of 32,778,000 barrels in 1965. Total remaining oil reserves at the end of 1966 are estimated to be 393,000,000 barrels as compared to 408,000,000 barrels a year ago.

The record production rate during 1966 was due mainly to development of large reservoirs found during the past three years. Several significant discoveries but no major discoveries were made during 1966.

During 1966 a total of 482 wells were drilled in Montana. These included 198 wildcats and 284 development wells. Of the wildcats there were 10 oil discoveries, 3 gas discoveries and 185 dry holes. The wildcat dry hole ratio was 15.2 to 1. The development drilling resulted in 179 oil wells, 9 gas wells and 96 dry holes.

New fields found during 1966 include the Reserve Field in eastern Montana. This field has the deepest production in the State from the Red River at 11,100 feet. The largest discovery of reserves was a new pay discovery in the Madison in Lookout Butte Field in southeast Montana. In central Montana new fields discovered were the Weed Creek Field with Amsden production and the Kelley Field with Tyler production. There were two rather small discoveries in northwest Montana. They were the Miners Coulee and Rattlesnake Coulee Fields.

Development drilling was at almost the same record pace as during the previous year. Most development drilling was in northwest Montana. In this area there were many wells classified as development wells, because they were within the northern boundary of the Cut Bank Field, that were actually exploration wells in a large undrilled area. Development drilling continued in southeast Montana along the Cedar Creek Anticline and in northeast Montana in Flat Lake and Goose Lake. There was a small amount of development drilling in central Montana.

Four waterfloods were started during 1966 and a total of 33 waterfloods are now in operation. The Commission approved 5 waterfloods and 2 of these have commenced water injection during the year.

FIVE YEAR SUMMARY

	1962	1963	1964	1965	1966
Production, Northern Montana—Bbls.	4,252,304	4,530,510	5,705,948	6,826,261	7,991,302
South Central—Bbls.	3,851,672	3,383,587	3,699,927	3,597,647	3,392,890
Central—Bbls.	5,279,163	3,950,490	3,269,768	2,849,923	2,710,194
Williston Basin—Bbls.	18,264,368	19,005,066	17,971,855	19,504,287	21,285,732
TOTAL	31,647,507	30,869,653	30,647,498	32,778,118	35,380,118
No. of Producing Wells, Northern Montana	2,615	2,550	2,216	2,649	2,308
South Central	88	82	88	101	106
Central	333	310	317	306	301
Williston Basin	656	700	708	754	792
TOTAL	3,692	3,642	3,329	3,810	3,507
Average Daily Production/Well—BOPD,					
Northern Montana	4.5	4.9	7.4	7.1	9.5
South Central	119.9	113.4	115.1	97.6	87.7
Central	43.4	34.8	28.8	25.5	24.7
Williston Basin	76.3	74.4	65.7	70.9	73.6
STATE AVERAGE	23.5	23.2	25.2	23.6	27.6
Development Wells Drilled, Oil Wells	182	131	100	177	179
Gas Wells	16	6	7	9	9
Dry Holes	57	60	109	107	96
TOTAL	255	197	216	293	284
Exploratory Wells Drilled, Oil Wells	8	8	22	14	10
Gas Wells	2	5	3	1	3
Dry Holes	154	152	150	199	185
TOTAL	164	165	175	214	198
TOTAL WELLS DRILLED	419	362	391	507	482
TOTAL FOOTAGE DRILLED	2,415,856	1,906,976	1,863,155	2,328,865	2,211,369
AVERAGE DEPTH OF ALL WELLS	5,765	5,268	4,765	4,593	4,588

SUMMARY OF DRILLING BY COUNTIES—1966
STATE OF MONTANA

County	Wildcats		Development		Total Wells Drilled	Footage Drilled	Avg. Depth Per Well
	Dry	Oil	Dry	Oil			
Big Horn	6	0	1	2	9	49,271	5,475
Blaine	1	0	0	0	2	5,250	2,625
Carbon	2	0	3	3	9	42,684	4,743
Carter	4	0	0	0	4	10,341	2,585
Chouteau	2	0	0	0	2	6,021	3,011
Custer	2	0	0	0	4	21,252	5,313
Daniels	3	0	0	0	3	29,682	9,894
Dawson	2	0	1	6	9	84,399	9,378
Fallon	1	0	2	28	31	272,757	8,799
Garfield	5	0	0	0	5	33,111	6,622
Glacier	11	1	12	37	63	205,135	3,256
Hill	9	0	0	0	11	39,841	3,622
Liberty	15	0	8	8	32	92,488	2,890
McCone	10	0	2	5	17	116,112	6,830
Musselshell	7	1	5	4	17	83,678	4,922
Petroleum	1	0	0	1	2	7,898	3,949
Phillips	2	0	0	0	2	8,175	4,088
Pondera	5	1	0	12	18	49,748	2,764
Powder River	3	0	2	1	6	32,722	5,454
Prairie	1	0	0	4	5	46,653	9,331
Richland	3	1	1	1	6	68,907	11,485
Roosevelt	5	1	3	2	11	85,947	7,813
Rosebud	4	0	6	2	12	60,250	5,021
Sheridan	16	2	8	22	48	338,592	7,054
Stillwater	2	0	0	0	2	10,055	5,028
Sweetgrass	1	0	0	0	1	6,266	6,266
Teton	6	0	1	1	8	18,663	2,333
Toole	53	2	41	37	136	336,085	2,471
Valley	2	0	0	0	2	12,142	6,071
Wheatland	1	0	0	0	1	6,390	6,390
Wibaux	0	0	0	2	2	18,275	9,138
Yellowstone	0	1	0	1	2	12,579	6,290
TOTALS	185	10	96	179	482	2,211,369	4,588

TOTAL
96,932

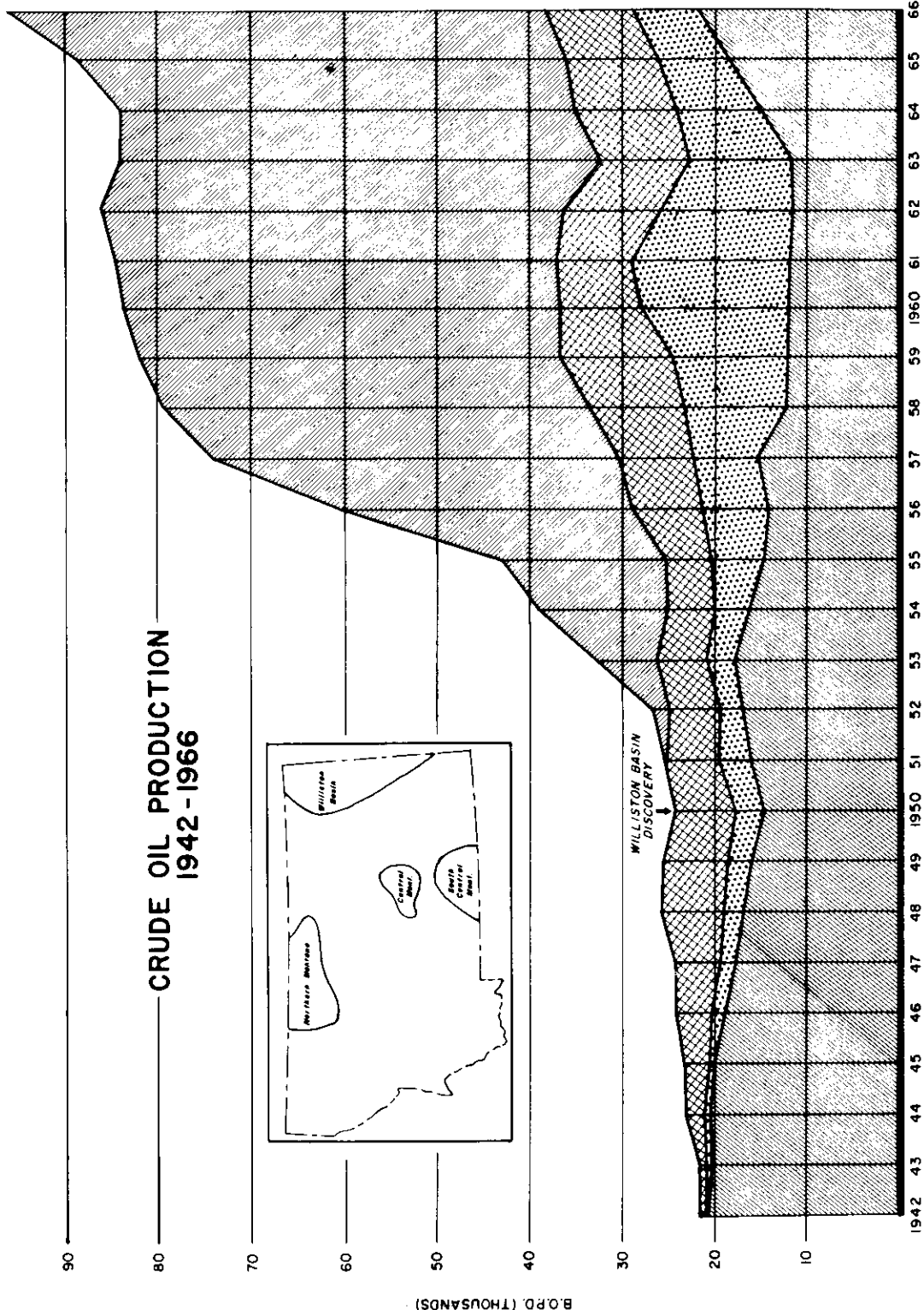
CRUDE OIL PRODUCTION 1942-1966

WILLISTON
BASIN
60.2

SOUTH
CENTRAL
MONTANA
9.6

CENTRAL
MONTANA
7.7

NORTHERN
MONTANA
22.5



B.O.P.D. (THOUSANDS)

MONTANA
GAS PRODUCTION DATA — 1966

Field	County	Producing Formation	1966 Production MCF
Big Coulee	Golden Valley & Stillwater.....	Lakota & Morrison	986,774
Bowdoin	Phillips & Valley	Colorado	2,148,063
Bowes	Blaine	Eagle	579,397
Cabin Creek	Fallon	Interlake & Red River	1,213,957
Cedar Creek	Fallon & Wibaux	Judith River & Eagle.....	3,449,124
Cut Bank & Reagan.....	Glacier & Toole.....	Cut Bank & Madison.....	8,253,797
Dry Creek	Carbon	Eagle & Frontier.....	1,072,851
Elk Basin	Carbon	Tensleep	1,572,634
Flat Coulee	Liberty	Blackleaf & Swift	81,390
Gold Butte	Toole	Swift	26,282
Grandview	Liberty	Blackleaf & Kootenai	64,439
Hardin	Big Horn	Frontier	41,005
Keith Block	Liberty	Blackleaf & Sawtooth	4,763,980
Kevin Sunburst	Toole	Kootenai	691,637
Lake Basin	Stillwater	Frontier	1,250,815
Middle Butte	Toole	Blackleaf	61,923
Mt. Lilly	Liberty	Madison	361,486
Pine	Dawson, Prairie, Fallon & Wibaux	Interlake & Red River	777,581
Plevna	Fallon	Judith River	160,400
Utopia	Liberty	Blackleaf, Kootenai & Ellis	991,782
Whitlash	Liberty	Blackleaf, Kootenai	1,882,656
Miscellaneous			1,346,174
TOTAL ALL FIELDS			31,778,147

REFINING

	Year, 1966 Total Bbls.
Big West Oil Company.....	765,374
Continental Oil Company.....	10,595,051
Diamond Asphalt Company.....	165,336
Farmers Union Central Exchange, Inc.....	6,494,402
Humble Oil & Refining Company.....	11,874,704
Jet Fuel Refinery.....	65,937
Phillips Petroleum Company.....	1,619,158
Tesoro Petroleum Company.....	680,655
Union Oil Company.....	1,168,559
TOTAL Barrels Oil Refined in Montana, 1966.....	33,429,176

SUMMARY OF ACTIVE SECONDARY RECOVERY PROJECTS (DATE EFFECTIVE TO JANUARY 1, 1967)

Field, Formation	Operator	Type or Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MCF	Dec. 1966 Avg. Daily Injection Rate	No. of Injection Wells	Source of Injection Media & Remarks
Ash Creek, Shannon	McDermott	Waterflood	Periphal	10-15-64	246	308	4	Parkman, Data for Montana portion.
Big Wall, Tyler B	Texaco, Inc.	"	Modified Periphal	8-20-66	735	5,662	3	Produced water from Amsden & Tyler
Bowes, Sawtooth	Texaco, Inc.	"	Dispersed Pilot	5-23-61	1,440	2,077	5	Madison
Cabin Creek, Siluro-Ordovician	Shell Oil	"	Modified Periphal	6-12-59	14,336	18,433	15	Produced Water & Fox Hills
Cat Creek, 1st & 2nd CC (Unit 1)	Continental Oil	"	Periphal	10-10-62	4,468	3,793	4	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 2)	Continental Oil	"	Periphal	12-1-59	13,861	4,149	8	Third Cat Creek
Cut Bank, NE Unit, Cut Bank	Texaco, Inc.	"	5-Spot	9-2-63	4,699	6,573	39	Madison
Cut Bank, NW Unit, Cut Bank	Humble Oil	"	5-Spot	1-30-62	5,661	6,229	32	Madison
Cut Bank, So. Central, Cut Bank	Union Oil	"	5-Spot	5-63	7,570	4,568	27	Madison
Cut Bank, SE Unit, Cut Bank	Texaco, Inc.	"	5-Spot	4-62	10,585	11,259	47	Madison
Cut Bank, SW Unit, Cut Bank	Phillips Petr.	"	5-Spot	9-62	4,798	6,034	27	Madison
Cut Bank, Tribal, Lander	Humble	"	Dispersed	6-51	4,173	382	4	Eagle
Cut Bank, H. C. Lander, Lander	Humble Oil	"	Dispersed	4-65	303	483	2	Eagle
Cut Bank, Lander Sand, Lander	Texaco, Inc.	"	Dispersed	7-64	1,008	1,271	7	Eagle
Cut Bank, McGuiness-Houlton	Union Oil	"	Dispersed	12-62	1,152	1,115	2	Madison
Cut Bank, SW Ext., Cut Bank	Continental Oil	"	One Well Pilot	12-63	288	184	1	Madison
Elk Basin, Frontier	Pan American	Gas. Inc.	Crestal	1926	All injection wells in Wyoming			Purchased Gas
Elk Basin, Embarr-Tensleep	Pan American	Gas Inj.	Crestal	1949	All injection wells in Wyoming			Inert Gas
Elk Basin, Madison	Pan American	Waterflood	Periphal	1962	14,571	4,320	4	Madison
Elk Basin, NW Unit, Frontier	Sinclair Oil	"	Periphal	10-57	3,443	1,501	4	Madison
Ivanhoe, Tyler	Ivanhoe Petr.	"	Dispersed Pilot	7-64	135	--	1	Alluvial Sands
Keg Coulee, West, Tyler B	Pan American	"	One Well Pilot	8-31-66	201	1,540	1	Madison
Kevin-Sunburst, Madison	Lon Crumley	"	Dispersed	9-63	226	202	1	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	"	Periphal	8-64	1,408	1,484	11	Madison
Kevin-Sunburst, Madison	Juniper Oil	"	Dispersed	8-64	139	203	1	Madison
Kevin-Sunburst, Madison	Cardinal Petr.	"	Dispersed	6-65	137	414	2	Madison
Little Beaver, Siluro-Ord.	Shell Oil	"	Semi-Periphal	8-7-66	670	5,003	7	Minnetusa
Little Beaver East, Siluro-Ord.	Shell Oil	"	Semi-Periphal	4-65	1,210	3,292	5	Minnetusa
Mosby Dome, Morrison	Musshell Oil	"	One Well Pilot	12-65	26	--	1	Third Cat Creek
Pine, Siluro-Ordovician	Shell Oil	"	Semi-Periphal	3-59	30,218	19,430	31	Fox Hills & Produced Water
Pondera, Madison	Phillips Petr.	"	Dispersed	8-61	723	205	2	Madison
Ragged Point, Tyler A	Juniper Oil	"	Modified Periphal	2-3-66	886	2,526	5	Third Cat Creek
Reagan, Madison	Union	Gas Inj.	Crestal	8-61	1,771	738	4	Produced Gas
Red Creek, Cut Bank	Humble	Waterflood	5-Spot	6-65	1,020	2,900	9	Madison
Richey SW, Dawson Bay-Interlake	Sinclair	"	One Well Pilot	12-65	293	440	2	Fox Hills
Stensvad, Tyler B	Pan American	"	Periphal	2-63	5,837	6,673	5	Madison Canyon

OIL AND GAS DISCOVERIES IN 1966

County	Operator—Well Name and Location	Field	Total Depth	Initial Oil B/D	Potential Gas (MCF)	Producing Formation
Carbon	Develop. Serv., Brown-Foothills 1, NW NW 4-6S-18E	Unnamed	2,610			Lakota (1)
Fallon	Shell Oil, NP 31X-5, NW NE 5-6N-60E	Lookout Butte	8,860	163 (P)	700	Lodgepole (2)
Glacier	Mont. Power, Frary-Scriber 1, C SW 1/4 18-37N-8W	Unnamed	4,725	4 (F)	300	Sun River
Glacier	Mont. Power, Elmer 1, NE NW 3-36N-5W	Cut Bank	3,070		2,000	Moulton (2)
Hill	Pan American, Lineweaver 1, NE NE 4-36N-8E	Unnamed	3,520		7,300	Piper
Liberty	Cardinal, State 15-8, SW SE 8-37N-5E	Flat Coulee	2,828		1,105	Dakota (2)
Musselshell	McAlester, NPRR 1, NE NE 13-10N-28E	Kelley	4,404	258 (F)		Tyler
Pondera	Balcron Oil, O'Brien 2, NW NE NW 13-27N-3W	Unnamed	1,989	6 (P)		Sunburst
Richland	J. A. Ihli, Magruder 1, SW NE NE 11-24N-55E	Unnamed	11,910	480 (F)		Red River
Roosevelt	Murphy Oil, White Mountain 1, N 1/2 NE 1/4 28-31N-48E	N. E. Bennud	7,801	60 (P)		Nisku
Sheridan	Chevron, Ferguson 1, NE SE 30-37N-58E	So. Flat Lake	6,640	67 (P)		Ratcliffe
Sheridan	Farmers Union, Aasheim 1, SW NE NE 29-33N-56E	Reserve	11,577	326 (F) 692 (F)		Interlake Red River (3)
Toole	Wm. Fulton, McCutcheon 1, NE NE 16-36N-2E	Miner's Coulee	2,518	48 (P)		Sunburst
Toole	John Batts, State 13-16, SW SW 16-36N-3W	Rattlesnake Coulee	2,000	90 (P)		Sunburst
Toole	Wm. Fulton, State 31-23, SW SW 23-37N-4W	Unnamed	2,670		860	Cut Bank
Yellowstone	A. J. Hodges, Maart 1, NW NW 2-7N-31E	Weed Creek	6,300	288 (F)		Amsden

(1) Re-entry

(2) New Pool Discovery

(3) Dual Completion

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules		Secondary Recovery or Water Disposal
ARCH APEX Blackleaf (Gas) (Cret.)	13	Strat.	Volumetric	(Blackleaf Gas Pool) 330' from legal subdivision; 2500' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order 4-60.)		None
ASH CREEK Shannon (Upper Cret.)	8	Anticline	Partial Water Drive and Depletion	Spacing waived within unitized portion of field except no well may be drilled closer than 660' from unit boundary. (Order 4-65.)		Waterflood started in July, 1964
BANNATYNE Swift (Jurassic)	6	Anticline	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.
Madison (Miss.)	3	Anticline	Water Drive			
BASCOM Tyler (L. Penn.)	1	Structural	Depletion	State-wide. (Order 10-63.)		None
BEARS DEN Kootenai (L. Cret.)	6	Anticline	Depletion and Gas Cap Drive	State-wide.		None
BELFRY Fuson (L. Cret.)	1	Strat.	Depletion	State-wide. Abandoned 6-66.		None
BENRUD Nisku (Devonian)	1	Structural	Water Drive	(Nisku) 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 (Devonian)	1	Structural	Water Drive	(Nisku) Same as Benrud Field. (Order 6-65.)		None
BENRUD, NORTHEAST Nisku (Devonian)	2	Structural	Water Drive	(Nisku) Same as Benrud Field. (Order 6-65.)		None
BEDTHELOTE Sunburst (L. Cret.)	1	Strat.	Depletion	(Sunburst) 40-acre spacing units with well no closer than 330' from a lease or property line and not closer than 660' between wells. (Order 18-66.)		None
BIG COULEE 3rd Cat Creek (L. Cret.)	3	Structural	Water Drive	State-wide.		None
Morrison (U. Jur.)	3	Structural	Water Drive			
BIG WALL Amsden (Penn.)	7	Structural	Water Drive	Amsden & Basal Amsden (Tyler) 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 stopped in 1961. Waterflood of Tyler started August, 1966.
Tyler (Penn.)	17	Strat.	Depletion			
BLACKFOOT Cut Bank (L. Cret.)	5	Strat.	Depletion	(Cut Bank and Madison). One well only per 40-acre spacing unit, 300' tolerance from center of spacing unit. Dual completion in Cut Bank & Madison with administrative approval.		None
Madison (Miss.)	7	Structural	Water Drive			

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules		Secondary Recovery or Water Disposal
BLACKFOOT, EAST Cut Bank (L. Cret.)	1	Strat.	Depletion	(Cut Bank.) 40-acre spacing units. Location no closer than 330' from spacing unit boundary. (Order 41-65.)		None
BORDER Cut Bank (L. Cret.)	6	Strat.	Depletion	(Moulton, Sunburst & Cut Bank.) Oil: 220' from boundary of legal subdivision & 430' between wells in same formation; 75' topographic tolerance. Gas: 330' from boundary of legal subdivision. 2400' between wells in same formation on same lease. 75' topographic tolerance. (Order 7-54.)		None
Moulton (L. Cret.)	13	Structural	Depletion			
BOWDOIN (Gas) Bowdoin & Phillips sands in Colorado (Cret.)	349	Structural	Volumetric	(Gas only.) One well per quarter section not less than 1000' from lease boundary or less than 2000' from any gas well in same horizon. (Order 29-55.)		None
BOWES Eagle (U. Cret.) (Gas)	21	Structural	Volumetric	(Eagle & Virgelle) (Gas) 660' from boundary of legal subdivision, 1320' from other wells in same formation. 75' topographic tolerance. (Order 23-54.)		None
Sawtooth (Jurassic)	59	Structural	Partial Water Drive	(Sawtooth.) 330' from lease or property line, 990' between wells in same formation. (Order 13-54.)		Pilot waterflood initiated in 1961 and expanded to field-wide waterflood in 1965.
BRADY Sunburst (L. Cret.)	5	Strat.	Depletion	(Brady Sand Pool.) 10-acre spacing units with 75' topographic tolerance from center of spacing unit. (Order 34-62.)		None
CABIN CREEK Mission Canyon (Miss.)	19	Structural	Water Drive	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingling), and 219 (Dual Completion) are suspended until present Unit Agreement becomes operative. (Order 36-62.)		Waterflood of Siluro-Ordovician reservoir has been expanded to a full scale peripheral flood. Some produced water not used in waterflood is disposed into Mission Canyon. (Order 60-62.)
Interlake (Silurian)	82	Structural	Depletion			
Red River (Ordovician)						
CAT CREEK Kootenai (L. Cret.)	93	Structural	Depletion	(Kootenai, Morrison & Ellis.) 220' from lease or property line, 440' from every other well in same formation. (Order 17-55.)		Two waterflood units are operating in the West Dome. In Mosby Dome one small pilot waterflood is in progress and another waterflood was approved in 1966.
Morrison (U. Jur.)	7	Structural	Depletion			None
Ellis (U. Jur.)	45	Structural	Depletion			None
CEDAR CREEK Judith River (Gas)	176	Structural	Volumetric	(Judith River) Gas: 1200' from legal subdivision line, 2400' from every other well in same formation. (Order 33-54.)		
Eagle (U. Cret.)	62	Structural	Volumetric	(Eagle.) 320-acre spacing units. Wells in center of NW 1/4 and SE 1/4 of each section with 200' topographic tolerance. (Order 1-61.)		
CONRAD, SOUTH Dakota (L. Cret.)	7	Strat.	Depletion	(Dakota) 10-acre spacing units. Wells in center of each unit with 75' topographic tolerance. (Orders 34-62 & 31-63.)		None

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
CUPTON Red River (Ordovician)	1	Structural	Water Drive	(Red River) 80-acre spacing units consisting of E½ & W½ of quarter section; well location in SE¼ & NW¼ of quarter section with 75' topographic tolerance. (Order 31-55.)	None
CUT BANK Kootenai (L. Cret.)	1,139	Strat.	Depletion	(Moulton, Sunburst, Cut Bank, Madison) Oil: 330' from legal subdivision line. 650' between wells in same formation. 5-spot on 40-acre tract permitted. 75' topographic tolerance. (Order 10-54.)	There are 10 Kootenai sand waterfloods in progress.
Madison (Miss.)	39	Strat.	Water Drive	Gas: 330' from legal subdivision, 2400' between wells in same formation. 75' topographic tolerance. (Order 10-54.)	
DEER CREEK Interlake (Silurian)	2	Structural	Water Drive	(Interlake and Red River) 80-acre spacing units consisting of any two adjacent quarter-quarter sections. Well location in NE¼ and SW¼ of each quarter section with 75' topographic tolerance. (Orders 23-55 & 14-59.)	Excess produced water is disposed into Dakota and Lakota formations. (Orders 6-56 & 3-58.)
Red River (Ordovician)	1	Structural	Water Drive	Commingle of production permitted upon approval of Comm. Petr. Engr. (Order 18-63.)	
DELPHIA Amsden (Penn.)	1	Structural	Water Drive	State-wide	None
DEVILS BASIN Heath (U. Miss.)	Shut-in	Structural	Depletion	State-wide	None
DEVON (Gas) Blackleaf (L. Cret.)	Shut-in	Strat.	Volumetric	State-wide	None
DRY CREEK Frontier (U. Cret.) (Gas)	1	Structural	Volumetric	State-wide spacing.	None
Eagle (L. Cret.) (Gas)	1	Structural	Volumetric		
Greybull (L. Cret.) (Gas)	1	Structural	Volumetric		
Greybull (Cret.) (Oil)	11	Structural	Depletion		
DWYER Mission Canyon (Miss.)	15	Structural	Water Drive	(Madison) 160-acre spacing units; well location in SE¼ of spacing unit with 75' topographic tolerance. (Orders 25-60, 29-61.)	Produced water disposed into Dakota formation. (Order 26-63.)
ELK BASIN (Mont. Portion) Frontier (U. Cret.)	5	Structural	Gravity Drainage	Rule No. 203 (Spacing) is waived within Unit Area. (Order 10-61.)	Frontier: Crestal gas injection. Embar-Tensleep: Pressure maintenance by crestal gas in injection. Waterflood approved in 1966. Madison: Water injection. Jefferson: None.
Embar-Tensleep (Perm., Penn.)	26	Structural	Gravity Drainage		
Madison (Miss.)	23	Structural	Water Drive		
Jefferson (Dev.)	1	Structural	Water Drive		
ELK BASIN, NORTHWEST Frontier (U. Cret.)	8	Structural	Depletion	Spacing waived within unitized portion except that bottom of hole be no closer than 330' from unit boundary and there be at least 1320' surface distance between wells in same formation; 75' topographic tolerance. (Orders 43-63, 28-64.)	Frontier: Waterflood in progress. Embar - Tensleep: Waterflood project approved in January, 1967. Madison: None.
Embar-Tensleep (Perm., Penn.)	6	Structural	Gravity Drainage		
Madison (Miss.)	2	Structural	Water Drive		

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
FAIRVIEW Red River (Ordovician)	2	Structural	Water Drive	(Red River) 160-acre spacing unit. Well location anywhere in spacing unit but no closer than 660' from unit boundary. (Orders 48-65, 1-67.)	None
FERTILE PRAIRIE Red River (Ordovician)	3	Structural	Water Drive	(Red River) 80-acre spacing units consisting of north-south rectangular units. Well location in NW¼ and SE¼ of quarter section with 75' topographic tolerance. (Orders 3-56, 7-62.)	None
FLAT COULEE Bow Island (Cret.) (Gas)	4	Structural and Strat.	Depletion	(Bow Island) Gas: 330' from boundary of legal subdivision and 1320' from other wells in same reservoir. (Order 16-55.) (Dakota) State-wide.	None
Dakota (Cret.) (Gas)	1	Structural and Strat.	Depletion	(Swift) Gas: State-wide gas spacing.	
Swift (Jur.) (Gas)	Shut-in	Structural and Strat.	Depletion	(Swift) Oil: 40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.)	
Swift (Jur.) (Oil)	33	Structural and Strat.	Depletion		
FLAT LAKE Madison-Ratcliffe (Miss.)	54	Structural and Strat.	Partial Water Drive	(Ratcliffe) 160-acre spacing units; well location in center of NE¼ of quarter section with 200' topographic tolerance. Wells no closer than 961' to No. Dakota state line and no closer than 1600' to Canadian line. (Orders 10-65 amended and 43-65.)	Excess produced water disposed into Muddy, Dakota, or Lakota formations. (Orders 39-64, 39-66.)
FLAT LAKE, SOUTH Madison-Ratcliffe (Miss.)	1	Structural and Strat.	Partial Water Drive	(Ratcliffe) Same as Flat Lake spacing. (Order 2-67.)	None
FRANNIE (Mont. Portion) Tensleep (Penn.)	2	Structural	Comb. Water Drive and Gravity Drainage	(Tensleep) 10-acre spacing units; well location in center of each unit with 100' topographic tolerance. (Order 35-63.)	None
FRED & GEORGE CREEK Sunburst (L. Cret.)	22	Strat.	Depletion	(Sunburst) Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.)	None
Swift (U. Jur.)	17	Strat.	Depletion	(Swift) State-wide.	
GAGE Madison (Miss.)	1	Structural	Water Drive	State-wide.	None
GAGE, SOUTHWEST Amsden (Penn.)	1	Unknown	Water Drive	Temporary 160-acre spacing expired. State-wide spacing now applies. (Order 50-65.)	None
GAS CITY Red River (Ordovician)	28	Structural	Water Drive	80-acre spacing units consisting of E½ and W½ of quarter section; well location in NW¼ and SE¼ of quarter section; 150' topographic tolerance. Spacing waived and state-wide rules 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are waived in unitized portion of field. (Order 29-62.)	Excess produced water disposed into Judith River formation and into Red River formation below oil-water contact. (Orders 32-61, 20-64.)

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
GLENNDIVE Stony Mountain, Red River (Ordovician)	12	Strat. and Structural	Water Drive	(Stony Mountain, Red River) 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 formation. (Orders 16-56, 16-63.)
GOOSE LAKE Ratliff (Miss.)	23	Structural and Strat.	Partial Water Drive	(Ratliff) 160-acre spacing units; well locations according to areas: Area I, center of NW $\frac{1}{4}$ of quarter section; Area II, center of SE $\frac{1}{4}$ of quarter section; Area III, center of NE $\frac{1}{4}$ of quarter section. 200' topographic tolerance. (Orders 42-63, 40-66.)	Excess produced water disposed into Lakota, Mission Canyon, Dakota, and Muddy formations. (Orders 12-64, 14-66.)
GRABEN COULEE Sunburst (L. Cret.)	0	Structural and Strat.	Depletion	(Sunburst) Oil: 40-acre spacing units; well location no closer than 330' from legal subdivision.	None
Cut Bank (L. Cret.)	20	Structural and Strat.	Depletion	(Cut Bank and Madison) Oil: 330' from boundary of legal subdivision and 650' from other well in same reservoir and on same lease. 75' topographic tolerance. (Order 73-62.)	
Madison (Miss.)	22	Structural and Strat.	Depletion		
GRANDVIEW Blackleaf (Cret.) (Gas) Swift (U. Jur.)	Shut-in 2	Structural Structural	Unknown Unknown	State-wide spacing. State-wide spacing.	None None
GYPSY BASIN Sunburst (L. Cret.)	3	Structural and Strat.	Comb. Water Drive and Depletion	(Sunburst) Oil: 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 and Strat.	Comb. Water Drive and Depletion	(Swift) Oil: Same as Sunburst. (Sawtooth-Madison) Oil: 40-acre spacing units; wells no closer than 330' from lease line. (Order 7-66.)	
Sawtooth-Madison (Jur. & Miss.)	5	Structural and Strat.	Comb. Water Drive and Depletion	(Sunburst and Madison) Gas: 160-acre spacing units; well locations in center of any quarter-quarter section in each 160-acre unit. 2340' between gas wells. 150' topographic tolerance. (Order 13-59.)	
HARDIN Frontier (Cret.)	38	Strat.	Volumetric	State-wide.	None
HIBBARD Amsden (Penn.)	1	Unknown	Water Drive	State-wide.	None
IVANHOE Morrison (U. Jur.)	1	Structural and Strat.	Depletion	40-acre spacing unit for production from any one common formation; well location in center of unit with 200' topographic tolerance. (Order 7-60.)	Waterflood of Tyler B & C sands was started in July, 1964. (Order 19-64.)
Amsden (L. Penn.)	2	Structural and Strat.	Water Drive		
Tyler (L. Penn.)	9	Structural and Strat.	Depletion		
KEG COULEE Tyler (Penn.)	21	Strat.	Depletion	(Tyler) 40-acre spacing in southwest portion of field except that spacing is waived in unitized portion. (Orders 3-64, 4-64, 23-64.) 80-acre spacing in remainder of field with variable pattern. (Orders 11-60, 28-62.) Topographic tolerance varies from 100' to 150'. (Orders 11-60, 4-64, 23-64.) Buffer zone waived. (Order 16-65.)	A waterflood of Tyler C sand in the unitized northwest portion of the field was commenced in August, 1967. (Orders 3-64, 28-66.)

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
KEG COULEE, NORTH Tyler "B" (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
KEITH, EAST (Gas) Blackleaf & Sawtooth (Gas) (Cret. & Jur.)	12	Structural	Water Drive	(Blackleaf & Sawtooth) State-wide gas spacing except in unitized portions that were spaced by Order 22-62.	None
KELLEY Tyler (Penn.)	2	Strat.	Depletion		None
KEVIN-SUNBURST Madison, Sunburst (Miss., L. Cret.)	729	Strat.	Depletion	9 wells per 40-acre tract; only 3 wells on any side of tract set back at least 220' from line. Field delineated by Orders 8-54, 28-55.	There are four waterfloods in operation.
LAKE BASIN, NORTH Eagle, Frontier (Cret.)	4	Structural	Unknown	(Frontier, Eagle) Gas: 640-acre gas spacing units consisting of one section. Well locations in center of NW¼ or SE¼ of each section with 75' topographic tolerance. (Order 6-58.)	None
LITTLE BEAVER (Mont. Portion) Red River (Ordovician)	30	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules No. 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.
LITTLE BEAVER, EAST (Mont. Portion) Red River (Ordovician)	13	Structural	Comb. Depletion and Water Drive	Same as for Little Beaver. (Order 42-62.)	Waterflood of the Red River was commenced in April, 1965.
LODGE GRASS Teensleep (Penn.)	3	Structural	Water Drive	(Teensleep) 160-acre spacing units; well locations vary according to areas; 250' topographic tolerance. (Orders 26-64, 26-65.)	None
LOOKOUT BUTTE Madison (Miss.) Silurian (Ordovician)	12 70	Structural Structural	Water Drive Comb. Depletion and Water Drive	(Madison) State-wide spacing. (Silurian-Ordovician) 160-acre spacing; well location in center of SE¼ of each quarter section with 150' topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Re-delineated per order 7-63.	Water disposal into Madison. (Order 68-62.) Waterflood of Silurian - Ordovician in Coral Creek Unit approved in 1966. (Order 35-66.)
MASON LAKE Lakota (Cret.)	2	Structural	Water Drive	State-wide.	None
MELSTONE Tyler (Penn.)	5	Structural and Strat.	Depletion	State-wide.	None
MIDDLE BUTTE Blackleaf (Cret.) (Gas)	4	Structural	Volumetric	(Bow Island) Gas: 320-acre spacing units consisting of E½ & W½ of each section; well location in center of either of the inside quarter-quarter sections located in E½ of each spacing unit. 75' topographic tolerance. (Order 3-66.)	None

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
MINERAL BENCH Charles "C" Duperow (Miss. & Dev.)	1	Structural	Water Drive	State-wide spacing.	Water disposal into Dakota-Lakota per Order 18-65.
MINERS COULEE Swift (U. Jur.)	6	Strat.	Depletion	(Sunburst-Swift) 40-acre spacing units consisting of quarter-quarter sections; well location no closer than 330' from lease or property line and 660' from any other well.	None
MONARCH Madison (Miss.)	2	Structural and Strat.	Water Drive	(Madison) 80-acre spacing units consisting of east and west halves of quarter section. Well location in SW $\frac{1}{4}$ & NE $\frac{1}{4}$ of quarter section. Location with 660' square at center of quarter-quarter section. (Order 18-61.)	Produced water is disposed in- to the salt water disposal sys- tem for the Pennel Field.
Interlake, Red River (Silurian, Ordovician)	11	Structural and Strat.		(Siluro-Ordovician) 160-acre spacing units consisting of a quarter section; well location in center of SW $\frac{1}{4}$ of quarter section with 175' topographic tolerance. (Orders 12-59, 4-63.)	
MOSSER Dakota (L. Cret.)	9	Structural	Water Drive	Spacing waived. Future development requires administra- tive approval of the Commission. (Order 27-62.)	None
MT. LILLY Madison (Miss.) (Gas)	2	Structural	Water Drive	(Madison) Gas: 640-acre, well location in approximate center of any of the four quarter-quarter sections adjoin- ing center of section; 250' topographic tolerance. (Order 37-63.)	None
OUTLOOK Duperow (Dev.)	2	Strat. and Structural	Water Drive	(Duperow) State-wide spacing.	Produced water is disposed into Dakota, Newcastle, and Siluro- Devonian formations. (Orders 16-59, 17-65, 36-66.)
Silurian-Devonian	9	Strat. and Structural	Water Drive	(Winnipegosis & Interlake) 160-acre spacing units; well location in center of either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of each quar- ter section; 175' topographic tolerance. (Order 19-59A.)	
OUTLOOK, SOUTH Winnipegosis (Dev.)	2	Structural	Water Drive	(Red River & Interlake-Winnipegosis) 160-acre spac- ing; permitted wells in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of quarter section; 175' topographic tolerance. (Order 19-59A.)	Produced water disposed into Dakota, Newcastle formations. Orders 19-59, 17-65.)
Red River (Ordovician)	1	Structural	Water Drive		
OUTLOOK, WEST Winnipegosis (Dev.)	2	Structural	Water Drive	(Winnipegosis) 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.)
PENNEL Madison (Miss.)	8	Structural	Water Drive	(Madison) 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' topo- graphic tolerance. (Order 15-61.)	Produced water is being in- jected into Siluro - Ordovician, Dakota, and Madison forma- tions. (Orders 16-60, 46-62, 68-62, 36-63, 13-64.)
Siluro-Ordovician	104	Structural	Comb. Depletion and Water Drive	(Siluro-Ordovician) 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 sec- tion (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.)	

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
PINE Siluro-Ordovician	129	Structural	Comb. Depletion and Water Drive	Spacing and General Rules 213, 218 and 219 are waived within the Pine Unit. 80-acre spacing units outside of unit area; well location in NW¼ and SE¼ or quarter section; 150' topographic tolerance. (Order 37-62.)	A pressure maintenance program was started March 10, 1959, by injecting water into producing horizon. (Orders 13-58, 1-60, 8-62A.) Most of produced water is used in pressure maintenance. Some produced water is disposed into Dakota formation. (Order 7-58.)
PLEVNA Judith River, Eagle (Gas) (U. Cret.)	27	Structural	Water Drive	(Judith River, Eagle) Gas: 1200' from legal subdivision line; 2400' from other wells on same lease or unit; 75' topographic tolerance. (Order 3-54, 4-57.)	None
POLE CREEK Amsden (Penn.)	4	Structural	Water Drive	State-wide.	None
PONDERA Madison (Miss.)	314	Structural and Strat.	Comb. Depletion and Water Drive	(Ellis-Madison, Sawtooth) Oil: 220' from legal subdivision; 430' from other wells in same reservoir on same lease; 75' topographic tolerance. Porter Bench Extension: 330' from legal subdivision line; 650' from other wells in same reservoir on same lease or unit; 75' topographic tolerance. (Order 9-54.) Gas: 1320' from legal subdivision line; 3700' from other wells on same lease or unit; 75' topographic tolerance. (Order 9-54.) General Rules 207, 211, 219, 221, 223, and 224 do not apply.	Produced water injected into lower Madison. (Orders 11-56, 15-56, 4-65, 4-66.) A small waterflood project has been in operation since 1959.
PONDERA COULEE Madison (Miss.)	4	Structural	Water Drive	330' from legal subdivision lines or upon a 10-acre spacing pattern; 75' topographic tolerance. (Order 5-62.)	None
POPLAR Madison (Miss.)	70	Structural	Water Drive	State-wide spacing; field delineated by Order 7-55.	Excess produced water has been injected into the Dakota and Judith River formations. (Orders 1-55, 5-57, 7-57, 14-61, 21-61, 34-61, 10-62.)
POPLAR, NORTHWEST Madison (Miss.)	4	Structural	Water Drive	80-acre spacing units consisting of E½ and W½ of each quarter section; permitted wells in NW¼ and SE¼ of quarter section. 75' topographic tolerance. (Order 18-55.)	None
PRAIRIE ELK Charles "C" (Miss.)	1	Unknown	Water Drive	State-wide spacing.	None
RAGGED POINT Tyler (Penn.)	13	Strat.	Depletion	Tyler: 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.) Kibbey: State-wide spacing. (Order 15-54.) Commencing 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.
Kibbey (Miss.)	1	Structural	Water Drive		

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules		Secondary Recovery or Water Disposal
RANCH CREEK Muddy (L. Cret.)	4	Unknown	Depletion	State-wide spacing.		None
RATTLESNAKE COULEE Sunburst (L. Cret.)	1	Strat.	Depletion	State-wide spacing.		None
REAGAN Madison (Miss.)	46	Structural	Comb. Gas Cap and Water Drive	State-wide spacing.		A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.)
RED CREEK Cut Bank (L. Cret.)	16	Strat.	Depletion	(Madison, Sunburst, & Cut Bank) 40-acre spacing units; well in center of spacing unit with 75' topographic tolerance; spacing waived for unitized portion. (Orders 16-58, 73-62, 31-64.)		Excess produced water injected into Bow Island and Madison. (Order 22-63, 37-64.) A waterflood project in the Cut Bank sand was initiated in June, 1965.
REDSTONE Winnipegosis (Dev.)	1	Unknown	Water Drive	State-wide spacing.		None
REPEAT Red River (Ordovician)	1	Unknown	Water Drive	State-wide spacing.		None
RESERVE Interlake, Red River (Silurian-Ordovician)	1	Unknown	Unknown	(Interlake, Red River) 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. (Order 34-66.)		None
RICHEY Charles (Miss.)	3	Structural	Water Drive	(Charles) 80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section; 75' topographic tolerance. (Order 21-55.)		Part of produced water is being injected into the Dakota formation. (Orders 10-58, 19-61.)
RICHEY, SOUTHWEST Interlake, Dawson Bay	8	Structural	Depletion	(Devonian, Silurian, Ordovician) 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.
RUDYARD Sawtooth (Jurassic) (Gas)	3 Shut-in	Structural	Volumetric	(Sawtooth) Gas; 640-acre spacing units consisting of one section; well location in center of NW $\frac{1}{4}$ of section with 75' topographic tolerance. (Order 2-58.)		None
SAND CREEK Interlake, Red River (Silurian, Ordovician)	8	Structural	Water Drive	(Interlake and Red River) 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.)
SHOTGUN CREEK Madison (Miss.)	1	Structural	Water Drive	State-wide spacing.		None

Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules	Secondary Recovery or Water Disposal
SIDNEY-BRORSON Mission Canyon (Miss.)	2	Structural	Water Drive	(Madison) 320-acre spacing units consisting of one-half section which may be either the east and west or north and south halves. Well location in NW 1/4 and SE 1/4 of each section; tolerance area consists of the center 40 acres in the NW 1/4 or SE 1/4 of each section. (Orders 30-62, 12-63.)	None
SNYDER Tensleep (Penn.)	4	Structural	Water Drive	10-acre spacing units with center 5-spot permitted; 150' topographic tolerance. (Order 45-62.)	None
SOAP CREEK Tensleep, Amsden, Madison (Penn., Miss.)	15	Structural	Water Drive	One well per 10-acre spacing unit per production formation; well location in center of spacing unit with 75' topographic tolerance. (Order 26-60.)	None
SPRING LAKE Nisku (Dev.)	1	Structural	Depletion	(Nisku, Red River) One well per 160-acre spacing unit; Well location anywhere within 840' square in center of spacing unit. (Order 6-63.)	None
STENSVAAD Tyler (Penn.)	24	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 200' tolerance. (Orders 2-59, 7-60.) Wells may be drilled anywhere within waterflood unit boundary, no closer than 660' from unit boundary. (Order 5-65 Amended.)	A waterflood operation has been in progress since 1963. (Orders 53-62, 9-67.)
SUMATRA Tyler (Penn.) Amsden (Penn.)	78 2	Strat. Strat. and Structural	Depletion Water Drive	40-acre spacing units; well located in center of unit with 75' tolerance. (Order 14-58.)	None
TULE CREEK Nisku (Dev.)	7	Structural	Water Drive	(Nisku) 160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 26-62, 6-65.)	Produced water injected into the Dakota formation.
TULE CREEK, EAST Nisku (Dev.)	2	Structural	Water Drive	(Nisku) 160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 40-46, 6-65.)	None
TULE CREEK, SOUTH Nisku (Dev.)	2	Structural	Water Drive	(Nisku) 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 Judith River and Dakota. (Order 44-64.)
UTOPIA Sawtooth, Madison (Gas) (Jurassic, Miss.)	6	Structural	Unknown	State-wide gas spacing.	None
VIDA Interlake (Silurian)	2	Structural	Water Drive	(Interlake) 160-acre spacing units with permitted well anywhere within an 840' square in center of each unit. (Order 39-63.)	None

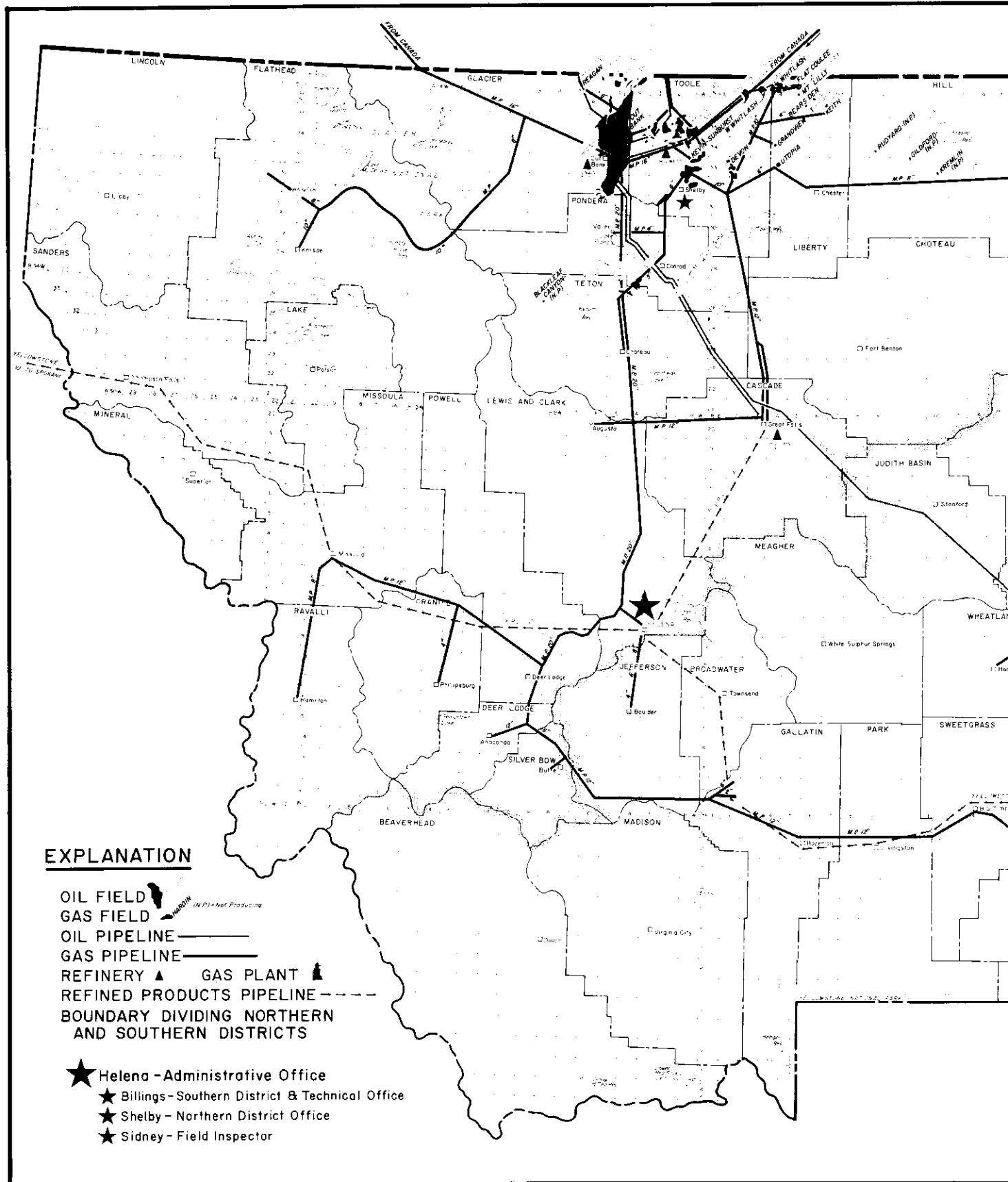
Field, Formation	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations and Field Rules		Secondary Recovery or Water Disposal
VOLT Nisku (Dev.)	5	Structural	Water Drive	(Nisku) 160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit. (Order 27-64, 6-65.)		Excess produced water is disposed into Judith River. (Order 3-65.)
Charles (Miss.)	1	Structural	Water Drive	(Charles) State-wide spacing.		
WELDON Kibbey (Miss.)	18	Structural	Partial Water Drive	(Kibbey) 80-acre spacing unit; each quarter section divided into two separate units running in either a north-south or east-west direction; well location in center of NE 1/4 and SW 1/4 of quarter section with 200' topographic tolerance. (Order 9-65.)		Excess produced water is disposed into the Charles and Morrison formations. (Orders 31-65, 47-65, 37-66.)
WHITLASH Blackleaf, Kootenai, Swift (Cretaceous, Jurassic)	44	Comb. Strat. and Strat.	Volumetric	Gas: 330' from legal subdivision line and 2400' between wells; 75' topographic tolerance. Oil: 330' from legal subdivision line and 650' between wells; 5-spot location at center of 40-acre tract permitted; 75' topographic tolerance. General Rules 207, 211, 219, 221, 223, and 224 suspended. (Order 16-54.)		None
WHITLASH, WEST Sunburst, Swift (Cretaceous, Jurassic)	15	Structural and Strat.	Volumetric	Gas: 160-acre spacing units consisting of quarter sections; well location anywhere within a 660' square in center of spacing unit. Oil: 330' from legal subdivision line, 650' between wells in same reservoir on same lease; 5-spot location permitted. (Order 61-62.)		None
WILLS CREEK, SOUTH Siluro-Ordovician	2	Structural	Partial Water Drive	(Siluro-Ordovician) 160-acre spacing units. Well location in center of SE 1/4 of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)		None
WOLF SPRINGS Amsden (Penn.)	12	Structural	Water Drive	(Amsden) 80-acre spacing units consisting of N 1/2 and S 1/2 of each quarter section. Well location in center of NW 1/4 and SE 1/4 of each quarter section with 75' topographic tolerance. (Orders 4-56, 9-59.)		None
WOODROW Charles, Duperow, Interlake, Red River (Miss., Dev., Silurian, Ordovician)	5	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NE 1/4 and SW 1/4 of each quarter section with 200' topographic tolerance. (Order 47-62.)		Produced water injected into Dakota. (Order 48-62.)

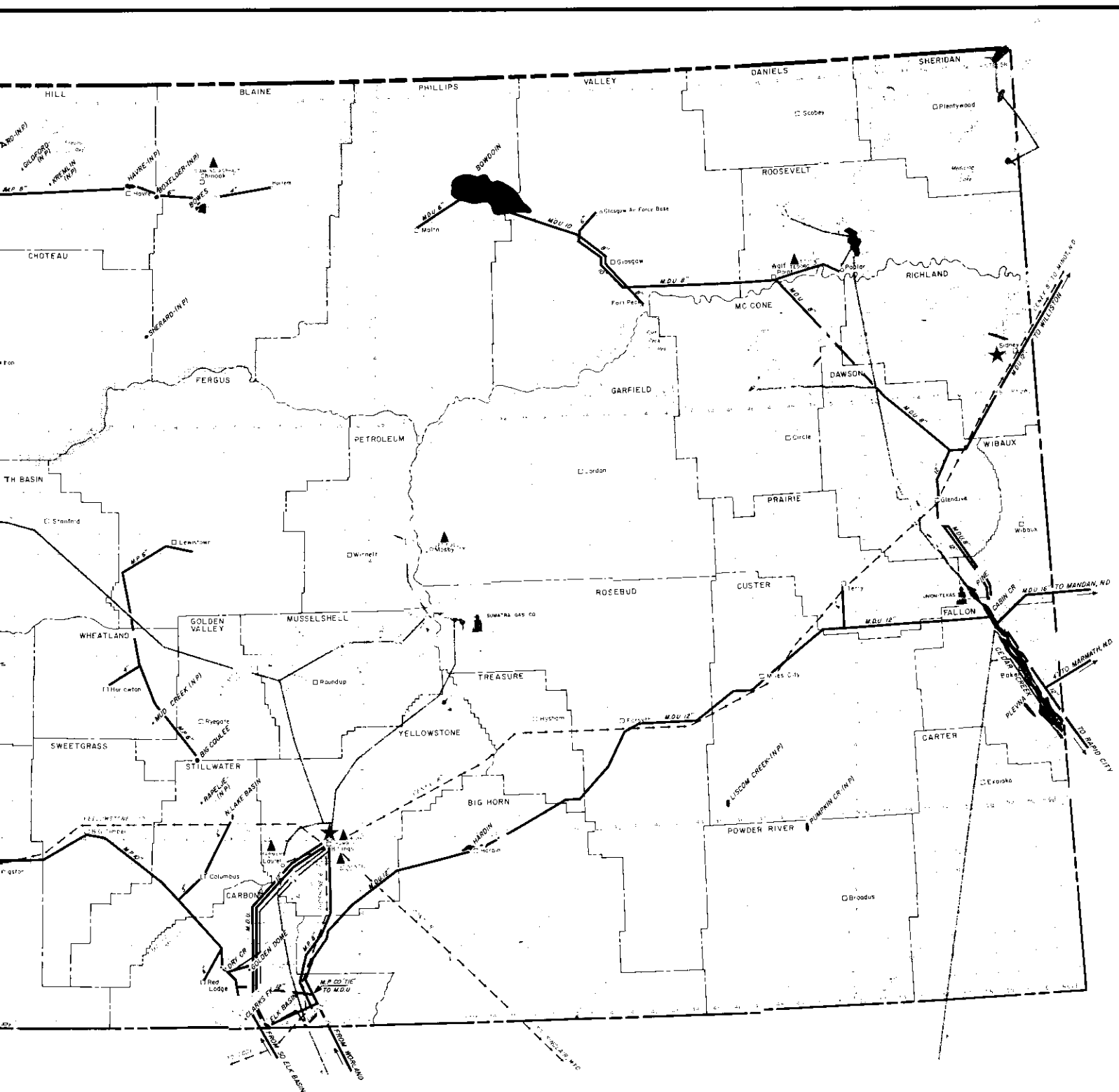
STATE OF MONTANA — SUMMARY O

LINE NO.	FIELD (OR POOL)	COUNTY	YEAR DISCOVERED	PRODUCTION FORMATION	APPROX. DEPTH	A.P.I. GRAVITY	VOLUME FACTOR	AVG. NET PAY FT.	AVG. POROSITY %	AVG. CONNATE WATER %	ORIGINAL OIL IN PLACE BBL/ACRE	PRODUCTIVE AREA 1-1-67 ACRES
1	Ash Creek (Montana)	Big Horn	1952	Shannon (U. Cret.)	4500	34	1.05	14	22	42	13,199	200
2	Bannatyne	Teton	1927	Swift (U. Jur.)	1450	27	1.05	39	15	43	24,635	170
3	Bears Den	Liberty	1924	Sunburst (L. Cret.)	2300	39	1.08	20	12	35	11,205	200
4	Benrud	Roosevelt	1961	Nisku (Dev.)	7650	43	1.41	22	16	30	13,557	80
5	Benrud, East	Roosevelt	1962	Nisku (Dev.)	7500	46	1.37	35	15	30	20,811	160
6	Benrud, Northeast	Roosevelt	1964	Nisku (Dev.)	7620	46	1.4	45	15.5	30	27,054	160
7	Big Wall	Musselshell	1948	Tyler (Penn.)	3000	31	1.02	22	17	40	17,068	1,220
8	Big Wall	Musselshell	1953	Amsden (Penn.)	2500	19	1.61	17	16	35	8,517	280
9	Blackfoot	Glacier	1955	Madison (Miss.)	3550	25	1.15	8	14	40	4,533	480
10	Blackfoot	Glacier	1955	Cut Bank (L. Cret.)	3500	30	1.11	15	15	35	10,221	160
11	Bowes	Blaine	1949	Sawtooth (M. Jur.)	3250	19	1.02	37	11.7	31	22,711	3,760
12	Brady	Pondera	1942	Sunburst (L. Cret.)	1500	34	1.01	10	12	30	6,452	140
13	Cabin Creek	Fallon	1953	Siluro-Ordovician	8400	33	1.20	50	13	30	29,415	7,620
14	Cabin Creek	Fallon	1956	Mission Canyon (Miss.)	7300	33	1.13	25	11	30	13,215	2,259
15	Cat Creek (West Dome)	Petroleum	1920	Kootenai (L. Cret.)	1100	52	1.10	51	21	19	--	975
16	Cat Creek (Antelope-Mosby)	Petroleum, Garfield	1925	Kootenai (L. Cret.)	1225	52	1.10	10	21	19	11,997	200
17	Cat Creek	Petroleum, Garfield	1945	Morrison (U. Jur.)	1600	52	1.10	6	22	40	5,586	240
18	Cat Creek	Petroleum, Garfield	1945	Ellis (U. Jur.)	1750	52	1.10	25	18	40	19,050	880
19	Cut Bank	Glacier, Toole	1932	Kootenai (L. Cret.)	2900	38	1.09	18	15	35	12,492	49,000
20	Cut Bank	Glacier, Toole	1945	Madison (Miss.)	3000	39	1.10	10	14	30	6,911	3,200
21	Deer Creek	Dawson	1952	Red River (U. Ord.)	9900	41	1.2	90	7	30	28,530	240
22	Deer Creek	Dawson	1956	Interlake (Sil.)	9440	43	1.2	38	6.7	30	11,514	320
23	Dwyer	Sheridan	1960	Mission Canyon (Miss.)	8000	33	1.12	30	11.8	55	11,034	4,800
24	Elk Basin (Montana Portion)	Carbon	1915	Frontier (U. Cret.)	1200	45	1.16	30	21	20	33,720	1,200
25	Elk Basin (Montana Portion)	Carbon	1942	Ember-Tensleep (Perm.-Penn.)	5000	29	1.16	124	10.5	10	78,368	1,376
26	Elk Basin (Montana Portion)	Carbon	1946	Madison (Miss.)	5300	28	1.12	224	12	9	159,434	920
27	Elk Basin (Montana Portion)	Carbon	1963	Jefferson (Dev.)	5400	28	1.18	64	6.5	31	18,867	40
28	Elk Basin, Northwest	Carbon	1947	Frontier (U. Cret.)	3375	47	1.29	28	19	30	22,394	120
29	Elk Basin, Northwest	Carbon	1947	Madison (Miss.)	6215	35	1.08	124	12	35	69,477	300
30	Elk Basin, Northwest	Carbon	1964	Ember-Tensleep (Perm.-Penn.)	6000	37	1.15	27	11.5	22	16,338	580
31	Fairview	Richland	1965	Red River (U. Ord.)	12660	47	1.70	42	8.9	27	12,281	320
32	Fertile Prairie	Fallon	1952	Red River (U. Ord.)	9250	29	1.2	6	14	27	3,964	400
33	Flat Coulee	Liberty	1933	Swift (U. Jur.)	2900	37	1.1	18	21	35	17,329	1,260
34	Flat Lake	Sheridan	1966	Ratcliffe (Miss.)	6500	33	1.26	14	15	45	7,112	8,320
35	Flat Lake, South	Sheridan	1966	Ratcliffe (Miss.)	6500	32	1.26	6	12	45	2,438	160
36	Fred and George Creek	Toole	1963	Sunburst (L. Cret.)	2600	39	1.2	31	27	30	37,882	880
37	Fred and George Creek	Toole	1963	Swift (U. Jur.)	2700	39	1.1	8	14	30	5,528	800
38	Gas City	Dawson	1955	Red River (U. Ord.)	8700	38	1.28	25	12	35	11,825	2,800
39	Glendive	Dawson	1952	Siluro-Ordovician	8700	38	1.25	147	8	35	47,481	1,280
40	Goose Lake	Sheridan	1962	Ratcliffe (Miss.)	7000	34	1.2	40	16	55	18,620	3,840
41	Graben Coulee	Glacier	1961	Sunburst, Cut Bank, Madison	2940	34	1.10	15	12	30	8,880	520
42	Gypsy Basin	Pondera	1958	Madison, Sunburst, Swift	3150	31	1.1	21	12	32	12,086	260
43	Ivanhoe	Musselshell	1953	Morrison (U. Jur.)	2800	30	1.08	10	15	35	7,004	100
44	Ivanhoe	Musselshell	1960	Amsden (L. Penn.)	3600	32	1.08	9	17	40	6,594	160
45	Ivanhoe	Musselshell	1956	Tyler (L. Penn.)	4050	33	1.08	29	15	20	24,975	600
46	Keg Coulee (West Portion)	Musselshell	1960	Tyler (L. Penn.)	4550	32	1.15	22	15	25	16,696	580
47	Keg Coulee (East Portion)	Musselshell	1960	Tyler (L. Penn.)	4550	32	1.15	17	15	25	12,901	440
48	Keg Coulee, North	Musselshell	1964	Tyler (L. Penn.)	4550	33	1.15	14	12	32	7,707	120
49	Kelley	Musselshell	1966	Tyler (L. Penn.)	4350	33	1.15	50	13	30	30,690	80
50	Kevin-Sunburst	Toole	1922	Madison-Sunburst (Miss.-L. Cret.)	1500	32	1.08	6.5	20	35	6,064	40,205
51	Little Beaver (Montana)	Fallon	1952	Red River (U. Ord.)	8300	25	1.4	12	12	35	15,991	2,190
52	Little Beaver, East (Montana)	Fallon	1954	Red River (U. Ord.)	8300	30	1.5	24	12.5	35	10,085	1,600
53	Lodge Grass	Big Horn	1964	Tensleep (Penn.)	6520	22	1.16	15	15.4	34	10,200	200
54	Lookout Butte	Fallon	1961	Siluro-Ordovician	8900	33	1.15	15	15	25	11,384	12,320
55	Lookout Butte	Fallon	1966	Lodge Pole-Mission Canyon	7950	26	1.13	26	10	35	11,604	1,120
56	Mason Lake	Musselshell	1964	3rd Cat Creek (L. Cret.)	4350	36	1.0	16	20	45	13,654	80
57	Melstone	Musselshell	1948	Tyler (Penn.)	4250	34	1.09	25	15	30	18,683	360
58	Mineral Bench	Roosevelt	1965	Duperow (Dev.)	8800	33	1.8	24	11	30	7,966	40
59	Mineral Bench	Roosevelt	1965	Charles "C" (Miss.)	7120	36	1.10	16	11	30	8,689	160
60	Miner's Coulee	Toole	1966	Swift (U. Jur.)	2400	39	1.10	6	14	30	4,147	160
61	Monarch	Fallon	1958	Siluro-Ordovician	8400	32	1.10	31	7	33	9,951	2,240
62	Monarch	Fallon	1961	Mission Canyon (Miss.)	6710	34	1.08	17	19	60	9,280	160
63	Outlook	Sheridan	1956	Silurian-Devonian	9000	38	1.12	20	8	30	7,760	1,600
64	Outlook	Sheridan	1964	Duperow (Dev.)	8150	39	1.5	15	10	25	8,729	320
65	Outlook, South	Sheridan	1957	Red River (U. Ord.)	9900	33	1.21	35	8	45	9,870	160
66	Outlook, South	Sheridan	1957	Winnipegosis (Dev.)	9100	39	1.12	18	8	30	6,206	320
67	Outlook, West	Sheridan	1958	Winnipegosis (Dev.)	9100	39	1.12	16	8	35	12,165	16,160
68	Pennel	Fallon	1955	Siluro-Ordovician	8800	33	1.14	25	11	30	6,380	720
69	Pennel	Fallon	1957	Mission Canyon (Miss.)	7000	31	1.10	38	1.4	30	10,710	320
70	Pennel	Fallon	1960	Lodge Pole (Miss.)	7500	36	1.13	30	8	35	10,710	320
71	Pine	Dawson, Wibaux, Fallon, Prairie	1952	Siluro-Ordovician	8400	34	1.17	32	11.5	30	17,078	13,320
72	Pole Creek	Musselshell	1964	Amsden (Penn.)	3560	18	1.05	10	7	30	3,620	320
73	Pondera	Pondera, Teton	1927	Madison (Miss.)	2100	34	1.20	15	16	31	10,706	5,560
74	Poplar	Roosevelt	1952	Madison (Miss.)	5500	40	1.10	25	11	30	13,575	17,909
75	Poplar, Northwest	Roosevelt	1952	Madison (Miss.)	6260	40	1.10	16	10.3	45	6,392	400
76	Prairie Elk	McCone	1965	Charles "C" (Miss.)	6100	32	1.0	5	12	35	3,045	80
77	Ragged Point	Musselshell	1947	Kibbey (U. Miss.)	4400	33	1.09	28	11	40	13,154	160
78	Ragged Point	Musselshell	1956	Tyler (Penn.)	3580	32	1.11	13	14.3	32	8,835	680
79	Ranch Creek	Powder River	1965	Muddy (L. Cret.)	4400	40	1.10	12	28	51	11,611	120
80	Rattlesnake Coulee	Toole	1966	Sunburst (L. Cret.)	1850	42	1.10	10	12	30	5,924	40
81	Reagan	Glacier	1947	Madison (Miss.)	3700	38	1.10	11	12	30	6,516	2,320
82	Red Creek	Glacier	1958	Cut Bank (L. Cret.)	2600	31	1.08	20	19.2	30	19,308	768
83	Red Creek	Glacier	1958	Madison (Miss.)	2750	28	1.10	32	13	30	20,537	640
84	Reserve	Sheridan	1966	Interlake (Silurian)	10300	36.6	1.14	16	2	30	1,525	160
85	Reserve	Sheridan	1966	Red River (Ordovician)	11100	39.0	1.10	18	6	30	4,511	160
86	Richey	Dawson, McCone	1951	Charles (Miss.)	7000	39	1.20	25	8	30	9,050	940
87	Richey, Southwest	McCone	1952	Silurian-Devonian	9200	48	1.37	27	9	30	9,634	1,160
88	Sand Creek	Dawson	1959	Siluro-Ordovician	8950	39	1.30	25	10	40	8,953	800
89	Shotgun Creek	Roosevelt	1963	Ratcliffe (Miss.)	8770	37	1.4	14	9	40	4,188	160
90	Sidney-Branson	Richland	1954	Mission Canyon (Miss.)	9750	32	1.5	45	4	40	5,585	1,440
91	Snyder	Big Horn	1952	Tensleep (Penn.)	4600	21	1.0	25	17	35	21,433	120
92	Soap Creek	Big Horn	1952	Tensleep-Amsden-Madison	1900	20	1.05	20	15	35	14,408	600
93	Spring Lake	Richland	1963	Nisku (Devonian)	9960	47	1.83	10	6	30	1,781	200
94	Spring Lake	Richland	1963	Red River (U. Ord.)	11650	51	2.00	9	12	30	2,934	900
95	Stensvad	Musselshell, Rosebud	1958	Tyler (Penn.)	5500	33	1.17	25	14	20	18,565	1,382
96	Sumette	Rosebud	1949	Tyler (Penn.)	4500	32	1.16	30	18.5	35	24,126	4,040
97	Tule Creek	Roosevelt	1960	Nisku (Devonian)	7500	46	1.41	25	15	30	14,443	1,160
98	Tule Creek, East	Roosevelt	1964	Nisku (Devonian)	7500	43	1.906	30	18	30	15,384	320
99	Tule Creek, South	Roosevelt	1964	Nisku (Devonian)	7560	43	1.4	8	12	30	3,259	320
100	Vida	McCone, Dawson	1963	Interlake (Silurian)	9250	51	1.4	33	2.1	56	1,667	40
101	Volt	Roosevelt	1964	Nisku (Devonian)	7300	47	1.4	14	19.5	30	10,590	260
102	Volt	Roosevelt	1965	Charles "C" (Miss.)	5900	40	1.2	7	8	30	2,534	40
103	Weed Creek	Yellowstone	1966	Amsden (L. Penn.)	6150	35	1.07	12	8	23	5,359	320
104	Weldon	McCone	1964	Kibbey (U. Miss.)	5900	39	1.01	14	16	35	12,781	1,560
105	Whitlash	Liberty	1927	Swift-Sunburst (L. Cret., U. Jur.)	2600	38	1.13	15	16	20	13,181	1,320
106	Wills Creek, South	Fallon	1964	Silurian	8700	33	1.2	12	18	35	9,077	320
107	Wolf Springs	Yellowstone	1955	Amsden (L. Penn.)	6200	30	1.07	11	6	23	3,685	3,480
108	Woodrow	Dawson	1952	Charles-Dev.-Sil.-Ord.	9600	42	1.30	25	14	35	13,577	4

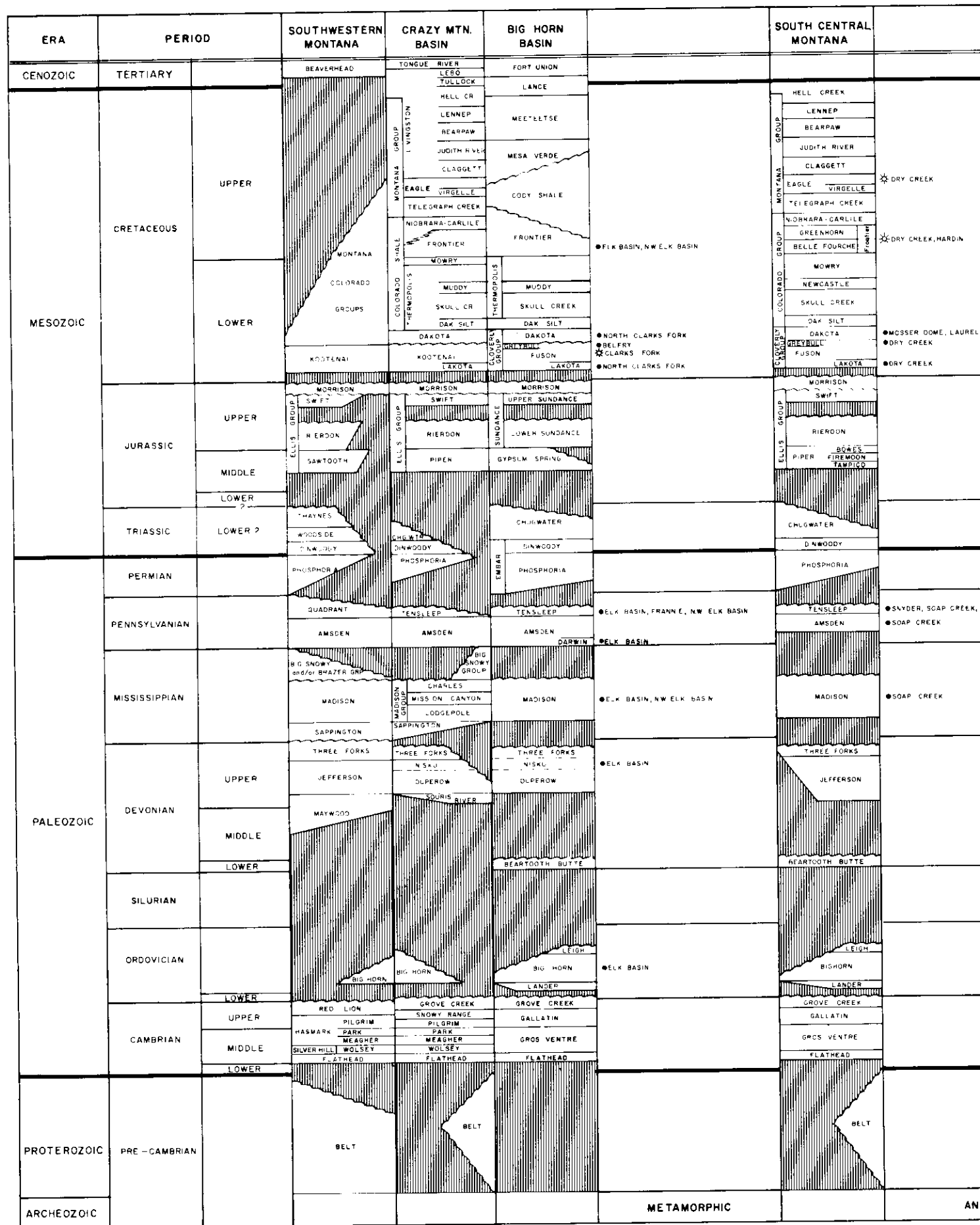
SUMMARY OF PRODUCING OIL FIELDS

ORIGINAL OIL IN PLACE BBL/ACRE	PRODUCTIVE AREA 1-1-67 ACRES	ORIGINAL OIL IN PLACE 1000 BBL.	ESTIMATED RECOVERY FACTOR %		ORIGINAL RESERVES 1000 BBL.		TOTAL ORIGINAL RESERVES 1000 BBL.	CUMULATIVE PRODUCTION 1-1-67 1000 BBL.	REMAINING RESERVES 1-1-67 1000 BBL.	1966 PRODUCTION		ORIGINAL RECOVERABLE RESERVES		LINE NO.
			PRIMARY	SECONDARY	PRIMARY	SECONDARY				TOTAL BBL.	AVG. DAILY BOPD	BBL./ ACRE	BBL./ ACRE/FT.	
13,199	200	2,640	25	31	660	158	818	526	292	72,609	199	4,090	292	1
24,635	170	4,188	5	--	209	--	209	186	23	5,074	14	1,229	32	2
11,205	200	2,241	17	--	381	--	381	295	86	20,190	55	1,905	95	3
13,557	80	1,085	20	--	217	--	217	138	79	29,084	80	2,713	123	4
20,811	160	3,330	33	--	1,099	--	1,099	632	467	111,420	305	6,869	196	5
27,054	160	4,329	30	--	1,299	--	1,299	409	890	182,354	500	8,119	180	6
17,068	1,220	20,821	31	36	6,455	1,041	7,496	4,884	2,612	162,911	446	6,144	279	7
8,517	280	2,385	23	--	548	--	548	480	68	40,899	112	1,957	115	8
4,533	480	2,176	32	--	696	--	696	818	205	50,278	138	1,450	181	9
10,221	160	1,635	20	--	327	--	327	--	--	--	--	2,044	136	10
22,718	3,760	85,425	8	10	6,834	1,708	8,542	6,735	1,807	180,941	496	2,272	61	11
6,452	140	903	7	--	63	--	63	35	28	3,001	8	450	45	12
29,415	7,620	224,142	22	30	49,311	17,931	67,242	35,779	31,463	2,373,193	6,502	8,824	176	13
13,215	2,259	29,853	35	--	10,449	--	10,449	5,830	4,619	725,438	1,988	4,625	185	14
--	975	59,650	25	39	14,913	8,351	23,264	16,526	6,738	110,063	302	21,860	468	15
11,997	200	2,399	22	11	528	264	--	--	--	--	--	3,960	396	16
5,586	240	1,340	32	--	428	--	6,249	4,351	1,898	68,945	189	1,783	297	17
19,050	880	16,764	30	--	5,029	--	--	--	--	--	--	5,715	229	18
12,492	49,000	612,108	20	31	122,422	67,332	189,754	100,513	89,241	3,902,643	10,692	3,873	215	19
6,911	3,200	22,115	28	--	6,192	--	6,192	5,484	708	135,908	372	1,935	194	20
28,530	240	5,847	15	--	1,027	--	1,027	995	32	5,442	15	4,279	48	21
11,514	320	3,684	34	--	1,253	--	1,253	1,058	195	36,142	99	3,916	103	22
11,034	4,800	52,963	9	--	4,767	--	4,767	3,481	1,286	335,024	918	993	33	23
33,720	120	4,046	--	33	--	1,335	1,296	1,296	39	1,265	3	11,125	371	24
78,368	1,376	107,834	--	57	--	61,465	41,814	19,651	19,651	2,141,308	5,867	44,669	380	25
169,434	920	155,879	24	28	37,411	6,235	43,646	11,248	32,398	806,302	2,209	47,441	212	26
18,867	40	755	25	--	30	--	30	2	2	1,736	5	700	11	27
22,394	120	2,687	46	--	564	--	1,236	1,020	216	35,070	96	10,300	368	28
69,477	300	20,843	15	--	2,084	--	2,084	836	1,248	13,145	36	10,420	84	29
16,338	580	9,476	15	28	1,421	1,232	2,653	583	2,070	182,194	499	4,574	169	30
12,281	320	3,350	20	--	786	--	786	265	521	201,965	553	2,456	58	31
3,964	400	1,586	25	--	397	--	397	250	147	24,750	68	993	166	32
17,329	1,280	22,181	13	24	2,884	2,440	5,324	1,507	3,817	263,561	722	4,159	231	33
7,112	8,320	59,172	24	--	14,201	--	14,201	2,433	11,768	1,312,228	3,595	1,707	122	34
2,438	160	390	24	--	94	--	94	1	93	685	11	588	98	35
37,882	880	33,336	30	50	10,000	6,667	16,667	3,845	12,822	1,355,977	3,715	18,339	611	36
5,528	800	4,422	20	--	884	--	884	480	404	191,992	526	1,105	138	37
11,825	2,800	33,110	26	--	8,609	--	8,609	5,675	2,934	576,497	1,579	3,075	123	38
47,481	1,280	60,776	20	--	12,155	--	12,155	7,241	4,914	350,903	961	9,496	65	39
18,620	3,840	71,501	10	--	7,150	--	7,150	1,848	5,302	751,767	2,050	1,862	47	40
8,880	520	4,618	20	30	924	462	1,386	446	940	190,100	521	2,666	178	41
12,086	260	3,142	20	--	628	--	628	143	485	23,250	64	2,416	115	42
7,004	100	700	23	--	161	--	161	148	13	4,418	12	1,610	161	43
6,594	160	1,055	34	--	359	--	359	257	92	19,162	53	2,244	249	44
24,975	600	14,985	25	45	3,746	2,997	6,743	3,218	3,525	171,366	469	11,238	388	45
16,696	680	11,353	23	39	2,711	1,816	4,527	2,074	2,453	333,733	914	6,510	296	46
12,901	440	5,676	15	30	851	851	1,702	706	996	48,929	134	3,868	228	47
7,707	120	925	17	32	157	139	296	97	199	27,807	76	2,467	176	48
30,690	80	2,455	15	30	368	368	736	15	721	14,758	197	9,200	184	49
6,064	40,205	243,803	30	35	73,141	12,190	85,331	68,691	16,640	432,059	1,184	2,122	326	50
15,991	2,390	38,218	17	27	6,497	3,822	10,319	3,485	6,834	384,593	1,054	4,318	117	51
10,085	1,600	16,136	24	36	3,873	1,936	5,809	2,295	3,514	230,846	632	3,631	151	52
10,200	200	2,040	10	--	204	--	204	78	126	23,230	64	1,020	68	53
11,384	12,320	140,251	13	--	18,233	--	18,233	7,626	10,607	1,462,293	4,006	1,480	99	54
11,604	1,120	12,996	25	--	3,249	--	3,249	419	2,830	418,780	1,147	2,901	112	55
13,654	80	1,092	10	--	109	--	109	74	35	23,553	65	1,363	85	56
18,683	360	6,726	25	--	1,682	--	1,682	1,466	216	32,802	90	4,672	187	57
7,966	40	318	10	--	32	--	32	69	60	34,290	94	800	33	58
8,689	160	1,390	10	--	130	--	130	55	45	55,213	151	625	104	59
4,147	160	664	15	--	97	--	97	52	45	55,213	151	625	104	60
9,951	2,240	22,290	13	--	2,898	--	2,898	1,717	1,181	153,307	420	1,275	61	61
7,760	160	1,485	10	--	149	--	149	105	44	11,027	30	931	55	62
8,729	1,600	12,416	41	--	5,091	--	5,091	3,941	1,150	354,634	972	3,182	159	63
9,870	320	2,793	30	--	838	--	838	302	536	120,534	330	2,619	175	64
6,966	160	1,580	21	--	332	--	332	255	67	15,336	42	2,075	59	65
6,206	240	1,672	14	--	234	--	234	206	28	12,074	33	975	54	66
12,165	320	1,986	15	--	298	--	298	164	134	31,706	87	931	58	67
6,380	16,160	196,586	14	--	27,522	--	27,522	14,507	14,389	2,091,568	5,730	1,703	68	68
10,710	720	4,593	15	--	689	--	689	--	--	--	--	957	25	69
10,710	320	3,427	20	--	685	--	685	--	--	--	--	2,181	71	70
17,078	13,320	227,479	25	38	56,870	29,572	86,442	52,316	34,126	4,046,265	11,086	6,490	203	71
3,620	320	1,158	13	--	151	--	151	108	43	21,765	60	472	47	72
10,706	5,560	59,525	35	--	20,834	--	20,834	17,600	3,234	351,390	963	3,747	250	73
13,575	17,909	243,115	17	--	41,330	--	41,330	36,221	5,109	889,626	2,437	2,264	91	74
6,392	400	2,557	16	--	409	--	409	371	38	20,830	57	1,023	64	75
3,085	80	244	9	--	22	--	22	15	15	81,966	22	275	55	76
13,154	160	2,105	24	--	505	--	505	501	4	4,554	12	3,156	113	77
8,835	680	6,008	21	41	1,262	1,200	2,462	1,170	1,292	74,736	205	3,621	279	78
11,611	120	1,393	13	--	181	--	181	39	142	30,220	83	1,508	126	79
5,924	40	237	20	--	47	--	47	10	37	10,486	70	1,125	118	80
6,516	2,520	16,420	30	33	4,926	493	5,419	3,830	1,589	208,668	572	2,150	195	81
19,308	768	14,828	15	30	2,224	2,224	4,448	1,137	3,311	121,473	333	5,792	290	82
20,537	640	13,144	20	--	2,629	--	2,629	1,818	811	178,629	489	4,108	128	83
1,525	160	244	20	--	49	--	49	13	36	13,057	145	306	19	84
4,511	160	722	20	--	144	--	144	16	128	16,123	179	900	50	85
5,050	940	8,507	22	--	1,872	--	1,872	1,806	66	5,686	16	1,991	80	86
9,634	1,160	11,175	15	22	1,676	782	2,458	1,451	1,007	126,149	346	2,119	78	87
8,953	800	7,162	27	--	1,934	--	1,934	1,312	622	192,266	527	2,418	97	88
4,188	160	670	10	--	67	--	67	47	20	7,179	20	419	30	89
5,585	1,440	8,042	9	--	724	--	724	656	68	30,537				



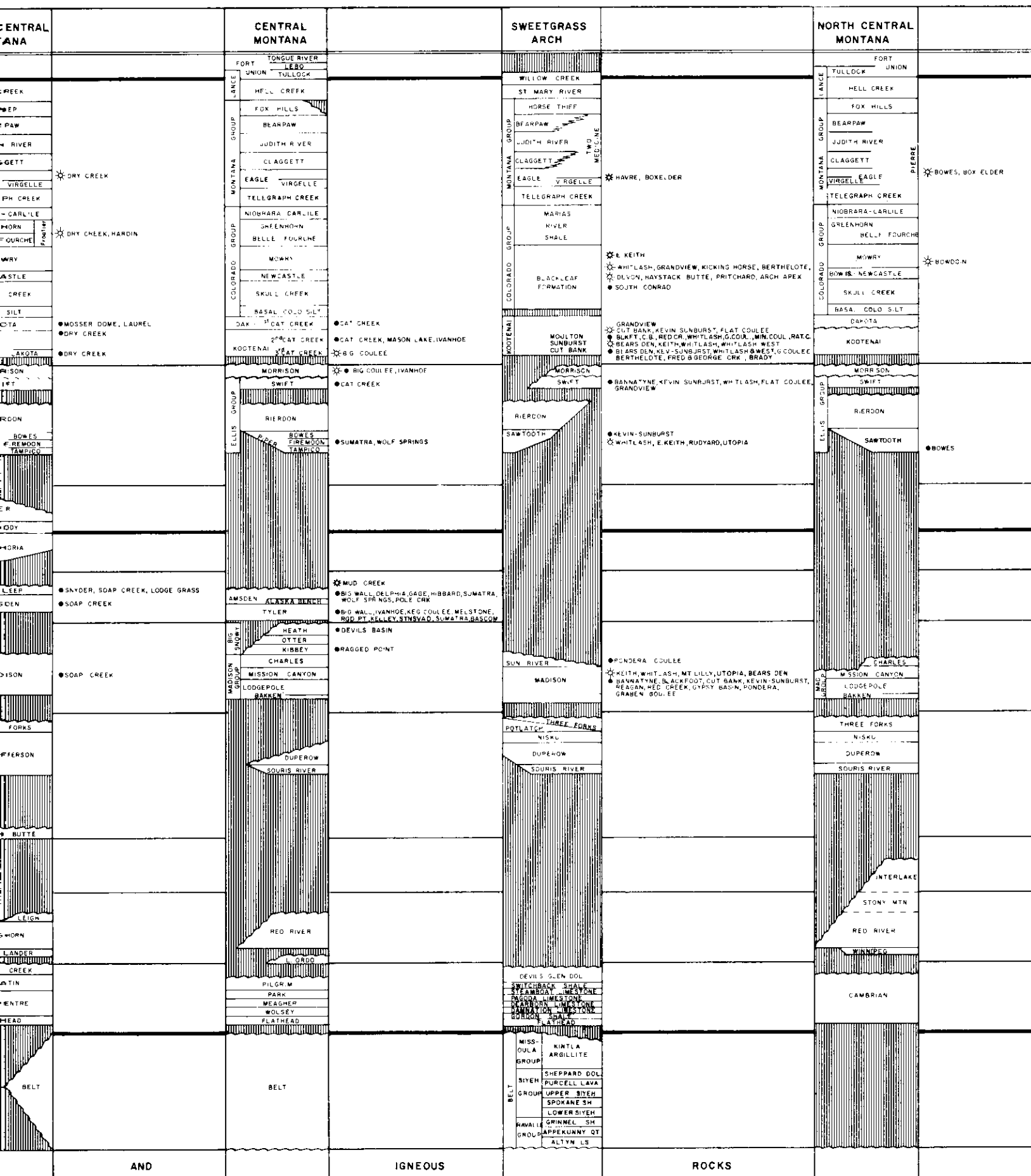


MONTANA
OIL AND GAS FIELDS, PIPELINES AND REFINERIES
 1966
 THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA



GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCING HORIZONS — MONTANA OIL AND GAS FIELDS, 1966



ON CHART

NORTH CENTRAL MONTANA			NORTH POWDER RIVER BASIN			WILLISTON BASIN			PERIOD		ERA
FORT UNION			FORT UNION			FORT UNION			UPPER	CRETACEOUS	MESOZOIC
TULLOCK			TULLOCK			TULLOCK					
HELL CREEK			HELL CREEK			HELL CREEK			LOWER	JURASSIC	MESOZOIC
FOX HILLS			FOX HILLS			FOX HILLS					
BEARPAW			BEARPAW			BEARPAW			UPPER	JURASSIC	MESOZOIC
JUDITH RIVER			JUDITH RIVER			JUDITH RIVER					
CLAGGETT			CLAGGETT			CLAGGETT			MIDDLE	TRIASSIC	MESOZOIC
EAGLE			EAGLE			EAGLE					
TELEGRAPH CREEK			TELEGRAPH CREEK			TELEGRAPH CREEK			LOWER ?	TRIASSIC	MESOZOIC
NIOBRARA-CARLILE			NIOBRARA-CARLILE			NIOBRARA-CARLILE					
GREENHORN			GREENHORN			GREENHORN			UPPER	JURASSIC	MESOZOIC
BELLE FOURCHE			BELLE FOURCHE			BELLE FOURCHE					
MOWRY			MOWRY			MOWRY			MIDDLE	TRIASSIC	MESOZOIC
BOWEN-NEWCASTLE			NEWCASTLE			NEWCASTLE					
SKULL CREEK			SKULL CREEK			SKULL CREEK			LOWER ?	TRIASSIC	MESOZOIC
BASAL COLO. SILT			BASAL COLO. SILT			BASAL COLO. SILT					
DAKOTA			DAKOTA			DAKOTA			UPPER	JURASSIC	MESOZOIC
KOOTENAI			KOOTENAI			KOOTENAI					
MORRISON			MORRISON			MORRISON			MIDDLE	TRIASSIC	MESOZOIC
SWIFT			SWIFT			SWIFT					
RIERDON			RIERDON			RIERDON			LOWER ?	TRIASSIC	MESOZOIC
SAWTOOTH			SAWTOOTH			SAWTOOTH					
BOWEN			BOWEN			BOWEN			UPPER	JURASSIC	MESOZOIC
GYPSUM SPRING			GYPSUM SPRING			GYPSUM SPRING					
CHUGWATER			CHUGWATER			CHUGWATER			LOWER ?	TRIASSIC	MESOZOIC
SPEARFISH			SPEARFISH			SPEARFISH					
MINNEKAHTA			MINNEKAHTA			MINNEKAHTA			UPPER	JURASSIC	MESOZOIC
OPECHE			OPECHE			OPECHE					
TENSLEEP			TENSLEEP			TENSLEEP			MIDDLE	TRIASSIC	MESOZOIC
MINNELUSA			MINNELUSA			MINNELUSA					
AMSDEN			AMSDEN			AMSDEN			UPPER	JURASSIC	MESOZOIC
CHARLES			CHARLES			CHARLES					
MISSION CANYON			MISSION CANYON			MISSION CANYON			LOWER ?	TRIASSIC	MESOZOIC
LODGEPOLE			LODGEPOLE			LODGEPOLE					
THREE FORKS			THREE FORKS			THREE FORKS			UPPER	JURASSIC	MESOZOIC
NISKU			NISKU			NISKU					
DUPEROW			DUPEROW			DUPEROW			MIDDLE	TRIASSIC	MESOZOIC
SOURIS RIVER			SOURIS RIVER			SOURIS RIVER					
INTERLAKE			INTERLAKE			INTERLAKE			LOWER	TRIASSIC	MESOZOIC
STONY MTN			STONY MTN			STONY MTN					
RED RIVER			RED RIVER			RED RIVER			UPPER	JURASSIC	MESOZOIC
WINNIEP			WINNIEP			WINNIEP					
CAMBRIAN			CAMBRIAN			CAMBRIAN			MIDDLE	TRIASSIC	MESOZOIC
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