WYOMING STATE GEOLOGICAL SURVEY
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Geology -- Interpreting the past to provide for the future

MAP SERIES 51
Powder River Basin oil and gas map

MS-51

EXPLANATION

PREDOMINANT AGE OF RESERVOIR ROCKS

- TERTIARY
- UPPER CRETACEOUS
- LOWER CRETACEOUS
- JURASSIC-TRIASSIC
- PERMIAN-PENNSYLVANIAN

LIST OF OIL AND GAS PRODUCING GROUPS, FORMATIONS, AND MEMBERS

Both abandoned and currently producing formations are shown for each field. On the map, formations from which heavy oil is produced are enclosed in parentheses, e.g., (Kf); formations from which significant hydrogen sulfide is produced are enclosed in brackets, e.g., [Mm]

TERTIARY
- Twr White River Formation
- Tw Wasatch Formation
- Twd Wind River Formation
- Tfu Fort Union Formation

UPPER CRETACEOUS
- Kl Lance Formation
- Kle Lewis Shale
- Kmvt Teapot Sandstone
- Kmvp Parkman Sandstone
- Ks Steele Shale
- Ksx Sussex Sandstone
- Ksh Shannon Sandstone
- Kn Niobrara Formation
- Klr Turner Sandstone1
- Kg Greenhorn Formation
- Kbf Belle Fourche Shale
- Kf Frontier Formation
- Kmr Mowry Shale

LOWER CRETACEOUS
- Knc Newcastle Sandstone
- Kmd Muddy Sandstone
- Ksc Skull Creek Shale

LOWER CRETACEOUS (continued)
- Kd Dakota Sandstone1
- Kfr Fall River Formation
- Kla Lakota Formation

JURASSIC
- Jm Morrison Formation
- Js Sundance Formation

TRIASSIC
- Trcm Crow Mountain Sandstone
- Trc Chugwater Formation or Group

PERMIAN
- PPm Minnekahta Limestone

PERMIAN-PENNSYLVANIAN
- PPml Minnelusa Formation

PENNSYLVANIAN
- IPt Tensleep Sandstone

PENNSYLVANIAN-MISSISSIPPIAN
- IPMa Amsden Formation

[1]Formation name extended from neighboring states, not formally recognized in Wyoming, or not commonly used in Wyoming.

FIELD DESIGNATIONS

- (A) Abandoned field
- (AIR) Air injection project
- (CM) Coalbed natural gas
- (D) Produced water disposal project
- (G) Gas injection project
- (GD) Gas disposal
- (GD) Gas disposal
- (H) Hydrothermal (steam) injection project
- (HD) Horizontal drilling project
- (HO) Heavy oil-less than 20 API gravity
- (HP) Huff 'n' Puff tertiary project
- (S) Gas or LPG storage
- (SI) Shut-in field
- (T) Tertiary recovery project
- (W) Waterflood project

Note: These designations appear after the oil or gas field name.

FIELDS

New fields are spotted through December, 2006. Field boundaries are approximate; dashed boundaries through some fields indicate projected extent of overlying coalbed methane development in Tertiary rocks.

FLYING E (SI) Kla

Names in green denote fields that primarily produce oil. These fields may produce significant associated natural gas along with the oil in the primary reservoir or nonassociated natural gas from secondary reservoirs.

MOOSE DRAW (SI) Tw

Names in red denote fields that primarily produce natural gas. These fields may produce significant condensate along with the natural gas in the primary reservoir or oil from secondary reservoirs.

PIPELINES

Notation includes operator (see abbreviations below) and pipe diameter in inches; proposed pipelines are dashed. Pipeline routes are plotted as accurately as possible and are only accurate within the scale of this map or maps of smaller scale. Most infield gathering systems are not shown.

- BF 16" — Crude oil
- KNGG 6" — Natural gas
- ANADARKO CO_2 — Carbon dioxide
- RYCUF 20" — Refinery or natural gas processing plant products

LIST OF ABBREVIATIONS FOR PIPELINE OPERATORS

- ADK - Anadarko
- BF - Belle Fourche Pipeline
- BHGG - Big Horn Gas Gathering
- CMSGG - CMS Gas Gathering
- FUGG - Fort Union Gas Gathering
- KNGG - Kansas-Nebraska Gas Gathering
- KNI - Kansas-Nebraska Interstate
- KPC - Kaneb Pipeline Company
- MDU - MDU
- MG - Maverick Gas
- MGTC* - McCulloch Gas Transmission Company
- MMNTM - Momentum Energy Group LLC
- NGC - Northern Gas Company
- QP - Questar Pipeline
- RMPS - Rocky Mountain Pipeline System, LLC
- TCGS - Thunder Creek Gas Services, LLC.
- WIC - Wyoming Interstate Company
- WBI - Williston Basin Interstate
- WP - Wyoming Pipeline

*These pipelines were purchased by Western Gas Resources but the abbreviations, MGTC and MIGC, are retained as the designations for these two subsidiaries of Western Gas Resources.

OTHER SYMBOLS AND DESIGNATIONS

- Approximate location of major basin axis.
- Major Wyoming sedimentary basin. Map shows approximate extent of latest Cretaceous and early Tertiary rocks.
- Undifferentiated Precambrian rocks exposed at the surface. Modified and adapted from Love and Christiansen (1985).
- LITTLE AMERICA 22,000 B/D — Oil refinery. Notation includes operator and capacity in barrels of oil per day (B/D). Locations are approximate.
- KN ENERGY 90 MMCF — Natural gas processing plant. Notation includes operator and capacity in millions of cubic feet (MMCF) per day. Locations are approximate.

KEY TO NUMBERED OIL AND GAS FIELDS IN THE POWDER RIVER BASIN*

1 (52, 70) ADON ROAD NORTH (W) Kmd PPml
2 (52, 71) AG FARM PPml
3 (52, 69) AJAX (SI) PPml
4 (51, 69) ALPHA (T) (D) PPml
5 (52, 68) AMERICAN (T) PPml
6 (52, 68) AMMO (W) Kmd PPml
7 (52, 68) AMMO SOUTH (SI) PPml
8 (53, 66) ARROW (A) PPml
9 (52, 66) ASH (T) PPml
10 (50, 71) BAR U DRAW PPml
11 (47, 70) BASIN (SI) PPml
12 (50, 71) BAUMFALK PPml
13 (48/47, 71) BIGFOOT PPml
14 (47, 70/71) BIG HAND (W) (D) Kmr Kmd Kd PPml
15 (48, 70) BISHOP RANCH (W) (T) PPml
16 (48, 69) BISHOP RANCH EAST (SI) PPml
17 (48, 69) BISHOP RANCH SOUTH (W) PPml
18 (52, 69) BRACKEN (T) Kmd PPml
19 (52, 66) BREAKS (D) (W) PPml
20 (47, 72) BREEN (W) Kmr Kmd PPml
21 (50, 69) BRENNAN (W) PPml
22 (51, 70) BRONCO PPml
23 (53, 66) BULLMARCH PPml
24 (48, 71) BUTTE CREEK (S) PPml
25 (49, 70) CABIN CANYON (A) PPml
26 (52, 67) CABIN CREEK (A) Kmd
27 (53, 68) CAMBRIDGE PPml
28 (51, 68) CARDINAL (D) PPml
29 (49, 70) CHALK HILLS (A) PPml
30 (47/48, 71) CLABAUGH PPml
31 (52, 68) CLEARWATER PPml
32 COALBED NATURAL GAS DEVELOPMENT AREA (CM) Tw Tfu
33 (52, 68) COUNTY LINE PPml
34 (53, 68) DEEP DRAW PPml
35 (53, 70) DEER FLY SOUTH PPml
36 (48, 71) DERMOTT DRAW (A) PPml
37 (48, 71) DERMOTT DRAW WEST PPml
38 (47, 69) DILLINGER RANCH (W) PPml
39 (50, 71) DITTO LAKE PPml
40 (49, 68) DONKEY CREEK (W) (D) Kmd Kfa PPml
41 (51, 70) DOUBLE SHIELD (D) PPml
42 (48, 72) DRY GULCH (W) PPml
43 (48, 72) DUCK NEST CREEK (A) Kmd
44 (47, 71) DUNLAP PPml
45 (51, 70) DUTCH (D) PPml
46 (49, 69) DUVALL RANCH (W) PPml
47 (49, 72) EAST DRAW PPml
48 (49, 72) ENAR (W) PPml
49 (48, 70) ENYARD DRAW (A) PPml
50 (48, 70) ENYARD DRAW (A) PPml
51 (50, 70/71) FD (W) PPml
52 (49, 72) FISHING LAKE PPml
53 (49, 71) GAP (D) PPml
54 (51, 69) GARNER LAKE (W) PPml
55 (51, 68) GARNER LAKE NORTH PPml
56 (52, 69) GIBBS (W) PPml
57 (52, 69) GIBBS NORTH (A) PPml
58 (52, 69) GIBBS SOUTH (D) PPml
59 (50, 69) GLO (T) (W) PPml
60 (50, 69) GLO NORTH (W) (T) PPml
61 (48, 70/71) GOLD MINE DRAW PPml
62 (50, 69) GRAY (A) Kmd PPml
63 (50, 69) GRAY SOUTH PPml
64 (51, 68) GUTHERY (W) PPml
65 (48/47, 71) HAIGHT (W) PPml
66 (49, 68) HAL (SI) PPml
67 (49, 69) HALVERSON (W) Kd PPml
68 (51, 70) HAMM (W) PPml
69 (51, 70) HAWKEYE (W) PPml
70 (52/53, 68) HEATH (D) PPml
71 (53, 68) HELLS DRAW Kmd
72 (48, 70) HIGH ROAD (D) Pmed
73 (52, 69) HILDA PPml
74 (52, 69) HIRSCH Kmd
75 (51, 68) HOOVER GULCH (G) PPml
76 (51, 70) INDIAN TREE PPml
77 (50, 70/71) INFINITY (SI) Pmd
78 (53, 70) JACKELOPE PPml
79 (53, 68) JB (D) PPml
80 (51, 70) KANE PPml
81 (47, 70) KICKEN DRAW PPml
82 (53, 68) KIEHL WEST (T) (W) (D) PPml
83 (51, 69/70) KUEHNE RANCH (W) PPml
84 (51, 69) KUEHNE RANCH EAST (W) Kmd PPml
85 (51, 69) KUEHNE RANCH NORTHEAST (W) PPml
86 (51, 69) KUEHNE RANCH SOUTHEAST PPml
87 (51, 68) KUMMERFELD (W) (D) Kd Kla PPml
88 (49, 71) LANEY (A) PPml
89 (49, 71) LEE DRAW (A) PPml
90 (52, 69) LITTLE MITCHELL CREEK (W) PPml
91 (53, 68) LITTLE MO PPml
92 (51, 69) LITTLE PINE PPml
93 (51, 68) LONE CEDAR (T) (W) PPml
94 (52, 69) MAC (D) PPml
95 (49, 72) MALLARD PPml
96 (48, 71) MALMQUIST PPml
97 (51, 70) MAPES (D) PPml
98 (51, 70) MARNE (D) PPml
99 (51, 70) MARNIE SOUTH (W) PPml
100 (49, 70) MARY RESERVOIR PPml
101 (49, 69) MAY (A) PPml
102 (47, 71) MAYSDORF (W) PPml
103 (47, 71) MAYSDORF SOUTH (W) PPml
104 (48/49, 72) McCREERY (D) PPml
105 (52, 68) MELLOTT RANCH (W) PPml
106 (51, 68) MILLER CREEK (D) PPml
107 (49, 72) MINTURN (A) PPml
108 (53, 68) MISSOURI PPml
109 (52, 67) MOORCROFT PPml
110 (52, 67) MOORCROFT EAST Kmd PPml
111 (51, 67) MOORCROFT WEST (W) (T) Kmd Kfa Pmed
112 (49, 70) MORAN (W) PPml
113 (53, 68) MOREL PPml
114 (49, 69) MULE HERDER PPml
115 (51, 70) NETA PPml
116 (52, 69) O'CONNOR PPml
117 (51, 70) OK (T) (W) PPml
118 (49, 71) OLSEN (D) PPml
119 (53, 68) OSHOTO (D) Kmd PPml
120 (52, 69) OTTIE DRAW (W) (T) Tfu PPml
121 (48, 72) OXBOW (W) PPml
122 (51, 68) PEBBLE BEACH (SI) PPml
123 (48, 69) PICKREL RANCH (D) (A) PPml
124 (47/48, 70) PIERCE (W) PPml
125 (47, 70) PINEY PPml
126 (51, 69) PLEASANT VALLEY (D) (W) PPml
127 (53, 70) POWNALL RANCH (W) (T) (D) PPml
128 (53, 68) PRAIRIE CREEK SOUTH (W) PPml
129 (51, 68) PRONG CREEK WEST PPml
130 (48, 70) RAILROAD BEND PPml
131 (49, 71) RAINBOW RANCH NORTH (W) (T) Kmd PPml
132 (52, 67) REYNOLDS RANCH (D) PPml
133 (48, 72) RIDGEVIEW PPml
134 (50, 69) RIGHT A WAY (T) (W) PPml
135 (51, 69) ROCKHOPPER PPml
136 (48, 70) RODCY BUTTE (W) PPml
137 (53, 70) ROEHRS (D) PPml
138 (48, 71) ROURKE GAP PPml
139 (47, 71) ROYAL DRAW (W) PPml
140 (52, 69) RULE (T) (W) PPml
141 (47, 72) SAND ROCK PPml
142 (52, 68) SEMLEK PPml
143 (52, 68) SEMLEK SOUTHWEST (SI) Kmd
144 (52, 68) SEMLEK WEST (W) (D) Kmd Kla PPml
145 (49, 71) SHARP (W) (D) PPml
146 (49, 71) SHEARING PEN DRAW (A) PPml
147 (51, 69) SIMPSON NORTH PPml
148 (51, 68) SIMPSON RANCH (W) PPml
149 (50/51, 69) STEWART (T) (W) (D) PPml
150 (51, 69) STEWART EAST (W) (T) PPml
151 (49, 70/71) SUMMERFIELD (W) (T) PPml
152 (50, 71) SUPERHORNET PPml
153 (49, 71) T A BUTTES (W) PPml
154 (51, 70) TANNER PPml
155 (51, 69) TERRACE (D) PPml
156 (53, 68) TEXAS TRAIL (G) PPml
157 (49, 70) THOLSON (W) (D) PPml
158 (49, 67) THORSON (D) PPml
159 (49, 70) TIMBER CREEK NORTH (W) Kmd PPml
160 (49, 70) TIMBER CREEK NORTH SHALLOW Kmd PPml
161 (49, 71) TIMBER CREEK NORTHWEST PPml
162 (47, 71) T-T- ROAD PPml
163 (52, 70) TWIN CREEK (SI) PPml
164 (49, 71) UNNAMED Kmd
165 (50, 69) UNNAMED PPml
166 (51, 68) UNNAMED PPml
167 (51, 68) UNNAMED PPml
168 (51, 68) UNNAMED PPml
169 (53, 67) UNNAMED (A) Kmc
170 (52, 69) UNNAMED PPml
171 (53, 69) UNNAMED PPml
172 (53, 69) UNNAMED PPml
173 (53, 70) UNNAMED PPml
174 (53, 69) WAGON SPOKE (W) PPml
175 (52, 70) WALLACE NORTH PPml
176 (51, 69/70) WALLACE SOUTH (W) PPml
177 (50, 70) WARD CREEK (A) PPml
178 (49, 71) WD (T) (D) PPml
179 (50, 69) WELL CREEK (SI) PPml
180 (51, 69) WHEAT DRAW (D) PPml
181 (51, 70) WHISLER (W) (D) PPml
182 (53, 68) WILDFIRE (HO) (D) (SI) PPml
183 (50/51, 69) WINDMILL (W) (HO) Kmd (PP)ml
184 (49, 70) WINTER DRAW (T) PPml
185 (52, 68) WOLF DRAW (T) PPml
186 (49, 72) WOLFF (D) PPml
187 (48, 72) WORTH (A) PPml
188 (53, 69) YORK (D) PPml
189 (51, 69) ZOE DRAW PPml

*Numbers in parentheses indicate Townships North and Ranges West.

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Oil and gas coverages

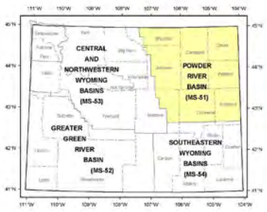
Field locations and boundaries: De Bruin (2007); Wyoming State Geological Survey (2006) (unpublished), using production data from the Wyoming Oil and Gas Conservation Commission (2007).

Coalbed methane fields: De Bruin, Lyman, and Hallberg (2007); De Bruin, Lyman, Hallberg, and Harrison (2001); and Wyoming Oil and Gas Conservation Commission (2006).

Oil, natural gas, and product pipelines; natural gas processing plants; refineries: Wyoming State Geological Survey (2006) (unpublished).

Geology coverages

Basin boundaries and Precambrian rocks: modified and adapted from Love and Christiansen (1985).
Basin axes: De Bruin (1996).



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County boundaries: Spatial Data Visualization Center, University of Wyoming (1997).

City locations: Wyoming Water Resources Center GIS Lab, University of Wyoming (1994).

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Highways and roads: Wyoming State Geological Survey (2002); U.S. Census TIGER files (1997).

State boundaries: Wyoming State Geological Survey (2002); Spatial Data Visualization Center, University of Wyoming (1993).

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SCALE 1:350,000
1 inch equals about 5.5 miles
0 5 10 15 20 Miles
0 5 10 15 20 25 Kilometers

OIL AND GAS FIELDS MAP OF THE POWDER RIVER BASIN, WYOMING

by
Rodney H. De Bruin

2007

Map projection: Lambert Conformal Conic.
Horizontal datum: North American Datum of 1983.
Ellipsoid: Geodetic Reference System 80.
Digital cartography by Fred H. Porter, Phyllis A. Ranz, and Joseph M. Huss.

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