

DISCUSSION

The Washakie Basin Wyoming has good potential for the exploitation of low-permeability, gas-bearing reservoirs. The U.S. Geological Survey in conjunction with the U.S. Department of Energy is investigating the reservoir characteristics and natural gas resources of low-permeability reservoirs within this basin. The location of wells shown on this map were obtained from the Petroleum Information, Inc. Well History Control System (WHCS) computer file. The formations reported at the total depth of the wells were furnished to Petroleum Information by the operators and where necessary corrections made by the author to correspond to correlations of borehole geophysical logs.

A low-permeability gas-bearing reservoir, for the purpose of this study, is considered "tight" or presently noncommercial if reservoir permeabilities are less than 0.1 millidarcies as measured by conventional methods or less than 0.05 millidarcies at in-situ confining pressures.

In the Washakie Basin the best potential for gas-bearing low-permeability reservoirs is found within the Upper Cretaceous Mesaverde Group, Lewis Shale, and Lance Formation. The Tertiary Fort Union Formation probably has potential in the structurally deeper portions of the basin.

Wells drilled within this basin have penetrated sediments from the Tertiary to the Precambrian. There is a moderate drilling density to the Mesaverde Group around the margins of the basin.

Oil and Gas fields are shown on the map. In general, these fields are producing from presently commercial to marginally commercial reservoirs.

EXPLANATION

WELL SYMBOLS--Numbers indicate depth of well in ft. Letters are code name (where available) of strata reported at total depth from Petroleum Information Well History Control System (See table 1); underlining of code name, MVRD, indicates wells spud in Tertiary rocks and penetrating part of the Upper Cretaceous Mesaverde Group within the area of best potential for tight gas sandstones. Only wildcat well locations shown.

- ◆ Abandoned wildcat well
- Oil discovery well
- ⊛ Gas discovery well
- ⊛ Oil and gas discovery well
- ⊛ Shut-in or temporarily abandoned well
- ⊛ Well spud in Tertiary sediments and penetrating all of the Mesaverde Group. These wells provide subsurface control for evaluation of most of the interval containing potentially gas-bearing low-permeability reservoirs.

ROBIN - NAME OF GAS OR OIL FIELD - Letters in parentheses indicate producing formation

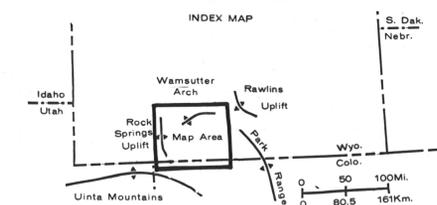
- ⊛ Oil field
- ⊛ Gas field

Table 1.--WHCS code names used on this map<sup>1/</sup>

TERTIARY	Tertiary, undivided	Cathedral Bluffs	TRTR
		Tipton Tongue	CDBF
		Hiawatha	TPTC
		Wasatch	HMTH
		Fort Union	WSTC(Tw) FRUN(Tfu)
UPPER CRETACEOUS	Mesaverde Group	Cretaceous	CRCS
		Lance Formation	LNCE(KI) <sup>2/</sup>
		Lewis Shale	LWIS(Kle)
		Mesaverde Group	MVRD(Kmv)
		Almond	ALMD(Kal)
		Ericson Sandstone	ERCS(Ke)
		Rock Springs	RKSP(Krs)
		Blair	BLIR
		Deep Creek Sandstone-equivalent	DPCK
		Baxter Shale	BXTR
		Mancos Shale	MNCS
		Morasos Sandstone, Member of the Mancos Shale	MRPS
Pierre Shale	PIRR		
Steele Shale	STEL		
Sussex Sandstone	SSSX		
New Castle Sandstone	NCSL		
Niobrara Shale	NBRL		
Frontier	FRNR		
Second Frontier Sandstone	FRNR <sub>2</sub> <sup>2/</sup>		
LOWER CRETACEOUS		Mowry Shale	MWRY
		Dakota Sandstone	DKOT
		Lakota	LKOT
		Morrison	MRSN
		Entrada Sandstone	ENRD
JURASSIC	Jurassic, undivided	Nugget Sandstone	JRSC NGGT(Jm)
TRIASSIC		Jelm	JELM
		Chinle	CHNL
		Chugwater	CCTR
		Moenkopi	MNKP
PERMIAN	Permian, undivided		PRM
		Weber Sandstone	WEBR(Pw)
PENNSYLVANIAN	Pennsylvanian, undivided	Tensleep Sandstone	PSLV
		Cherokee Shale	CHRK
MISSISSIPPIAN	Mississippian	Madison Limestone	MDSN
		Callville Limestone	CLVL
ORDOVICIAN	Ordovician	Cane Creek	CCRK
CAMBRIAN	Cambrian, undivided	Flathead Quartzite	FLTD
		Gros Ventre	GRVR
PRECAMBRIAN	Precambrian, undivided	Precambrian granite	PCMB GRNT
		Igneous, intrusive	IGNS
		Rocks of unknown age or formation at total depth not reported	UNKN NOAN

<sup>1/</sup>Code names listed in approximate order of increasing (upward) geologic age but not intended as a correlation chart; stratigraphic nomenclature and ages from Petroleum Information

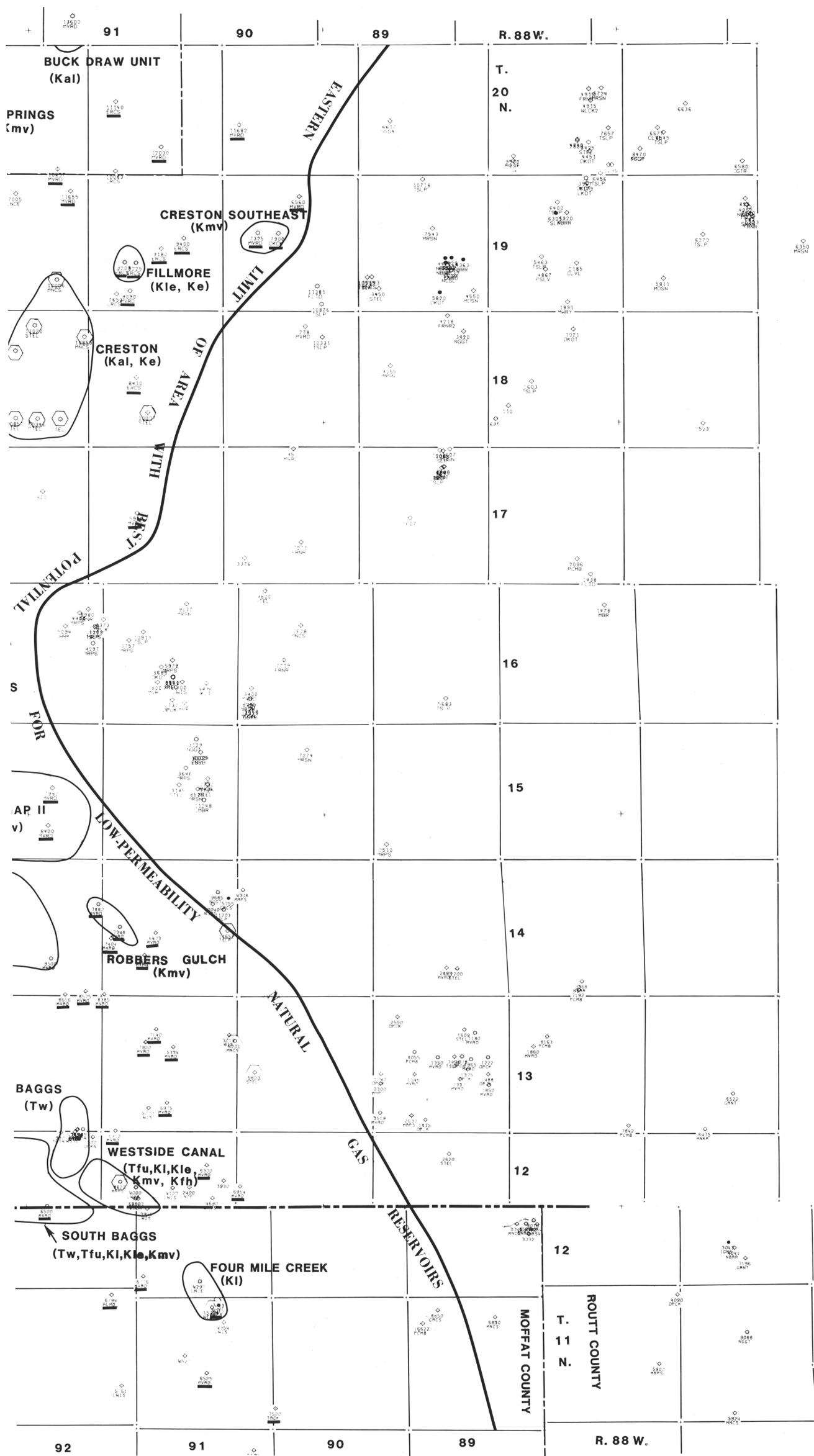
<sup>2/</sup>Abbreviations of subsurface usage



References

Spencer, C. W., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Great Divide Basin, Southwest Wyoming; U.S. Geological Survey Open-file Report 79-826, 1 p.

Tyler, T. F., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low permeability Upper Cretaceous and Tertiary reservoirs, Sand Wash Basin, Colorado; U.S. Geological Survey Open-file Report 79-1437, 1 p.



Note: Wildcat well control posted to June, 1978  
Discovery wells and fields posted to April, 1979

This map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.