

Criteria for Designating CBM Pools

The EUB is establishing a number of separate CBM pools by defining the vertical and lateral extents.

The vertical extent of a CBM pool is based on stratigraphy and is defined by the EUB as all coals within a geological formation unless separated by more than 30 m of non-coal-bearing strata or a conventional gas pool (see Figure 1). A CBM pool includes all strata between the top of the upper bounding coal and the bottom of the lower bounding coal of the pool, including thin intervals of non-coal lithologies that cannot be pooled independently or separately from the interbedded coals.

Because coal zones can extend for great lateral distances, the lateral extent of a CBM pool is established by the EUB as an administratively manageable area, usually corresponding to a field boundary. In some situations, there may be more than one CBM pool within a field or a CBM pool may extend beyond a single field (a multifield pool).

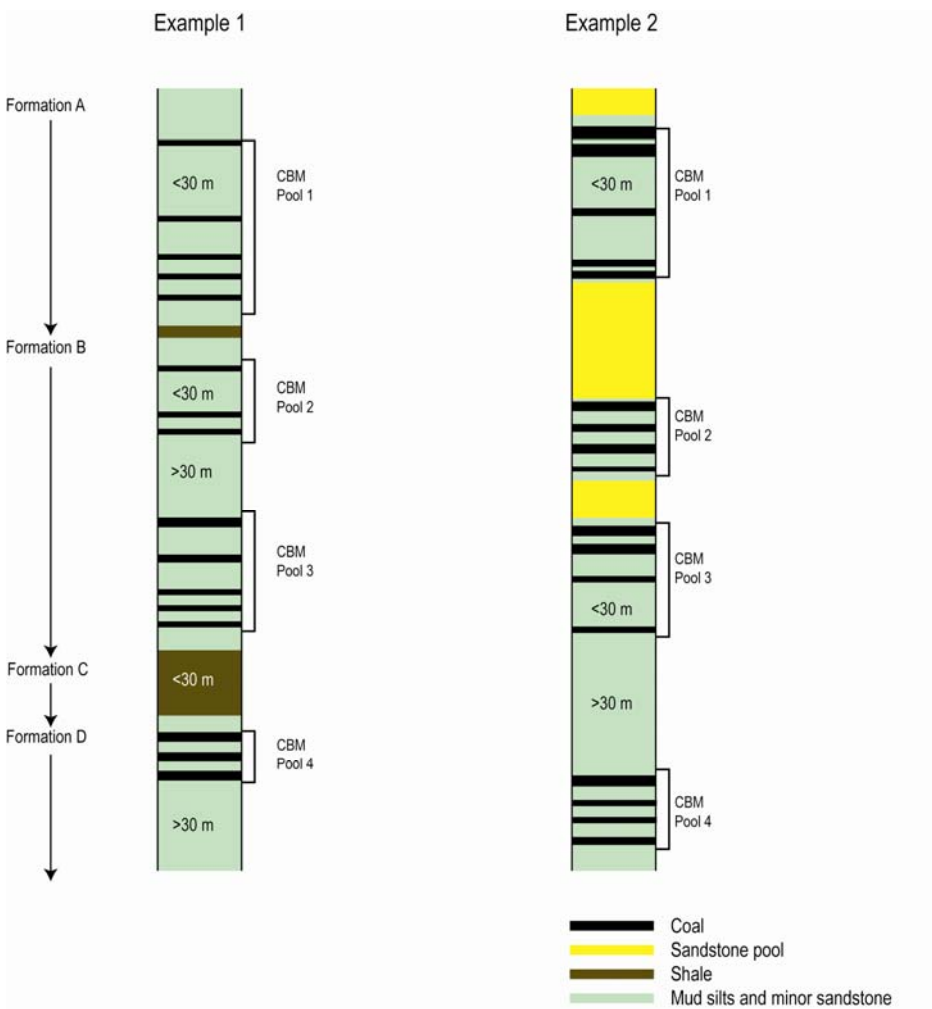


Figure 1. Schematic of pooling criteria

Background

The *Oil and Gas Conservation Act*, Section 1(1) (oo), states that “pool” means “a natural underground reservoir containing or appearing to contain an accumulation of oil or gas, or both, separated or appearing to be separated from any other such accumulation.” Under Section 33(1)(b) of the act, the EUB may designate a pool by describing the surface area vertically above the pool and by naming the geological formation in which the pool occurs or by some other method of identification that the EUB considers suitable.

The need to define CBM accumulations arose from the early recognition of large and partially contiguous coal strata in Central Alberta within each of the Scollard, Horseshoe Canyon, and Mannville Formations and the Belly River Group (Figure 2). The existing definition of a pool may not be the best description for characterizing subsurface accumulations of CBM in Alberta; however, some form of reservoir containment description is needed for regulatory and administrative purposes, including reservoir characterization and reserves evaluation. Since CBM is natural gas, the use of the pool concept to describe the vertical and lateral extent of CBM accumulations was adopted by the EUB. The Southeastern Alberta gas pools of the Medicine Hat, Milk River, and Second White Specks strata were used as an analogy for establishing CBM pools.

Groups	Formations	Coal zones	Combinations / alternates	
EDMONTON	PASKAPOO		(FOOTHILLS)	
	SCOLLARD / COALSPUR	UPPER ARDLEY (UARD)	UPPER COAL VALLEY (UCVY)	
		LOWER ARDLEY (LARD)	MIDDLE COAL VALLEY (MCVY) LOWER COAL VALLEY (LCVY)	
	BATTLE & WHITEMUD			
	WAPITI	HORSESHOE CANYON	CARBON-THOMPSON (CARB)	NW PLAINS
			DALY (DALY)	
			WEAVER (WEAV)	KAKWA (KAKW)
			GARDEN PLAIN (GDNP)	
			WAYNE (WAYN)	(CENTRAL ALBERTA)
			ROCKYFORD (RS)	WNRS
BASAL DRUMHELLER (DBSL)		DBSL	RBSL	
BEARPAW				CUTBANK (CUTB)
BELLY RIVER	DINOSAUR PARK	LETHBRIDGE (LETH)		
	OLDMAN	TABER (TABR)		
	FOREMOST	MACKAY (MCKY)		
COLORADO	(numerous)			
	VIKING		(DEEP BASIN)	
	JOLI FOU		(EAST PLAINS)	
MANNVILLE	UPPER MANNVILLE / LUSCAR	TOP MANNVILLE (TOP)	COLONY (CLNY)	(FOOTHILLS)
		MEDICINE RIVER (MEDR)	MCLAREN (MCLN)	
			WASECA (WSCA)	
			SPARKY (SPKY)	
			GP (GP)	
			REX (REX)	
			LLOYD (LOYD)	
	CUMMINGS (CMGS)			
	GLAUCONITE			MOUNTAIN PARK (MPRK)
	OSTRACOD / GETHING	OSTRACOD (OSTR)		GRANDE CACHE (GCHE) - upper, middle, lower
(numerous)			JEWEL (JEWL)	
KOOTENAY	ELK			GETHING (GETH)
	MIST MOUNTAIN	KOOTENAY (KOOT)		
	MORRISSEY			

Figure 2. Stratigraphic table of coal zones

Coal Zone and CBM Pool Nomenclature

The Scollard Formation in the Alberta Plains often contains two separate sets of coals, termed the Upper and Lower Ardley coal zones, that are in close proximity. There are three coal zones in the equivalent strata of the Foothills Coalspur Formation that are termed the Upper, Middle, and Lower Coal Valley coal zones.

The thicker strata of the Horseshoe Canyon Formation has seven coal zones defined as (progressing from the uppermost) Carbon-Thompson, Daly, Weaver, Garden Plain, Wayne, Rockyford, and Basal. The last three zones are split or joined in various gas fields leading to “combined pool definitions” adjacent to “split pool definitions.”

Often, the upper Lethbridge coal zone of the Belly River Group (Dinosaur Park Formation) is produced commingled with the lower zones of the Horseshoe Canyon Formation. The other two coal zones of the Belly River Group, the Taber and MacKay, are not often considered CBM targets.

For a large area of the Alberta Plains, the Mannville coals are often grouped into one primary coal zone, the Medicine River. Additional zones are the Top coal zone at the top of the Mannville Group and the Ostracod coal zone below the Glauconite Formation. One region with exception to the single primary coal zone is the eastern Provost-Lloydminster area (Figure 3), where previously defined formations separate the coals into separate pools irrespective of the interburden distance. The second region with exception to the single primary coal zone is the Deep Basin area, where the Falher coals require separation, as the previously defined sandstone gas pools are interlayered with the coals. However, these coals are not in the current pooling schema, as they are considered to be at depths beyond the technical production limits of current technology.

CBM pools have not been established in the Kootenay Group and the Luscar Group (equivalent to the Mannville) coals.

