

Bulletin 2009-23

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Shale Gas Development—Definition of Shale and Identification of Geological Strata

The purpose of this bulletin is to clarify the definition of shale for shale gas development and to identify the geological strata from which any gas production will be considered by the Energy Resources Conservation Board (ERCB) to be shale gas. Each well producing gas from shale must have ERCB-designated control wells as specified in Sections 1.020, 7.025, and 11.145 of the *Oil and Gas Conservation Regulations (OGCR)*.

Section 1.020(2)(27.1) of the *OGCR* defines shale as “a lithostratigraphic unit having less than 50% by weight organic matter, with less than 10% of the sedimentary clasts having a grain size greater than 62.5 micrometres and more than 10% of the sedimentary clasts having a grain size less than 4 micrometres.” Using this definition, the ERCB has categorized shale gas strata as follows:

1) Shale Gas Strata

Gas produced from the organic marine shale formations, members, and informal strata listed in Table 1 is considered to be shale gas. These shales, formations, members, and informal strata are marked as Resources Occurrence—Shale Gas Potential in the ERCB Table of Formations, with the exception of the Doig Phosphates, which is not depicted. The Table of Formations is available on the ERCB Web site www.ercb.ca under Publications : Publications Available : Maps and Shapefiles.

In some instances, localized sandstones or porous carbonate units may be present within strata identified in Table 1. Any production from these units, where clearly identifiable, would be deemed conventional gas production.

Further updates are anticipated to Table 1 as more data become available and will be communicated in future bulletins.

2) Southeast Alberta Colorado Group Strata

Within Townships 1 to 35 for all ranges between the 4th and 5th Meridian, all strata between the top of the Milk River Formation and the Base of Fish Scales marker are currently designated as conventional gas. While some of these zones meet the definition for shale, because of the long history of gas production in this area and for administrative efficiency, the gas produced from these strata will not be redesignated as shale gas.

3) Mixed Lithology Strata

For strata where shale is not the primary lithology, a variety of information may be required to determine if the perforated interval falls within a shale zone. For example, core descriptions and analysis, detailed log evaluation, or other tests would assist in determining if the interval is producing shale gas.

The above three categories of shale gas strata may be modified (strata added or removed) as additional information becomes available.

Table 1. Shale gas strata¹

Upper Cretaceous	Lower Cretaceous	Triassic/Jurassic	Paleozoic
Battle Formation	Westgate Member ²	Unnamed Fernie shale ²	Exshaw Formation
Bearpaw Formation	Joli Fou Formation	Fernie Shale with dark reddish-brown bands ²	Ireton Formation
La Biche Formation ²	Harmon Member	Rierdon Formation	Fort Simpson Formation
Lea Park Formation	Moosebar Formation	Grey Beds ²	Duvernay Formation
Nomad Member	Wilrich Member	Pigeon Creek Member	Muskwa Formation
Pakowki Formation	Bantry Shale Member	Poker Chip Shale	
Wapiabi Formation		Nordegg Member	
Puskwaskau Formation		Doig Phosphates ²	
Colorado Shale ²			
First White Speckled Shale			
Hanson Member			
Thistle Member			
Dowling Member			
Badheart Member ²			
Muskiki Member			
Muskiki Formation			
Blackstone Formation			
Kaskapau Formation			
Unnamed shale ²			
Second White Speckled Shale			
Undifferentiated shale ²			
Shaftesbury Formation			
Belle Fourche Shale Member ²			
Fish Scale ²			

¹ The columns are arranged by listing the strata from youngest to oldest.

² These names are used informally in Alberta.

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