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GLOSSARY OF COAL MINE METHANE TERMS AND DEFINITIONS

Note by the secretariat

Summary

At its third session, the Ad Hoc Group of Experts on Coal Mine Methane agreed to develop a glossary of terms in common use throughout the global coal mine methane industry as a reasonable starting point for a longer-term goal of harmonizing terminology and technical standards in the industry. The effort to develop the glossary also supports a commitment by the Ad Hoc Group of Experts to support development of uniform technical standards and terminology within the Methane to Markets Partnership. This document is the result of that effort, and will be reviewed on a regular basis and updated as needed.

I. MANDATE

1. The document has been prepared in response to the request of the Committee on Sustainable Energy at its sixteenth session (ECE/ENERGY/76, para. 26(f)).

II. INTRODUCTION

2. The table contains terms, definitions, references and synonymous terms that are used globally in the coal mine methane industry. A Task Force commissioned at the third session of the Ad Hoc Group of Experts prepared the initial glossary in 2007. The draft glossary was then sent to the entire Ad Hoc Group of Experts for review and comment in January 2008. Following receipt of comments, the Task Force prepared and posted the English language version of the completed glossary to the UNECE website in April 2008.

3. The Ad Hoc Group of Experts does not intend this to be a complete or comprehensive list, but rather to serve as a starting point on which future efforts can build. Experts are encouraged to disseminate the glossary and to submit recommended changes that would further enhance the value of the glossary. The ultimate objective is development a harmonized set of terms with common meanings worldwide. An especially important consideration is the ability of the glossary to transcend linguistic, industry and regulatory cultures to provide a common framework.

Glossary of Coal Mine Methane Terms and Definitions

Terms	Definition	Source	Synonymous Terms
Abandoned mine	A mine where all mining activity including mine development and coal production have ceased, mine personnel are not present in the mine workings, and mine ventilation fans are no longer operative.	Based on United States of America (USA)/United Kingdom (UK) model	<ul style="list-style-type: none"> • Decommissioned mine (Australia) • Closed mine
Abandoned mine methane (AMM)	Methane released from an abandoned mine. Often referred to as a subset of coal mine methane (CMM) or coal mine gas (CMG)		<ul style="list-style-type: none"> • Coal mine methane (Germany)
Bleeder shaft	A type of ventilation shaft employed at some underground coal mines to increase ventilation at an individual longwall panel or groups of longwall panels. Bleeder shafts are usually smaller than primary ventilation shafts and may have been authorized for higher methane concentrations.	United States Environmental Protection Agency (US EPA) paper on bleeder shafts	

Terms	Definition	Source	Synonymous Terms
Coal associated gas (CAG)	All methane contained within a coal seam and the immediate surrounding strata above and below the seam.	Survey of UNECE Ad Hoc Group of Experts on CMM	<ul style="list-style-type: none"> • Coalbed methane (USA) • Coal seam gas • Coal seam methane • Virgin coalbed methane (UK)
Coalbed methane (CBM)	A generic term (USA) for the methane originating in coal seams that is drained from surface boreholes before mining takes place.	United Nations Framework Convention on Climate Change (UNFCCC) Approved Consolidated Methodology 0008 (ACM0008)	<ul style="list-style-type: none"> • Coal seam gas (Germany) • Coal seam methane (Australia) • Coal mine methane • CBM-I • Virgin coalbed methane
Coal front gas	Gas released from the seam being worked during the coal extraction process.	UK Mining Industry	<ul style="list-style-type: none"> • Methane at the coal face
Coal mine gas (CMG)	Gas associated with operating or abandoned coal mining activities		<ul style="list-style-type: none"> • Coal mine methane • Mine gas • Coalbed methane
Coal mine methane (CMM)	Methane component of gases captured in a working mine by methane drainage techniques.	ACM0008	<ul style="list-style-type: none"> • Coal mine gas • Mine gas • CBM-II • Coalbed methane
Coal seam gas (CSG)	Methane found in coal seams. It is formed during coalification, the process that transforms plant material into coal. Also known as coal seam methane and coalbed methane.	Australia/New Zealand	<ul style="list-style-type: none"> • Coal seam methane • CBM
Degasification system	A system that facilitates the removal of methane gas from a mine by ventilation and/or by drainage. However, the term is most commonly used to refer to removal of methane by drainage technology.	US EPA (US EPA Publication 430-K-04-003)	<ul style="list-style-type: none"> • Methane drainage system

Terms	Definition	Source	Synonymous Terms
Drainage efficiency	The rate of gas flow (undiluted equivalent) captured by the gas drainage system at a defined location, divided by the rate of total gas flow (undiluted equivalent) from that location, expressed as a percentage.	UK Mining Industry	
Drainage system	A system that drains methane from coal seams and/or surrounding rock strata. These systems include vertical pre-mine wells, gob wells and in-mine boreholes.	US EPA (US EPA Publication 430-K-04-003)	<ul style="list-style-type: none"> • Methane degasification system
Explosive range (of methane)	The range of flammable or explosive vapour or gas-air mixture between the lower and upper explosive limits (LEL and UEL). At ambient temperature and pressure, concentrations by volume of methane gas in air falling between 5% (LEL) and 15% (UEL) are in the explosive range; however, explosive concentrations may fall outside this range with variances in temperature and pressure. "Safe" levels of methane are, therefore, generally recognized to be below 1% in mine ventilation air, 2% in bleeder shafts, and above 25% in methane degasification systems.		<ul style="list-style-type: none"> • Firedamp
Extraneous gas	Gas released from locations other than the seam being worked, as a consequence of the coal extraction process (not necessarily simultaneously).	UK Mining Industry	
Gas horizons	Gas-containing strata, including, but not limited to, coal seams.		<ul style="list-style-type: none"> • Gas-bearing strata or substrata
Greenhouse gas (GHG)	Those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation including water vapour, CO ₂ , CH ₄ , nitrous oxide, ozone, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF ₆).	UNFCCC USA	

Terms	Definition	Source	Synonymous Terms
Greenhouse gas emissions	The release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time. May be labelled as anthropogenic (resulting from human activities) or naturally occurring.	UNFCCC	
Goaf	Collapsed area of strata produced by removal of coal and artificial supports behind a working coalface. Strata above and below the goaf are de-stressed and fractured by mining activity. Methane resealed from this disturbed zone is available from Post mining CMM extraction through either surface goaf wells or underground boreholes or drainage galleries.	ACM0008	<ul style="list-style-type: none"> • Gob
Gob	See Goaf		<ul style="list-style-type: none"> • Goaf
Goaf or Gob well	A well used to extract methane from the goaf (gob) areas of a mine. Goaf wells may be drilled from the surface or within the mine.		
Inactive mine	A mine where no coal is being produced, but persons are maintaining equipment and the mine may reopen in near future.	Based on United States Mine Safety & Health Administration (MSHA) standards	
Inherent gas content	The amount of gas contained within a coal seam, measured before the onset of changes caused by human activity		<ul style="list-style-type: none"> • Virgin coal seam gas content
In-mine well	A well drilled within the mine to drain methane prior to, during, or after mining has occurred. Common types of in-mine wells include cross-measure boreholes drilled at an angle above and/or below the coal seam, horizontal boreholes drilled into the seam or goaf at 180°, directional boreholes that can be steered into the seam or goaf.		<ul style="list-style-type: none"> • In-mine borehole

Terms	Definition	Source	Synonymous Terms
Methane drained	The volume of methane removed via a drainage system usually expressed in cubic metres, cubic feet, or tonnes.		
Methane emissions	The volume of liberated methane released to the atmosphere. Methane used is not considered methane emitted. Methane emissions are calculated by subtracting the amount of methane used from the amount of methane liberated.	Various	
Methane liberated	The total volume of methane released from the coal and surrounding rock strata during the mining process. In a working mine, this total is determined by summing the volume of methane emitted from the ventilation system and the volume of methane drained.	US EPA (US EPA Publication 430-K-04-003)	<ul style="list-style-type: none"> • Methane emissions (mistakenly)
Methane used	The volume of liberated methane put to use.		
Mining activities	Working of an area, or panel, of coal that has been developed and equipped to facilitate coal extraction and is shown on a mining plan.	ACM0008	
Pre mining CMM	Methane extraction prior to the mining process from underground boreholes in the mine (for safety reasons).	ACM0008	
Post mining CMM	Methane extraction after completion of the mining process from vertical surface goaf wells, underground inclined or horizontal boreholes, gas drainage galleries or other goaf gas capture techniques, including drainage of sealed areas in the mine (for safety reasons).	ACM0008	

Terms	Definition	Source	Synonymous Terms
Recovery efficiency	Percentage of methane used of total methane liberated. Can be further delineated to specify recovery efficiency of methane drainage systems and ventilation systems.		
Specific gas emissions	The rate of total gas emissions from a defined location, divided by the rate of mineral production from that location.	UK Mining Industry	
Surface well	A well drilled from the surface into the substrata below to drain methane prior to, during, or after mining has occurred. Common types of surface wells include vertical goaf wells, vertical pre-mine wells and directionally drilled boreholes from the surface.		
Ventilation air methane (VAM)	Methane mixed with the ventilation air in the mine that is circulated in sufficient quantity to dilute the methane to low concentrations for safety reasons. Or Methane contained in the exhaust air of the ventilation system of a mine, which originates across the mine workings and diluted to low concentrations by the circulation of outside air.	ACM0008	
Ventilation system	A system that is used to control the concentration of methane and other deleterious gases within mine working areas. Ventilation systems consist of powerful fans that move large volumes of air through the mine workings to dilute methane concentrations.	US EPA (US EPA Publication 30-K-04-003)	
Vertical well	A well drilled through a coal seam or seams and cased to pre-drain the methane prior to mining.		

Terms	Definition	Source	Synonymous Terms
Virgin CBM	Methane produced from unmined or virgin coal seams using surface boreholes.	UK Department of Trade and Industry	<ul style="list-style-type: none"> • Coal Associated gas • Coal seam gas (Germany) • Coal seam methane (Australia) • Coal mine methane • CBM-I • Coalbed methane

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