



CENTRAL
MINING
INSTITUTE

Polish Mine Safety Regulations Regarding Methane Hazard Prevention in Coal Mines

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THE POLISH MINING LAW

ACT of 9 June 2011, Geological and Mining Law

and two main executive acts of this act related to ventilation:

- Regulation of the Minister of the Environment of 29 January 2013 on natural hazards in mining plants
- Regulation of the Minister of Energy of 23 November 2016 on detailed requirements for the operation of underground mining plants

CATEGORIES OF METHANE HAZARD IN POLAND

- Ist methane hazard category - 0.1 to 2.5 m³/Mg (daf)
- IInd methane hazard category - 2.5 to 4.5 m³/Mg (daf)
- IIIrd methane hazard category - 4.5 to 8.0 m³/Mg (daf)
- IVth methane hazard category - >8.0 m³/Mg (daf) or if there was sudden outflow of methane or outburst of methane and rocks

WORKINGS IN METHANE FIELDS IN UNDERGROUND COAL MINES CAN BE CLASSIFIED:

- to the endangered with methane explosion (degree "a"), if the concentration of methane in the ventilation air above 0.5% are excluded,
- to „b” degree of methane explosion hazard if in normal ventilation conditions the concentration of methane in air higher than 1% is excluded,
- to „c” degree of methane explosion hazard, if in normal ventilation conditions the concentration of methane in air can be higher than 1%.

PRINCIPLES OF CLASSIFYING WORKINGS IN METHANE FIELDS IN UNDERGROUND COAL-MINING TO THE DEGREES OF METHANE EXPLOSION HAZARD

Instruction No. 18 issued by the Central Mining Institute

Methane prevention for the longwalls:

Selection of the proper ventilation system for the longwall

Ensuring the required air volumes in the area of the longwall

Methane hazard monitoring system

Effective actions to combat the methane accumulations in the places of possible initiation of ignition or explosion

Technology of methane drainage of the longwall environment

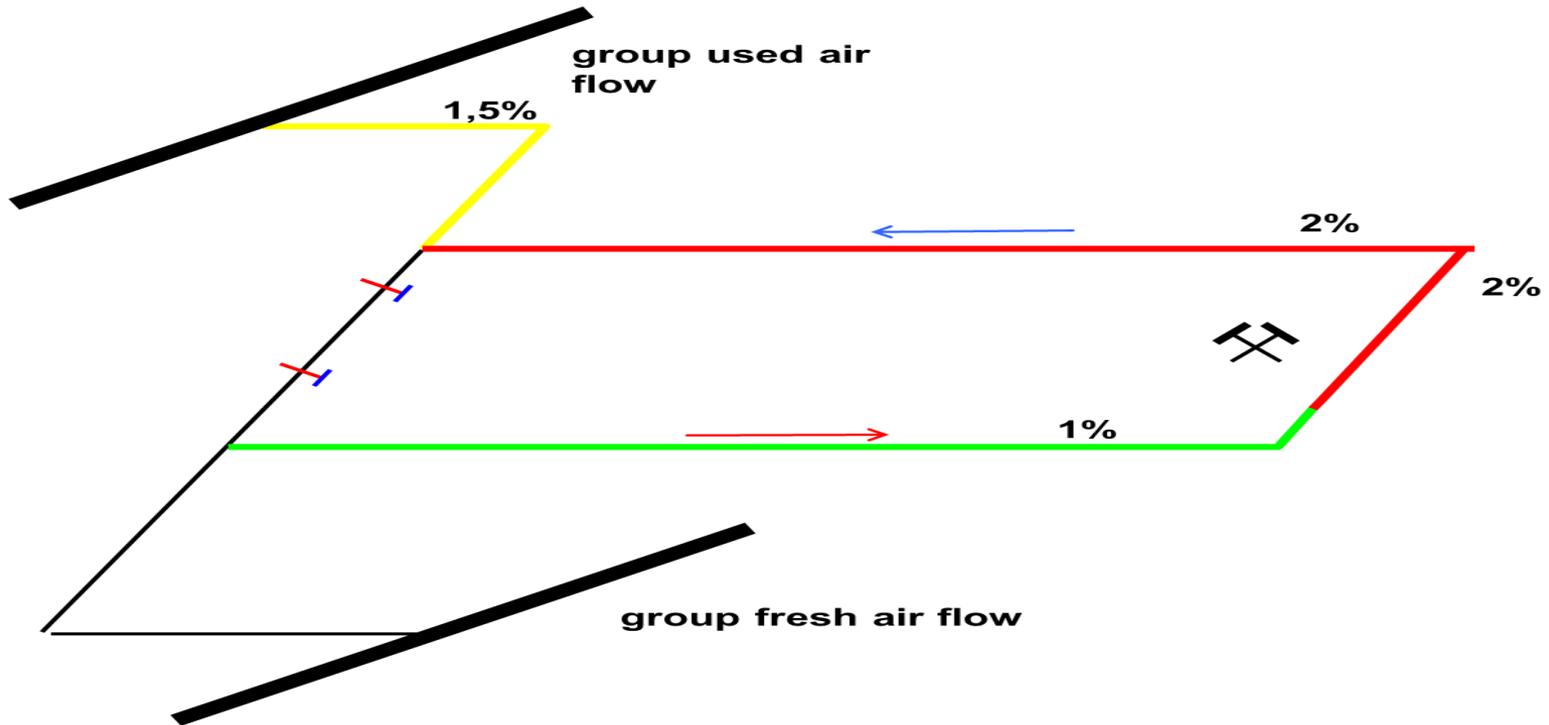
Methane hazard monitoring

Measurements of methane concentration (automatic and individual)

Measurement of methane concentration in the methane drainage pipelines

Measurement of air flow speed in the workings

State of closure of ventilation dams, that affects the ventilation conditions, as well as changes in the distribution of aerodynamic potentials in the environment of longwalls



Distribution of permissible content of methane within a longwall ventilated using the "U" method along the body of coal

PRINCIPLES OF LONGWALL CONDUCTING IN METHANE HAZARD CONDITIONS

Instruction No. 17 issued by the Central Mining Institute

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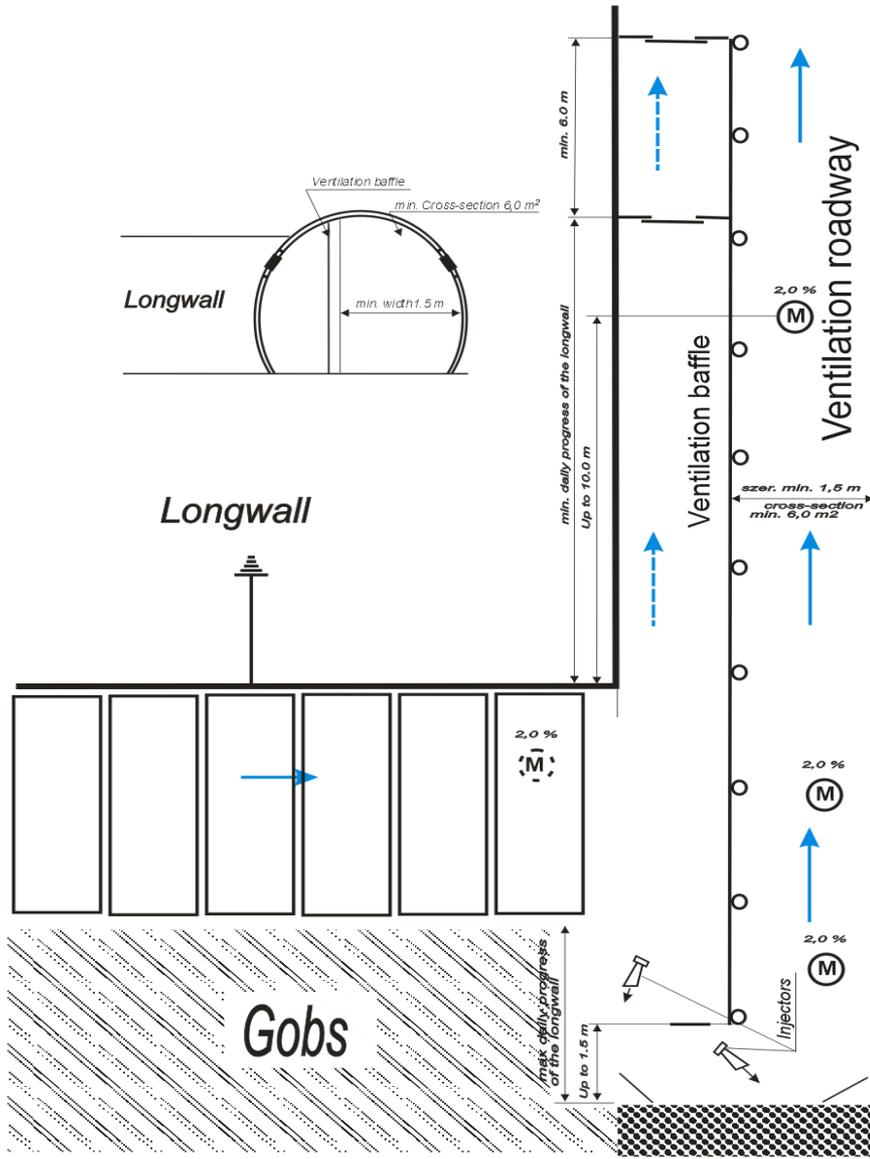
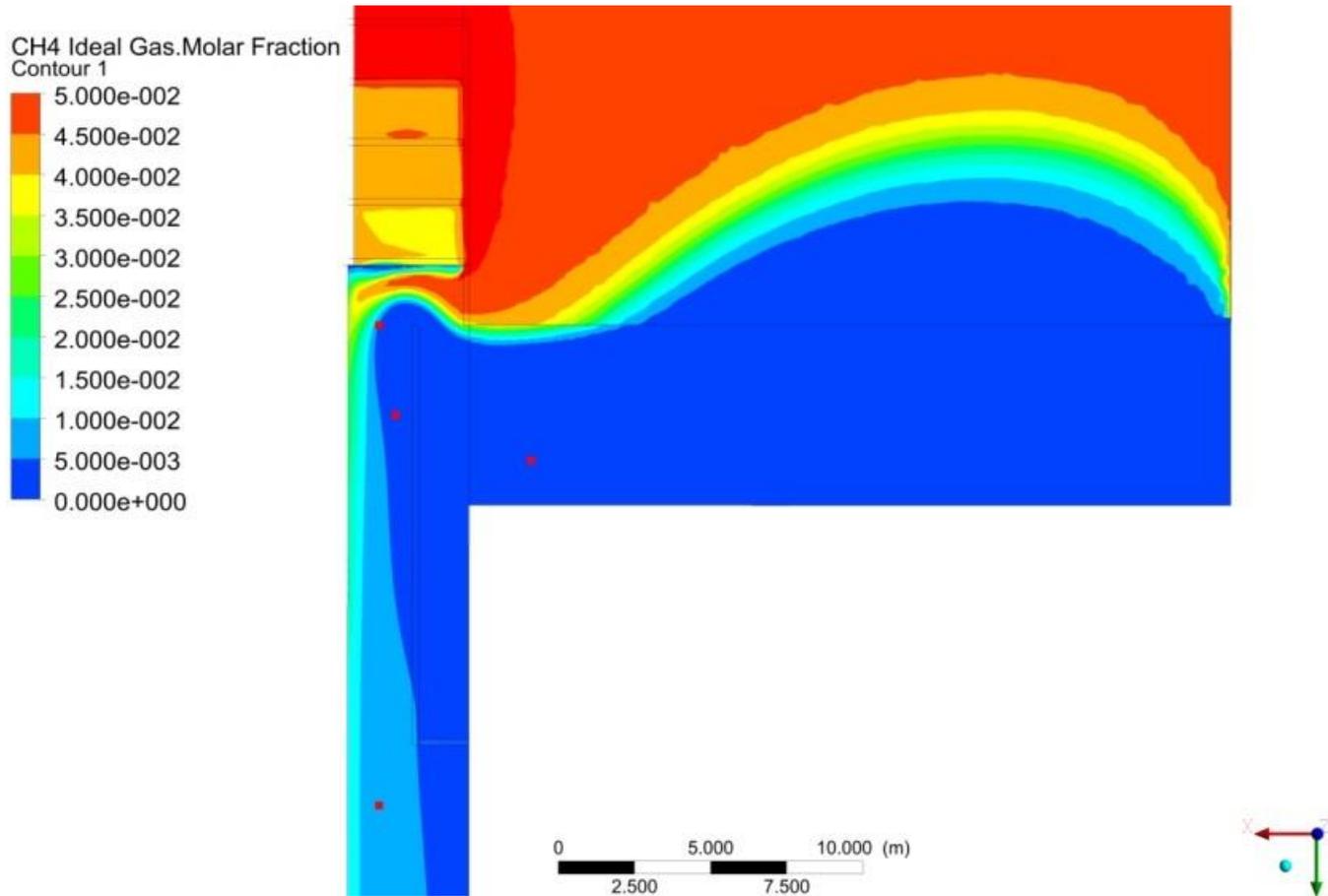


Diagram of the intersection of the longwall ventilated in the “U” system with the ventilation roadway, with the location of methane sensors and the system of auxiliary ventilation equipment for dilution of methane



Location of methane sensors in the area of the longwall ventilated in the “U” type system with the ventilation roadway liquidated with insulating baffles with a length of the dead end of 2meters, under the following ventilation and methane conditions: ventilation methane content $Q=10\text{m}^3/\text{min}$, $=1000\text{ m}^3/\text{min}$. Horizontal 2D arrangement at the level of the sensor in the longwall

THANK YOU FOR YOUR ATTENTION



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