METHANE AS AN ACCOMPANYING MINERAL AND ITS ROLE IN THE POLISH HARD COAL MINING INDUSTRY

PART 2

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Legal issues

Act of 9th June 2011 - Geological and Mining Law

Methane, occurring as an accompanying mineral is mining property to which the State Treasure is entitled.

The license to extract hard coal and methane as an accompanying mineral is granted by the minister responsible for the environment in agreement with the minister responsible for mineral deposit management.

The exploitation charge rate for methane from hard coal is 0.00 zlotys.
Presentation of methane hazard in hard coal mines (2016)

23 black coal mines (31.12.2016 r.)

16 - emission of methane was found
14 in the 4th category of methane hazard

5 - exploitation was conducted in non-methane coalbeds

2 - extraction was conducted in coalbeds included in the 1st category of methane hazard, however there was no methane detected in the exhaust flows of used up air
Presentation of methane hazard in hard coal mines (2016)

Black coal production in 2016 equaled approx. 70.4 million tonnes including:
- **methane coalbeds** - 54.8 million tonnes, which constituted **77.8% of the output**,
- non-methane coalbeds - 15.6 million tonnes, which constituted **22.2% of the output**.
Presentation of methane hazard in hard coal mines (2016)

933.76 million m$^3$ of methane was discharged from the exploited rock mass. The relative methane volume equaled $13.3$ m$^3$CH$_4$/tonne.
Methane drainage from mining excavations

Methane drainage of longwalls ventilated along the body of coal.

- Low manufacturing costs
- Low efficiency (20-30%)
- A short period of full capacity of the holes
Methane drainage from mining excavations

Methane drainage of longwalls ventilated along goafs

- High effectiveness (50-60%)
- Long service life of holes
- The need to maintain the workings behind the longwall (discipline)
- The need to perform double workings
Methane drainage from mining excavations

Methane drainage using overlaying drainage

- The highest efficiency (up to 80%)
- The most effective method for longwalls ventilated using the "U" system
- Optimum conditions required for the performance of an overlaying drift
- High capital expenditure
Methane drainage in the Polish mining industry (2016)

Volume of methane included in methane drainage – **342.08 million m³**.
Methane drainage effectiveness – **36.63%**.
Methane drainage in the Polish mining industry (2016)

According to the adopted division of places where methane drainage took place, the volume of methane captured last year was as follows:
- from mining excavation areas - **243.70** million m³ CH₄ (approx. 71.24%),
- from goafs (behind isolation stoppings) - 92.24 million m³ CH₄ (approx. 26.96%),
- from galleries - 6.14 million m³ CH₄ (approx. 1.79%).
Of the 178 longwalls 143 (80.34%) were exploited in methane coalbeds.

Of the 143 longwalls methane drainage was conducted in 57 (39.86%).

Methane drainage was conducted using 20 surface and 4 underground methane drainage stations.
Management of captured methane (2016)

Management of captured methane – 195.0 million m$^3$.
The effectiveness of the use of captured methane – 57.0%.
Management of captured methane (2016)
Methane emission into the atmosphere (2016)

The unit rate of the charge for methane input into the air is 0.29 zlotys/Mg
Summary

Mining coal from methane coalbeds in the last decade falls in the range of 70-80%.

In the last 24 years, in 2016 the biggest values were recorded:
- Methane emission as a result of mining activity - 933.8 million m$^3$;
- relative methane volume – 13.3 m$^3$CH$_4$/tonne;
- captured methane – 342.1 million m$^3$;
- methane drainage effectiveness – 36.63%.

The activity of mining entrepreneurs aimed at using the captured methane for economic purposes, which requires engagement of capital to modernise and build modern methane drainage stations has received positive opinions.
THANK YOU FOR YOUR ATTENTION

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