



Central Mines Rescue Station



Rescue action carried out in extremely difficult mining conditions, with coexistence of fall of roof, methane and water hazard.

Mine rescue in Poland

Rescue service
of the
entrepreneur

Mines rescue services



RSGO
Kraków



CSRG S.A.
Bytom



O/JRGH
Lubin

the rules for the operation of mine rescue are set out in the Act
(the highest legal act issued by Parliament) and in the Regulation
(legal act issued by the Minister);





Central Mines Rescue Station in Bytom has 112 years of history. It is a company of special economic and defense importance and operates under the National Rescue and Firefighting System. The only shareholder of the Company is the State Treasury;



TASKS



✓ providing assistance to mining companies



✓ maintenance of professional rescue groups



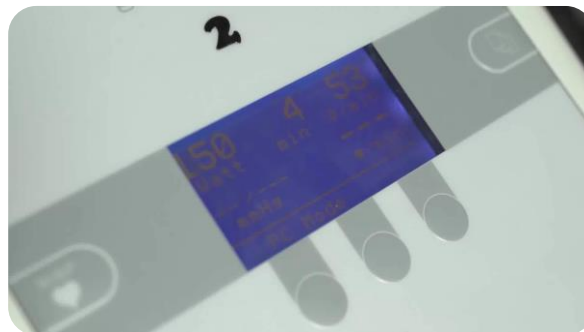
✓ conducting rescue trainings and exercises



✓ examination of rescue equipment



✓ carrying out medical examination for rescuers



✓ performing specialized chemical analyzes





The rescue operation was carried out in two stages:

- ✓ First stage – searching for missing employees
- ✓ Second stage – closing the area (insulation)

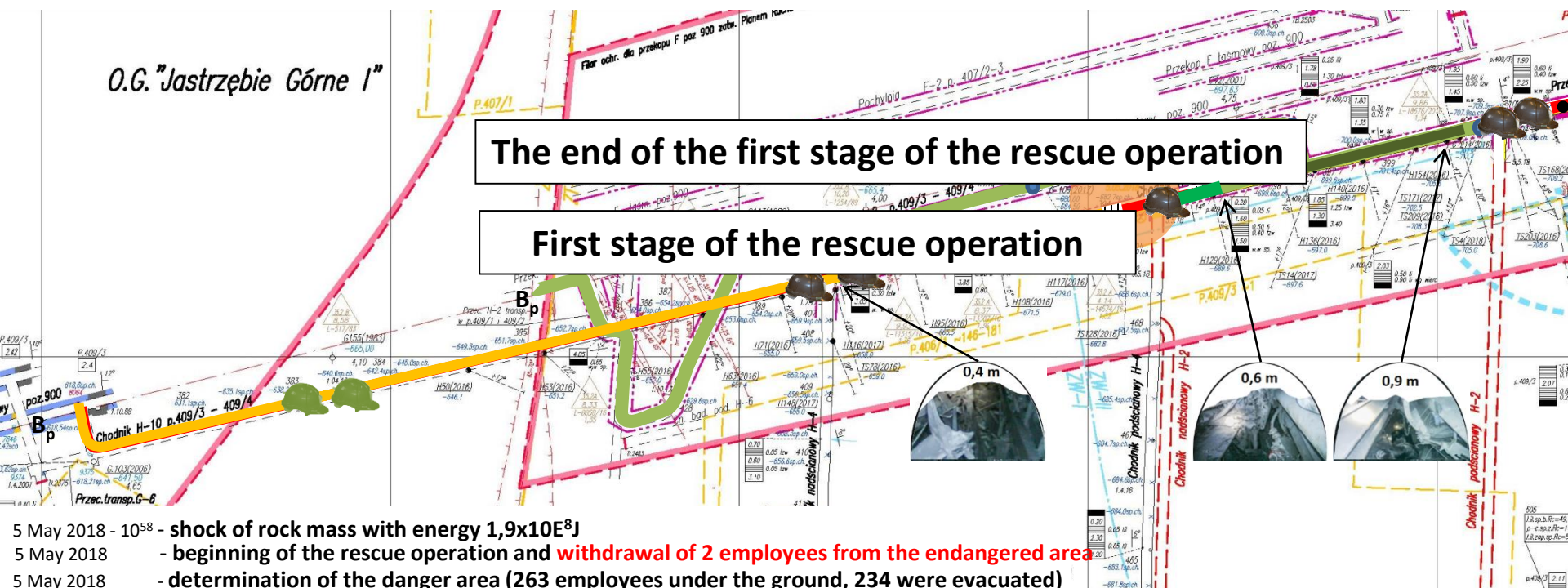




O.G. "Jastrzębie Górne I"

The end of the first stage of the rescue operation

First stage of the rescue operation



- 5 May 2018 - 10⁵⁸ - shock of rock mass with energy $1,9 \times 10^8 \text{ J}$
- 5 May 2018 - beginning of the rescue operation and **withdrawal of 2 employees from the endangered area**
- 5 May 2018 - determination of the danger area (263 employees under the ground, 234 were evacuated)
- 5 May 2018 - 13⁰⁰ - directing rescue teams to the Fresh-Air Rescue Base
- 5 May 2018 - 13³⁰ - **penetration of the excavation**, rescue team found two missing employees at 16¹⁴ (at meterage of approximately 150 m)
- 5 May 2018 - 21¹⁰ - rescue team found the third missing worker (10 m west of the H-4 tailgate)
- 6 May 2018 - 10⁵⁷ - rescue team found the fourth miner (5 m east of the H-4 tailgate)
- 6 May 2018 - penetration of the excavation and use of the GLON-GLOP location system
- 7 May 2018 - setting up of sub-Fresh-Air Rescue Base 1 and 2
- 7 May 2018 - **the rescue teams penetrated the H-10 excavation** and had a try to localize missing miners by using the GLON-GLOP system
- 8 May 2018 - **searching for people by using rescue sniffer dog**
- 8 May 2018 - installation of power systems for **4 pump stations** and overflow tanks
- 8 May 2018 - consultations to determine the ability of use underwater penetration by diving techniques and underwater robot
- 8 May 2018 - drilling a technical borehole with a diameter of 80mm from the F cross heading, level 900
- 12 May 2018 - 20⁴⁵ - the fifth missing worker was found (after pumping/lowering the water surface by about 1,5 m)
- 13 May 2018 - 3⁰⁰ - the sixth missing employee was found
- 15 May 2018 - 23⁵³ - the seventh missing miner was found

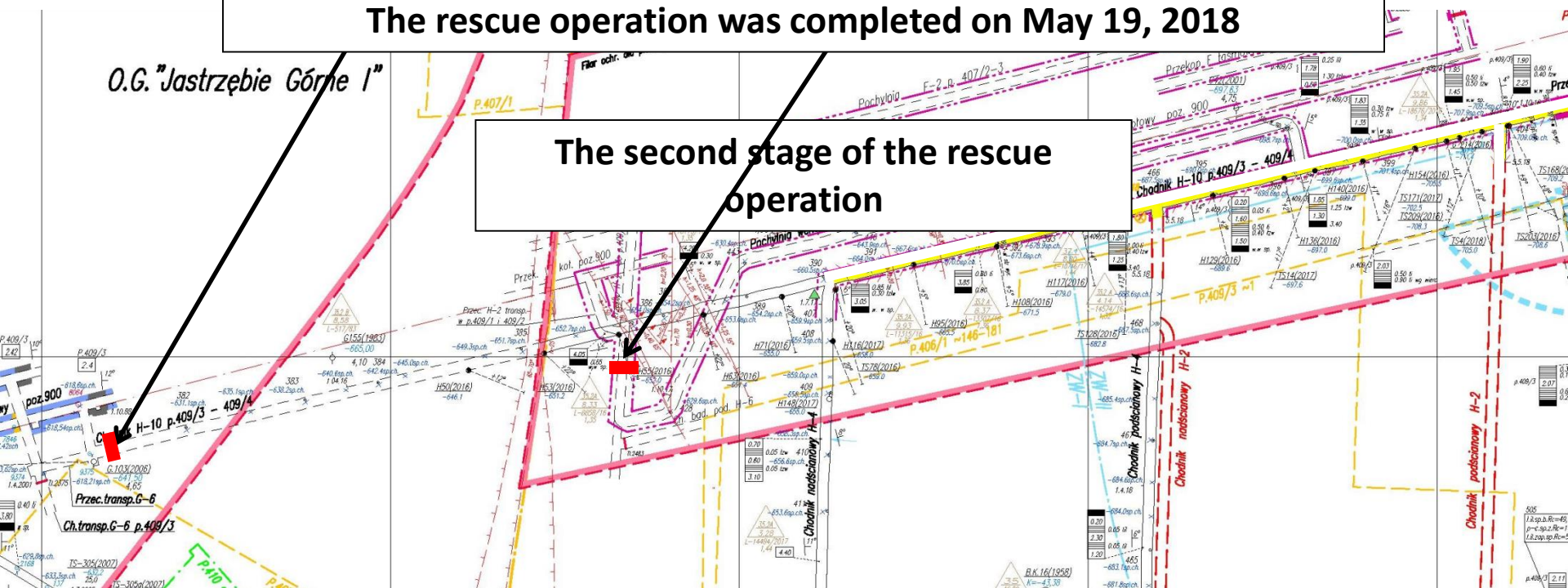


K-1 Explosion proof dam

K-2 Explosion proof dam

The rescue operation was completed on May 19, 2018

~~The second stage of the rescue operation~~



Works related to the building of K-1 explosion-proof dam in the H-10 and K-2 excavation in the H-2 cross heading.

Building starts on 16/05/2018 and ends on 18/05/2018.



Difficulties during the operation:

- ✓ Concentration of gases at the explosion limit
- ✓ Unbreathable atmosphere
- ✓ Narrowed sections of excavations
- ✓ Shocks of rock mass
- ✓ Temperature (up to 30°C)

During the first stage of the rescue action a high risk was taken due to the search for missing employees.





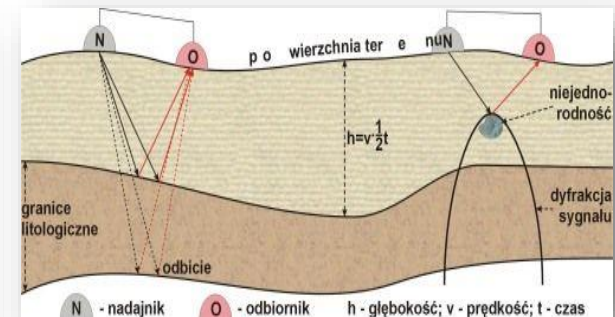
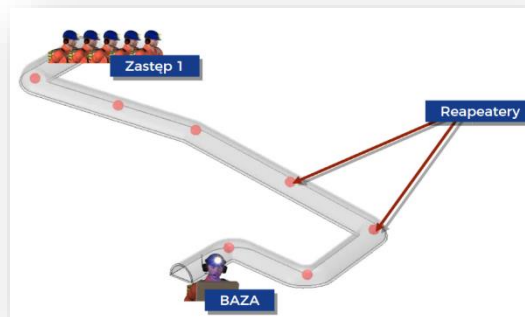
SUMMARY OF THE RESCUE OPERATION

- ✓ In the rescue action a total of 396 teams took part (2376 rescuers)
- ✓ 234 people have been evacuated
- ✓ 520m of H-10 and H-2 excavations were penetrated
- ✓ The rescue operation lasted 15 days from 5 to 19 May 2018
- ✓ First stage - the search for missing employees lasted from 5 to 15 May 2018
- ✓ Second stage – the close of endangered area lasted from 16 to 18 May 2018



Proposals regarding final applications:

- ✓ Developing a new system for locating the victims
- ✓ Continuation of a research project on underground, wireless emergency communication system
- ✓ Developing of a new, light (small) rescue apparatus
- ✓ A design of device that allows to scan the debris (a study of great difficulty)
- ✓ Implementation of the project in the scope of the method of measurement the internal body core temperature
- ✓ Implementation of the project in the scope of air composition test for the presence of components of the body decomposition





Thank you for attention