

Overveiw

In 1902, the 28th of November (or the 11th of December according to the new style) at 18-th session of XXVII mining industry congress of delegates from the south of Russia, when examining the 10th question of the congress program « About measures of mutual aid in case of accidents on mines of Donetsk basin, in connection with the organisation of rescue stations », they made a start of a new special mine-rescue service on mines of Donetsk basin.

Since 1922, the mine-rescue service has received the national status.

In 1992, by the Decision №608 of the Ukrainian Cabinet of Ministers, it was founded the State militarized mine-rescue service of coal industry on the basis of militarized mine-rescue parts of the State coal industry committe. The main tasks of the State militarized mine-rescue service are the following: to take prompt and measures at the coal industry enterprises for life-saving, fire extinguishing, liquidation of explosion consequences, of sudden coal and gas emissions, of rock falls, of excavation loadings and of other accidents, accomplishment of works demanding application of protective means for respiratory organs and of special equipment, as well.

The basis regulations of this decision have been confirmed by " the Mine Law of Ukraine » (of 06.10.1999) and by the law of Ukraine « About search-and-rescue services » (of 14.12.1999)

At the present time, the divisions of the State militarized mine-rescue service are stationed on the territory of Donetsk, Lugansk and Dnepropetrovsk areas.

The stationing provides functioning of 11 militarized mine-rescue groups (including training-operational group - the Center of training of mine-rescuers) which structure includes 36 mine-rescue platoons and 260 mine-rescue branches, 21 reanimation-antishock groups, 24 gas-analytical laboratories, 10 depression shooting groups.

The management of operational, technical, industrial, preventive and other activities of divisions and services is realized by Central staff of the State militarized mine-rescue service which includes the operational-technical group and mechanical workshops for mine-rescue equipment repairs.

General scheduled number of the State militarized mine-rescue service is 4700 people, including 3800 people of the basis operational staff.

Divisions of the State militarized mine-rescue service serve 318 enterprises, 229 of them concern the Ministry of fuel and energy of Ukraine, and 89 enterprises consern other departments.

141 of served mines are attributed to the highest and to the third category by saturation of methane; 68 mines exhaust off 108 mine strata which are dangerous through sudden coal and gas emissions; 122 mines are attributed to dangerous through coal dust explosions; 58 mines exhaust mine strata inclined to self-ignition. In the present time, 62 mines conduct mining works at a depth of about 700 m, 55 mines - about 1000 m, and 32 mines extract coal at a depth of over 1000 m.

For the period of 2000 - 2004 years and 9 months of 2005, divisions of the State militarized mine-rescue service have been involved more than 930 times for liquidation of accidents and emergencies, including 188 underground fires, 14 explosions, 19 sudden coal and gas emissions, 136 rock falls, 5 excavation floodings, 70 accidents on a surface of mines and 507 other emergencies. When conducting these rescue works, they have taken out from a dangerous zone 30270 people and have evacuated from a zone of accident more than 2300 miners. At the liquidation of accidents and emergencies, it is worked more than 700 thousand person-hours, including more than 140 thousand person-hours in respirators.

General duration of accident liquidations for 9 months of 2005 has made 971 hour, it is in 2,8 times less than this parameter of 2004.

When conducting search-and-rescue works, for 9 months of 2005, rescuers have saved wealth of a total value of more than 237,6 million of hrivnas.

Labour-intensity of accident liquidation works, in comparison with 2004, has decreased by 61 %, and duration of liquidation - by 65 %.

Introduction of new technologies of accident liquidation for 5 years (2000-2004г.г.) has allowed to reduce mid-annual duration of accident liquidation in 1,7 times, in comparison with the previous period (1995-1999г.г.).

21 reanimation-antishock groups are stationed in three areas and they are in round-the-clock charge. 169 doctors of different professions are ready, at any time, to render the qualified medical aid to miners in trouble.

Annually, doctors of mine-rescue service render assistance to about 6 thousand miners-victims.

Working in specific conditions, approaching medical assistance as much as possible to a place of incident, reducing time from the moment of traumatizing to the qualified medical aid, doctors of mine-rescue service have reduced lethal outcomes through mine traumas by a third, they have reduced cases of primary physical inability by 23 %, quantity of complications at treatment in hospitals by 17 %.

For the period 2000-2004 years and 9 months of 2005, medical service of the State militarized mine-rescue service rendered assistance to 25700 miners (including 3100 who were in a critical state and to 447 miners - during accident liquidation), it degasified 152,9 kms of mine workings, rescued more than 69 kms of basic mine workings and 23,85 million t of prepared coal stocks, kept 14270 workplaces.

As the result of this work – 5239,84 million of hrivnas saved thanks to the activity of mine-rescuers (the cost of maintenance of the State militarized mine-rescue service, for this period, has made 506,535 million of hrivnas).

Under the term «rescue station», we understand a mine-rescue platoon. This is a detached division which has all necessary equipment for rescue works and a well trained staff. And, a usual day is the period, when there is no accidents. Then divisions work under earlier authorized plans and schedules. These kinds of works include the theoretical and practical trainings, special trainings on working through the skills of using the mine-rescue

equipment, sports trainings, maintenance service of the organic equipment, carrying out at the served enterprises preventive and not works which demand application of protective and technical means. And also application of our knowledge and experience. More over they support the readiness of branches on duty for immediate departure to the site in case of accident occurrence.

To improve knowledge and skills, all the staff, from maintenance personnel to commander, goes through training and retraining on his speciality once in three years. Such temple of science in the State militarized mine-rescue service is the training-operative group named the center of training of mine-rescuers. It is called rightly and deservedly a “smithy of the staff”.

For half-century there were various, structural transformations in the system of staff training, and they were far from being always favorable. Now, about 1000 mine-rescuers and more than 900 representatives of engineering employees of mines are trained here every year.

Staff preparation studies are carried out under special programs authorized by the Central staff of the State militarized mine-rescue service. In our center, are trained rescuers and commanders of branches, workers of operational and preventive services, reanimation-antishock groups, commanders of groups. To prepare the coal enterprises experts, they elaborated programs on a labour safety and on conducting rescue works. The representatives of the miner's occupations, from dispatchers to technical directors of associations, who are dealing with the questions of a labour safety and of observance of the safety precautions, are trained here. Teachers are skilled employees of Scientific Research Institute of Mine Industry, candidates of science, and also heads of the Central staff. Five years, faculty of Dnepropetrovsk Mine University prepares experts for mine-rescue service. And 2,5 months, they are trained on the basis of our center. All the curriculum is not simply an abstract theory, but also practical seminars on a course of accident liquidation which have taken place at the coal enterprises; just here on the basis of an information material, they mark pluses and minuses in actions of branches and decision-making.

« The regulations about professional selection and special trainings of the basic staff of the State militarized mine-rescue service of the coal industry » determine requirements in staffing of the State militarized mine-rescue service of the coal industry. Rescuers who have corresponding special training, are certificated on ability to carry out the rescue works and directly take part in them, they have special physical and psychological grounding and they are responsible for its maintenance.

Results of medical surveys are taken into account during the next certification of rescuers on ability to carry out the rescue works.

Medical surveys of basic staff of the State militarized mine-rescue service are shared into:

primary inspections: their purpose is the definition of physical and psychophysiological proficiency for working in insulating oxygen-respiratory devices at circumstances;

periodic inspections: their purpose is dynamic supervision over a health state and physical development, revealing of early symptoms of influence of harmful and dangerous factors on an organism, and drawing a conclusion concerning proficiency to continue working in this qualification;

special inspections are necessary in the case of manifestation of disease symptoms after illness, a trauma, a poisoning, long rescue works;

every shift inspections are carried out before every training with the purpose to reveal some acute diseases and to draw conclusion about general state of health.

In especially difficult cases of diagnostics at periodic inspection, to draw a conclusion about proficiency of the basic staff, the workers who are surveyed go to industrial diseases clinic or to occupational pathology departments of medical establishments.

On the basis of the information given by primary and periodic inspections, the commander of division gives out the corresponding order.

All people acting in the State militarized mine-rescue service are subject to primary inspection. Primary inspections are carried out in three stages.

The first stage is carried out by the commander assistant of medical service of corresponding division of the State militarized mine-rescue service and it consists in:

- Registration of the common information about labour activity, data gathering of anamnesis;
- Studying the functional state of cardiovascular and respiratory systems, of psychophysiological state of the organism;
- Studying the physical development and physical serviceability.

The second stage is carried out in an treatment-and-prophylactic establishment (polyclinic) and is consist in inspections:

in a clinical laboratory (general analysis of blood, urine, blood analysis for Acquired Immune Deficiency Syndrom (further AIDS), Wasserman reaction (further VR), fecal masses analysis for helminth eggs),

in an x-ray room (large picture frame photoroentgenography),

in a consulting room of functional diagnostics (electrocardiogram),

in a functional examination of respiratory organs (accordingly to the addendum 4 - "Medical magazine of rescuer ")

and in inspection by medical specialists.

The third stage is carried out in a division of the State militarized mine-rescue service and is consist in the definition of thermal stability and ability of an organism to increase it at the reduced parameter of thermal resistance, and in the definition of physical working ability.

People who do not work in insulating oxygen-respiratory devices are not subject to the third stage of inspection.

Special medical inspections are carried out for rescuers of the basic staff on an order of the group commander and on conclusions of the group commander assistant of the medical service in case of manifestation of disease symptoms, and also after illness, a trauma, a poisoning, long rescue operations.

Rescuers of the basic staff who work in insulating oxygen-respiratory devices can be sent to a special inspection by the group commander assistant of medical service if there are any indications.

Special professional training of mine-rescuers is consist of trainings in oxygen - respiratory devices, thermal trainings and trainings to increase physical work capacity and endurance.

Thermal training of rescuers and commanders is consist of:

- Thermal adaptation during training period or after a long break in thermal trainings;
- Monthly training in the thermal chamber of educational mine for maintenance of the achieved level of thermal resistance;
- Training in a sauna or a steam bath.

High physical work capacity and endurance of rescuers and commanders is achieved by regular special physical training and by training in sports sections at off-duty time.

Principal causes of dismissal from the State militarized mine-rescue service for today are: age (over 50 years old), non-fulfilment of health improving recommendations at nonworking time, and in rare cases - industrial traumatism.

The mine-rescue service fights for perfection of technological schemes made for new long faces with the big length of working areas (and extraction pillars). Total extent of mine works in some projects reaches 5 kms at their consecutive airing. Sometimes, it happens impossible to execute an operative part of the plan of accident liquidation in these conditions, the safe exit of people from an site is not provided either.

The big saturation of mine workings with the equipment, high physical and chemical activity of the loose coal and presence of the methane excreted in plenties, are the main causes of underground fires which take the first place among other accidents by frequency of occurrence.

Non-uniformity of distribution of pressure and presence of a plenty of fine geological displacements in a massif together with the human factor puts forward on the second place such kind of accidents as rock fall. The responsibility of service for such kinds of accidents is improvement of quality of preventive works at served objects.