

# HEALTH AND SAFETY

Providing a safe working environment for our people and minimising the risks related to coal production are key priorities within SUEK's operations.



Degasation station  
in Kemerovo



Fire alarm training at Kharanorsky open pit in Zabaikalye



## OUR PRIORITIES:

Continually improve our production management to ensure occupational and workplace safety;

Address atmospheric safety issues;

Ensure our production sites have the latest equipment and introduce modern safety systems and monitoring instruments;

Ensure our health and safety information system functions at a company-wide level;

Improve the skills and capabilities of safety professionals, through the provision of dedicated training, staff education on safe working practices and improvements in workplace discipline;

Reduce the negative impacts of coal production on employee health and wellbeing;

Ensure all employees are supplied with modern, high-quality work clothes and protective equipment, in line with our corporate standards; and

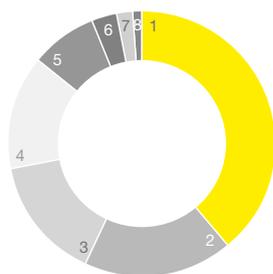
Implement special preventative medical programmes.

## Our approach

The system we have in place for managing health and safety across the company is regulated by our internal Occupational Health and Safety Policy and complies with the most up-to-date international standards. It is designed to minimise injuries and accidents at our production sites. Our corporate health and safety standards cover company staff and contractors providing services at our sites and facilities. Our production facilities in Kuzbass, Krasnoyarsk and Khakasia undergo regular audits to assess our compliance with the OHSAS 18001 occupational health and safety management standard.

To minimise industrial risks, every year the company updates and implements a comprehensive range of health and safety measures. In 2016, SUEK allocated \$48m to health and safety programmes, interventions and initiatives.

### Allocation of funding for health and safety in 2016



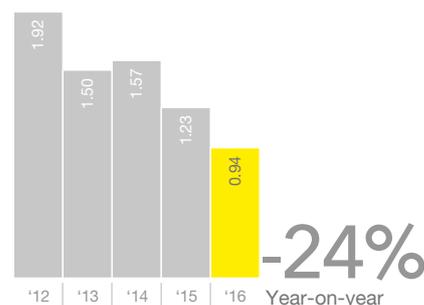
1. Technical measures **39%**
2. Mine rescue teams and other emergency response units **18%**
3. Improvements in the hygiene and technical conditions of sites and facilities **15%**
4. Procurement of personal protective equipment **14%**
5. Organisational measures **8%**
6. Health and safety research and design work **3%**
7. Procurement of equipment and instruments **2%**
8. Insurance **1%**

## Overview

From 2012 to 2016, the lost time injury frequency rate (LTIFR) across SUEK's production sites went down from 1.92 to 0.94. In 2016, the LTIFR was down 8% on the previous year, with total lost time amounting to 7,421 days. Our production sites recorded 49 industrial injuries, compared to 62 in 2015.

Despite all our efforts, there were three industrial fatalities at our production sites in 2016. These occurred during open-pit mining operations in Buryatia and Krasnoyarsk, and during underground mining works in Kuzbass. We deeply regret this loss of life and extend our heartfelt condolences to the families and friends of the deceased. The main causes of these fatalities were organisational failures relating to the violation of health and safety requirements, as well as a lack of discipline and skill in key health and safety areas. To avoid such accidents in the future, we carefully analyse them and implement best practice in the field of occupational health and safety. We also fully understand the need to educate those who take unnecessary risks in the workplace, and are urging each and every one of our employees to be more responsible for their own safety and that of their colleagues. In 2016, we rolled out training sessions for our safety managers and professionals to increase levels of awareness, competence and skill and continued to organise express safety-knowledge testing among our production workers.

### Lost time injury frequency rate (LTIFR)



FOR MORE INFORMATION ABOUT HEALTH AND SAFETY STRATEGIC PRIORITIES AND KPIS, SEE PAGE 40; FOR RISK MANAGEMENT, SEE PAGE 48.



Our efforts to improve health and safety systems and emergency response procedures are coordinated by the Industrial Safety Committee of SUEK's Management Board. In 2016, the Committee held three in-person meetings, during which 17 agenda items were considered. These included:

- Analysis of the circumstances and causes of industrial injuries with severe or fatal outcomes;
- Status of actions taken and planned to prevent similar accidents in the future;
- Programme of organisational and technical measures to improve the level of industrial and occupational safety at our sites;
- Introduction of the wireless information system for surveillance, providing warning and tracking for people who may be caught up in an accident;
- Results of the development and implementation of a pilot project enabling industrial safety to be monitored and controlled remotely.

The Nomination and Compensation Committee of the Board of Directors also regularly reviews health and safety issues.

### Measures to improve health and safety

The main risks in coal mining include the formation of potentially explosive concentrations of methane, and the pollution of working areas in mine sites by explosive airborne coal dust. The company therefore pays particular attention to measures for improving air quality and conditions.

#### Improving the reliability of multifunctional health and safety systems and systems for monitoring air and gas conditions underground

Our mines are equipped with a multifunctional system that ensures the safety and control of our mining operations, and the safe management of technological and manufacturing processes under normal and emergency conditions.

Currently, the company's mines operate a number of subsystems as part of the general multifunctional health and safety system, including:

- Atmospheric safety system in charge of:
  - Monitoring and control of stationary fan systems, local ventilation fans and gas-suction units;
  - Monitoring and control of gas-drainage units and networks;
  - Monitoring of air and gas conditions.
- Systems for the monitoring and prediction of gas-dynamic phenomena;
- Systems for detecting early signs of endogenous and exogenous fires;
- Systems for the monitoring and management of fire, water supply and drainage;
- Systems enabling workforce communication, warning and tracking:
  - Tracking the location of personnel in underground mines;
  - Locating people caught up in accidents;
  - Delivering emergency underground communication and alerts via loudspeakers.

We have developed a range of measures designed to improve the reliability of our multifunctional health and safety system. At the SUEK head office in Moscow, our situational analytical centre is designed to monitor our systems in real time. At this centre, we also analyse system parameters and coordinate efforts with regional branches and industrial facilities during emergencies.

In addition, we have established a centralised health and safety control and analysis centre in Kuzbass. Here, our health and safety controllers receive information about atmospheric conditions and gas levels, as well as the safety of production processes in our mines. This information is monitored 24/7 to control production teams are not adversely affected by inappropriate atmospheric conditions.

In our Komsomolets mine in Kuzbass, we have piloted an automated remote system for monitoring the safety of mining operations, which enables information support, control and the management of technological processes in normal and emergency conditions. It also helps us to identify critical changes in operating parameters and predicts pre-emergency situations. At this stage in the project, monitored items include stationary fans and gas-drainage units. We plan to develop the system further with a view to improving safety conditions within our mines.

#### Improving gas drainage

To reduce the risk of explosive concentrations of methane forming, we carry out comprehensive gas drainage in our mines where methane content exceeds 10 m<sup>3</sup>/tonne of coal. We remove methane from our mining areas via a system of integrated gas-drainage wells. Since 2010, the total depth of our gas-drainage wells has increased by 50% to 331km, including 272km of gas-drainage wells in underground mines. We are constantly introducing new methods, equipment and technology to maximise the efficiency of the gas-drainage process.

To ensure we are more energy efficient, we use some of the methane removed from the workings to generate heat and electricity at the mines. This also allows us to reduce our greenhouse gas (GHG) emissions, thereby minimising our environmental footprint.

FOR MORE INFORMATION ON METHANE UTILISATION, SEE PAGES 70-71.



#### Reducing coal dust

To reduce the risk of coal dust explosions, SUEK mines have in place strict rules and requirements regarding stone-dusting using inert dust. Activities in this area include:

- Improving the quality of stone-dusting in our mines through the use of more than 300 mechanical stone-dusting units;
- Delivering a threefold increase in stone-dusting in our Kuzbass mines in the past six years, from 6,100 to 18,040 tonnes per year.

We are also constantly looking to enhance the efficiency of the measures we deploy to reduce coal dust emissions:

- Introducing vacuum collection, transportation and discharge of fine coal dust at our washing plants in Khakasia and Buryatia;
- Equipping production facilities and warehouses at Vanino Bulk Terminal with fog-generation units and foam generators that use foam and water to suppress dust – a unique technology that has never been used anywhere else before;
- Pre-project modelling of shields that will suppress over 80% of the dust generated at Murmansk Commercial Seaport. The design works are planned to be completed by the end of 2017. We also launched a fog-generation dust suppression system, which allowed us to reduce dust generation by 49%, along with storm water treatment facilities to be commissioned in 2017.

#### **Tighter health and safety controls**

SUEK has a zero-tolerance policy for violations of health and safety regulations. Preventing such violations plays a vital role in reducing the risk of accidents and injuries at our sites. To this end, we have developed and introduced specialised software to keep track of all health and safety-related incidents. This software prevents shift tasks from being issued until all identified health and safety violations have been dealt with. The system has already been deployed at all mining and processing sites across the company.

#### **Personnel training and development**

We work hard to ensure all employees have the knowledge, skills and training they need to carry out their roles safely and responsibly. All equipment purchased by the company comes with a special training video showing how to maintain high levels of health and safety during assembly, operation and maintenance.

In 2016, as part of our commitment to continuous staff training and health and safety awareness, we equipped all our mining facilities with computer terminals to enable complex pre-shift examination. Now, before starting a shift, each miner takes a test to check their health and safety knowledge.

In June 2016, under the supervision of SUEK's Chief Operations Officer, Vladimir Artemiev, Krasnoyarsk hosted our annual conference on industrial and occupational safety, medicine and ecology. The conference, at which we presented results from 2015 and set targets for the future, was attended by more than 150 company employees. It included a modelling workshop, attended by directors of production facilities and heads of health and safety services, to identify the causes and prevent hazardous production situations.

#### **Promoting health and safety**

In addition to training videos on safe working methods, SUEK has developed a series of video manuals on how to use and maintain personal protective equipment. Each video manual lasts between three and four minutes, and is accessible via information panels in office buildings, briefing rooms and on company buses.

SUEK's production sites also feature an HSE feedback system called Alarm Sheet, whereby employees can write down any hazards associated with a specific workplace or process. In the reporting year, the company organised a traditional health and safety contest using Alarm Sheet, under the slogan 'Reward Vigilance'. All winners were awarded prizes from SUEK.

In 2016, in order to promote a culture of safety across all our production sites, we held regular health and safety months

and competitions. Winners were awarded in the categories of 'Best facility', 'Best structural unit' and 'Best Health and Safety Officer'.

#### **Identifying employees who are prone to excessive risk-taking**

We test candidates applying for job vacancies and engineering positions to determine whether these potential hires are prone to excessive risk-taking. Our tests include factors such as a candidate's risk appetite, and their ability to learn and follow rules. These tests form an integral part of our recruitment and selection process, informing our hiring decisions at all levels.

#### **Provision of modern work clothes and personal protective equipment**

To minimise the negative impact of occupational hazards on our staff, the company has developed standard requirements for work clothes, footwear and other personal protective equipment. All SUEK employees receive up-to-date protective kit in the form of special clothing and footwear, helmets, respirators and goggles. In addition, our units carry out regular inspections to ensure compliance with corporate standards in this area.

In 2016, SUEK's units conducted six workshops on the use of personal protective equipment in Kuzbass, Krasnoyarsk region, and Khakasia. The workshops were devoted to the practical use of personal protective equipment, major changes to health and safety legislation and preventative measures to reduce occupational injuries and diseases.

The company has also set up an automated system of accounting for personal protective equipment, thereby improving planning and enabling the timely purchase of clothing, kit and equipment for employees.

## Healthcare

In order to minimise the risk of occupational diseases, SUEK promotes preventative measures and healthy lifestyles among employees. We always try to make sure all our employees understand the importance of looking after their own health and adhering to health and safety regulations at work. Our goal is to develop effective health and safety measures that take into account both industrial and individual risk factors.

Since 2010, as part of our company-wide Health programme, we have been working to identify occupational diseases in their early stages, carrying out systematic healthcare work and promoting healthy lifestyles. All our employees are offered medical services, education about various medical conditions, consultations, diagnostic services and treatment.

The Health programme not only improves the living standards of our employees, but also translates into savings for the company as it reduces lost time due to injuries and illness. In the period 2010-2016, time lost through sick leave fell by more than 50% across the company, averaging 6.9 days per employee per year.

We have set up a special medical unit at our office in Moscow, staffed by highly-skilled practising doctors. The main task of this unit is to ensure the necessary conditions for the preservation, protection and promotion of workers' health, taking into account production risks and individual risks alike. Its main areas of focus include:

- Preventing occupational diseases;
- Reducing the temporary incapacity rate;
- Reducing the number of employees with recurrent or long-term illnesses.

As part of our efforts to ensure adherence to labour laws, in 2016 we completed a special assessment of working conditions at our sites across the company, which included identifying and measuring risk factors and updating workplace classifications in accordance with hazard levels. We are adopting special measures aimed at protecting workers' health as indicated by the findings of the assessment.

## Health School programme

In 2016, as part of our commitment to health and safety, we implemented a 'Health School' programme aimed at promotion of a healthy lifestyle and culture, which included the following initiatives:

- As part of the company-wide Health programme, we made planned purchases of equipment for health posts, medical units and canteens totalling \$0.8m;
- As part of our anti-smoking initiative, we developed campaign posters and a programme to support the company's employees in quitting smoking, including the use of special medications and individual consultations. SUEK's units also organised mass anti-smoking sports and entertainment events. As a result, more than 1,200 SUEK employees have quit smoking;
- To implement our Healthy Eating programme at our facilities in the Krasnoyarsk and Primorye regions and Kuzbass, we provided partially subsidised hot meals for employees, based on a special low-calorie menu;
- We are also running a pilot project called Firefly, in which SUEK employees and their families are made aware of the need to ensure visibility on the road; reflectors are regularly issued to employees free of charge;
- To help prevent viral infections, we regularly administer vaccinations for flu, pneumococcus and tick-borne encephalitis;
- Our First Aid programme includes regular training sessions for rescue teams in the company's mines and open pits.



Water treatment facility in Kemerovo