ENVIRONMENTAL AND TECHNOLOGICAL HAZARDS DURING IRON ORE MINING AT FERREXPO ENTERPRISES

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Ferrexpo is an international mining company that extracts and enriches iron ore in Ukraine, particularly in the Poltava region. The extraction is carried out in an open-pit manner, which is accompanied by an impact on the natural environment and the creation of hazards for workers. Industrial risks include dust emissions, water pollution, soil degradation and man-made accidents. A significant part of man-made threats is caused by the operation of a large number of heavy equipment, drilling and blasting operations, the accumulation of mining waste and the operation of tailings facilities.

Natural risk factors include possible flooding due to changes in the hydrological regime due to quarry operations, landslides in dump areas, wind erosion, which contributes to the transfer of harmful dust. Emissions of fine dust with a high content of iron and heavy metals affect the respiratory system of workers and residents of nearby settlements. Noise and vibration exposure to workers is also problematic. Working conditions in the open-pit mining area are accompanied by risks of injury due to falling rock, disruption of slope stability, and failures in the operation of explosive systems.

Among the environmental threats, the priority ones are landscape disturbance, soil contamination due to spills of fuels and lubricants and discharges of untreated or insufficiently treated wastewater. The operation of enrichment plants is accompanied by the formation of a large amount of sludge, which is stored in specialized tailings ponds. Their breakthrough can have catastrophic consequences for the environment. A decrease in the groundwater level in nearby villages is often observed, which is associated with large-scale mining developments.

Ferrexpo implements a number of measures to reduce its impact on the environment and personnel safety. The company's enterprises have implemented international standards for occupational health and environmental management ISO 45001 and ISO 14001. Regular environmental monitoring is carried out, dust collection systems are used, and waste areas are rehabilitated. The company conducts safety training for employees, provides them with personal protective equipment, and implements digital solutions for analyzing production risks.

During the production process, special attention is paid to the organization of working conditions in high-risk areas. Employees undergo training, assess professional risks, and use a system of admission to high-risk work. Air temperature, noise level, dust concentration, and the presence of explosive environments are carefully monitored. The enterprise implements automated emergency notification systems. The company also invests in modern waste disposal systems, uses closed water supply cycles, conducts environmental audits, and reduces its carbon footprint. Cooperation with local communities includes risk awareness, support for social and environmental projects, participation in international environmental initiatives, and publication of open corporate responsibility reports.