Eurasian Resources Group Deploys a High-Precision Radar Monitoring System to Track Rock Movement at Donskoy GOK’s Chrome Mining Operation



TNC Kazchrome JSC, owned by Eurasian Resources Group (ERG), a global metals and mining company headquartered in Luxembourg, has deployed a high-precision ground-based radar monitoring system at the Mirny open pit of its Donskoy Ore Mining and Processing Plant (Donskoy GOK). The system tracks pit slope stability in real time and detects minute rock movements before they pose a safety hazard. This helps prevent incidents and maximize the safety of people and machinery. The company invested approximately USD 0.6 million in the equipment.

The system continuously collects data using a high-sensitivity sensor, processes them and transmits the results to a digital platform. The technology is particularly important at the Mirny open pit, where ore reserves are located beneath the pit slope. Under these conditions, geomechanical

processes require constant monitoring. Specialists note that any changes in rock mass are accompanied by distinct signs well before a potential displacement may occur. The system detects these early warning signs, giving the team enough time to respond.

“The radar monitors the pit round the clock and automatically sends alerts to dispatchers by email and to their mobile devices,” said Koptileu Shukirbayev, chief geotechnical engineer at Donskoy GOK. “This allows us to respond quickly at any time of day and in any weather conditions. The system’s thresholds are configured to trigger alerts when deviations are still within acceptable limits, enabling us to take preventive action.”

Data are visualized using a color-coded scale: green indicates that the slopes are stable; blue highlights deviations requiring attention, while red signals the need for immediate action. This makes it possible to respond at an early stage.

The equipment can operate in various weather conditions and does not require complex infrastructure. In the event of a power outage, the system remains operational thanks to backup power sources, including batteries and a solar panel.

By using ground-based radar monitoring, the operation can shift from simply responding to changes to systematically managing geomechanical processes. The technology enables early detection of rock displacement, reduces the risk of unplanned shutdowns, and helps optimize operating costs by preventing potential consequences.

Geotechnical specialists point out that, once mining at the Mirny open pit is completed, this world-class tool will continue to be used at other strategically important ERG sites. This technology will help minimize downtime and ensure safety during open-pit mining.