**Terms of reference for “Purchase of an instrumental monitoring complex for detecting rock mass displacement during drilling and blasting operations for the Kumtor Mine in 2026”.**

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| **Item #** | **List of basic**  **data and requirements** | **Basic data and requirements** |
| 1 | Location | Kyrgyz Republic, Issyk-Kul region, Djety-Oguz district, Kumtor gold mine |
| 2 | Customer | Kumtor Gold Company Closed Joint-Stock Company (KGC) |
| 3 | Contractor |  |
| 4 | Name of the item to be purchased | Software and hardware complex for determining rock mass displacement after blasting during open‑pit mining operations (hereinafter referred to as the Complex). |
| 5 | Purpose of the purchase | Minimization of ore loss and dilution through accurate determination of the actual displacement of ore bodies after blasting, enabling adjustment of the mining plans. |
| 6 | Composition of the Complex | * Sensors‑Transmitters (Sensors): * Consumable electronic devices installed in boreholes with a diameter of 150–200 mm. Quantity – 200 units. * Programming device: for activating and configuring sensors. Quantity – 1 unit. * GNSS-enabled search device: a mobile device for locating and recording the coordinates of sensors after blasting. Quantity – 1 unit. * Spare parts and accessories kit: include chargers, protective cases, mounting and installation tools. |
| 7 | Delivery time of Goods | Determined according to the Agreement |
| 8 | Technical requirements for components: | * The sensors must be able to withstand the shock wave and the direct impact of the blasted rock mass. * Sensor survivability must exceed 90%. * Detection depth up to 15 meters under a layer of rock. * Wide operating temperature range (from −45 to +45∘C). * Programming time per one sensor is no more than 2 minutes. * Detection time per one sensor – no more than 5 minutes. * Data processing time after detection is no more than 60 minutes. * Detection accuracy (plan and elevation): ±0.5 m when using the locator device. * Positioning accuracy: built-in or connectable GNSS module with coordinate accuracy of ±0.2 cm. * Battery life: activation at least 24 hours before blasting, up to 30 days of blasting standby operation, delayed transmission period of sensors after blasting up to 10 days, active transmission mode: at least 8 hours. * Wireless activation: ability to verify sensor operability before installing it into a borehole. * The equipment must be adapted to work in high-altitude conditions (low air density, intense UV radiation, low temperatures). |
| 9 | Warranty, training and service | * Warranty period: not less than 12 months for the locator device and associated equipment. * Commissioning (Start‑up and Adjustment Works): Supervision of installation and execution of the first test measurement on a block of the Kumtor deposit performed by the Supplier. * Personnel training: delivery of a full training course for the Customer’s Geology and surveying specialists (at least 3 employees). * Technical support: availability of a service center or the ability to provide remote consultations in Russian/English. |
| 10 | Supplier mine site visit | * At the Customer’s request, and if required for operational needs, the Supplier’s specialists shall be obliged to visit the mine site to address production‑related tasks. * The Customer shall provide accommodation and meals at its own expense at the Kumtor mine site. * The Customer shall provide transportation to and from the mine site (Kumtor–Bishkek–Kumtor). |