NURLIKUM MINING

INFORMATION KIT

Nurlikum Mining
AT A GLANCE

Nurlikum Mining is an Uzbek-French joint venture (JV) between the French group Orano (51%) and the Uzbekistan state-owned enterprise Navoiy Uran (49%). Nurlikum Mining JV was formed to develop the Djengeldi uranium deposit, with state-of-the-art industrial methods and in conformity with international safety and environmental standards, to produce uranium.

NURLIKUM MINING

Nurlikum means ‘sparkling sand’ in the Uzbek language and refers to the CO_2-free energy that will be generated thanks to the uranium extracted from the sands of the Kyzylkum desert.

Nurlikum Mining team at the basecamp

- We are a responsible mining company offering a great environment to work, learn and grow
- More than 60 employees, with Uzbek citizens comprising 90% of all employees, and 41% from the Navoi region

- Headquarters in Tashkent
- Industrial site in Navoi region, Djengeldi district

KEY DATES

2019 Nurlikum Mining JV is established

2020 Nurlikum Mining is granted 2 Exploration Permits and starts exploration drilling operations

2022 Start of pilot test operations

2023 -2024 Feasibility study

70*

employees

90% are Uzbek citizens &
41% are from the Navoi region

1,342 km²

area covered by 2 exploration permits

2

exploration permits

12,500 tons

of resources

200,000 meters

of exploration drilling planned for the first four years (2020-2023)

0

Lost Time Accidents during 3 years of operation

** As at the end of 2023*

130,000 tU

Uranium demand in 2050, doubled from 65,000 tU in 2022 (WNA)

Uranium – a source of low carbon energy

In the context of rising demand for electricity and the fight against climate change, the development of low-CO_2 energy is a top priority for the world.

Nuclear power, for which uranium is the raw material, is a reliable and competitive source of carbon-free energy and will continue to be an essential component of the global energy mix.

URANIUM in Uzbekistan

Uzbekistan has 47,480 tU in "reasonably assured recoverable resources*" and 49,220 tU "inferred recoverable resources", according to the **NEA** and the **IAEA**. *(Red Book 2022)*

All significant sandstone roll-front-type uranium resources are located in the Central Kyzylkum area, a 125 km-wide belt extending over a distance of about 400 km from Uchkuduk in the northwest, to Nurabad in the southeast.

Uzbekistan's ambitious path for uranium mining industry transformation.

According to GlobalData, Uzbekistan was the world's fifth-largest producer of uranium in 2022.

It plans to double uranium production to 7,100 tons by 2030. The government of Uzbekistan has an ambitious goal to significantly increase the country's uranium mining and export capabilities, as outlined in a presidential decree on July 14, 2022. It intends to grow the uranium industry and secure a key player's place in the global nuclear fuel market. The presidential decree highlights the government's intention to modernize uranium production, develop innovative mining technologies and attract foreign investment. Doubling its uranium production will help Uzbekistan to expand its export potential, create employment opportunities and stimulate economic growth within the country.

Nurlikum Mining, which relies on the vast experience of its two shareholders – Orano and Navoiy Uran – is committed to contributing to help the country achieve its ambitious goals.

** Accessible by in-situ leaching*

Nurlikum Mining's **SHAREHOLDERS**

As a recognized international operator in the field of nuclear materials, **Orano** delivers solutions to address present and future global energy and health challenges. Its expertise in cutting-edge technologies enables Orano to offer its customers high value-added products and services throughout the entire fuel cycle.

Orano is counted among the world's leading producers of uranium, with competitive production costs and cutting-edge extraction techniques put in place in mines in operation in Canada, Kazakhstan and Niger.

Committed to continuously improving safety and operational performance, its teams carry out their mining activities in a manner that fully respects people and the environment, and contribute to the economic development of local regions and their population.

"Orano Mining has recognized expertise across the entire mining cycle, from exploration to remediation, and operates according to demanding international standards in terms of safety, health and the environment. We are convinced that the mining sector will progress through joint work and the exchange of good practices between miners", **Nicolas Maes, COO of Orano Group.**

Navoiy Uran is a state-owned company with vast experience and reliable data on uranium mining in Uzbekistan. The enterprise has developed 18 uranium mines in the Navoi, Samarkand and Bukhara regions and plans to develop four more mines during 2022-2026. It is a stable, dynamically developing company and one of the country's largest industrial enterprises. Natural uranium is mined at production sites located in Zafarabad, Uchkuduk and Nurabad and processed into uranium oxide at the uranium plant in Navoi.

"Navoiy Uran is working diligently to strengthen the position of our country in the world market of uranium exporters for the development of New Uzbekistan, using all its strength and potential", **Djamal Fayzullaev, General Director of Navoiy Uran.**

OWNERSHIP

51% Orano Mining + **49%** Navoiy Uran

The Djengeldi deposit

Depth: 150-350 m
Grade: 0.02%
(200 g per ton of ore)

South Djengeldi pilot

MAIN ACTIVITIES

Exploration

The search for new uranium resources

The Djengeldi area in the Kyzylkum desert is rich in uranium, Uzbek uranium has been produced here for decades. In September 2020, Nurlikum Mining was granted two exploration permits for the Djengeldi North and South zones of the Navoi. This site has **12,500 tons** of resources registered by GosComGeology, now known as the Ministry of Mining Industry and Geology. The mission of Nurlikum Mining is to confirm this resource base, in line with the JORC international code.

Key steps for the definition of the resources base:

- Geological survey
- Drilling campaigns in licensed areas
- Core logging / sampling
- Interpretation of geophysical data
- Data management and geological modelling

WHAT IS A JORC CODE?

The JORC code, a professional code of practice, provides a mandatory system for the classification of mineral exploration results, mineral resources and ore reserves according to the levels of confidence in geological knowledge and technical and economic considerations in public reports.

Digitalization Challenge

The digitalization of existing data (the historical data for 1,500 wells) and new data is an important task for the Nurlikum Mining Geosciences team. It took the company two years to fully digitalize existing data from paper documents. To verify the data, geologists needed to drill about 100,000 meters over a period of just two years, which resulted in more than a million data entries for further processing and analysis. The replenishment of the data in the database is ongoing.

Digitalization allows Nurlikum Mining to model fields and improve the reliability of data, including the assessment of resources and reserves – the main company asset.

EXPLORATION PROGRESS

- **2020/2021:** 70,000 m drilled
- **2022:** 52,000 m drilled
  50% of the deposit's registered resources confirmed
- **2023:** more than 60,000m of drilling planned

South Djengeldi drilling platform

200,000 meters

of exploration drilling planned for the first four years (2020-2023)

Pilot Test

Confirmation of the feasibility of In-situ recovery (ISR) mining from both economic and environmental standpoints

A pilot test is an integral part of exploration activities. It provides the information necessary to understand and evaluate the feasibility of a mining project before its full-scale implementation. It replicates the operation on a smaller scale and simulates the processes that would occur during actual mining.

Conducting pilot test operations is a crucial step to optimize all processes, assess economic feasibility and evaluate the environmental impact. It also allows the company to ensure safety and reduce the risks associated with mining operations.

IN-SITU RECOVERY (ISR) PILOT TEST

A pilot test involves constructing a mini wellfield and a mini processing unit to extract a few tons of uranium. The results of the pilot are used to evaluate the economic and environmental feasibility of **mining and thus make investment decisions**.

In 2022, Nurlikum Mining began a pilot test for uranium extraction using ISR which will run for two years.

- Two production cells
- Test output: uranium charged resins
- Environmental and groundwater monitoring

The pilot test operation objectives:

- **Defining reliable economic and technological mining parameters**
- **Providing data for the feasibility study**
- **Assessing the environmental impact of the project**

Nurlikum Mining is committed to developing the project in line with the international standards in terms of the environment, health and safety.

SOUTH DJENGELDI PILOT KEY DATES

2022 Infrastructure construction

2023 Start of the pilot test

2025 Completion of pilot with two production cells

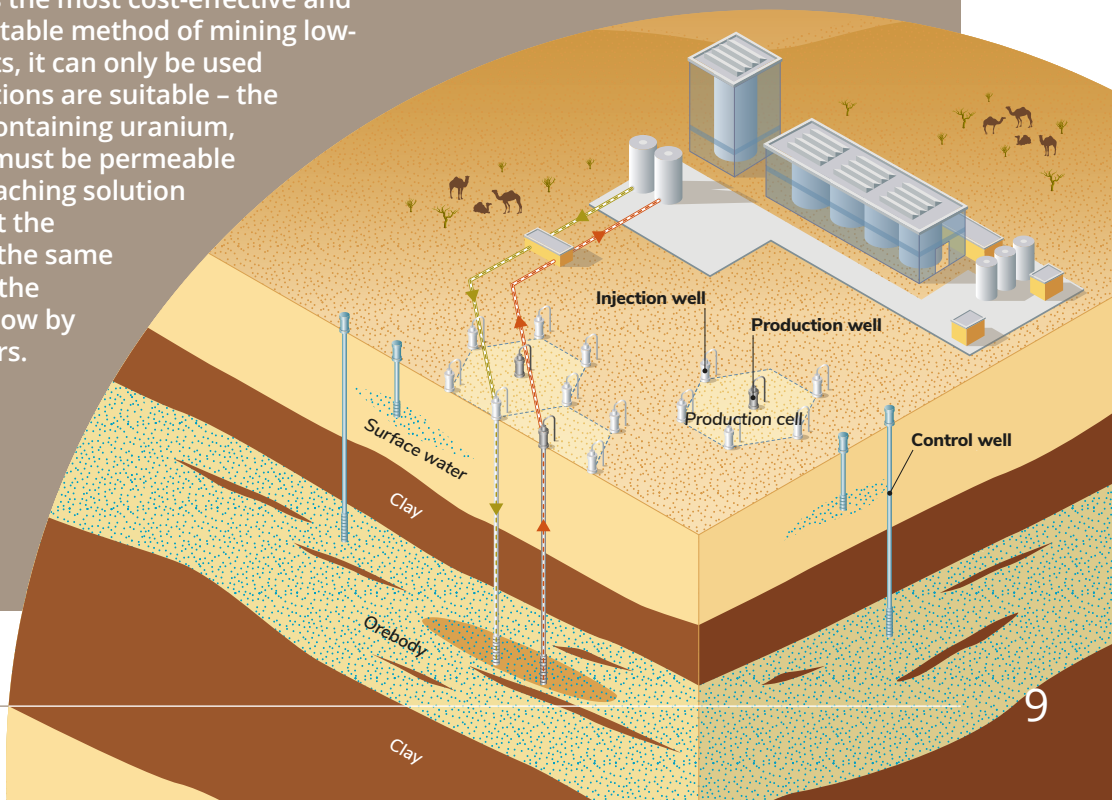
IN-SITU RECOVERY MINING

In-situ recovery (ISR) is one of the most-used extraction methods for obtaining uranium from underground. According to the World Nuclear Association, more than 50% of the world's mined uranium is obtained using ISR.

A leaching solution is injected into the deposit via injection wells, which recovers the uranium contained in the rock. The solution is then pumped back up to the surface via pumping wells and sent to a processing plant, where the uranium is extracted from the solution and transformed into a concentrate. The remaining solution is routed back to the wells to be injected back into the deposit to give a closed plant-wellfield-plant loop.

In Uzbekistan, all uranium mining has only been done by ISR since 1994. This technology made it possible to develop reserves of low-grade ores in sandstone-type deposits, the processing of which was previously considered unprofitable.

Although ISR is seen as the most cost-effective and environmentally acceptable method of mining low-grade uranium deposits, it can only be used when geological conditions are suitable – the geological formation containing uranium, the sandstone layers, must be permeable enough to allow the leaching solution to circulate throughout the mineralization and, at the same time, be isolated from the aquifers above and below by impermeable clay layers.



A RESPONSIBLE MINING COMPANY

Nurlikum Mining is committed to responsible and transparent operations that respects people and environment. We aim for social and economic development while minimizing our environmental footprint.

"Our ambition is to build a successful mining project that is human and planet focused", **Benoit Lemonne, General Director of Nurlikum Mining.**

Our CSR Fundamentals

- Nurlikum Mining respects the responsible regulations and policies of the Orano group and adopts the best practices of the industry internationally in terms of responsibility.
- Nurlikum Mining prevents and controls risks in order to safeguard the health of employees and the public and protect the environment.
- Nurlikum Mining aims to be an agent of development in the areas where it is present, in cooperation with its stakeholders.
- Nurlikum Mining is committed to operating ethically and with integrity and has established the processes and behaviors that support this commitment.

An internal CSR committee has been created in order to review and monitor past and ongoing CSR issues and make suggestions for future projects.

As a responsible mining company and member of the ICMM* – an international organization aiming to improve extractive companies' operating principles – Nurlikum Mining's shareholder Orano brings its experience and know-how on environmental management and social responsibility to the project.

**International Council of Mining and Metals*

Occupational Health and Safety

Nurlikum Mining places significant importance on safety, extending its commitment not only to the employees but also to the contractors, suppliers and any stakeholder it engages with.

SAFETY

"Safety is priority number one for Nurlikum Mining - first, last and always", Jamshid Mansurov, HSE Manager.

In practice, this involves:

- Regular health and safety awareness training
- Dedicated health and safety personnel with expertise in drilling
- Daily safety briefings and inspections
- Medical center and a permanent presence of medical personnel on site

Stop of Work & Lessons learned

Every employee of Nurlikum Mining knows and adheres to this basic principle: to stop work if there is even the slightest suspicion of danger or risk, and to not resume work until the matter is investigated. Each incident that takes place is carefully analyzed, causes are identified and lessons learned, compiled and training produced, based on the analysis.

0 lost time accidents

for Nurlikum Mining employees in 2019-2022

Safety Day

Safety Day is an annual event that provides a great opportunity for Nurlikum Mining employees to celebrate safety culture, promote good practices, exchange lessons learned and participate in prevention activities and demonstrations. It is an occasion to analyze strengths and weaknesses and find ways to improve further.

Safety Day 2023

HEALTH

In the course of our activities, a range of provisions are in place designed to maintain **a high level of occupational health within the organization**, including staff medical monitoring. Employee health monitoring starts with a pre-recruitment medical examination and continues with periodic check-ups, always complying with the regulations of the country. Immunization monitoring is also organized according to national regulations.

Our employees receive regular first aid training provided by the specialists from the Red Crescent Society of Uzbekistan.

First Aid Training

A two-day training course on first aid assistance included both theoretical knowledge and practical application, and ended with an exam for trainees, who answered questions and demonstrated their new skills.

RADIATION PROTECTION

Uranium is a naturally radioactive mineral.

Although with the ISR mining method, miners are not in direct contact with the uranium ore, Nurlikum Mining aims to prevent and control any risk of exposure of its workers to ionizing radiation.

Radiological protection requires:

- The evaluation of the radiological occupational risks for each work station
- The continuous improvement of working conditions, with a view to minimizing exposure
- The promotion of a radiological protection culture by providing training and expertise

Taking radiation measures

Nurlikum Mining takes necessary measures to keep its personnel and subcontractors' personnel exposure as low as reasonably achievable. In practice, this involves:

- Use of personal and stationery dosimeters
- Individual dosimeters are regularly checked by an accredited laboratory

The average added dose for employees in 2022 was 1 mSv and the maximum dose was 1.20 mSv, well below the 20 mSv limit over a rolling 12-month period, set by the national and international regulatoins.

ABOUT RADIATION

BACKGROUND RADIATION

The population is regularly exposed to the natural (e.g. cosmic rays) and artificial (e.g. medical X-rays) radiation.

For example:

- **0.06 mSv** is an average added dose received by passengers on a long-distance flight such as Paris-New York
- **0.1 mSv** is an average added dose for a X-ray chest examination

Environmental Responsibility

Nurlikum Mining is committed to minimizing the environmental impact of its operations integrating both environmental protection and biodiversity conservation into its operating principles.

At the beginning of its field activities in 2020, Nurlikum Mining conducted an eco-monitoring study to access the environmental and local socio-economic aspects. It covered the geology, geography, hydrology and climate conditions as well as biological diversity, soil and vegetation characteristics of the project site. It was validated by the State Ecology Committee in July 2020.

The Pilot's **baseline environmental study** was done in 2022 and the baseline study for the future mine was implemented in 2023.

To accompany the launch of the **environmental impact study**, the legal requirement for any new mining project, a public hearing is organized in line with the Uzbek legislation for the local communities and Tomdi district administration. The public hearing provides a platform for the company to present the project, and for the stakeholders to express their concerns openly, engage in a dialogue and contribute to the decision-making process.

To reduce the environmental footprint of its drilling operations, Nurlikum Mining follows the best international practice by:

- Remediating exploration drilling platforms immediately after drilling is completed – a fertile soil layer is put in place
- Cementing the drill holes upon completion, to protect aquifers
- Sorting all waste and removing it from platforms, followed by further management as per regulations
- Avoiding driving outside dedicated tracks to minimize the impact on local flora and fauna

ECO-DESIGN

80% **of a project's environmental impact is determined during its early phases. This is why Nurlikum Mining applies eco-design to reduce energy and water consumption as well as GHG emissions at the design stage of the project.**

ENVIRONMENTAL MONITORING

An environmental monitoring system that surveys air, water, soil and the food chain is put in place.

The eco-monitoring and reporting is conducted by the Uzbekistan Central Laboratory three times per year – before, during and at the end of each drilling campaign – and includes the monitoring of soil, water, air, radiation background and observation of flora and fauna.

Employment and Professonal Development

Nurlikum Mining is a young but growing company. Its number of employees has grown to 60 in just three years.

TRAINING & DEVELOPMENT

A priority area for Nurlikum Mining is its constant work with employees, aimed at improving their qualifications, theoretical and practical knowledge and foreign language abilities.

In 2022, each employee received 100 hours of training - significantly more than that offered by established international mining companies.

Language classes

The company encourages all employees interested in learning foreign languages to take online and/or offline English or French language classes.

Experience exchange

Regular experience exchange trips with other mining companies or subsidiaries of the Orano Group are organized.

In March 2023 a group of geologists visited KATCO to participate in an intensive training course provided by Kazakh colleagues. They not only learnt about KATCO's 25-year long history and activities, but also received detailed information about the work of laboratories, 3D modelling technologies, drilling.

DIVERSITY

Nurlikum Mining is convinced that diversity is one of the major factors in ensuring good performance, enriching professionalism and achieving a balanced workplace. Starting from the initial steps of the hiring process and throughout the whole working cycle we make sure we avoid any kind of discrimination related to nationality, gender, age, religion or disability and create a working environment that enables everyone to work and grow professionally under good conditions.

BENEFITS

Medical insurance is provided to all personnel and their families with a regular medical checkup service being arranged annually by the company for each employee.

ETHICS & COMPLIANCE

Nurlikum Mining provides special training on the company's Code of Ethics and Compliance Policy to every newly hired employee. All personnel are aware of the whistleblowing system that obliges everyone to immediately raise the alert in case he/she has observed any breach of a regulatory obligation or violation of the Code of Ethics or compliance policies and

procedures. Thus, the company creates a clear mechanism for alerting and issuing complaints in case of discrimination, abuse or exploitation.

LOCAL EMPLOYMENT

Nurlikum Mining is committed to creating employment opportunities for local people and supporting young specialists. 90% of the company's employees are Uzbekistan citizens with 28% of employees under the age of 25.

Community Investment

Mining activities are drivers of sustainable economic development in the regions in which they are based.

STAKEHOLDER MAPPING

Nurlikum Mining is the first company in Uzbekistan to conduct a stakeholder mapping exercise at the very start of its activities in 2021, to better understand the concerns and expectations of its stakeholders.

This activity is planned to be done on a regular basis (every three years) allowing the company to revise and update its action plans.

GOVERNANCE

Transparency and dialogue are the basic principles of corporate social responsibility. Nurlikum Mining is committed to running its business in consultation with all stakeholders and in accordance with national policies.

Nurlikum Mining organizes regular meetings and discussions with local stakeholders to maintain a constructive relationship and to be able to always inform, listen and discuss any concern or issue.

COMMUNITY PROJECTS

Nurlikum Mining maintains close contact with the local population of Ayakkuduk – the village closest to site activities. The company's social program is focused on carrying out projects that have a long-term positive impact on the community: **education, water access, health and well-being**.

EXAMPLES OF PROJECTS: 2021-2022

1. **Water access:** Refurbishment of the water pump in Ayakkuduk village to ensure the local community has access to potable water.
2. **Education:** Provision of English classes for local school children of different ages.
3. **Health:** Provision of medical equipment to the medical center in Ayakkuduk.
4. **Sport and well-being:** Construction of a soccer field in Ayakkuduk village.

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