

# ***FNCA***

Forum for Nuclear Cooperation in Asia



## **COUNTRY REPORT** **Republic of Kazakhstan**

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2020

# Nuclear Fuel Cycle

## Leading positions in the uranium market

Kazakhstan, represented by NAK JSC “KazAtomProm”, keeps a leading position of the largest supplier (~19.500 tons) in the world natural uranium market, being the guarantor of uninterrupted operation of nuclear power plants all over the world

## Uranium Production

Production of natural uranium oxide, uranium dioxide powder and fuel pellets is continued. Start-up and adjustment operations are continued at FA production for China's NPP

## Geographic Expansion of Product Supplies

Argentina has entered the existing uranium markets (China, Canada, USA, Russia, France, UK, Sweden and Brazil)

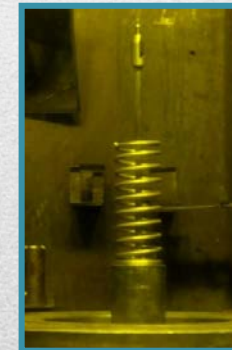
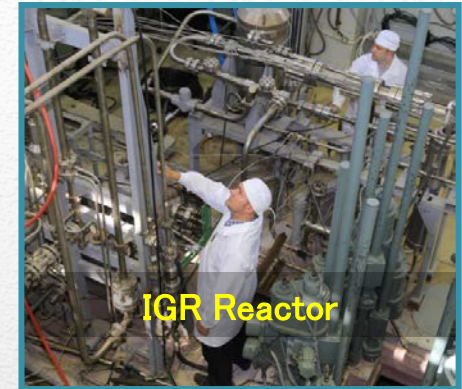
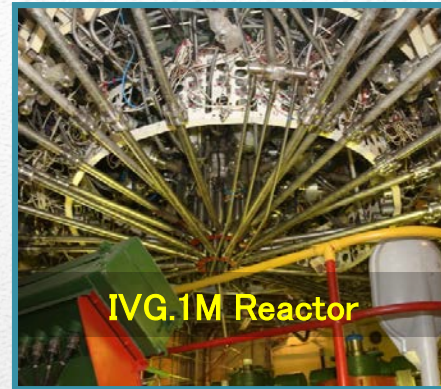




# Nonproliferation and Nuclear Safeguards

## Nonproliferation Policy Implementation

- The Law on Civil Liability of Operators for Nuclear Damage was enacted to implement the provisions of the Vienna Convention
- Conversion of two reactors to low enriched uranium fuel (LEU) and disposal of highly enriched uranium (HEU) is under way:
  - preparation for the physical start-up of IVG.1M with LEU fuel core and for the SNF transportation to RF
  - Joint Statement of the Ministry of Energy of RK and the US National Nuclear Security Administration on the results and plans of cooperative work for the conversion of the IVG.1M reactor is signed
  - down-blending of unirradiated, HEU-graphite fuel from IGR research reactor is completed
- The IAEA International Low Enriched Uranium Bank continues to operate



▲ Cutting of IVG.1M HEU-Fuel after Reactor Tests

Last Batch of Fresh HEU-Fuel  
Prior to Shipping to UMP for  
Down-blending ▶





# Elimination of Nuclear Testing Consequences

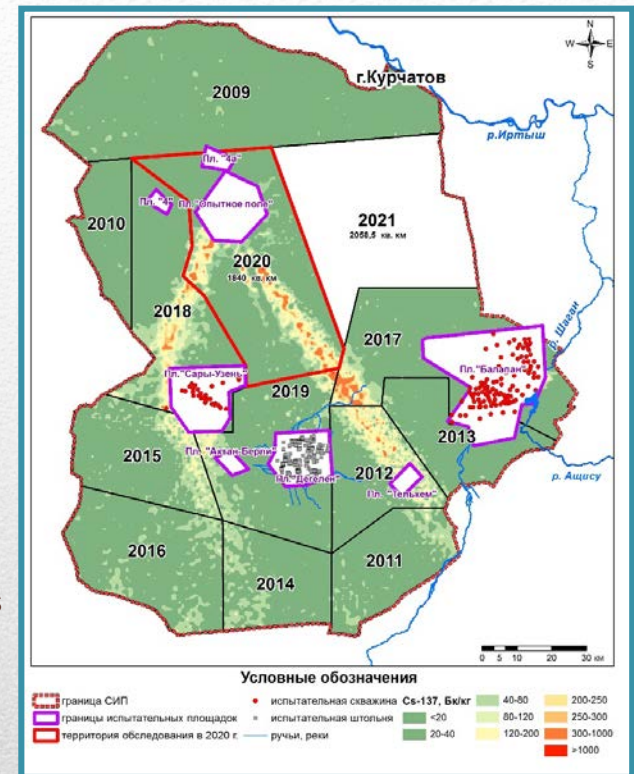
## Provision of radiation and nuclear physical protection at the former STS

- The operations for integrated ecological survey are continued – currently, ~88% of the test site territory is being investigated and the survey will be fully completed next year ►
- Operations to ensure safety of objects containing RONA are completed  
In the course of operations :
  - protective engineering barriers, excluding unauthorized access to defined objects with RONA, were constructed
  - security system of all levels was installed
  - remote monitoring system is operational at a number of secured objects

Security and Remote Monitoring System Objects ►



Protective engineering barriers, excluding access to the objects with RONA ►





# Nuclear Technologies Promotion



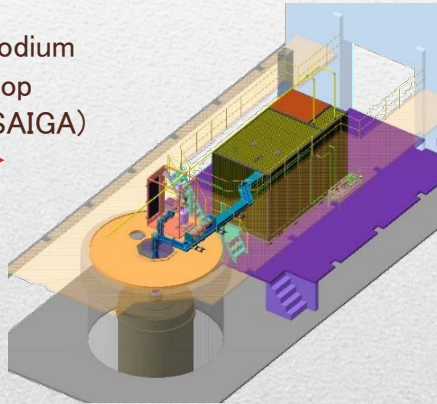
▲ Tests conduction (EAGLE-3)



▲ Melt trap before and after RT-11 experiment (CORMIT-2)



Sodium loop (SAIGA)



At the place of Spent IRS Long-Term Storage Construction

RSE NNC RK ongoing projects:

- EAGLE-3 (JAEA, Japan) addressing ways of mitigation the consequences of severe core melt accidents at fast reactors
- CORMIT-2 (Toshiba, Marubeni, Japan) addressing search of heat-resistant materials for core trap protective coating in conditions of loss-of-coolant severe accident
- SAIGA (CEA, France) for studying FA behavior at ASTRID reactor in conditions of loss-of-flow accident (project is developed and experiment possibility is approved at IGR reactor)
- The contract is concluded under BREST-OD-300 (JSC NIKIET, RF) Project for conducting in-pile experiments to study behavior of fuel elements with mixed nitride U-Pu fuel in conditions of fast processes caused power increase

RSE INP in collaboration with Global Affairs Canada (GAC) and the US Department of Energy (DOE U.S.) made a design and constructed a Regional Point for Spent Closed IRS Long-Term Storage, the operation of which will improve the radioecological situation in the region and in Kazakhstan as a whole



**THANK YOU FOR YOUR  
ATTENTION!**