FNCA

Forum for Nuclear Cooperation in Asia

COUNTRY REPORT
of the Republic of Kazakhstan

2016

Closing Semipalatinsk Test Site is Decisive Step towards Building a Nuclear-Free World

УКАЗ

ПРЕЗИДЕНТА КАЗАХСКОЙ СОВЕТСКОЙ СОЦИАЛИСТИЧЕСКОЙ РЕСПУБЛИКИ

О ЗАКРЫТИИ СЕМИПАЛАТИНСКОГО ИСПЫТАТЕЛЬНОГО ЯДЕРНОГО ПОЛИГОНА

На территории Казахской ССР в Семипалатинской области с 1949 года осуществлялись испытания ядерного оружия. За это время здесь было произведено около 500 ядерных взрывов, которые нанесли урон здоровью и жизни тысяч людей.

Учитывая, что Казахская ССР выполнила свой долг по созданию ядерного потенциала, обеспечившего стратегический военный паритет между СССР и США, и, принимая во внимание требования общественности республики, постановляю:

1. Закрыть Семипалатинский испытательный ядерный полигон.

2. Кабинету Министров Казахской ССР по согласованию с Министерством обороны СССР и Министерством атомной энергетики и промышленности СССР преобразовать Семипалатинский испытательный полигон в союзно-республиканский научно-исследовательский центр. В 1991 году разработать и утвердить его статус и перечень основных направлений научно-исследовательских работ.

3. Учитывая, что при проведении воздушных и наземных испытаний с 1949 года по 1962 годы нанесен ущерб здоровью населения районов, прилегающих к Семипалатинскому полигону, совместно с союзными органами определить размеры и порядок компенсационных выплат пострадавшим гражданам Казахской ССР.

4. Кабинету Министров Казахской ССР совместно с союзными министерствами и ведомствами, причастными к проведению ядерных взрывов на территории республики, утвердить программу социально-экономического развития, улучшения условий жизни и медицинского обслуживания населения районов Семипалатинской, Карагандинской и Павлодарской областей, прилегающих к испытательному полигону, с привлечением на указанные цели средств соответствующих союзных источников.

Настоящий Указ вступает в силу с момента его принятия.

Президент Казахской Советской Социалистической Республики

Н. НАЗАРБАЕВ

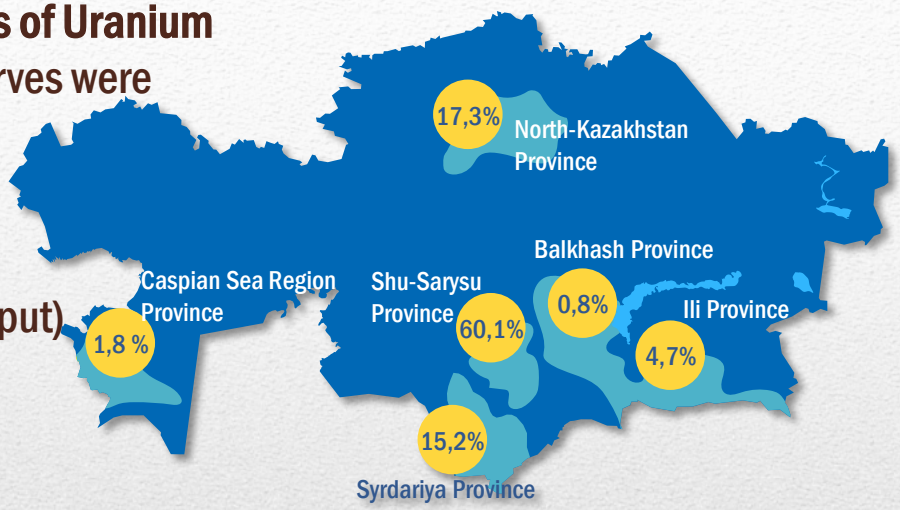
Алма-Ата, 29 августа 1991 г.

Presidential Decree № 409 dated August 29, 1991 "Concerning Closure of Semipalatinsk Test Site"

Legacy of USSR MIC–
4-th nuclear and missile arsenal in the world

Uranium Industry and Nuclear Fuel Cycle

- **Kazakhstan possesses considerable resources of Uranium** (the 2-nd place in the world, 15 % of world reserves were explored as of January 01, 2016 – 1 405 705 t)
- **Uranium Output in Kazakhstan in 2015 composed 23 800 t** (the 1-st place in the world, 21.3 % of world output)
- **Kazatomprom NAK JSC operates Uranium production** (subsidiary and joint enterprises)



Kazatomprom NAC JSC performs the operation on creation of vertically integrated complex of nuclear fuel cycle (Uranium conversion and enrichment, fuel production)

URANIUM CONVERSION *Project with Canada*		Establishment of Joint Uranium Conversion Production together with Cameco company. Feasibility study development: December 2016 - May 2017 CMP – beginning of 2019, commissioning of refinery – in the mid of 2020
URANIUM ENRICHMENT *Project with Russia*		Since 2013, CJSO " Uranium Enrichment Center" has access to enrichment services at OJSC "Urals Electrochemical Combine" in the volume up to 2.5 mln SWU per a year (~6 thousand t of natural uranium per a year)
FA's PRODUCTION *Project with China, France and Ukraine*		At the UMP, an enterprise on FA production is established for NPP in Asian regions with production capacity of 200 t FA per a year. Nuclear industry enterprises of France and Ukraine expressed their interest in FA production in Kazakhstan

IAEA International Low-Enriched Uranium Bank

The ceremony of signing the Agreement regarding Establishing International Low-Enriched Uranium Bank (LEU Bank) in Kazakhstan was held with participation of IAEA Director, Yukiya Amano and Minister for Foreign Affairs of the Republic of Kazakhstan, Erlan Idrissov in Astana city on August 27, 2015.

LEU Bank is located at the territory of Ulba Metallurgical Plant in Ust-Kamenogorsk.

Hosting LEU Bank in its territory, Kazakhstan creates favorable conditions to solve problems related to development of nuclear programs of states not entering into system of Nuclear Non-Proliferation Treaty.

Nuclear Power Development

Improving National Normative and Regulatory Base

The Ministry of Energy of Republic of Kazakhstan carries out national regulating of state policy in use of atomic energy.

Licensor is Committee of Atomic and Energy Supervision and Control (CAESC) of the Ministry of Energy.

To regulate atomic industry, a range of documents a number of laws, governmental regulations and regulating normative documents has been developed. The regulatory framework is also updated to harmonize legislation with international one.

On January12, 2016 new law "Concerning use of atomic energy" has been approved and implemented by the order of President of Republic of Kazakhstan # 442-V.

The law establishes a legal framework and principles of regulating public relations in use of atomic energy to protect people's life and health, their property, environmental protection and aimed at supporting nuclear non-proliferation, nuclear and radiation physical security during use of atomic energy.

Research Reactors Conversion

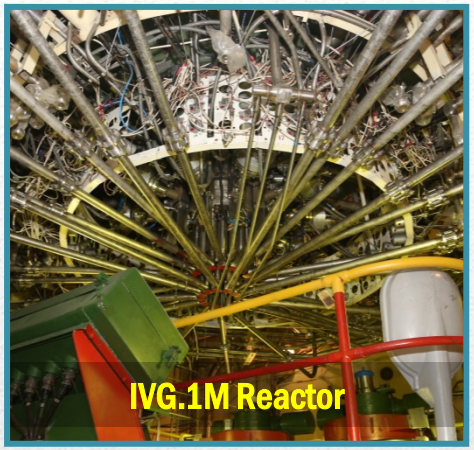
Fuel conversion with enrichment 36% to 19,75% upon Uranium-235

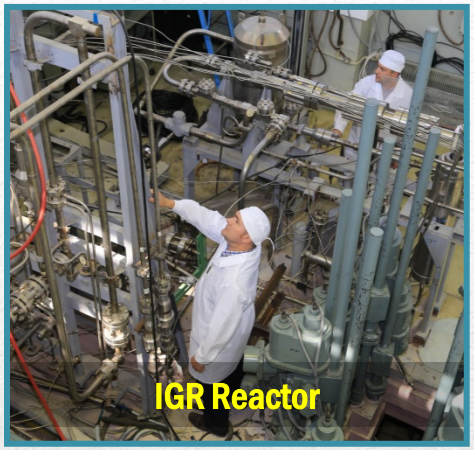
2012
- conversion of critical stand with LEU

2013
- test assemblies with LEU were tested

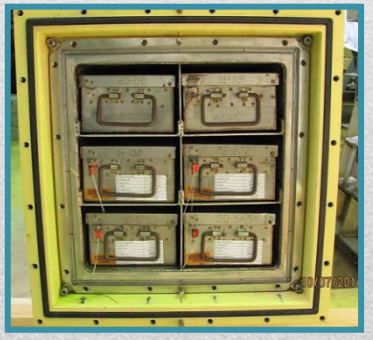
2014
- postreactor researches of test assemblies with LEU
- report on safety analysis
- production of equipment for control and protection system

2015
- physical start-up of reactor with LEU fuel
- conversion completion



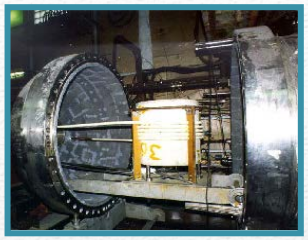


Fuel conversion with enrichment 90% to 19,75% upon Uranium-235 under Contracts with DOE, ANL, Batelle Energy Alliance (USA) and FSUE "SRI SIA "LUCH" (RF)

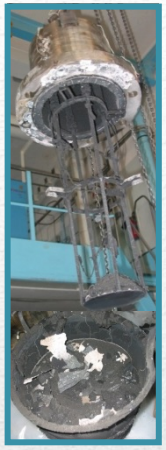


Acceptance of VOTK-E Experimental Channels at "Baikal-1" RRC and Graphite Assemblies with Low-Enriched Uranium at IGR RRC

Studies to Substantiate the Safety of Reactors



ANGARA test bench



EAGLE test bench

VChG-135 bench

CORMIT Project (Toshiba, Marubeni, Japan)
Corium and Refractory Materials Interaction Test is preparation and performance of experimental research of core melting interaction with refractory materials of melting under-reactor trap protective covering.

Fukushima Project (Toshiba, Marubeni, Japan)
The Project objective is modeling and further study of AES Fukushima-1 reactor core melt solidified fragments' properties with the purpose to draw up recommendations on mechanisms structure for processing of substantial solidified fragments.

EAGLE-3 Project (JAEA, Japan)
The experiments are conducted at EAGLE test bench and IGR reactor aimed at solution of key safety problems addressing at precluding or mitigation of re-criticality event consequences in result of core melting accident at fast neutron reactor.

SAIGA Project (CEA, France)
Severe Accident In-pile experiments for Generation IV reactors and ASTRID project – performance of reactor tests for ASTRID generation IV reactor core elements using experimental base of NNC RK.

MYRRHA (7-th Framework Program EU FP7-Fission-2012)
Experimental justification of thermal fuel reliability of MYRRHA nuclear research reactor (Multi-Purpose HYbrid Research Reactor for High-Tech Applications) in transient and emergency modes of operation up to fuel melt.
MYRRHA, a flexible fast spectrum research reactor (50-100 MW) is conceived as an accelerator driven system (ADS), able to operate in sub-critical and critical modes. It contains a proton accelerator of 600 MeV, a spallation target and a multiplying core with MOX fuel, cooled by liquid lead-bismuth (Pb-Bi).

Cooperation with Stakeholders

Unified Information Policy

Action plan for work with mass media, non-governmental organizations and residents on issues of atomic industry development in the Republic of Kazakhstan
is annually developed and approved at the governmental level

Stages

1st stage – preparatory

- Topic
- Format of measures
- Schedule of publications in print and TV
- Information materials processing for mass media and NGO

2nd stage – implementation

- Meetings with residents
- Scientific conferences
- Seminars
- Round table discussions
- Tours to atomic industry facilities

Executors – government oagencies and relevant enterprises and organizations of RK

Cooperation with Stakeholders

Public Hearings Involving Non-governmental Organizations and Public Representatives are Conducted

Museums and Exhibition Centers are Used to Organize Outreaching program for Residents

Free tours at STS (Experimental Field site, Atomic Lake, Farm Enterprise) are organized

Journalists Competitions to Cover the Issues in Nuclear Power

THANK YOU
FOR ATTENTION!