



National Academy of Sciences of Tajikistan  
Chemical, Biological, Radiological and Nuclear Safety and Security Agency

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# “Achieving Sustainable Remediation End States at Uranium Legacy Sites in Tajikistan: From Strategy to Implementation”

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Бустон Buston

Истиклол

Адрасман Adrasman

Кансай Kansay Гафуров

Чорух-Дайрон Chorukh-Dayron

Худжанд Худжанд

Расулов

Гафуров Gafurov

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## Degmay Site

- in operation from 1963 to 1994
- Territory 90 hectares
- Approximate total activity 4218 Ci.
- Dose rate in the surface up to 13  $\mu\text{Sv/h}$  (1 m).
- Volume 21 mln tonns reprocessed waste, 0,5 mln tonns rock waste and 5,7 mln tonns from Vanadium ore reprocessed waste.







## Taboshar Tailing Sites

- Operation from 1945 to 1965 .
- Tailing territory – 50 hectares. Total site territory 800 hectars.
- Approximate total activity – 1228 Ci
- Dosrate in surface 0,4-2,5  $\mu\text{Sv/h}$ .
- No fence and monitoring wells in the site.

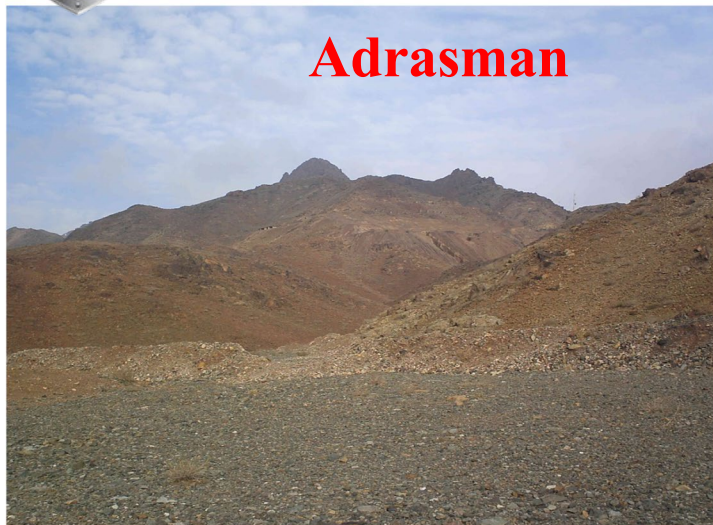






## Other ULS

### Adrasman



### Kiik-Tal



### Map 1-9



### Gafurov





## **Legislative basis for regulation of activities on environmental remediation of UPLS**

**The governmental and legislative framework for environmental remediation in Tajikistan is provided primarily through five main laws:**

- Law on Radiation Safety (Law 42), issued 1 August 2003**
- Law on Use of Atomic Energy (Law 69), issued 9 December 2004.**
- Law on Radioactive Waste Management (Law 1002), issued on 22 July 2013.**
- Law on Licensing of Specific Types of Activities (Law 37) issued 17 May 2004, (amended in 2009)**
- Law on Inspection of Economic Entities' Activities in the Republic of Tajikistan (Law 194) amended on 28 July 2006.**





## **Regulatory requirements and related documents approved within bilateral cooperation in 2013, 2014 and 2015**

1. RT Governmental Decree ***№505 dated 1 August 2014*** on National strategy for remediation of legacy sites for the period from 2014-2024.
2. RT Governmental Decree ***№507 dated 1 August 2014*** on State Cadastre of RW storages.
3. RT Governmental Decree ***№524 dated 2 August 2014*** on State Authorized Body for legacy sites remediation (responsible for all stages of remediation process).
4. RT Governmental Decree ***№362 dated 30 May 2015*** on Order of radioactive waste movement through state border to foreign countries and within the Republic of Tajikistan.
5. **- Action plan on implementation of National conception (strategy) on Remediation of contaminated by uranium production legacy sites for 2014-2024 (2016).**
6. **National Program on Remediation of contaminated by uranium production legacy sites for 2025-2029.**



## **Interstate target program "Remediation of territories of EurAsEC member states affected by uranium mining industries" 2010-2020**

**Two remediation projects were developed for Taboshar site:**

- ☐ **“Factory of poor ores” with territory of “Yellow Hill”;**
- ☐ **“Tailings of 1-4 site”.**

**State expertise of this projects already finished in August 2017. Radiation protection and technological part were expertise by CBRN SSA.**

**Project fund: round 800 mln rubles (13 mln US\$).**

**Contractor: The Joint-Stock Company “Central design and technology institute” under Rosatom win tender for implementation of remediation works of legacy sites in Istiklol under Inter-State Target Programm (CIS)**





## Expertise of remediation project (Radiation protection and technological part)

- Characteristics of tailings;
- Requirements for remediation;
- Remediation technical solutions;
- Water disposal;
- Monitoring, including dust and water;
- Safety engineering, radiation safety;
- Transfer of remediated objects;





## “Yellow Hill” and “Low-grade ore factory” site in Istiklol (Taboshar)

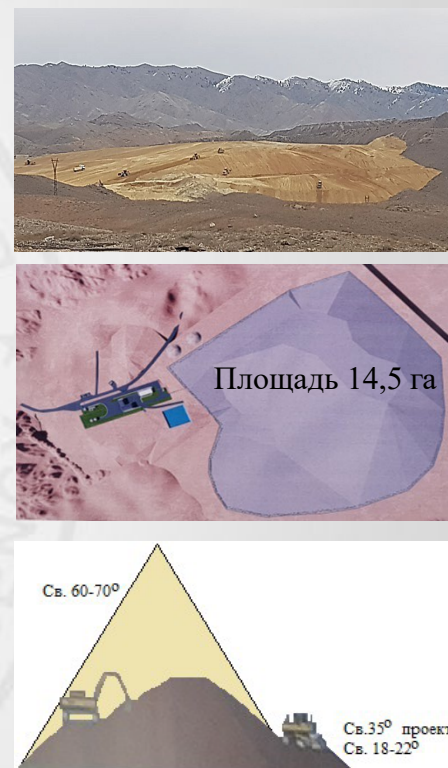
Condition before remediation



During remediation works



After remediation







# Remediation projects of “Factory of pour ores” with territory of “Yellow Hill” and “Tailings of 1-4 site” of Taboshar Site (Istiklol).







## “Tailings 1-4 stages” site of the Istiklol (Taboshar)

xx I

Площадъ 8,6 га

xx II

Площадъ 7,1 га

xx III

Площадъ 8,7 га

xx IV

Площадъ 17,1 га





## **Inspection of remediation activities in Istiklol (Taboshar)**

- At all stages of the remediation activities at the uranium tailings in Istiklol, the inspectors from Branch Office of CBRN SSA established strict supervision.
- Based on the results of the remediation work carried out by the sub-contractor LLC Production and Construction Company “Fayz”, a significant reduction in the radiation dose rate was achieved at all remediated sites, which will positively contribute to the protection of public health and the environment in the region, which for a long time was under the negative impact of open uranium tailings.



## INSPECTION OF REMEDIATION WORKS IN NORTHERN TAJIKISTAN

### Taboshar site in Istiklol city (UPLS)







## Public information

In order to widely inform the population and the public during the period of remediation work in the city of Istiklol, the employees of the Branch office of CBRN SSA in regular basis raised information awareness of the general population and the public.





- Under coordination of CBRN SSA in 2022 the UNDP and the OSCE continued implemented the project “Stakeholders involvement in remediation of uranium legacy sites in Central Asia. Phase 2”. The workshop on developing action plans for stakeholder involvement for Istiklol, Gafurov and Adrasman municipalities were organized in 2022.
- Phase 3 of this project started this year.







## **INSC TJ 4.01-02/11 “EIA and Feasibility studies in uranium legacy sites of Degmay and Taboshar of Tajikistan 2015-2018**

**Site characterization and preliminary feasibility studies finished for this two sites in August 2017. Each step of the project were discussed with all stakeholders from different ministries and agencies.**



## **EuropeAid/137542/DH/SER/TJ “Detail designing and technological decision of water treatment plant for Taboshar”**

**In 2017, during 6 months, research and investigation were carried out on the purification of water from open pit lake flowing from the edit No. 6 in the city of Istiklol (Taboshar). The technology of water purification and the design of a water treatment plant for further coordination and the announcement of a tender for the construction of the station are presented. Later on due to operational issues, project was redesigned and implemented by ISTC.**





# Degmay urgent covering project 2016-2017

**With the financial support of the Government of the Sogd region of the Republic of Tajikistan, the site operator - Tajredmet developed and presented a project on covering the surface of the Degmay tailings as an urgent measure to prevent public exposure.**

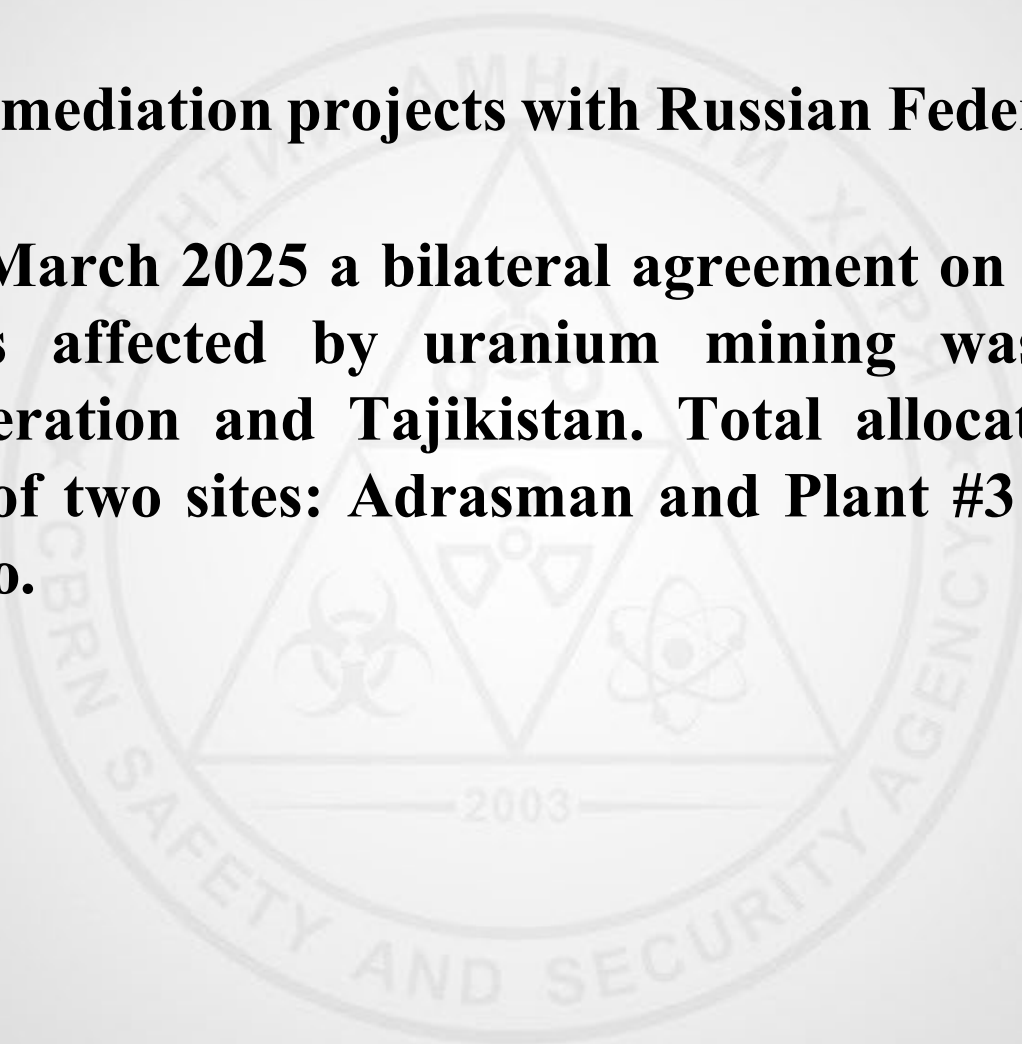
**CBRN SSA staff carried out project expertise and allowed to carry out coating works with the presented conditions. Periodically inspectors of CBRN SSA check the compliance of work performed with the norms and rules for radiation safety.**





## **New remediation projects with Russian Federation**

**On 17 March 2025 a bilateral agreement on Remediation of territories affected by uranium mining was signed by Russian Federation and Tajikistan. Total allocated fund for remediation of two sites: Adrasman and Plant #3 of Istiklol is 15,6 mln Euro.**







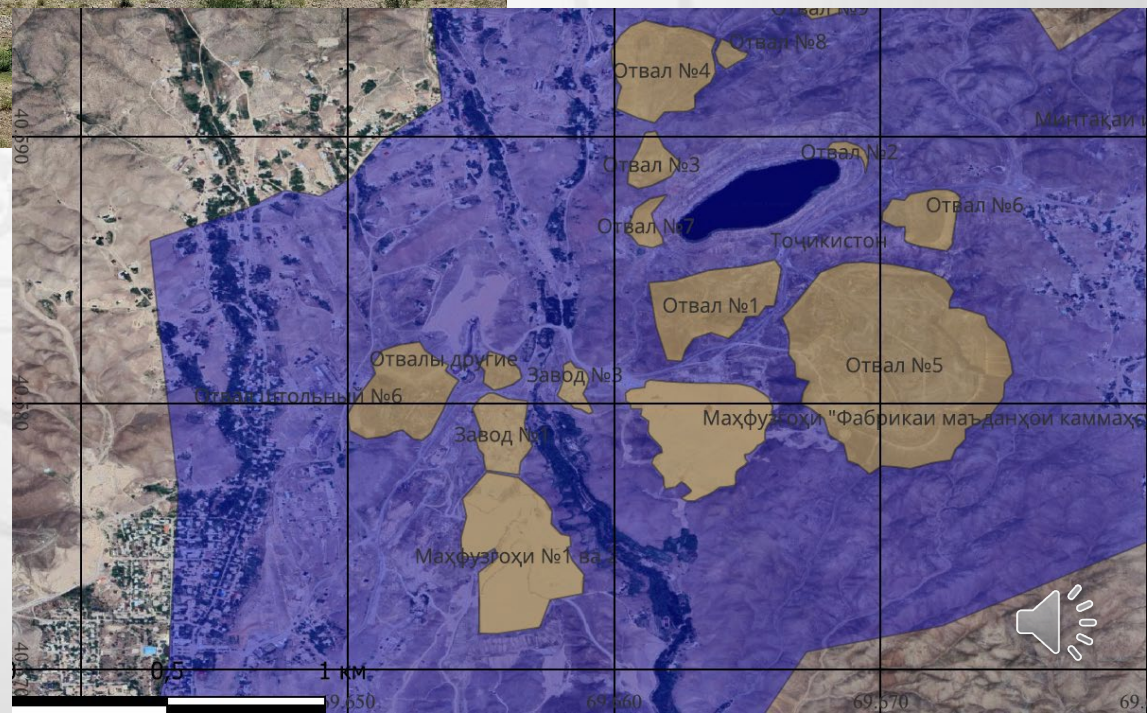
# New remediation projects: Adrasman site.







## New remediation projects: Plant #3 of Istiklol

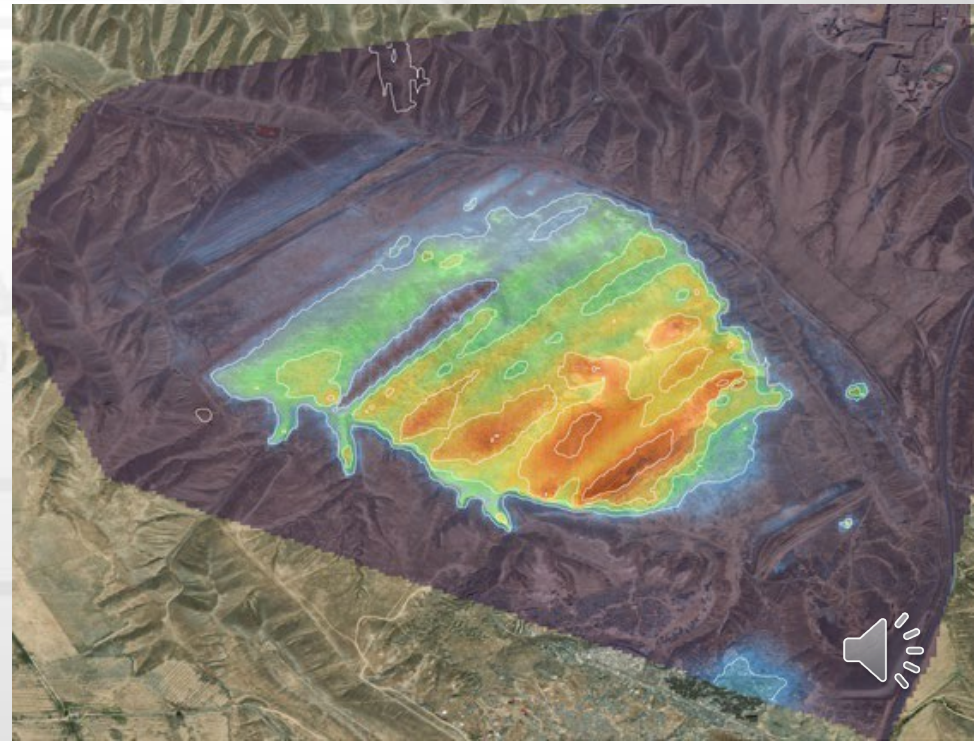






# Environmental monitoring of Uranium production legacy sites

- Gamma survey, dose rate, radon

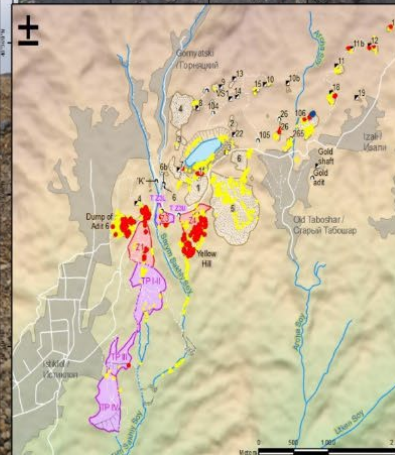






# Environmental monitoring of Uranium production legacy sites

- Water in situ parameters
- Soil and water sampling in and around tailings

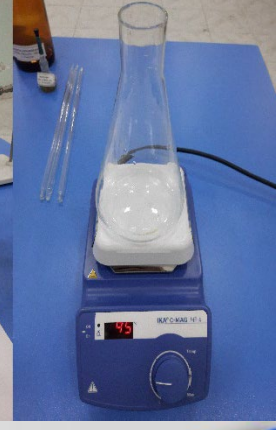
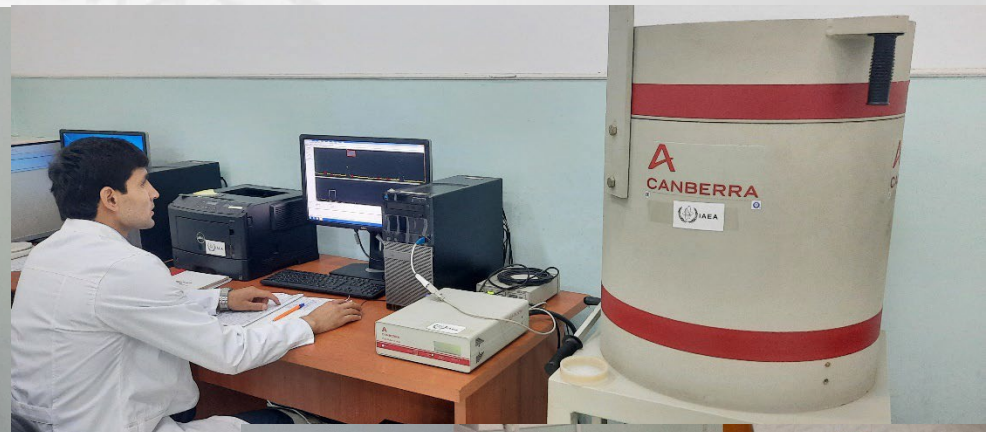






## Radioactivity component

Gamma spectrometry, alpha spectrometry, gamma-beta spectrometry, alpha-beta counter, air-sampler, radon-meter, radio-chemical analysis.





## ***Summary of regulator's activities related to Remediation of UPLS***

- ***Drafting legislative documents***
- ***Inspection and verification of monitoring data.***
- ***Expertise documents during licensing***
- ***Inspection during remediation***
- ***Providing technical services through TSO***

