

Federal Medical Biological Agency of Russia



Russian Experience and Regulatory Challenges in Nuclear & Uranium Legacy Sites



Nataliya Shandala

Moscow, Russian Federation

WM2012 February 26 - March 1st in Phoenix, Arizona, USA
Session 80, Panel: Worldwide Regulatory Challenges of Radioactive Legacy Sites



Part 1

- 1. Russian nuclear legacy and its regulation for today**
2. Experience and Regulatory Challenges in Nuclear Legacy Sites
3. Experience and Regulatory Challenges in Uranium Legacy Sites
4. Next Steps



The Russian nuclear legacy consists of

- Areas of legacy works with radionuclides
- Radiological accident areas
- Former Naval support technical bases
- Landfills for nuclear weapons and areas for peaceful nuclear explosions
- Uranium tailing dumps

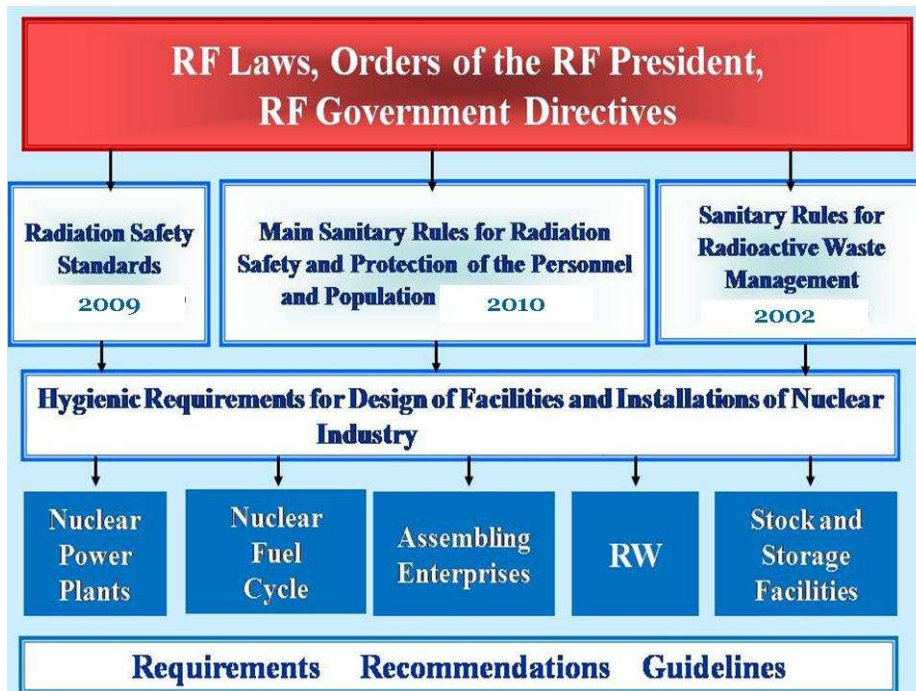




Normative Basis of Regulation

Current Regulatory Nuclear Legacy Problems:

- The documental basis insufficient
- New: ICRP & IAEA documents, Russian Law on “Radioactive Waste Management”, 2011
- Comprehensive regulatory and legal framework

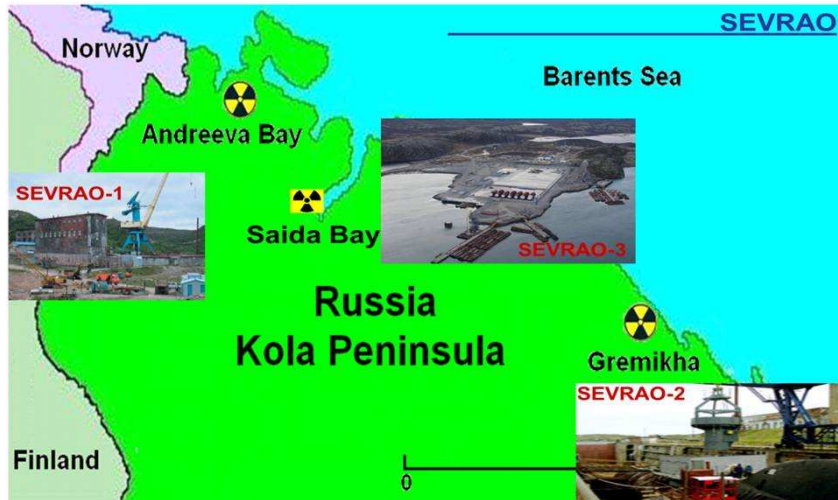


Part 2

1. Russian nuclear legacy and its regulation for today
- 2. Experience and Regulatory Challenges in Nuclear Legacy Sites**
3. Experience and Regulatory Challenges in Uranium Legacy Sites
4. Next Steps



FMBA Regulatory supervision



- Independent Analysis
- Threats Assessment
- Regulatory Documents
- Supervision, Monitoring
- Emergency Response
- Expert Review





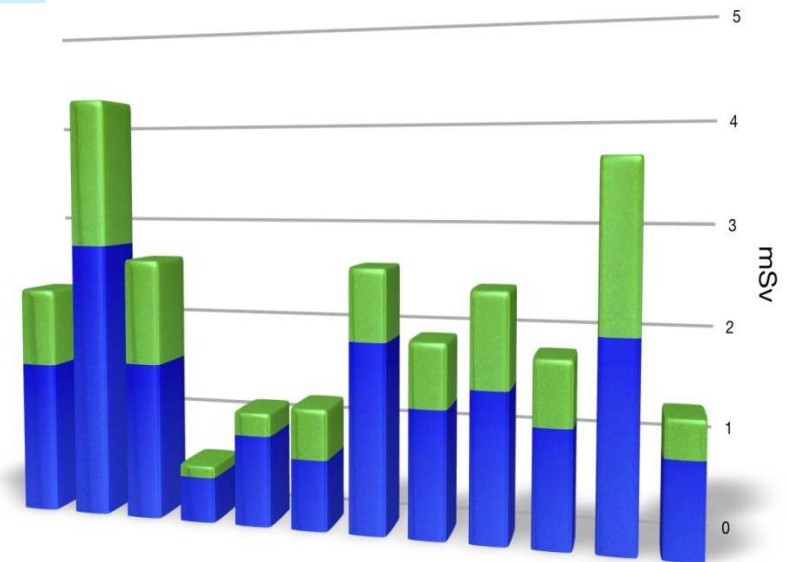
New Regulatory Documents

- Requirements to provide radiological protection of the personnel and the public
- Criteria and norms on remediation of sites and facilities
- Arrangement of the environmental radiation monitoring
- Requirements for industrial waste management
- The Operational Radiological and Medical Criteria for the Initiation of Emergency Protective Actions
- Requirements to support safe management of products containing nuclear materials

SNF removal



Working place, occupation	Doses , $\mu\text{Sv/h}$		Surface contamination level, $\text{part/cm}^2 \cdot \text{min}$	
	Reference dose rate	Real level	Reference levels	Real level
Dry storage worker, engineer, dosimetrist	500	171 – 510	10000	8000
Site under the crane Strap per, dosimetrist	15	8 – 27	< 6	< 6
Crane cabin Driver	28	62	< 6	< 6
Container vessel Driver	18	3	< 6	< 6
Serebryanka ship Master	2500	250	4000	75



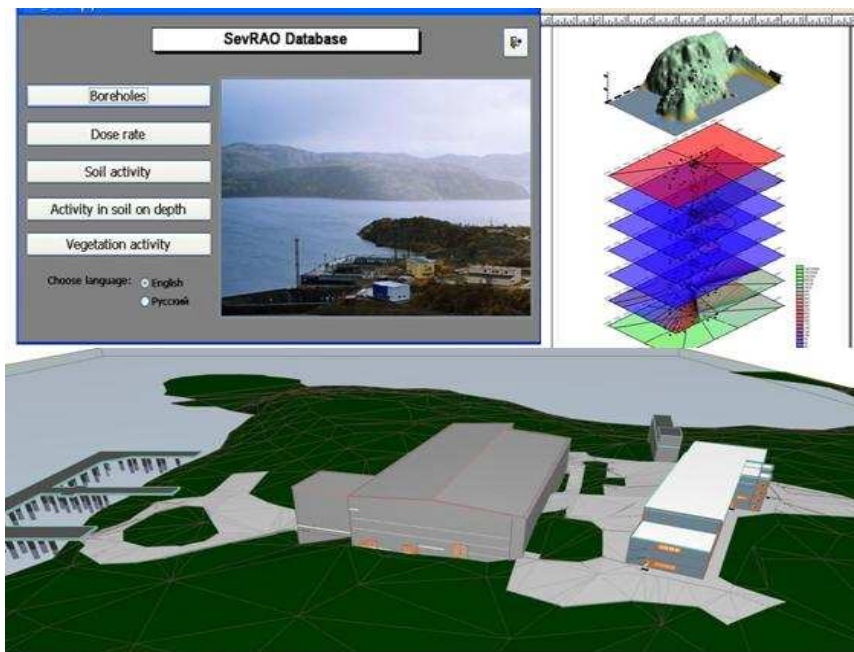
Individual doses to 12 members of the Complex facility for the RW and SNF storage and management personnel

International Exercise & Training in case of emergency



WM2012 February 26 - March 1st in Phoenix, Arizona, USA
Session 80, Panel: Worldwide Regulatory Challenges of Radioactive Legacy Sites

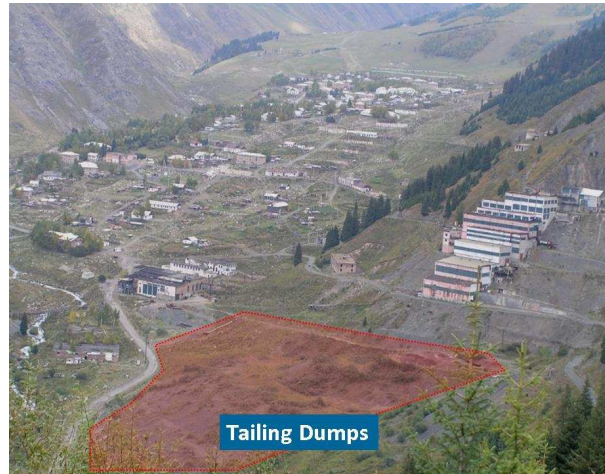
Datamap – Dosemap – Visualization



WM2012 February 26 - March 1st in Phoenix, Arizona, USA
Session 80, Panel: Worldwide Regulatory Challenges of Radioactive Legacy Sites

Part 3

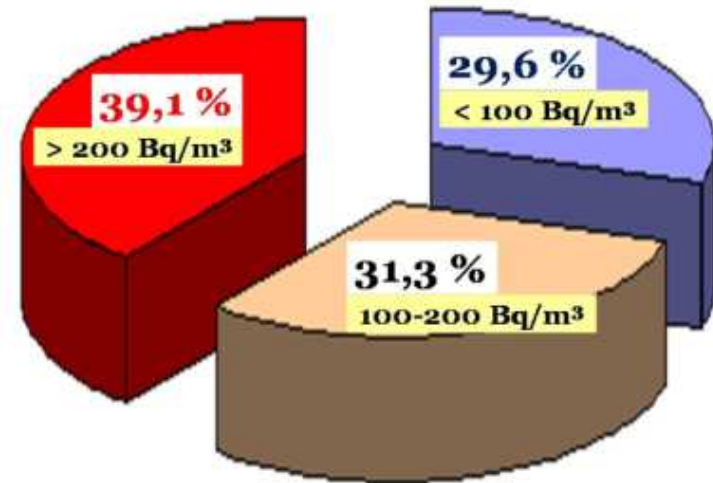
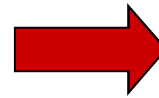
1. Russian nuclear legacy and its regulation for today
2. Experience and Regulatory Challenges in Nuclear Legacy Sites
- 3. Experience and Regulatory Challenges in Uranium Legacy Sites**
4. Next Steps



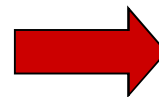
Uranium Areas & Radon



Octyabrsky village Zabaikalsky Territory



Lermontov Stavropolsky Territory



About 1000 rooms; Radon EROA in dwellings > 200 Bq/m³, 40% of which with Radon EROA > 400 Bq/m³

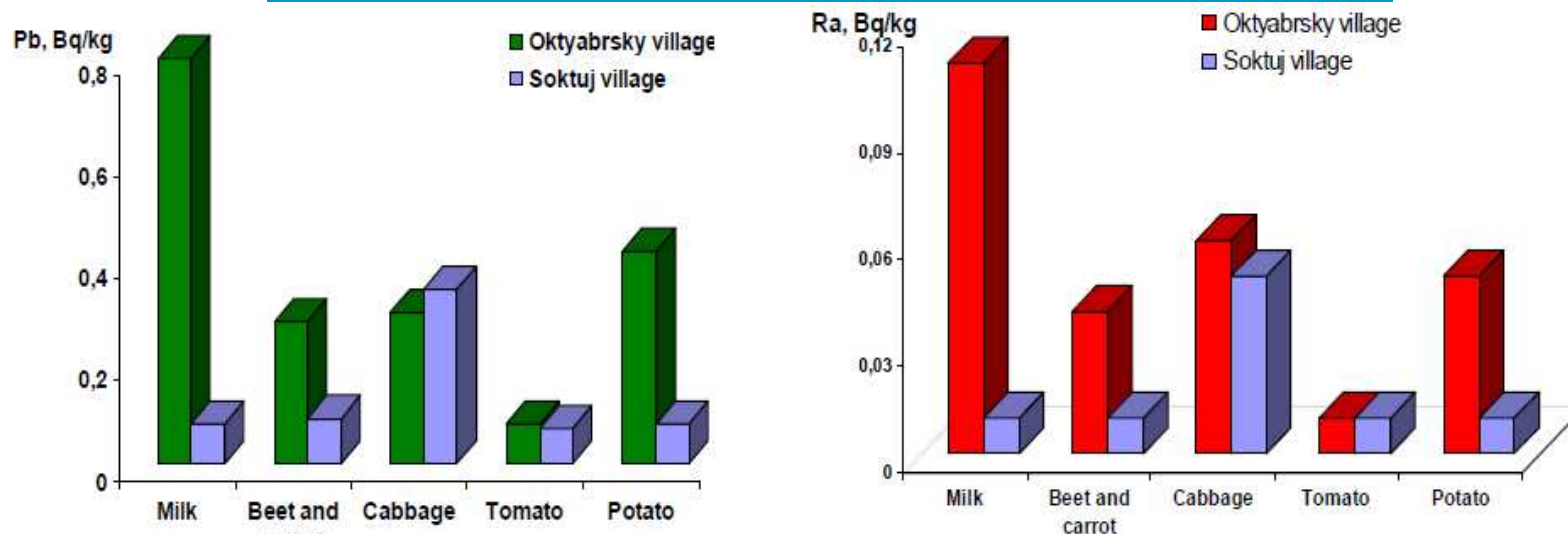
Nearby uranium mining facility



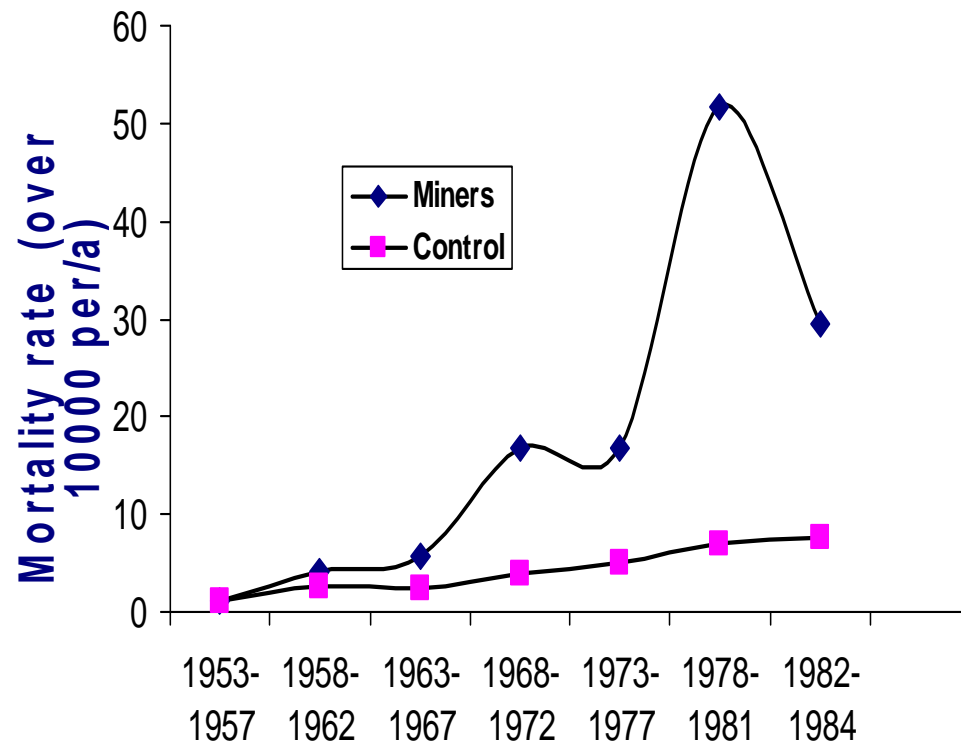
Ground water contamination, Bq/l

No borehole	²²⁶ Ra	²¹⁰ Pb
2	0.05	0.6
7	0.02	0.3
22	0.03	0.5
201	0.18	0.8
IL (norms)	0.5	0.2

Specific activities of ²²⁶Ra and ²¹⁰Pb in foodstuffs

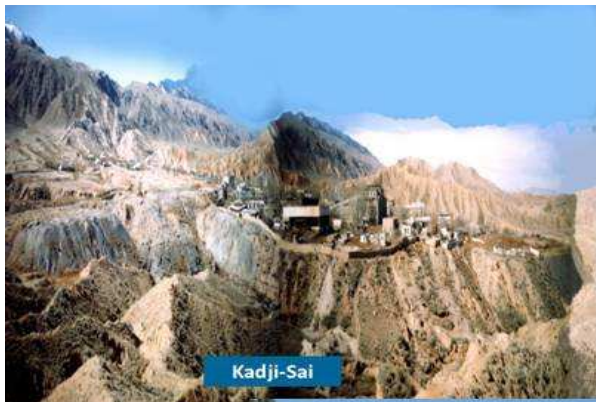


Uranium Mines



Lung cancer among the uranium miners

Harmonization of dose and environmental protection criteria



- The former Soviet Union countries such as Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, where uranium production legacy sites are located are currently facing the challenge of making these objects environmental safe



Part 4

1. Russian nuclear legacy and its regulation for today
2. Experience and Regulatory Challenges in Nuclear Legacy Sites
3. Experience and Regulatory Challenges in Uranium Legacy Sites

4. Next Steps

are connected both with the scheduled radiation hazardous operations for the long-term period of the nuclear legacy mitigation in Russia, and with development of methods for regulation



What Else is Needed to Regulate the Nuclear Legacy?

1. To introduce the existing exposure situation
2. To develop criteria for site remediation and return to uncontrolled uses
3. To consider methods of optimization for the remediation strategies
4. To introduce legal limit relating to stop generation of new nuclear legacy
5. International development documentation, supervision, review and assessment, stakeholder involvement



We are invited for:

- (1) exchange of experience in regulation
- (2) active participation in IAEA Forum RSLs
- (3) joint solution of the regulation problems within International Coordination Group



Thank You!

**shandala-
fmbsc@bk.ru**