# **Rosatom**: Continuous nuclear contamination of the area around the Mayak complex

Russian nuclear corporation Rosatom has been responsible for a series of nuclear accidents at its Mayak complex, and victims have been unable to secure either justice or remedy in part due to the impunity of the state-owned company in Russian courts.

## Problem Analysis

The Kyshtym nuclear disaster, caused by the Mayak nuclear complex, was the third worst nuclear disaster in history. Despite this the Mayak nuclear complex, whose core business is reprocessing spent nuclear fuel, remains in operation. Local residents are affected both by the historical contamination and by the emissions from current activities. Today Mayak is run by Rosatom, Russia's state nuclear corporation. This case illustrates how the Russian state and its flagship company work closely together to continue their operations, despite the negative impacts on both public health and the environment.

Although Russian laws and regulations provide many opportunities to protect human and environmental rights, this case shows that in the context of state-owned corporations, the court system is not always independent, the possibility of fair court decisions is low, and impunity remains. This makes it difficult to prosecute the companies and the people who bear responsibility for serious social and environmental impacts.

## Company

**Company:** ROSATOM State Atomic Energy Corporation

**Head office:** Moscow, Russia

## Company background

**Russian state nuclear energy corporation**

**CEO & president:** Alexey Likhachev (general director)[1]

**Annual profit:** 14,252,598 Russian Roubles (about 210 thousand EUR)

**Annual turnover:** 821 billion Russian Roubles in 2015 (14.3 billion USD)[2]

**Presence:** 44 countries[3]

**Number of employees:** 256,600 people[4]

## Company activity

Nuclear power and power engineering assets, as well as nuclear power plant (NPP) and facilities of full nuclear fuel cycle design and construction.[5] Rosatom is also responsible for part of the military nuclear activities of Russia, including in Mayak. The company has a range of other businesses, including power generation in its existing nuclear plants; it has a renewable division with increasing investments in wind; and it has uranium mining and nuclear weapon development, amongst others.

## Country and location in which the violation occurred

Ozyorsk, Chelyabinsk Oblast, the Southern Urals region, Russia

## Summary of the case

Rosatom's Mayak Combine is part of the Russian state nuclear energy corporation and one of the largest nuclear complexes in the world. Located by the Techa river, it is a facility for reprocessing spent nuclear fuel[6] and radioactive waste management. In 1957, an underground container of liquid radioactive waste exploded and an area of 20,000 square kilometers was covered with radioactive material.[7] In the last 60 years, more than 20,000 people have been affected by the consequences of this accident, the disregard of basic safety standards and the dumping of radioactive waste into the nearby river from 1940 to 1950, and the ongoing penetration of dangerous radionuclides into the same river.

These historical and ongoing discharges are similar to those caused by nuclear reprocessing at La Hague complex in France and Sellafield in the UK[8,9]. Mayak is also a source of regular, permitted discharges of plutonium isotopes, Cs-137 and Sr-90, which add to the existing contamination.[10] According to official Mayak reports the annual fallout of Pu isotopes in the so-called "observation zone" around the Combine is 6–14 Bq per $m^2$. This area extends dozens of kilometers from Mayak and includes the towns of Kasli, with more than 16,000 people, and Kyshtym, with more than 37,000 people. Total density of Pu in soil at the outside

boundary of the observation zone is 0.05 Curie per km$^2$. For comparison the resettlement zone in Russian legislation starts from 0.1 Curie per km$^2$ for isotopes Pu-239 and -240;[11] and the level of background radiation in Chelyabinsk province for Pu is 0.003 Curie per km$^2$.

Currently, around 5,000 people live in direct contact with the highly polluted Techa River and on contaminated land in the villages of Brodokalmak, Russkaya Techa, and Nizhnepetropavlovskoye, among others.[12]

Neither Mayak's plant management nor the Russian government have provided proper remedy for the people living along the banks of the contaminated Techa River, or for those who participated in cleaning up earlier nuclear accidents caused by Mayak's activities.[13] Official Mayak reports deny any discharges, but do mention "placing liquid radioactive waste for storage" into the ponds. Mayak did undertake some measures to prevent the discharge of radioactive substances into the environment, such as the vitrification and concretization of radioactive waste, but simultaneously doubled the volume of spent nuclear fuel it was reprocessing, which casts doubt on the net effect of these measures.[14]

Today, the environment remains contaminated, limiting agriculture and other economic activities in the region. Due to a lack of funds, the official medical commission that was set up to assess the connection between health effects and radiation exposure has not been in operation since 2016.[15] After Greenpeace and others drew attention to the fate of the inhabitants of the village of Muslyumovo, Rosatom partly resettled them between 2007 and 2012.The inhabitants were given a choice between accepting money to buy a home elsewhere, or being resettled only slightly further away from the Techa River. The inhabitants of eight houses were not resettled at all due to problems with documents and are still living in the deserted village without any infrastructure.[16] The company has no plans to clean up the contamination in the Mayak region.

As the Mayak plant is a state-owned facility, both the government and the company could be held accountable for their inaction and failure to respect the environmental and health rights of the affected workers and communities. The most recent known major discharge of liquid radioactive waste into the Techa River happened in 2004 and was the subject of a criminal case. Mayak's Director General V. Sadovnikov was charged under articles 246 and 247 of the Criminal Code. The court recognized the unauthorised release of radioactive substances and the pollution of the Techa River, but Sadovnikov was released from responsibility in an amnesty connected to the 100th anniversary of the State Duma of the Russian Federation.

In the summer of 2017, Russia's Presidential Human Rights Council visited Brodokalmak and confirmed that the basic human rights of local inhabitants had been and still are being violated. The Council recommended the government of the Russian Federation research the possibility of resettling the inhabitants. To Rosatom they recommend speeding up the implementation of measures that would prevent discharges of radioactive substances into the environment.[17]

## Endnotes

1 "About Us," Rosatom at http://www.rosatom.ru/en/about-us/governance/management-board (accessed at 14-11-2017)
2 "Key Indicators," in Rosatom Annual Report 2015 at https://ar2015.rosatom.ru/?/en/89-key-indicators
3 "Global Presence," Rosatom at http://www.rosatom.ru/en/global-presence
4 "Corporation of Knowledge Corporation of the Future, Performance of Rosatom in 2015," Rosatom, 2016 at https://ar2015.rosatom.ru/upload/files/en/ROSATOM_Annual_Report_2015.pdf
5 "About Us," Rosatom at http://www.rosatom.ru/en/about-us
6 Nuclear fuel that has been irradiated in a nuclear reactor to the point where it is no longer useful in sustaining a nuclear reaction is called spent fuel. Reprocessing is extracting fissionable materials including uranium and plutonium from spent fuel, which leaves behind a reduced volume of high-level radioactive solid waste, newly-created high-level liquid wastes, and large volumes of liquid and solid low- and mid-level waste.
7 Thomas Rabl, "The Nuclear Disaster of Kyshtym 1957 and the Politics of the Cold War," Environment & Society Portal, Arcadia , no. 20, Rachel Carson Center for Environment and Society, 2012 at https://doi.org/10.5282/rcc/4967
8 "The nuclear waste crisis in France, briefing document May 30th 2006,"Greenpeace, 2006 at http://www.greenpeace.org/international/Global/international/planet-2/report/2006/6/nuclear-waste-crisis-france.pdf
9 "The real face of the IAEA's Multilateral Nuclear Appproaches," chapter 3.4 Sellafield: Radioactive Discharges Already Pollute the Irish Sea in Greenpeace, Greenpeace, 26 September 2005, p. 32 at http://www.greenpeace.org/international/PageFiles/24510/IAEAmultilateralnuclearapproachreport.pdf
10 Отчет по экологической безопасности ФГУП «ПО «Маяк» за 2016 год (The report on environmental safety of FSUE PA Mayak for 2016), State Corporation for Atomic Energy Rosatom and Federal State Unitary Enterprise "Production Association" Lighthouse, 2017 at http://фцп-ярб2030.рф/upload/iblock/443/44342a88fcdee4db9b72de506f400776.pdf
11 Ibid.
12 Jan Haverkamp, "Rosatom's Mayak: more reprocessing, more contamination," Greenpeace Central and Eastern Europe, 2017 at http://www.greenpeace.org/hungary/PageFiles/762727/Rosatoms_Mayak_more_reprocessing_more_contamination.pdf
13 Ibid.
14 Ibid.
15 Ibid.
16 Ibid.
17 Ibid.