



KAZAKHSTAN

**SEMIPALATINSK**

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A karaoke bar in the city of Semey (formerly Semipalatinsk).

## **Semipalatinsk**

### **The legacy of nuclear testing**

- ▶ Prior to the dissolution of the Soviet Union, the test site in Semipalatinsk (today Semey) in Kazakhstan saw the explosion of 456 nuclear warheads.
- ▶ On 29 August 2021 thirty years will have passed since the site's closure: what has been the impact on the local environment and population of contamination on such a scale?
- ▶ The local population were arguably used as guinea pigs to understand the effects of radiation on humans.
- ▶ The nuclear fallout from the site directly affected around 200,000 inhabitants and involved almost two million people.
- ▶ Today life goes on alongside the challenge of a legacy that will have an impact for many years to come.

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A model of the Semipalatinsk nuclear testing site. Inside the Institute of Radiation Protection and Ecology in Kurchatov is a museum dedicated to the test site known also as The Polygon.



Semey (formerly Semipalatinsk). Radioactive contamination from the test site has been the cause of numerous births defects, malformations and genetic mutations. The Institute of Radiation Safety and Ecology and Pathology at the Semey Medical University still houses a collection of malformed fetuses, the result of radiation from the test site. These have been conserved as a stark reminder for future generations.



Girls leaving school in one of the main squares of the city of Kurchatov.



Maria lives in the village of Chagan and suffered from breast cancer. Chagan is a small village located close to the test site and is heavily contaminated.



The abandoned military city of Chagan is a town located close to the test site. It was founded in 1950 and during the Soviet period was known as Semipalatinsk-4. Before the collapse of the Soviet Union, Chagan was a military base and home to 10-11 thousand residents, mostly staff located 10 km southwest of the town at the Chagan military airfield, which was a base for long-range strategic aviation. In 1995, all military units were withdrawn to Russia, the town passed under the control of the Republic of Kazakhstan, after which the population declined sharply until it became a ghost town.



Berik Syzdykov at the residential school he attends in Semey. Berik was born with deformities after his mother was exposed to radioactive fallout while pregnant. She had been living in the heavily contaminated village of Znamenka, situated on the edge of the test site.



The statue of Lenin in the city of Semey (formerly Semipalatinsk). The city has around 300 thousand inhabitants and is situated 100 km from the centre of the test site. It was heavily contaminated by radioactive particles blown by the winds during the atomic tests.



Museum of the Institute of Radiation Protection and Ecology in Kurchatov. The technology used to detonate the atomic bombs.

The mysterious nuclear accident that occurred at a Russian military base in August 1951 highlighted that nuclear weapons testing still poses a threat today. During the years of the Cold War and until the dissolution of the Soviet Union, the test site known as The Polygon in Semipalatinsk, Kazakhstan, saw the explosion of a total of 456 nuclear warheads. On 29 August 2021 thirty years will have passed since the site's closure, but what impact has it had on the local environment and population?

Today more than 18,000 square metres of land are highly contaminated and will remain unusable for more than 200,000 years. The contamination has spread well beyond the test site, however, and has actually affected an expanse of 300,000 square kilometres, an area the size of Germany. For decades the Soviet authorities concealed the effects of radiation on the population of the inhabited areas in the vicinity. Research that began following the site's closure showed how the nuclear fallout from the experiments directly affected around 200,000 inhabitants and involved almost two million people.

Villages such as Znamenka, Sarzhal and Kaynar, which are located on the edge of the test site, were never evacuated and today their populations continue to live with the consequences of the contamination. But also large towns and cities, such as Kurchatov and above all Semey (today's name for Semipalatinsk) with its 320,000 inhabitants, situated just 100 kilometres from the test site, have repeatedly been affected by radioactive winds. "Each month we saw a blinding light and a mushroom cloud rise up into the sky. The windows shook every time and were often broken by the force of the explosion," explains one of the inhabitants of the villages. "The authorities never said what was happening, but only told us to remain at home after the explosions. We saw hundreds of them."

What took place at the Semey test site was arguably one of the worst ever crimes committed against humanity. The local population were effectively used as guinea pigs to discover the effects of radiation on humans. Today the local population are trying to get on with their lives but the legacy of the Cold War is sure to have an impact for many years to come.



A mannequin dressed in traditional costume inside the House of Culture in Semey (former Semipalatinsk).



Inside the test site large buildings were erected to gauge the effects of atomic bombs and to protect the cameras documenting the explosions.



Rakima, aged 79, in the contaminated village of Bodene. She witnessed the nuclear weapons tests at The Polygon: "When we were in school, they took us outside because during the explosions all the windows would break, and drove us over the hill and covered us with sheets. When the bombs exploded, I saw a bright light, and the teachers scolded us so that we would not look. But we were children and were curious to take a peek. It was in 1951-1952. In those years there were a lot of explosions – once every 15 days or 30 days. After the explosions, every 15-30 days, one family was taken to the city for 10 days to monitor their condition."



Nur-Sultan. Karipbek Kuyukov is waiting to attend the conference for the Nazarbayev prize. Karipbek was born in a small village just a few miles from the test site. The nuclear tests exposed his parents to excessive amounts of radiation and resulted in Karipbek being born without arms. He has overcome many challenges to become an anti-nuclear weapons activist and renowned artist, whose works have been shown around the world. He often paints portraits of the victims of nuclear testing and, as honorary Ambassador to The ATOM Project, speaks out against nuclear weapons at conferences and events.



Lake Chagan, known also as Lake Balapan, is often referred to as the "Atomic Lake". It was created by an underground explosion at the Semipalatinsk test site, on January 15, 1965 conducted as part of the Soviet Union's Nuclear Explosions for the National Economy programme. A 140-kiloton device was detonated in a 178-metre-deep (584 ft) hole in the dry bed of the Chagan River. The blast created a crater 400 m (1,300 ft) across and 100 m (330 ft) deep with a lip height of 20 to 38 m (66 to 125 ft). The lake's water comes from the Chagan River, a tributary of the Irtysh River.



Naurizbek Umarov, aged 85, lies on his bed at his home in the contaminated village of Bodene. He witnessed the atomic explosions and lives in the contaminated village of Bodene situated close to the edge of the test site. "Every month we would see a blinding flash of light and a mushroom cloud rise up into the sky. The windows shook every time, and they often broke because of the shock wave from the explosion. The authorities didn't tell us what it was, but only said to stay at home after the explosions. We saw hundreds of them."



During the Soviet period the laboratories were used to study the consequences of nuclear weapons tests. After the closure of the test site, on 28th August 1991, the laboratories were abandoned. Today new laboratories to study the contamination are located at the Institute of Radiation Safety and Ecology in Kurchatov.



The cemetery of the village of Znamenka. The village cemetery is very large for a village of 2000 inhabitants. This is due to the high mortality rate from cancer due to the nuclear test site.



Rsaybaev Koksubai Umurtaevich's son and daughter both lived in Znamenka, the nearest village to the test site, a highly contaminated village. They both died of cancer at a young age leaving their parents desolate with grief. Rsaybaev Koksubai Umurtaevich's wife also died of cancer.



A boy with his mother in the main square of Kurchatov City.



Horses take a drink beside the road leading to the test site.



A party in the town of Kurchatov.



The only statue of Josef Stalin still on public display in the former Soviet Union, all other statues of him having been removed. In Semipalatinsk in a small park hidden in the suburbs, a local resident recovered several busts of Soviet politicians, including Stalin, from a landfill site and placed them on display to the public.



An inhabitant walks along the streets of the city of Kurchatov.



Orphanage for handicapped children, Semey (formerly Semipalatinsk). Musagalieva Zhanbota, aged 3, suffers from cerebral palsy and tetraparesis.



parallel zero

via Donatello 19/A Milan- [info@parallelozero.com](mailto:info@parallelozero.com) - [www.parallelozero.com](http://www.parallelozero.com) - +39 02 89281630