

CHRONICLES OF WAR: NUCLEAR THREATS

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About the Chronicles of War

The Chronicles of War is an internal SecDev research initiative designed to assess the trajectory of the Russia-Ukraine war during the first month of the war. Relying principally on open sources and key informant interviews in Ukraine and Russia, the focus is on three key areas:

- Security and safety of Ukraine's civilian nuclear infrastructure. The war in Ukraine is the first to occur within a country operating multiple civilian nuclear plants and countless civilian and medical facilities containing radiological materials.
- The cyber dimensions of the Ukraine conflict. Most conflicts now occur in five domains, including cyberspace. The escalatory use of cyberweapons could result in the invocation of NATO Article 5 provisions and pull more countries into the war.
- The perception of fighting by Russian soldiers and civilians. Successful war-fighting often depends on motivated and trained troops and a supportive public. Using digital methods to listen in on soldier conversations and assess wider public sentiment, it is possible to assess the strength, organization and effectiveness of Russia's war effort.

Russia's president Vladimir Putin and his senior entourage have repeatedly threatened nuclear war. The risks of tactical or strategic nuclear strikes, while low, are growing. Likewise, attacks against Ukraine's 15 civilian nuclear reactors and four power plants are also rising. SecDev Group is tracking nuclear risks in Ukraine and Russia in multiple languages and media outlets. The following summary provides a rapid assessment of how the threat of offensive and defensive nuclear deployment is being addressed in the region. It also compares and contrasts coverage of physical and cyber-related threats to civilian nuclear infrastructure.

Key takeaways

- Russia has repeatedly indicated its preparedness to use nuclear weapons and has attacked Ukraine's nuclear facilities. Russia's nuclear forces were put on "special alert" on 27 February 2022. Meanwhile, Russian forces have seized control of the Chernobyl and the Zaporizhzhia nuclear power plants.
- Other nuclear facilities in Ukraine have been targets of Russian attacks. These include the Kyiv branch of the Radon Association as well as the research nuclear installation called NSA "Neutron Source" located in Kharkiv.
- Attacks on nuclear power plants could lead to failures of nuclear reactors. Both the Chernobyl and Zaporizhzhia nuclear power plants are experiencing electricity shortages due to attacks on power lines. Lack of electricity can lead to system failure and in turn, radiation leakage. Importantly, the staff of the facilities are operating under stress associated with the active armed conflict which could lead to serious errors.
- Pro-Ukrainian and pro-Russian sources are covering the situation surrounding the nuclear power plants in fundamentally different ways. While the former are presenting Russia's actions as an unlawful and dangerous occupation that could lead to a nuclear catastrophe, the latter are claiming that Russia is protecting the nuclear facilities from use by dangerous actors.
- Russia has been actively disseminating false claims surrounding Ukraine's nuclear, biological and chemical weapons. Russian officials have claimed that Ukraine was preparing to deploy a "dirty bomb" targeting Russian cities and facilities. Russia also accused the United States of supporting Ukraine in developing biological and chemical weapons. This claim was also amplified by China who has called for an investigation into the matter.

The nuclear threat

Russian President Putin ordered the country's nuclear forces to be on "special alert" on 27 February 2022. Since then there has been growing speculation about whether the armed conflict confined to Ukraine could escalate into an exchange of tactical or even strategic nuclear weapons. While dismissed by some analysts as saber-rattling, the threat of nuclear escalation is taken very seriously by Ukraine and NATO members. There is a wide discussion of the possibility of Russia staging a nuclear or chemical attack against Ukraine and other countries providing assistance in social and conventional media. For example, a [statement](#) by a US Department of Defense spokesman that there is no reason to doubt reports of Russian nuclear activity and Putin's order to put the country's nuclear weapons on alert was widely circulated on social networks.

The possibility of Russia's targeted use of nuclear weapons in Ukraine was also discussed in Ukrainian government circles. In particular, Aleksey Arestovich, adviser to the President of Ukraine, [expressed doubts](#) that Putin would take such a step because the use of tactical nuclear weapons would inevitably mean subsequent radioactive contamination of neighboring Russian territories. In addition, he claimed that the use of weapons of mass destruction would not achieve the goals declared by Russia for its military campaign, namely the "denazification" of Ukrainian society. Their use in Ukraine would remove any chance of Putin or his successors to achieve support from Ukrainian society. In addition, Arestovich believes that even if Putin decided to give an order to use nuclear weapons, his generals would not agree to carry out these criminal orders since they would unleash a global nuclear war.

Meanwhile, Ukrainian Foreign Minister Dmitry Kuleba [said](#) that Russian propaganda actors are actively disseminating information that Ukraine is allegedly preparing to deploy a "dirty bomb" on

Russian territory. The head of Ukraine's Foreign Ministry said that this is fake news directed by Russian actors against Ukraine, and that his country does not have any nuclear or chemical weapons, and does not conduct any work on their creation or acquisition.

Russia claims that Ukraine is conducting chemical and biological activities in the country with the support of the US. Earlier in December 2021, Russian media [reported](#) that the US delivered containers containing chemical weapons to Ukraine that were then moved to areas bordering the contact line in Donbass. On 10 March 2022, Igor Kirillov, Chief of the Radiation, Chemical and Biological Defense Forces of the Russian Armed Forces, [said](#) that the Pentagon's biolaboratories in Ukraine were developing tools to spread biological weapons to Russia using bats and birds. According to Kirillov, the project called UP-4 was implemented with the participation of laboratories in Kyiv, Kharkiv and Odessa and was designed for the period up to 2020. China's Foreign Ministry has [amplified](#) the allegations put forward by Russia, repeating their claims and calling for an investigation. The US has [denied all allegations](#), stating that it "does not own or operate any chemical or biological laboratories in Ukraine" and that "Russia is inventing false pretexts in an attempt to justify its own horrific actions in Ukraine". Jens Stoltenberg, the secretary general of NATO, has [warned](#) that Russia could justify the use of chemical weapons by invoking the false claim of Ukraine storing biological weapons.

The international community reacted with horror in the wake of Russian armed forces efforts to seize and shell Ukraine's nuclear facilities. Russia's actions to seize the Chornobyl (ChNPP) and Zaporizhzhia nuclear power plants (ZNPP) in the wake of active combat operations involving artillery and tanks around the installations, received wide coverage. As of 14 March 2022, both the ChNPP and the ZNPP remain under the control of the Russian forces. Both plants are experiencing electricity shortages due to

the damage inflicted on power lines. While power at the ChNPP was restored on March 13, Ukrenergo, the national energy company, [reported](#) that on 14 March, Russian forces once again damaged the power line that supplies electricity to the nuclear facility. Lack of electricity at a nuclear reactor can result in the shutdown of the cooling system which in turn could lead to radiation leakage.

On 26 February 2022, Ukrainian media [stated](#) that several shells struck the radioactive waste disposal site of the Kyiv branch of the Radon Association. Attacks were recorded by local surveillance cameras. According to a preliminary assessment, there is apparently no threat to people outside the so-called sanitary protection zone. Ukrainian authorities clarified that the shelling of Kyiv did not affect the storage of radioactive substances and that an increase in radiation was not observed.

In a separate incident, on 6 March 2022, the State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) [reported](#) that Russian forces attacked the research nuclear installation called NSA “Neutron Source”, located at the Kharkiv Institute of Physics and Technology. SNRIU described this at the time as “nuclear terrorism” committed by Russia. Notably, the operational personnel of the nuclear installation transferred it to a deep subcritical state on the first day of the invasion. The facility was subsequently [bombed](#) on 10 March 2022, though no damage was inflicted on systems which would affect the state of nuclear and radiation safety.

It is worth noting that the media coverage of the targeting of nuclear reactors by Ukraine and Russia are fundamentally different. The text below describes the seizure of the Chornobyl and Zaporizhzhia nuclear power plants and how they were covered in pro-Ukrainian and pro-Russian information resources.

Chornobyl nuclear power plant (ChNPP)

Ukrainian and Western news coverage

On 24 February 2022, Ukrainian media [reported](#) that Russian forces took control of the Chornobyl Nuclear Power Plant (ChNPP) and took its staff hostage. Mykhailo Podolyak, advisor to the head of the president’s office, [said](#) that Russian forces captured the power plant after a “fierce” battle on the first day of Russia’s invasion of Ukraine. A [video](#) posted on social media showed the presence of Russian military equipment on the territory of the ChNPP. At the same time, the Ukrainians [stated](#) that the capture of the Chornobyl nuclear power plant was preceded by a battle that was fought in the immediate vicinity of the territory of the ChNPP.

On 25 February 2022, information was disseminated in Ukrainian information channels that the State Inspectorate for Nuclear Regulation of Ukraine had recorded an increase in the radiation background in the territory occupied by the Russian troops of the Chornobyl nuclear power plant. Subsequently, the State Inspectorate made a clarification, stating that excessive gamma radiation power could be associated with mixing of the upper layers of the soil due to the movement of a large amount of military equipment in the area, which had previously been contaminated due to the Chornobyl accident. This may have led to a rise of contaminated radioactive dust in the air.

On 26 February 2022, Ukraine sent a letter to the IAEA [stating](#) that Kyiv could not guarantee nuclear safety at the Chornobyl nuclear power plant after the station was taken over by Russian troops.

On 5 March 2022, [SNRIU](#) reported that all ChNPP facilities located in the Exclusion Zone including the ChNPP units 1-3 (at the decommissioning stage); dry type spent nuclear fuel storage facilities ISF-1, ISF-2; and New Safe Confinement of the Shelter continue to remain under the control of the Russian Armed Forces. Telephone connection with the ChNPP personnel was lost due to damage to the communication line, while cellular communication ended after the seizure of the exclusion zone. SNRIU noted that due to the stress associated with the active armed conflict, ChNPP staff are not rested which could lead to serious errors.

On 6 March 2022, SNRIU [reported](#) that several neutron flux sensors, as well as sensors to monitor gamma radiation dose rates and air contamination at the shelter, were broken. This made it difficult to monitor a variety of radiation parameters in one of the shelter's buildings. As a result, the repair of damaged equipment of systems crucial to nuclear and radiation safety is not conducted due to a lack of staff and specific equipment resulting from the Russian occupation.

On 7 March 2022, Ukrainian media [reported](#) that the Russian military were using captured Ukrainian nuclear power plants as military bases, housing as many as 1,000 troops at the ChNPP. The head of the National Nuclear Energy Generating Company of Ukraine stated that “the invaders hope that we will not knock them out, because our nuclear facilities and security at these facilities are very dear to us. Thus, any shelling is unacceptable, because it can damage the core of the reactors and lead to global catastrophe”.

On 8 March 2022, IAEA reported that the agency had lost contact with ChNPP. IAEA Director General [indicated](#) that “remote data transmission from safeguards monitoring systems installed at the Chornobyl NPP had been lost”. He also highlighted the importance of rotating staff at the ChNPP since the same

shift of 210 employees has been working at the plant for the past 13 days. He emphasized that “the staff’s capacity to make decisions free of undue pressure is among the [seven indispensable pillars](#) of nuclear safety”.

On 9 March 2022, Minister of Foreign Affairs of Ukraine Dmytro Kuleba [said](#) that according to Ukrenergo, the Chornobyl nuclear power plant was de-energized as a result of damage to a high-voltage power line. At the ChNPP, a backup diesel generator was turned on, which should provide power to the station and all critical facilities within 48 hours. If within 48 hours it is not possible to restore the external power supply to the station, then we should expect a possible shutdown of the cooling system for the storage of spent nuclear fuel, which will threaten radiation leakage.

On 13 March 2022, power was restored to the ChNPP. The Director General of Energoatom, Ukraine’s nuclear power company, [informed](#) the IAEA that Ukrainian specialist teams fixed a power line required for the resumption of power supplies to the facility.

Russian news coverage

On 25 February 2022, Russian Ministry of Defense spokesman Major General Igor Konashenkov announced that on February 24, the first day of Russia’s “special military operation” in Ukraine, paratroopers took full control of the territory near the ChNPP. He highlighted that “joint actions of Russian paratroopers and Ukrainian servicemen of the nuclear power plant security battalion to defend the plant is a guarantee that nationalist formations or other terrorist organizations will not be able to take advantage of the current situation in the country to organize a nuclear provocation”.

On 27 February 2022, [Vesti](#) (Вести) stated that reports from the Ukrainian side about the allegedly fierce fighting for the station turned out to be fake and that not a single shot was fired there. According to the report, the National Guard battalion fighters guarding the nuclear power plant voluntarily laid down their arms and assisted the Russian military in protecting power units, sarcophagi and spent nuclear fuel storage. The end of the article highlighted that “in addition to Chornobyl, there are four other operating nuclear power plants in Ukraine. And, of course, they must not be allowed to be captured by nationalists and radicals”.

Russian sources [claimed](#) that recovery of power supplies to the ChNPP took place in consultation with Russian specialists. Rosatom, the State Atomic Cooperation of the Russian Federation, stated that cooperation between Russian and Ukrainian specialists takes place on a regular basis.

Russian media [reported](#) that Kyiv used the Chornobyl zone to build a “dirty” bomb and release plutonium. Allegedly, Chornobyl was used as a site for the development of nuclear weapons and the radiation background, natural for the Chornobyl area, hid such work. Ukraine has allegedly been working on developing weapons which could contaminate an area with radiation within a radius of [1,500 kilometers](#). Russian sources claim that the goal for their development is to attack Russian cities and facilities, and that Ukraine could have had these weapons ready within 3-4 months.

Zaporizhzhia nuclear power plant (ZNPP)

Ukrainian and Western news coverage

On 4 March 2022, SNRIU [announced](#) that at about 1 a.m. Russian forces began the shelling of ZNPP, the largest nuclear power plant in Europe. Analysis of security camera footage which recorded the Russian takeover of the ZNPP showed that Russian forces repeatedly fired heavy weapons in the direction of the plant’s reactor buildings. The shelling resulted in multiple fires that damaged unit 1 reactor compartment auxiliary buildings, however, this did not affect the safety of the power plant. SNRIU [reported](#) that as of 6:20 a.m., the fire was extinguished by the Ukrainian State Emergency Service units. At 8:20 a.m., the SNRIU [confirmed](#) that control of the ZNPP was seized by the Russian forces. In addition, 2 artillery shells hit the area of the dry type spent nuclear fuel storage facility. Staff operating the plant were also forced to work for more than [24 hours](#) though none were killed or injured. SNRIU [highlighted](#) that the presence of armed enemy troops in the area has a negative impact on the ability of plant workers to rest between shifts and considerably increases the risk of operational errors, which might result in serious radiation repercussions.

On 5 March 2022, the Minister of Energy of Ukraine Herman Halushchenko, Acting Chairman of the SNRIU Oleh Korikov, and the Acting President of Energoatom Petro Kotin sent letters of appeal to [the United Nations \(UN\)](#), [Organization for Security and Co-operation in Europe \(OSCE\)](#), and [the European Union \(EU\)](#) to do everything possible to prevent a nuclear catastrophe. The appeal described the dire situation at the occupied Chornobyl and Zaporizhzhia nuclear power plants, as well as other nuclear power facilities, and urged the UN, OSCE, and IAEA to take immediate, effective, and decisive action to avoid an environmental catastrophe. Ukraine

insists on establishing a special UN mission to ensure the safety of Ukraine's nuclear power plants, including the Chornobyl NPP (Pripyat), Zaporizhia NPP (Energodar), South Ukraine NPP (Yuzhnoukrains'k), Rivne NPP (Varash), and Khmel'nitsky NPP (Netishyn). For future international prosecutions, this task should involve establishing the facts and documenting any unlawful conduct by the Russian military.

On 6 March 2022, the [International Atomic Energy Agency \(IAEA\)](#) stated that regular staff continue to operate the nuclear facility, but plant management is under orders from the commander of Russian forces controlling the site. The IAEA also reported that the nuclear regulator of Ukraine is having trouble communicating with the staff at the Zaporizhzhia plant. Reportedly, Russian forces at the site are [switching off](#) some mobile networks and blocking the internet, and while some mobile phone communication remains possible, fixed phone lines, as well as emails and fax, are presumably no longer functioning.

On 7 March 2022, Ukrainian media [reported](#) that the Russian military uses captured Ukrainian nuclear power plants as military bases, housing 500 of their soldiers at the ZNPP and another 1,000 in the city of Enerhodar.

On 10 March 2022, SNRIU [reported](#) that due to the occupation of the territory surrounding the ZNPP, it is impossible to perform previously planned maintenance at the facility. Repair of the damage caused to the oil system of the Unit 6 transformer was complicated due to the lack of highly specialized personnel and equipment. SNRIU highlighted that the lack of proper maintenance can decrease the reliability of the systems and potentially lead to their failure. ZNPP is currently functioning with no direct independent regulatory oversight of nuclear and radiation safety. SNRIU also noted that the official website of the ZNPP is not functional, preventing the public from obtaining data on the facility's safety indicators. On March 12, the staff of ZNPP [confirmed](#)

the presence on site of at least eleven representatives of Rosatom, however they have not yet interfered in the operation of the ZNPP which has been under the exclusive management of the facility's personnel.

Russian news coverage

On [28 February 2022](#), Russian media reported that Russian forces took control of the territory around the ZNPP. Earlier on [February 25](#), it was reported that Russian forces took full control of the territory in the area of the ChNPP.

[Komsomolskaya Pravda](#) reported that on 4 March 2022 at about 2 a.m., while patrolling a protected area adjacent to the ZNPP, a mobile patrol of the Russian National Guard was attacked by "Ukrainian sabotage groups". The report stated that these groups tried to provoke a response strike from the Russian forces by firing from the windows of several floors of the training complex, located outside the power plant. Then, "fleeing Ukrainian nationalists" set fire to the training building, which was quickly extinguished by fire brigades. The source claims that this fire was passed by "Ukrainian propagandists" as a Russian artillery strike on the nuclear power plant. Despite the settlement of the situation, the Kyiv regime and the Ukrainian military continue to "keep the whole world in suspense" and that "nationalists" threaten to damage or blow up nuclear facilities in the country.

During the 4 March 2022 release of [Vremya Pokazhet](#) (Time Will Tell), a political show broadcasted on Russia's Channel One, Aleksander Sherin, member of the Supreme Council of the Liberal Democratic Party, made the following statement regarding the situation: "Zelensky is trying to blackmail the whole world and all of Europe with the fact that there is a nuclear power plant on the territory of his

state, and if he is not urgently provided with all the necessary assistance and if NATO troops are not urgently sent to the territory of Ukraine to fight with the Russian army, if they do not urgently close the sky, then keep in mind, someone (most likely the Russian military, Zelensky hints) can definitely carry out some kind of strike on the nuclear power plant”.

On 6 March 2022, Russian media [reported](#) that recent clashes around the ZNPP could be related to the fact that documents were stored there regarding “promising work on the creation of nuclear weapons by Ukraine”. The same day, Vladimir Putin [assured](#) French President Emmanuel Macron that nuclear and physical safety of the ZNPP is well protected and the radiation background around the plant is within the normal range.

On 7 March 2022, in response to the situation in Kharkiv, Russia’s Ministry of Defense [stated](#) that “the Security Forces of Ukraine along with the militants of the Azov battalion are plotting a provocation with possible radioactive contamination of the area near the city of Kharkov. Nationalists mined a reactor at an experimental nuclear system located at the [National Research Center of] Kharkov Institute of Physics and Technology. The Ukrainian military and the Azov battalion militants are planning to blow up the reactor and accuse the Russian Armed Forces of allegedly launching a missile strike on an experimental nuclear system”.

About SecDev

SecDev is an agile research and innovation firm helping clients navigate digital-geopolitical, geospatial and geodigital risk. SecDev builds value through innovation in strategic foresight, data science and urban analytics. SecDev's team is fluent in technology, global in scope and results-oriented. SecDev empowers clients, such as national governments, technology companies and international organizations, to make informed choices that deliver value in the digital-urban age.



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