Derestricted 12 June 2025
(This document has been derestricted at the meeting of the Board on 12 June 2025)

IAEA
Atoms for Peace and Development

Board of Governors

GOV/2025/26
Date: 2 June 2025

Original: English

For official use only

Item 8 of the provisional agenda
(GOV/2025/23 and Add.1)

Nuclear Safety, Security and Safeguards in Ukraine

Report by the Director General

Summary

- The Board of Governors, in its resolutions GOV/2022/17, GOV/2022/58, GOV/2022/71, GOV/2024/18 and GOV/2024/73, respectively, requested the Director General to continue to closely monitor the situation regarding nuclear safety, security and safeguards in Ukraine and regularly report formally to the Board on these matters. This report provides a summary of the situation in Ukraine regarding nuclear safety, security and safeguards. It covers the period from 28 February to 30 May 2025 and is based on information made available to the Agency, and verified by the Agency, during this period. This report covers the progress made by the Agency in responding to Ukraine's requests to provide technical support and assistance in re-establishing, as appropriate, a sound nuclear safety and security regime at its nuclear facilities and in activities involving radioactive sources.
- This report also summarizes relevant aspects of the implementation of safeguards in Ukraine under the Agreement Between Ukraine and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons and the Protocol Additional thereto under the current circumstances.

Recommended Action

- It is recommended that the Board of Governors take note of this report.

Nuclear Safety, Security and Safeguards in Ukraine

Report by the Director General

A. Introduction

1. At the Board of Governors meeting in March 2025, the Director General provided the Board of Governors with a detailed report entitled *Nuclear Safety, Security and Safeguards in Ukraine* (document GOV/2025/11), covering the period from 13 November 2024 to 27 February 2025.

2. On 12 October 2022, the United Nations (UN) General Assembly adopted resolution A/RES/ES-11/4, declaring that, inter alia, the "attempted illegal annexation" of four regions of Ukraine on 4 October 2022 had no validity under international law.[1] The Agency complies with this resolution.

3. On 17 November 2022, the Board of Governors adopted resolution GOV/2022/71[2], on the safety, security and safeguards implications of the situation in Ukraine, in which it "[e]xpresse[d] grave concern that the Russian Federation ha[d] not heeded the calls of the Board to immediately cease all actions against and at nuclear facilities in Ukraine" and "request[ed] that the Russian Federation do so immediately". In addition, it "[d]eplore[d] and d[id] not recognize, consistent with resolution A/RES/ES-11/4 adopted by the UN General Assembly on 12 October [2022], the Russian Federation's attempts to take ownership of Ukraine's Zaporizhzhya Nuclear Power Plant [(ZNPP)] and its attempted illegal annexation of the Ukrainian territory on which the plant is located".[3]

4. On 28 September 2023, the General Conference, at its 67th regular session, adopted resolution GC(67)/RES/16[4] on nuclear safety, security and safeguards in Ukraine, in which it "fully support[ed] the continued and reinforced physical presence of the IAEA Support and Assistance Mission to Zaporizhzhya (ISAMZ), given the ongoing risks to nuclear safety, security, and safeguards implementation at the ZNPP" and "[c]all[ed] for the urgent withdrawal of all unauthorized military and other unauthorized personnel from Ukraine's ZNPP and for the plant to be immediately returned to the full control of the competent Ukrainian authorities consistent with the existing licence issued by the State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) to ensure its safe and secure operation and in order for the Agency to conduct safe, efficient, and effective safeguards implementation, in accordance with Ukraine's comprehensive safeguards agreement and additional protocol". In addition,

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[1] United Nations General Assembly resolution A/RES/ES-11/4, adopted on 12 October 2022: https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/630/66/PDF/N2263066.pdf?OpenElement, para. 3.

[2] IAEA Board of Governors resolution GOV/2022/71, adopted on 17 November 2022, para. 1.

[3] IAEA Board of Governors resolution GOV/2022/71, adopted on 17 November 2022, para. 2.

[4] IAEA General Conference resolution GC(67)/RES/16, adopted on 28 September 2023, paras 1 and 2.

it "[f]ully support[ed] the Agency's continued provision, upon request, of technical support and assistance to Ukraine to help ensure the safe and secure operation of nuclear facilities and activities involving radioactive sources, including the continued physical presence of IAEA technical experts at the Chornobyl, Rivne, Khmelnytskyy, and South Ukraine Nuclear Power Plants" and "[e]ncourage[d] Member States to offer political, financial, and in-kind support to the IAEA comprehensive programme of technical support and assistance to Ukraine, including through the provision of necessary nuclear safety and security equipment as requested by Ukraine".[5]

5. On 7 March 2024, the Board of Governors adopted resolution GOV/2024/18[6] on nuclear safety, security and safeguards in Ukraine, in which it "[r]eiterate[d] its grave concern that the Russian Federation ha[d] not heeded the previous calls of the Board of Governors and General Conference contained in their respective resolutions to withdraw its military and other personnel from the ZNPP" and, inter alia, "call[ed] for the urgent withdrawal of all unauthorized military and other unauthorized personnel from Ukraine's ZNPP".

6. On 11 July 2024, the UN General Assembly adopted resolution A/RES/78/316[7] on the safety and security of nuclear facilities of Ukraine, including the ZNPP, in which it "[w]elcome[d] and encourage[d] the continued efforts of the Director General of the [Agency] to address the risks to nuclear safety and security, as well as to safeguards implementation at the [ZNPP]" and "[c]alle[d] upon all parties to the armed conflict to implement fully the 'seven indispensable pillars for ensuring nuclear safety and security during an armed conflict' and the five concrete principles of the Director General of the [Agency] to help to ensure nuclear safety and security at the [ZNPP]". Furthermore, it "[c]alled upon [UN] Member States to continue to support the efforts of the Director General of the [Agency] to uphold nuclear safety, security and safeguards implementation at all nuclear facilities in Ukraine".

7. On 20 September 2024, the General Conference, at its 68th regular session, adopted resolution GC(68)/RES/15[8] on nuclear safety, security and safeguards in Ukraine, in which it "[w]elcom[ed] with appreciation the continued efforts of the Director General and IAEA Secretariat to address nuclear safety and security risks in Ukraine" and "[c]all[ed] upon the Russian Federation, until it return[ed] Ukraine's ZNPP to the full control of the competent Ukrainian authorities, to provide ISAMZ with unrestricted and timely access to and from all relevant locations at and around the ZNPP and open information sharing in order to allow the [Agency] to fully report on the nuclear safety and security situation at the site and to undertake vital safeguards activities". In addition, it "[f]ully support[ed] the Agency's continued provision, upon request, of technical support and assistance to Ukraine to help ensure the safe and secure operation of nuclear facilities and activities involving radioactive sources, including the continued physical presence of IAEA technical experts at the Chornobyl, Rivne, Khmelnytskyy, and South Ukraine Nuclear Power Plants" and "[e]ncourage[d] Member States to continue to offer political, financial, and in-kind support to the IAEA comprehensive programme of technical support and assistance to Ukraine, including through the provision of necessary nuclear safety and security equipment as requested by Ukraine".[9]

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[5] IAEA General Conference resolution GC(67)/RES/16, adopted on 28 September 2023, paras 3 and 4.

[6] IAEA Board of Governors resolution GOV/2024/18, adopted on 7 March 2024, paras 2 and 3.

[7] United Nations General Assembly resolution A/RES/78/316, adopted on 11 July 2024: A/RES/78/316 (undocs.org), paras 6, 9 and 11.

[8] IAEA General Conference resolution GC(68)/RES/15, adopted on 20 September 2024, paras 3 and 4.

[9] IAEA General Conference resolution GC(68)/RES/15, adopted on 20 September 2024, paras 5 and 6.

8. On 24 February 2025, the UN General Assembly adopted resolution A/RES/ES-11/7[10] on advancing a comprehensive, just and lasting peace in Ukraine, in which it "[r]eiterate[d] its call for the immediate cessation of attacks against critical energy infrastructure, which increase the risk of a nuclear accident or incident" and "[u]rge[d] all Member States to cooperate in the spirit of solidarity to address the global impacts of the war on […] nuclear security and safety […]".

9. During the reporting period[11], from 28 February to 30 May 2025, the Agency maintained the continued presence of its staff at the five nuclear sites in Ukraine without any interruption and remained committed to providing any support it could to help ensure the safe and secure operation of nuclear facilities and activities involving radioactive sources in Ukraine. This includes undertaking impartial assessments of the situation pertaining to nuclear safety and security; providing relevant information updates to the public and the international community; and delivering on the comprehensive programme of technical support and assistance to Ukraine by providing nuclear safety- and security-related equipment and technical expertise and advice, including assistance for ensuring medical support and care for Ukrainian operating staff, for ensuring radiation safety and nuclear security of radioactive sources, and for mitigating the consequences associated with the destruction of the Kakhovka dam.

10. Agency staff present at the five nuclear sites in Ukraine continued to monitor and assess the situation against the seven indispensable pillars for ensuring nuclear safety and security during an armed conflict ('Seven Pillars') first outlined by the Director General at the meeting of the Board of Governors held on 2 March 2022 and described in document GOV/2022/52[12]. In addition, ISAMZ continued to monitor and report on observance of the five concrete principles for protecting the ZNPP ('Five Principles') established by the Director General at the meeting of the United Nations Security Council (UNSC) on 30 May 2023 and described in document GOV/2023/30[13].

11. The Agency still assesses the overall situation with respect to nuclear safety and security at the ZNPP to be precarious, with six of the Seven Pillars compromised either fully or partially during the reporting period. Military activities in the vicinity of the ZNPP, as well as the presence of Russian armed troops and military equipment on site, continued to be reported by ISAMZ, with no significant change compared to the previous reporting period.

12. While ISAMZ did not find any indications that the Five Principles were not being observed during the reporting period, military activities continue to put the Five Principles and the overall nuclear safety and security of the plant at great risk. Notwithstanding, the Agency's ability to make its assessment and report impartially and objectively on the nuclear safety and security situation at the site, and to fully assess whether all Five Principles are being observed at all times, continues to be limited by the restrictions on access and information imposed on ISAMZ.

13. The Agency continued to face challenges in obtaining guarantees and ensuring the safety of the ISAMZ teams during the reporting period, resulting in delays in the rotations of ISAMZ teams.

14. Agency staff present in Ukraine continued to report drones observed flying in close proximity to the operating nuclear power plants (NPPs) and frequent air raid alarms at these sites. The drone incident on 14 February 2025 at the New Safe Confinement (NSC) that houses the remains of Unit 4 of Chornobyl NPP (ChNPP), which was severely damaged in the 1986 accident, did not result in release

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[10] United Nations General Assembly resolution A/RES/ES-11/7, adopted on 24 February 2025: A/RES/ES-11/7 (undocs.org), paras 8 and 9.

[11] Following the reporting period referred to in GOV/2025/11.

[12] Report by the Director General to the Board of Governors, document GOV/2022/52, issued on 9 September 2022, para. 8.

[13] Report by the Director General to the Board of Governors, document GOV/2023/30, issued on 31 May 2023, para. 23.

of radioactive material into the environment. However, the NSC suffered extensive damage, compromising its intended confinement function and planned lifetime, with potential implications for nuclear safety. The response efforts to extinguish fires and smouldering parts of the insulation located within the outer layer of the NSC arch and the walls required extensive resources and continued until 7 March 2025, when the ChNPP declared an end to the "emergency situation". A detailed assessment of the damage to the NSC and its systems is pending and will guide further recovery efforts.

15. This report has been produced in response to resolution GOV/2022/17[14], in which the Board of Governors requested the Director General and the Secretariat to "continue to closely monitor the situation [in Ukraine], with a special focus on the safety and security of Ukraine's nuclear facilities and report to the Board on these elements, as required"; to resolution GOV/2022/58[15], in which the Board of Governors requested the Director General to "continue to closely monitor the situation and report formally to the Board on these matters as long as required"; to resolution GOV/2022/71[16], in which the Board of Governors requested the Director General to "continue to closely monitor the situation [in Ukraine] and regularly report formally to the Board on these matters as long as required"; to resolution GOV/2024/18[17], in which the Board of Governors requested the Director General to "continue to report comprehensively on the observance of the five concrete principles to help ensure nuclear safety and security at ZNPP as well as the Director General's 'seven indispensable pillars for ensuring nuclear safety and security'" and that he "continue to closely monitor the situation and continue to report formally to the Board on these matters for as long as required."; and to resolution GOV/2024/73[18], in which the Board of Governors requested the Director General to "continue providing regular updates to the Board of Governors on the nuclear safety, security and safeguards situation in Ukraine, including the status of critical energy infrastructure essential for nuclear safety and security" and to "propose additional measures immediately if risks arise to prevent a nuclear accident."

16. This report provides a summary of the situation in Ukraine regarding nuclear safety, security and safeguards from 28 February to 30 May 2025. It also covers progress made by the Agency in providing technical support and assistance in nuclear safety and security to Ukraine. Finally, this report summarizes relevant aspects of the implementation under the current circumstances of safeguards in Ukraine under the Agreement Between Ukraine and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons and the Protocol Additional thereto.

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[14] IAEA Board of Governors resolution GOV/2022/17, adopted on 3 March 2022, para. 4.

[15] IAEA Board of Governors resolution GOV/2022/58, adopted on 15 September 2022, para. 7.

[16] IAEA Board of Governors resolution GOV/2022/71, adopted on 17 November 2022, para. 8.

[17] IAEA Board of Governors resolution GOV/2024/18, adopted on 7 March 2024, para. 6.

[18] IAEA Board of Governors resolution GOV/2024/73, adopted 12 December 2024, para. 4.

B. Nuclear Safety and Security in Ukraine

B.1. Agency Missions to Ukraine

B.1.1. IAEA Support and Assistance Missions to the Zaporizhzhya, Rivne, South Ukraine and Khmelnytskyy NPPs, and to the Chornobyl NPP Site

17. During the reporting period, the Agency maintained the continued presence of its staff, comprising up to 12 staff members in total across the 5 nuclear sites in Ukraine, through the uninterrupted deployment of IAEA Support and Assistance Missions to the ZNPP (ISAMZ), the Khmelnytskyy NPP (KhNPP) (ISAMIK), the Rivne NPP (RNPP) (ISAMIR), the South Ukraine NPP (SUNPP) (ISAMISU), and the ChNPP site (ISAMICH). The purpose of the continued presence of Agency staff at all nuclear sites in Ukraine is to help decrease the risk of a nuclear accident.

18. Agency staff at all five nuclear sites continued to meet with key management and operational personnel to exchange information, and continued to discuss the nuclear safety and security situation and observe key areas important for nuclear safety and security at the sites.

ISAMIR during its visit to the RNPP training centre on 14 March 2025. (Photo: RNPP)

19. The rotations of Agency staff at the KhNPP, the RNPP, the SUNPP, and the ChNPP site during the reporting period were conducted as planned. During the reporting period, the Agency continued to engage in intensive consultations with both sides to obtain guarantees regarding the safety of the ISAMZ teams and to identify suitable arrangements for safe rotations, which are essential to maintaining the indispensable mission to help ensure nuclear safety and security at the ZNPP. The delayed rotation, noted in document GOV/2025/11[19], of the ISAMZ team that had been at the site since December 2024

[19] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, para. 22.

was completed safely on 1 March 2025, and was followed by another delayed rotation that was completed safely on 23 May 2025.

20. The Agency continued implementing rigorous preparations and logistics for the safe and secure deployment of missions to Ukraine. As of 30 May 2025, a total of 196 missions comprising 169 Agency staff members had been deployed as part of the continued presence at all 5 nuclear sites in Ukraine, totalling over 424 person-months in Ukraine. Half of the 169 Agency staff members participated in 2 or more missions, while some participated in over 10 missions. Agency staff at all nuclear sites in Ukraine continued to experience frequent air raid alarms, some of which required them to take shelter.

21. The main findings and observations from the IAEA Support and Assistance Missions are reflected in Section B.2.

B.1.2. Nuclear Safety and Security Missions to Electrical Substations

22. On 1 March 2025, the Agency concluded a mission to Ukraine during which a further visit was made to electrical substations identified as critical for the nuclear safety of the Ukrainian NPPs. The mission had begun on 24 February 2025 and included visit to three substations covered by the Agency during the missions conducted in October and December 2024 and reported in document GOV/2025/11, and to four additional substations.

23. The purpose of the mission was to:

- Document the damage to the substations caused by military activity, including any further damages that may have been sustained since previous missions;
- Assess the impact of the damage on the safe operation of the nuclear facilities served by the substations;
- Observe the substations' security measures against related threats; and
- Identify any additional actions that could be taken or technical assistance that could be provided by the Agency to further strengthen the safe operation of NPPs in Ukraine.

24. During the mission, the Agency documented the damage and gathered essential evidence highlighting the vulnerabilities of the electricity grid that have resulted from attacks on Ukraine's energy infrastructure. The mission confirmed that there had not been any additional air attacks against the substations visited by the Agency in 2024, and that the staff of the substations had been able to repair some of the critical equipment at these sites, partially restoring the functions related to the nuclear safety of NPPs in Ukraine. In addition, most of the substations not visited by the Agency in 2024 were confirmed to have been severely damaged during the ongoing armed conflict. The damage had been subsequently repaired, and the substations were fully operational and fulfilling their intended functions.

Agency staff visiting one of the critical substations in Ukraine to assess the damage and its impact on the nuclear safety of NPPs in February 2025. (Photo: NEK UKRENERGO)

Agency staff receiving briefing on the status of the restoration process at the control room of one of the visited substations on 25 February 2025. (Photo: NEK UKRENERGO)

25. The Agency staff concluded that the ability of the electricity grid in Ukraine to provide a reliable off-site power supply to Ukrainian NPPs remained significantly degraded. In the event of a potential electricity grid transient, there would be an increased likelihood of the total collapse of the electrical grid with a complete loss of off-site power at the NPPs, potentially for an extended period.

B.1.3. Medical assistance and procurement mission

26. From 24 March to 3 April 2025, an Agency team comprising staff from the VIC Medical Service and Procurement Services conducted a follow-up mission in Ukraine within the framework of the medical assistance programme for NPP operating staff. The mission focused on evaluating the effectiveness of delivered medical support, ensuring the proper utilization of resources, and identifying evolving critical medical needs.

27. During the mission, the team conducted on-site evaluations of delivered medical supplies at the NPPs and nearby medical facilities, alongside assessments of infrastructure, current capacity and emergency response readiness. The team also handed over a fully equipped ambulance vehicle to Energoatom's Emergency Technical Centre with the aim of strengthening the centre's capacity to perform critical, life-saving operations in an emergency.

Agency staff meeting representatives of Energoatom and the SNRIU on 28 March 2025.

B.2. Overview of the Situation at Nuclear Facilities in Ukraine

28. The Agency continued to monitor and assess the nuclear safety and security situation at Ukraine's nuclear facilities and activities involving radioactive sources against the Seven Pillars. In addition, the Agency continued to monitor and assess observance of the Five Principles aimed at ensuring the integrity and the nuclear safety and security of the ZNPP. The Agency continued to report regularly on its observations and findings.

The Seven Pillars outlined for the first time by the Director General at the meeting of the Board of Governors held on 2 March 2022.

The Five Principles established by the Director General during his address to the UNSC on 30 May 2023.

29. An overview of the current nuclear safety and security situation at Ukraine's nuclear facilities and activities involving radioactive sources against the Seven Pillars, as well as an overview of the observations made at the ZNPP against the Five Principles, are presented below. A chronology of events in Ukraine during the reporting period is provided in the Annex.

B.2.1. Zaporizhzhya NPP

30. The Agency's assessment is that the overall situation at the ZNPP with respect to nuclear safety and security has not changed significantly since the previous reporting period. The nuclear safety and security situation continues to be precarious, with six of the Seven Pillars compromised either fully or partially during the reporting period. Despite some improvements in information sharing from the ZNPP, ISAMZ continued to face limitations in the provision of timely and appropriate access to all areas and information related to nuclear safety and security that might have implications for the Agency's assessment of the overall situation.

> "***What was once virtually unimaginable – evidence of military action in the vicinity of a major nuclear facility – has become a near daily occurrence and a regular part of life at Europe's largest nuclear power plant. From a nuclear safety perspective, this is clearly not a sustainable situation. The IAEA remains committed to doing everything we can to prevent a nuclear accident during this tragic war."***
>
> Director General Rafael Mariano Grossi, 24 April 2025

31. Throughout the reporting period all units remained in cold shutdown and the ZNPP informed ISAMZ that there were no plans to place any reactor unit in hot shutdown. The Agency's understanding is that no reactor is to be restarted as long as the nuclear safety and security situation at the ZNPP remains in jeopardy due to the conflict.

32. During the reporting period, the ZNPP operated some of the nine mobile diesel boilers at the site to provide heating for the plant and the city of Enerhodar. The heating season ended on 3 April 2025, after which the site operated some of the boilers for its own needs. The diesel steam generators (DSGs) were operated for 18 days in March 2025, for 16 days in April 2025, and from 13 May 2025 onwards to

provide the steam required by the ZNPP for water treatment, including the processing of liquid radioactive waste.

Physical integrity

33. During the reporting period, ISAMZ did not observe any impact on the physical integrity of the six reactor units or the on-site storage facilities housing spent fuel, fresh fuel and radioactive waste. However, ISAMZ continued to report military activity in the vicinity of the plant, such as frequent explosions and gunfire that could potentially affect the nuclear safety and security of the site.

Nuclear safety and security systems and equipment

34. During the reporting period, ISAMZ was able to routinely visit the reactor halls and other key locations within the reactor containment area, the safety systems rooms, the main control rooms (MCRs), the supplementary control rooms, the electrical rooms, the instrumentation and control rooms and parts of the turbine halls of all six units. ISAMZ also visited the dry spent fuel storage facility and the storage facilities for fresh fuel at the site. Moreover, ISAMZ visited the cooling pond, the discharge channel isolation gate, the essential service water (ESW) sprinkler ponds, including the drilled wells, and the emergency diesel generators (EDGs). ISAMZ did not report any major issues affecting the overall nuclear safety and security of the plant based on the observations made during these visits.

35. During multiple visits to the reactor containment areas and the safety system rooms across several units, ISAMZ noted the presence of boric acid deposits. ISAMZ also observed condensation on the walls and floors in several reactor halls, along with early signs of corrosion in certain unpainted sections. The ZNPP explained that the condensation resulted from the reactors being in a cold shutdown state. While the presence of condensation does not present a nuclear safety issue in the short term, the early signs of corrosion indicate potential degradation of the equipment that would need to be addressed to ensure that it does not affect nuclear safety in the longer term. ISAMZ will continue to monitor the situation.

36. ISAMZ continued to be prevented from visiting the western part of the turbine halls on all levels of all units throughout the reporting period, without justification being provided on a sound nuclear safety or security basis. Therefore, ISAMZ continued to be unable to independently confirm whether there were any issues or materials present in these parts of the turbine halls that could potentially affect the nuclear safety or security of the plant. ISAMZ continued to report a military presence in these areas.

37. ISAMZ continued to gather information and independently monitor and observe maintenance activities based on the maintenance plans for 2025. ISAMZ reported the following:

- Safety train I of Unit 1 was under maintenance from 23 March to 18 April 2025, to service some pumps, tanks, valves, electrical motors, electrical equipment and ventilation system, and to perform cleaning on the heat exchangers.
- Maintenance of safety train II of Unit 1 was completed[20] on 2 March 2025, and included cleaning the heat exchangers and some valves and electrical equipment.
- Safety train III of Unit 1 was under maintenance from 3 to 20 March 2025, to service some pumps, tanks, valves, electrical motors, electrical equipment and the ventilation system, and to perform cleaning of the heat exchangers.
- Safety train II of Unit 4 was placed under maintenance on 22 April 2025, to service some pumps, valves, hydraulic shock absorbers, electrical motors of pumps and electrical equipment, as well

[20] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, para. 53.

as to repair and paint floors, walls, metal structures and pipelines in the premises of the reactor building.

- Safety trains II of Units 1, 2 and 3 were unavailable between 19 and 23 May 2025 for the purpose of assessing the integrity of the common essential service water system pipelines, as part of the long term operation process.
- A maintenance programme for the turbine departments for Units 2 to 6 commenced in April 2025, starting with Unit 5. ISAMZ was informed that maintenance activities for the turbine department of Unit 1 had been completed and that the maintenance works for all units were scheduled to be completed before the end of 2025.

38. ISAMZ continued to monitor the situation regarding the availability of cooling water by gathering information and visiting some of the ZNPP's cooling water facilities. The team visited some pumping stations on 25 March 2025 and did not report any issues with respect to nuclear safety and security. Throughout the reporting period, ISAMZ also reported that:

- The 11 groundwater wells continued to provide approximately 250 cubic metres of cooling water per hour to the 12 ESW sprinkler ponds;
- The height of the water in the ESW sprinkler ponds, which currently serve as the ultimate heat sink for the plant, remained sufficient to provide cooling to all six units and safety systems in the cold shutdown state;
- Water continued to be pumped into the Zaporizhzhya thermal power plant (ZTPP) discharge channel from both the ZTPP inlet channel and from water on the reservoir side of the isolation gate of the discharge channel. During the reporting period, the height of the water in the ZTPP discharge channel fluctuated between 16.14 metres and 16.62 metres;
- Water from the ZTPP discharge channel and unused water from the 11 groundwater wells continued to be pumped into the ZNPP cooling pond, reportedly at a maximum flow rate of 270 cubic metres per hour;
- ISAMZ had been informed that no further excavation work had been undertaken near the ZNPP cooling towers discharge channel[21], and that cleaning of the channel was completed; and
- The height of the cooling pond reduced slightly during the reporting period. At the end of the reporting period, the height of the cooling pond was 14.00 metres, a decrease of 12 centimetres from the 14.12 metres reported in document GOV/2025/11[22].

39. ISAMZ also learned that an external organization[23] had performed an on-site assessment of the damage to the cooling tower which suffered a major fire in August 2024[24]. Once the results of the assessment were received, the ZNPP would decide whether to decommission or repair the cooling tower.

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[21] Report by the Director General to the Board of Governors, document GOV/2024/63, issued on 13 November 2024, para. 48.

[22] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, para. 55.

[23] See para. 2 above.

[24] Report by the Director General to the Board of Governors, document GOV/2024/45, issued on 2 September 2024, para. 72.

40. During the reporting period, ISAMZ frequently observed the successful testing of the EDGs and the respective safety system trains from locations such as the MCRs, the supplementary control room and the local EDG rooms.

41. ISAMZ also conducted separate walkdowns where they observed the status of the EDGs and the diesel fuel tanks. During the walkdown on 12 May 2025, ISAMZ observed some loose screws on some EDGs in Units 2 and 3 and indications that work may have been performed on one EDG of Unit 3. While the ZNPP noted that the screws should not have been loose, it denied any work being performed on the EDG of Unit 3.

42. During the reporting period, ISAMZ continued to observe that some of the 6 mobile diesel generators (MDGs) installed following the post-Fukushima accident stress tests were not in their designated locations. On 19 March 2025, ISAMZ visited the MDGs and was informed that one of them was at the Zaria substation and another was at the water pumping station. The ZNPP informed ISAMZ that the 2 MDGs located off-site could be brought back to their designated locations within 30 minutes if necessary. Furthermore, on that same day, ISAMZ observed 3 new MDGs[25] located next to Units 2, 3 and 5 and was informed that they had still not yet been commissioned because the plans for the connection to the units were still being designed by an external organization from the Russian Federation[26]. However, in case of an emergency, these MDGs could be connected using temporary cables. On 24 March 2025, ISAMZ observed the successful idle test of one of these newly acquired MDGs. The ZNPP also informed ISAMZ that 3 more MDGs were being manufactured and were expected to be delivered by the end of 2025.

43. ISAMZ did not observe any new significant issues related to nuclear safety and security during the reporting period. Nevertheless, the continued reliance on groundwater for cooling remains an interim solution for the reactors, provided that they are kept in cold shutdown, and for the spent fuel. ISAMZ noted that although maintenance activities are being conducted, they have not yet reached the level of comprehensiveness that would typically be expected under normal operating conditions.

Operating staff

44. During the reporting period, the average total number of staff at the ZNPP was approximately 2100 on working days, and approximately 300 on weekends and designated holidays.

45. ISAMZ reported no significant deviation regarding staffing during the reporting period in comparison to the situation reported in document GOV/2025/11[27]. Furthermore, ISAMZ reported the following:

– The ZNPP shared information to the effect that it was continuing with its organizational restructuring to comply with Rosatom[28] practices. The restructuring will include the reassignment of some staff, such as maintenance staff, to external companies that will subcontract services to the ZNPP. The restructuring is expected to be completed by the end of 2025[29];

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[25] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, para. 57.

[26] See para. 2 above.

[27] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, paras 60, 61 and 62.

[28] See para. 2 above.

[29] See para. 2 above.

- Between 100 and 150 personnel from NPPs in the Russian Federation[30] are working at the ZNPP on a rotational basis to fill vacant positions. This number is reported by the ZNPP to gradually decrease as vacant positions are filled by permanent staff;
- 56 staff members were working in the mechanical workshop;
- Approximately 600 ZNPP staff were involved in the maintenance of safety trains, together with subcontractors;
- 20 staff members were working in the main maintenance building of the 750 kV open switchyard; and
- Approximately 120 staff members were working in the ZNPP training centre.

46. ISAMZ was informed by the ZNPP of various training and educational programmes established or in process of establishment aimed at meeting the staff needs of the ZNPP.[31]

Off-site power supply

47. The status of the off-site power supply to the ZNPP remained vulnerable throughout the reporting period, with the ZNPP continuing to rely on only two of ten off-site power lines — the 750 kV Dniprovska line and the 330 kV Ferosplavna 1 back-up line — to receive off-site power supply. While no total loss of off-site power occurred during the reporting period, the ZNPP was disconnected from the 330 kV Ferosplavna 1 back-up line for a few hours on 20 March 2025 at the request of the ZTPP open switchyard, to conduct repair work on breakers.

48. Following repair works performed in the ZTPP open switchyard in March 2025, the connection between the ZTPP 330 kV open switchyard and the autotransformer located in the ZNPP 750 kV open switchyard was restored, providing an alternative means of supplying back-up power to the ZNPP.

49. On 7 May 2025, the 330 kV Ferosplavna 1 back-up line was disconnected as a result of damage to one phase of the power line 23 kilometres from the Ferosplavna substation. Ukraine's Ministry of Energy reported that the damage was due to "Russian shelling". Energoatom informed the Agency that the location of the damaged line was in an area where military activities were regularly conducted, making it difficult for maintenance teams to safely access the area to perform repairs. The 330 kV Ferosplavna 1 back-up line remained disconnected by the end of the reporting period.

50. ISAMZ continued to monitor the maintenance activities performed on electrical components located on site and in the 750 kV and 330 kV open switchyards that provide off-site power to all six units, although it did not have access to the 330 kV switchyard.

51. ISAMZ was informed that, depending on off-site power availability, the electrical maintenance campaign for 2025 would include the following activities:

- For the first half of 2025: the main transformers of Units 4 and 5, and the first busbar system of the 750 kV open switchyard; and

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[30] See para. 2 above.

[31] See para. 2 above.

– For the second half of 2025: the main transformers of Units 3 and 6, the second busbar system of the ZNPP 750 kV open switchyard, and the back-up power transformers RTSN-1,2, RTSN-3,4, and RTSN-5,6.

52. On 10 March 2025, ISAMZ was informed that maintenance on the main transformer of Unit 5, including the unit transformer breakers in the 750 kV open switchyard, had started. ISAMZ visited the ZNPP 750 kV open switchyard on 13 March 2025 and observed maintenance being performed on breakers. On 18 March 2025, ISAMZ visited Unit 5 and observed maintenance being performed on one of the three phases of the unit's main transformer, which included heat exchanger cleaning, and valve maintenance (disassembling and reassembling, seal replacement and shaft inspection). The maintenance of the first busbar system of the 750 kV open switchyard was completed between 7 and 17 April 2025, and on 18 April 2025, ISAMZ was informed that maintenance of the main transformer of Unit 5 had been completed. The Zaporozhska voltage stabilizer was under maintenance between 22 and 30 April 2025.

Logistical supply chain

53. During the reporting period, the supply chain to the ZNPP continued to be provided by the Russian Federation. ISAMZ continued to access relevant locations at the ZNPP — where permitted — to assess the status and availability of spare parts, including visits to the mechanical and electrical warehouses, and to hold discussions with the ZNPP staff. However, ISAMZ has been denied permission to visit the central warehouse[32] since 31 July 2024, reportedly due to safety concerns.

54. ISAMZ was informed that the site has sufficient fuel for 10 days of EDG operation, and that the supply of diesel fuel has not been disrupted. ISAMZ visited the diesel fuel farm on 28 March 2025 following media reports that were refuted by the ZNPP regarding a fuel leakage. ISAMZ noted the following:

– The three fuel tanks were intact and there was no sign of recent repairs and no fuel odour; and

– The tank fuel measurement system had reportedly been repaired six months previously; ISAMZ observed that the fuel levels in tanks 1 and 2 were full, while tank 3 — which the ZNPP reported was being used for daily purposes — was at a lower level.

> "***As the IAEA is continuously present at the ZNPP, we were able to quickly examine the storage tanks ourselves and provide independent and reliable information about the situation there to the international community. This is another example underlining the importance of the IAEA's presence at the nuclear facilities in Ukraine. We will remain at these sites for as long as it is needed to help prevent a nuclear accident."***
>
> Director General Rafael Mariano Grossi, 28 March 2025

55. On 7 April 2025, ISAMZ visited the electrical and mechanical warehouses and did not report any deviation compared to the previous ISAMZ visits[33]. ISAMZ was informed that an inventory of these two warehouses is planned to commence on 1 June 2025 and is expected to take three months.

56. The observations made by ISAMZ continued to indicate that the supply chain appeared to be in place. However, while items originating from the Russian Federation were observed by ISAMZ, a significant number of the items observed in the electrical and mechanical warehouse predated the start of the armed conflict. The inaccessibility of the central warehouse — reportedly due to safety concerns — affected the ability of ISAMZ to conduct a more comprehensive assessment of the availability of

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[32] Report by the Director General to the Board of Governors, document GOV/2024/63, issued on 13 November 2024, para. 60.

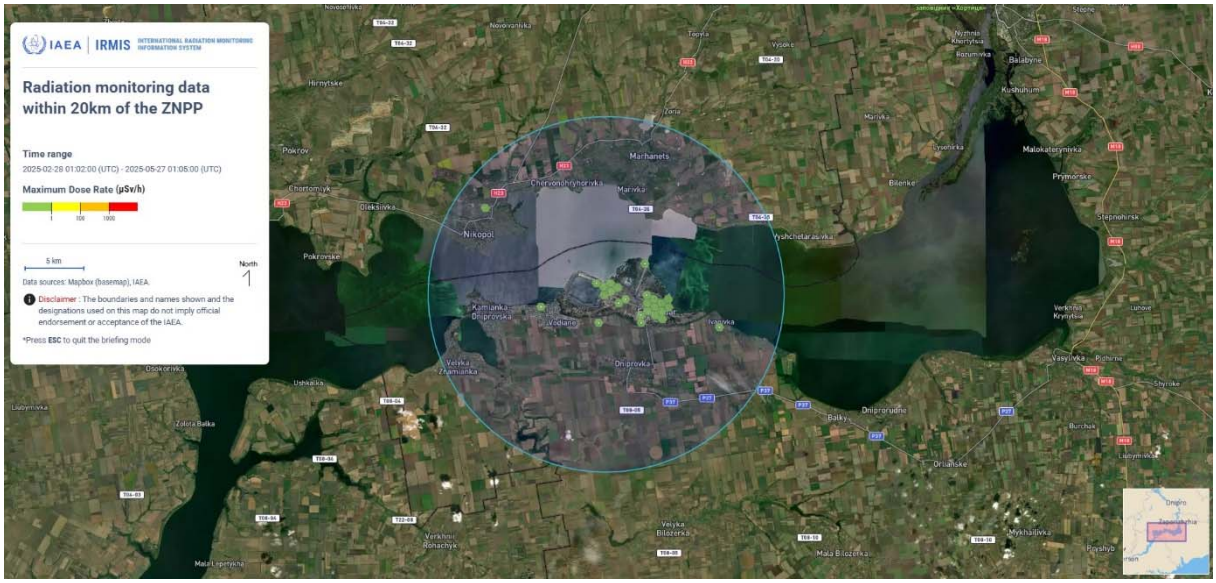
[33] Report by the Director General to the Board of Governor, document GOV/2024/30, issued on 27 May 2024, para. 68.

spare parts and the status of the supply chain. ISAMZ will continue to monitor the situation so that it can independently confirm that all necessary and compatible spare parts are available or could be supplied to the ZNPP as needed.

On-site and off-site radiation monitoring systems and emergency preparedness and response

57. During the reporting period, there was no change to the status of on-site and off-site radiation monitoring stations reported in document GOV/2024/63. All on-site radiation monitoring stations were operational, and all but four of the off-site radiation monitoring stations continued to report monitoring data.

58. The online transmission of data from the ZNPP's radiation monitoring systems to the SNRIU continued to be interrupted and was not restored during the reporting period. Data from the on-site and off-site radiation monitoring stations continued to be provided to ISAMZ manually several times a week and were uploaded to and displayed on the Agency's International Radiation Monitoring Information System (IRMIS). ISAMZ conducted independent radiation monitoring within the ZNPP perimeter. However, the backpack radiation monitoring system used by ISAMZ was often unable to establish a connection with the global positioning systems within the ZNPP perimeter, so it was not possible for the results to be uploaded to IRMIS. Consequently, ISAMZ continued the practice of conducting gamma dose rate measurements at a series of fixed points on a regular basis. All radiation levels reported to and collected by ISAMZ were normal throughout the reporting period.



Radiation monitoring data from the monitoring stations in the 20 km radius around the ZNPP. Radiation levels are normal.

59. The ZNPP informed ISAMZ that the new on-site emergency plan is pending final approval by relevant off-site organizations of the Russian Federation[34] and is expected to be completed by mid-2025. The ZNPP continues to rely on the temporary on-site emergency response centre established in 2022 when the original centre became unavailable.

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[34] See para. 2 above.

60. ISAMZ confirmed that the next large-scale ZNPP emergency exercise is scheduled for the second half of 2025.

Communications

61. Official communication between the ZNPP and the SNRIU has not been restored. The ZNPP remains in contact with the Ukrainian electricity grid operator on matters related to the off-site power supply.

62. ISAMZ reported that Internet connections remained functional on-site and that it was able to connect to the local mobile telephone network off-site as needed. However, ISAMZ continued to report ongoing issues at the ZNPP with communications utilizing satellite phones and equipment with global positioning systems (i.e. the backpack radiation monitoring system).

Five concrete principles for protecting the ZNPP

63. During the reporting period, the Agency continued to monitor observance of the Five Principles at the ZNPP. ISAMZ conducted regular walkdowns within the ZNPP site. However, ISAMZ was not permitted to access several areas — including the western part of the turbine halls of all six units, the ZNPP cooling pond isolation gate, the ZTPP 330 kV open switchyard, and the off-site central warehouse — throughout the entire reporting period. The access restrictions imposed on ISAMZ by the ZNPP continue to limit the Agency's ability to fully assess whether all Five Principles are being observed at all times.

64. Notwithstanding these limitations, ISAMZ did not find any indications that the Five Principles were not being observed during the reporting period. However, ISAMZ observed that some principles were put at risk during the reporting period.

65. Although ISAMZ could not confirm any attacks from or against the plant targeting the reactors, spent fuel storage, or other critical infrastructure or personnel, it continued to report that it regularly heard explosions and gunfire and that military activities involving drones were reported by the ZNPP within the site perimeter and at various distances from the site perimeter.

66. On 17 April 2025, ISAMZ was informed by the ZNPP that a drone had been shot down and crashed near the ZNPP training centre on 16 April 2025 at approximately 14:40 local time. ISAMZ visited the impact site on 17 April 2025 and observed white ash covering a small area. ISAMZ was shown what the ZNPP identified as the remains of a drone, including four small electric motors lying on the ground.

67. On 23 April 2025, ISAMZ heard rapid gunfire from different locations at the ZNPP and observed armed troops firing machine guns from ground level towards the sky. The ZNPP informed ISAMZ that a drone was flying around the site, requested ISAMZ to remain in the administrative building housing its office and living quarters, and postponed the team's planned walkdown.

68. On 21 May 2025, ISAMZ reported hearing gun fire on several occasions during the morning. The ZNPP subsequently reported that a drone had attacked the ZNPP training centre. ISAMZ was not able to confirm the report as it had not been given access to the location of the reported attack.

69. ISAMZ did not observe any heavy weapons during walkdowns of the areas to which it had access. However, for the Agency to fully confirm the absence of heavy weapons at the ZNPP, timely and appropriate access to all areas important for nuclear safety and security is needed.

70. ISAMZ continued to report the presence of armed troops (which the Russian Federation claims are members of the Russian National Guard and chemical, biological, radioactive and nuclear (CBRN) specialists) and military equipment such as armoured personnel carriers, military logistics-type vehicles,

and weapon-mounted armoured vehicles. ISAMZ reported that armed troops prevented its access to the western parts of the turbine halls.

71. During the reporting period, the ZNPP continued to rely on a limited number of off-site power lines that have been susceptible to frequent disconnections due to military activity. While the ZNPP did not suffer a total loss of off-site power during the reporting period, the 330kV Ferosplavna 1 back-up line was disconnected on 7 May 2025 as a result of military activities and remained disconnected for the remainder of the reporting period. During this time the ZNPP remained connected to only one off-site power line, demonstrating that the third concrete principle continues to be at risk.

72. The ZNPP stated that key infrastructure at the site was protected by Russian troops and that additional physical protection measures had been put in place[35], as reported in documents GOV/2022/66 and GOV/2023/10. However, it is not possible for the Agency to fully confirm that all structures, systems and components essential for the safe and secure operation of the ZNPP are protected against attacks or acts of sabotage, due to limitations in access and information.

B.2.2. Khmelnytskyy, Rivne and South Ukraine NPPs

73. During the reporting period, the KhNPP, the RNPP and the SUNPP continued to be the only operating NPPs in Ukraine producing electricity for the Ukrainian network. There were no instances where reactor units were automatically shut down or disconnected from the grid, with all reactors (nine in total) at these sites remaining in operation during the reporting period, except for planned outages for maintenance and refuelling at five reactor units. However, on multiple occasions some reactor units were required to reduce power, either at the request of the grid operator due to grid limitations or following a decision by the plant management due to the occurrence of operational events.

74. Throughout the reporting period, frequent air raid alarms were reported by the Agency staff present at these NPPs, some of which required them to take shelter. On multiple occasions, ISAMISU reported hearing anti-aircraft fire. On 23 May 2025, ISAMISU observed a drone being intercepted by anti-aircraft fire.

Physical integrity

75. No physical damage was caused to the KhNPP, the RNPP or the SUNPP as a result of military activities during the reporting period. The Agency teams at all three NPPs continued to report on continued efforts to protect critical structures, systems and components, and vital structures through additional mitigatory measures.

Nuclear safety and security systems and equipment

76. During the reporting period, all nuclear safety and security systems at the KhNPP, the RNPP and the SUNPP continued to be fully functional and to operate as designed, except during periods when components were unavailable due to maintenance. The trains of the safety systems at reactor units in outage at the KhNPP, the RNPP and the SUNPP were sequentially placed into maintenance as part of the annual maintenance plans. The plants' operating staff conducted regular operational testing of the safety systems, some of which were observed by the Agency staff present at the site.

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[35] See para. 2 above.

Operating staff

77. All three NPPs reported that they had a sufficient number of qualified operating staff to ensure safe and secure plant operation. ISAMIK, ISAMIR and ISAMISU did not report any significant change in staffing levels during the reporting period. The operating staff at these NPPs continued to be exposed to increased stress due to the armed conflict, including as a result of frequent air raid alarms.

Off-site power supply

78. The ISAMIK, ISAMIR and ISAMISU teams based at the three operating sites reported that, in addition to periods of planned maintenance of some off-site power lines, the following disconnections of off-site power lines occurred:

- One 330 kV off-site power line was disconnected from the SUNPP between 01:31 and 22:00 local time on 28 February 2025 at the request of the grid operator;
- Four 110 kV off-site power lines were disconnected from the RNPP between 11:30 local time on 1 March and 04:00 local time on 2 March 2025 due to a technical fault;
- One 330 kV off-site power line was temporarily disconnected from the SUNPP by the national grid dispatcher during the day of 4 March 2025;
- One 750 kV off-site power line was temporarily disconnected from the KhNPP at the request of the grid operator on 21 March 2025, and was reconnected later that day; and
- One 750kV off-site power line was disconnected from the SUNPP for unplanned maintenance between 5 and 11 May 2025.

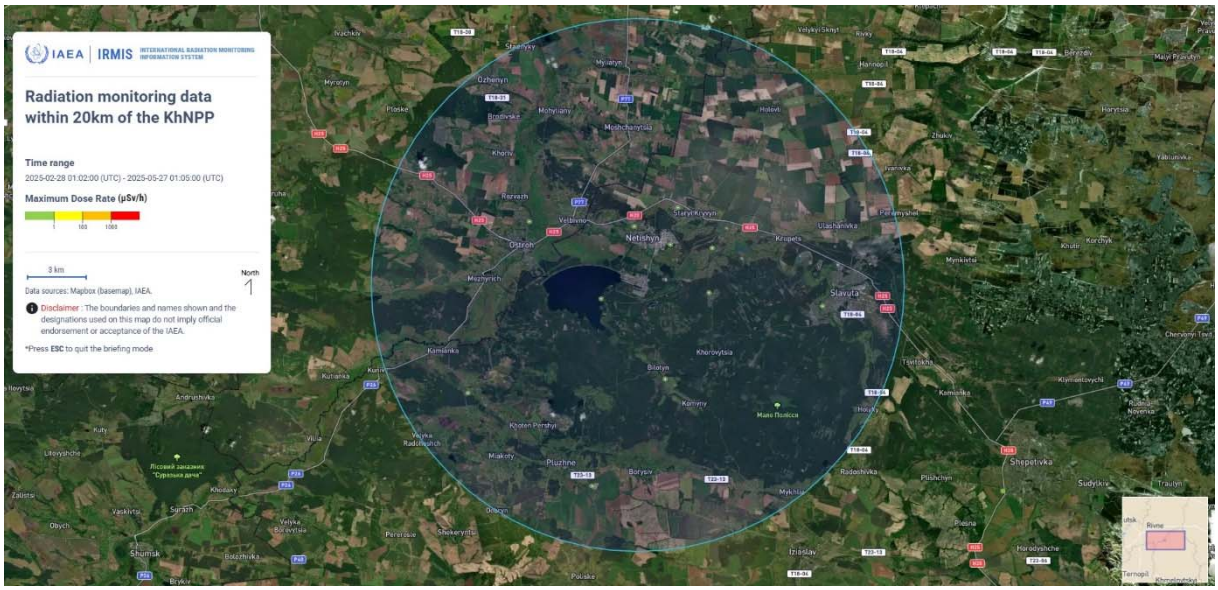
Logistical supply chain

79. During the reporting period, no new challenges to the logistical supply chains for the KhNPP, the RNPP and the SUNPP were identified. Alternative suppliers for some spare parts have been identified within Ukraine and have been progressing through the process to obtain regulatory approvals. Where approvals have been obtained, suppliers have started supplying parts to the operating plants.

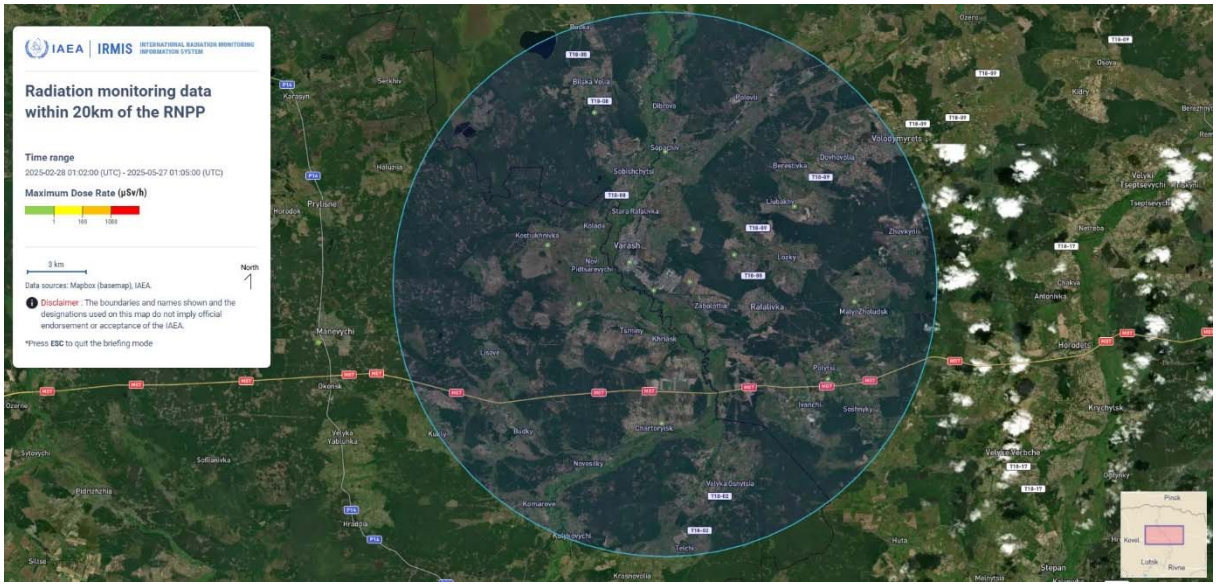
80. The three operating plants reported that they continued to cooperate and coordinate among themselves to ensure that they had the necessary parts for maintenance.

On-site and off-site radiation monitoring systems and emergency preparedness and response

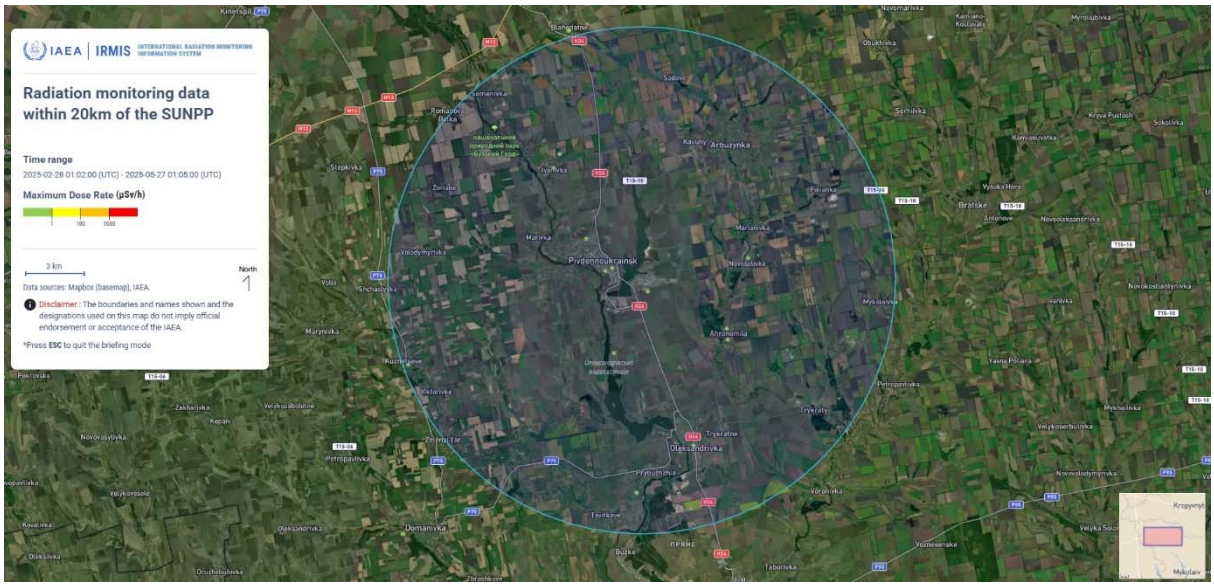
81. All off-site radiation monitoring stations were reported to be operational at the KhNPP, the RNPP, and the SUNPP throughout the reporting period, with the measurements transmitted to and displayed on IRMIS.



Radiation monitoring data from the monitoring stations in the 20 km radius around the KhNPP. Radiation levels are normal.



Radiation monitoring data from the monitoring stations in the 20 km radius around the RNPP. Radiation levels are normal.



Radiation monitoring data from the monitoring stations in the 20 km radius around the SUNPP. Radiation levels are normal.

82. The Agency teams at the KhNPP, the RNPP and the SUNPP visited the plants' respective on-site and off-site emergency centres during the reporting period and reported that the operating NPPs continued to maintain a high level of preparedness to respond in case of a nuclear emergency.

ISAMIR visiting an automated radiation monitoring system at the off-site emergency centre on 21 March 2025. (Photo: RNPP)

83. ISAMISU observed an emergency exercise conducted at the SUNPP on 23 May 2025 with the participation of the the SNRIU, the State Emergency Services of Ukraine, and first responders from the medical and firefighting services. The emergency arrangements tested included evacuation procedures,

initial medical response and transfer of an injured person to hospital, radiological monitoring, and interaction with off-site response organizations.

Communications

84. All means of communication remained available during the reporting period.

85. Agency staff reported that inspectors from the SNRIU continued to be present at all three NPPs.

ISAMIR participating in a joint meeting with the RNPP, on-site inspectors from the SNRIU, and representatives from SNRIU headquarters, on 8 April 2025. (Photo: RNPP)

B.2.3. Chornobyl NPP Site and Other Facilities

86. During the reporting period, ISAMICH assessed that six of the Seven Pillars continued to be compromised either partially or fully at the ChNPP site, as described below.

87. No new issues at any other facilities in Ukraine were reported to the Agency during the reporting period.

> ***"I remain extremely concerned about the drone strike that took place a month ago. It posed a serious threat to nuclear safety and badly damaged the site's New Safe Confinement, which was built at a huge expense for the international community. The challenging task ahead is to repair the structure and restore its confinement functionality. Attacking nuclear facilities is completely unacceptable."***
>
> Director General Rafael Mariano Grossi, 13 March 2025

Physical integrity

88. At the start of the reporting period, efforts were ongoing to mitigate the impact of the drone incident of 14 February 2025[36] on the NSC at the ChNPP site, by extinguishing smouldering parts of the insulation located within the outer layer of the NSC arch and the walls. As part of these efforts, approximately 330 openings were made in the outer cladding, each with an average size of 30 to 50

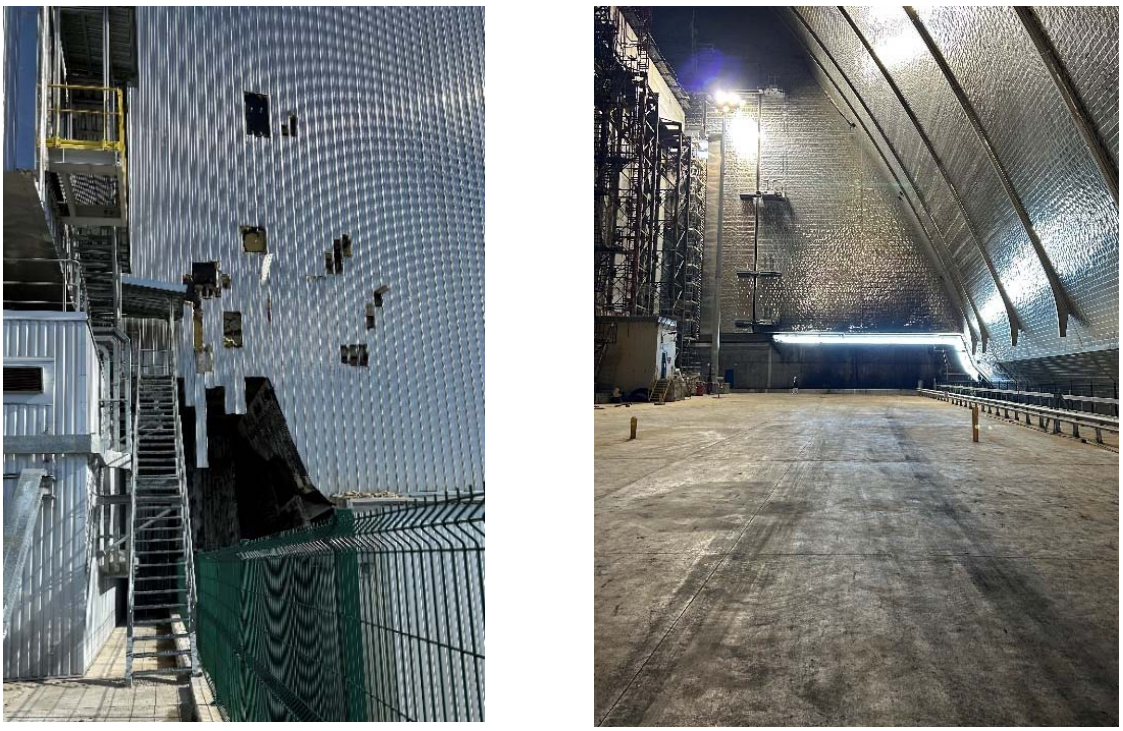
[36] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, paras. 102 to 106.

centimetres. On 7 March 2025, the ChNPP site management informed ISAMICH that it had declared an end to the "emergency situation" phase.

> "***The Ukrainian emergency services have worked very hard for several weeks in challenging circumstances, at times in freezing weather conditions. Their admirable efforts have been rewarded and the emergency situation is now under control, which is very good news."***
>
> Director General Rafael Mariano Grossi, 13 March 2025

89. The preliminary assessment of the physical integrity of the NSC structure identified damage to:

- Stainless steel panels of the outer cladding;
- Insulation materials;
- Approximately 50% of the ethylene propylene diene monomer membrane on the northern side and between 5% and 10% on the southern side;
- Approximately 10% of the sealing membranes; and
- Load-bearing structures of the maintenance garage.



Holes cut in the outer layer of the NSC (left), and a damaged sealing membrane creating a direct pathway for air to and from the environment (right).

90. While there were no new events that impacted the physical integrity of facilities at the ChNPP site, ISAMICH reported frequent air raid alarms, and were informed of drones flying in the vicinity of the site. Furthermore, ISAMICH reported the following observations:

- On 21 March 2025, ISAMICH observed a drone and anti-aircraft fire, and a loud explosion was heard. The ChNPP site management reported that a drone had been successfully intercepted that same day;
- On 22 March 2025, ISAMICH reported hearing anti-aircraft fire in the near distance;

- On 30 March 2025, ISAMICH reported seeing a drone and searchlights being used to search for it, and hearing a loud explosion; and
- On 23 May 2025, ISAMICH reported hearing anti-aircraft fire in the morning. Subsequently, ISAMICH was informed that 2 drones were observed within 5km of the site.

Nuclear safety and security systems and equipment

91. ISAMICH was informed that one of the main systems of the NSC — the main crane system, including the crane north maintenance garage area — had been damaged as a result of the drone incident and would remain non-operational until the extent of the damage was assessed in detail and repaired. The garage area houses several electrical cabinets for various systems, several of which were affected not only by the drone incident itself but by the water used to extinguish the resulting fires. The affected systems remain de-energized in this area.

92. Other systems that perform relevant safety functions — such as the NSC's integrated control, seismic monitoring, decontamination and radioactive waste management, power supply, on-site transport, fire protection, and lightning protection — remained functional, although some had to be de-energized temporarily while firefighting efforts were ongoing.

93. While the heating, ventilation and air conditioning systems of the NSC are functional, they remain out of service because of the damage to the NSC. The required pressure differential between NSC compartments cannot be established, again because of the damage caused to the NSC and to the sealing membranes located between the NSC arch and the concrete wall structure. As a result, the NSC remains unable to perform its confinement function.

94. ISAMICH reported that all other nuclear safety and security systems at other facilities at the ChNPP site remained available and functional during the reporting period. Notwithstanding, ChNPP reported that some of the nuclear safety and security systems require maintenance and funding to replace older equipment with more modern versions.

Operating staff

95. As highlighted in more detail in documents GOV/2023/59, GOV/2024/9 and GOV/2024/30, during the reporting period ISAMICH confirmed that living conditions for staff remained a challenge.

96. The ChNPP stated that the site's medical unit had not observed any changes in the mental condition of personnel following the drone incident and its impact on the NSC.

97. Despite the challenges faced by the ChNPP staff, during the reporting period they continued to effectively perform their function to maintain the safe and secure operation of the site.

Off-site power supply

98. During the reporting period, all of the off-site power lines that are usually available remained connected, except during periods of planned maintenance.

99. On 23 March 2025, one 330 kV off-site power line was unavailable between 15:36 and 16:18 due to a fire that activated the differential phase protection. The State Emergency Service of Ukraine extinguished the fire and the line was reconnected.

Logistical supply chain

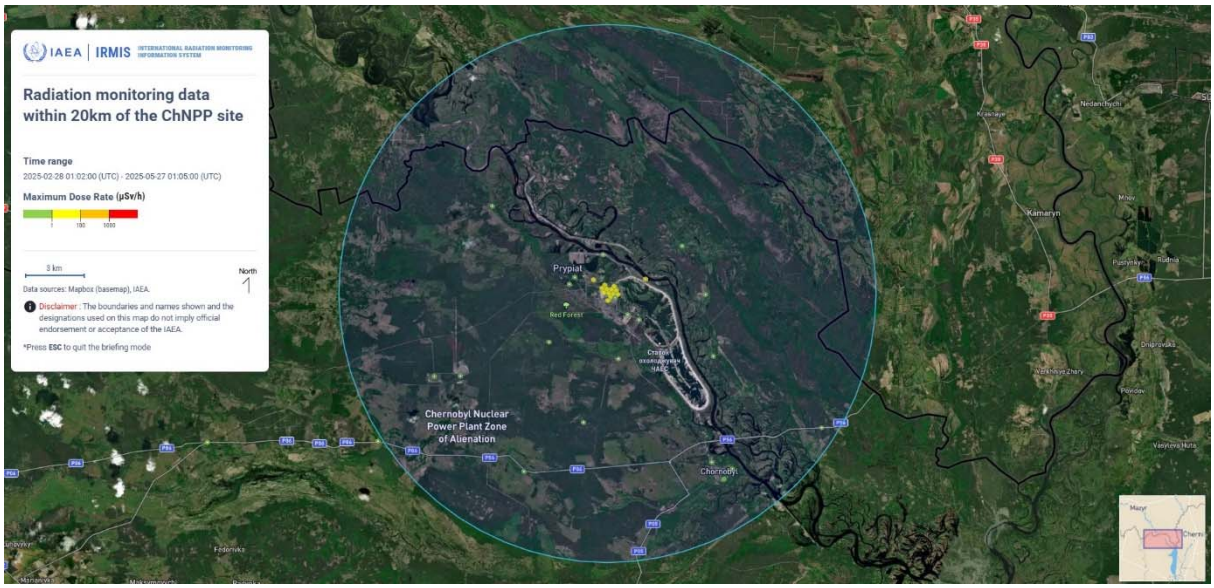
100. Challenges in the supply chain and in transportation to and from the site remain, as the infrastructure in the region has been impacted by the armed conflict.

On-site and off-site radiation monitoring systems and emergency preparedness and response

101. During the reporting period, all off-site and most on-site radiation monitoring systems were reported to be fully operational, except for the radiation monitoring system in the crane maintenance garage area, due to the impact on its sensors from the drone incident. Radiation levels are continuously monitored, including through use of portable equipment to compensate for affected sensors.

102. The ChNPP performed radiation monitoring more frequently following the drone incident affecting the NSC, until the "emergency situation" was declared to have ended on 7 March 2025, when the frequency of radiation monitoring reverted to what it had been prior to the incident. ISAMICH also performed independent radiation monitoring throughout the reporting period. No deviation in measured radiation levels in comparison to the levels prior to the incident were observed, indicating that no release of radioactive materials above the applicable levels had occurred.

ISAMICH performing radiation monitoring in the NSC on 15 April 2025. (Photo: ChNPP)



Radiation monitoring data from the monitoring stations in the 20 km radius around the ChNPP. Radiation levels are normal.

103. The ChNPP continued to conduct emergency drills throughout the reporting period. On 11 March 2025, an emergency drill for personnel in interim storage facility ISF-1 and the NSC was successfully conducted; on 27 March emergency drills were conducted for ChNPP personnel. Furthermore, on 4, 8 and 16 April 2025 and 22 May 2025, respectively, emergency drills were conducted for approximately 80 personnel to test the response of personnel to an external natural event resulting in a fire and damage to the facilities at the ChNPP site.

Communications

104. During the reporting period, all necessary means of communication with stakeholders remained available without interruption.

B.3. IAEA Technical Support and Assistance for Nuclear Safety and Security

105. The Agency continued to make progress in the delivery of its comprehensive programme of assistance to Ukraine. In addition to the in-person technical support and assistance provided through on-site expert missions — including the continued presence of Agency staff at the five nuclear sites in Ukraine, further information on which is provided in Section B.1. — the programme consists of the delivery of nuclear safety- and security-related equipment; a medical assistance programme for operating staff at the NPPs; and assistance in managing the environmental, social and economic impact of the flooding following the destruction of the Kakhovka dam. It also encompasses remote assistance and the deployment of rapid assistance should the need arise.

> ***"This technical support is an important component of the IAEA's overall efforts aimed at ensuring nuclear safety and security in Ukraine. We will continue to provide such critical assistance to Ukraine, prioritizing areas where it is most urgently needed, thanks to the generous donor support."***
>
> Director General Rafael Mariano Grossi, 10 April 2025

106. The Agency and its Ukrainian counterparts have continued to cooperate closely in order to better understand and address the priority needs of Ukraine as efficiently as possible as the situation evolves.

This effort needs to continue, with strong coordination and cooperation at the national level, taking into account that the needs are great and the available resources are limited.

107. The Agency has also continued to work closely with a number of Member States and international organizations to ensure coordination in the provision of technical support and assistance to Ukraine, and to secure the funding necessary to enable the delivery of the assistance needed.

108. By 30 May 2025, 26 Member States[37] and one international organization[38] had offered extrabudgetary cash contributions to support Agency efforts in providing technical support and assistance to Ukraine in nuclear safety, security and safeguards, including for sustaining the continued presence of Agency staff at the 5 nuclear sites in Ukraine.

109. An overview of the latest developments regarding the different components of the comprehensive programme for assistance to Ukraine is presented below.

B.3.1. Delivery of Nuclear Safety- and Security-related Equipment

Requests for assistance in terms of nuclear safety- and security-related equipment

110. During the reporting period, four additional requests were received for nuclear safety- and security-related equipment to be provided under the statutory functions of the Agency and the operational arrangements[39] under the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention), comprising primarily of firefighting equipment, means for transportation and laboratory consumables for the ChNPP site, the SUNPP and the State Specialized Enterprise "Ecocentre". The total number of requests for nuclear safety- and security-related equipment since the start of the armed conflict increased to 22.

Offers of assistance

111. By 30 May 2025, 13 Member States[40] had offered assistance in the form of in-kind contributions of nuclear safety- and security-related equipment for supporting Ukraine. No new offers of in-kind contributions of equipment were received during the reporting period.

Delivery of nuclear safety- and security-related equipment

112. The Agency continued to deliver equipment to various organizations in Ukraine. During the reporting period, the Agency organized a total of 18 deliveries of nuclear safety- and security-related equipment, bringing the total number of such deliveries to 96, including deliveries to meet the needs of the energy sector in Ukraine.

113. These 18 deliveries comprised equipment procured by the Agency under extrabudgetary contributions provided by Austria, Belgium, Canada, Denmark, the European Union, Ireland, Republic of Korea, Malta, New Zealand, Norway, Sweden, the United Kingdom and the United States of America. As a result of these deliveries, the Centralized Spent Fuel Storage Facility of the National Nuclear Energy Generating Company "Energoatom", the Ukrainian Hydrometeorological Centre and the

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[37] Australia, Austria, Belgium, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Republic of Korea, Malta, the Kingdom of the Netherlands, New Zealand, Norway, Poland, Saudi Arabia, Slovakia, Spain, Sweden, Switzerland, the United Kingdom (UK) and the United States of America (USA).

[38] The European Commission representing the European Union.

[39] The operational arrangements include the IAEA Response and Assistance Network (RANET) and the Operations Manual for Incident and Emergency Communication (EPR-IEComm 2019) available at: International operational arrangements | IAEA.

[40] Australia, Canada, France, Germany, Greece, Hungary, Israel, Japan, Romania, Spain, Sweden, Switzerland and the USA.

Hydrometeorological Organizations of the State Emergency Service of Ukraine, National Science Centre “Kharkov Institute of Physics and Technology”, the ChNPP, the KhNPP, the RNPP, the SUNPP, the Ukrainian State Association “Radon”, and the “Izotop” Ukrainian State Production Enterprise received equipment including spectrometers, whole body counters, survey meters, thermal imaging cameras, vehicles, and items related to communication and industrial automation systems and physical protection systems.

Gamma spectrometer with a high purity germanium detector delivered to the Rivne Regional Centre for Hydrometeorology, Ukrainian Hydrometeorological Centre and the Hydrometeorological Organizations of the State Emergency Service of Ukraine on 12 March 2025. (Photo: Rivne Regional Centre for Hydrometeorology)

Survey meters with alpha, beta and gamma external probes delivered to the Ukrainian Hydrometeorological Centre and the Hydrometeorological Organizations of the State Emergency Service of Ukraine on 1 March 2025. (Photo: the Ukrainian Hydrometeorological Centre and the Hydrometeorological Organizations of the State Emergency Service of Ukraine)

114. During the reporting period, the repair of the static test benches from the RNPP by the original supplier in Germany, as reported on in document GOV/2024/63[41], was completed. The equipment, which is used to stress-test components including hydraulic shock absorbers, reached the RNPP site on 11 April 2025. The installation was completed on 23 April 2025 by RNPP staff who had received appropriate training from the supplier, and the equipment was tested successfully on 24 April and 8 May 2025. The project was fully funded by Norway.

The overhauled static test benches arriving at the RNPP on 11 April 2024. (Photo: RNPP)

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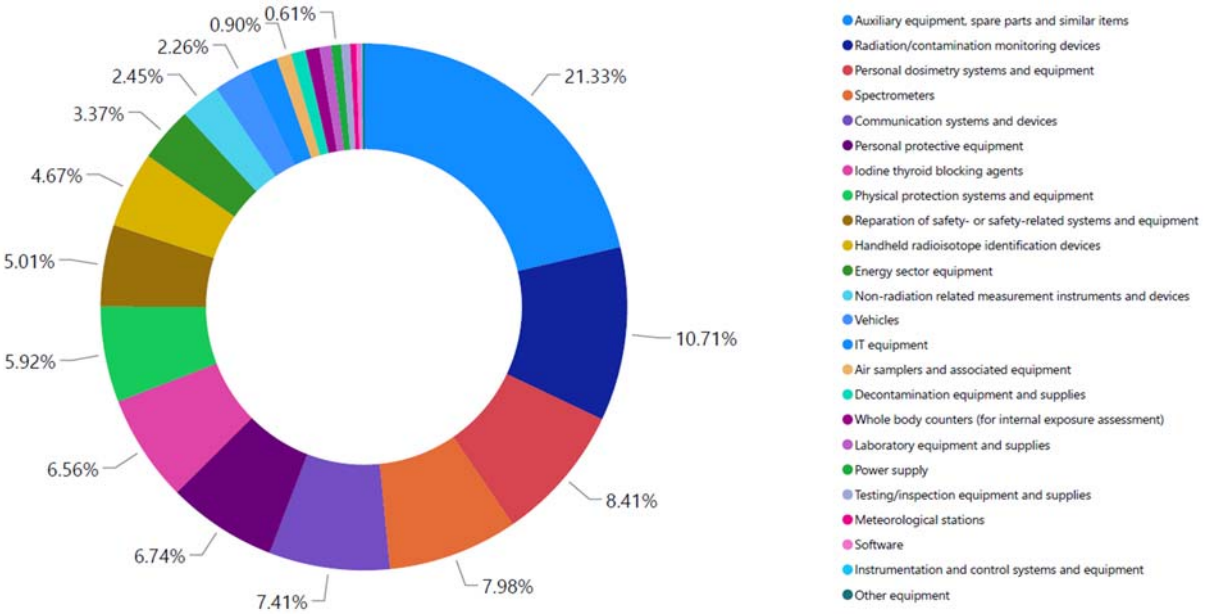
[41] Report by the Director General to the Board of Governors, document GOV/2024/63, issued on 13 November 2024, para. 116.

RNPP staff performing tests on the P-500 static test bench on 24 April 2025. (Photo: RNPP)

115. Following these deliveries, the value of the nuclear safety- and security-related equipment delivered to Ukraine since the start of the armed conflict amounts to €16 million[42].



Overview of the monetary value of items as a percentage of the total monetary value of the nuclear safety- and security-related equipment worth €16 million delivered to 20 different organizations in Ukraine since the start of the armed conflict.

116. During the reporting period, the Agency continued working with Canada and Ukraine to agree on the Assistance Action Plan to enable the third and final shipment of donated equipment, and resumed

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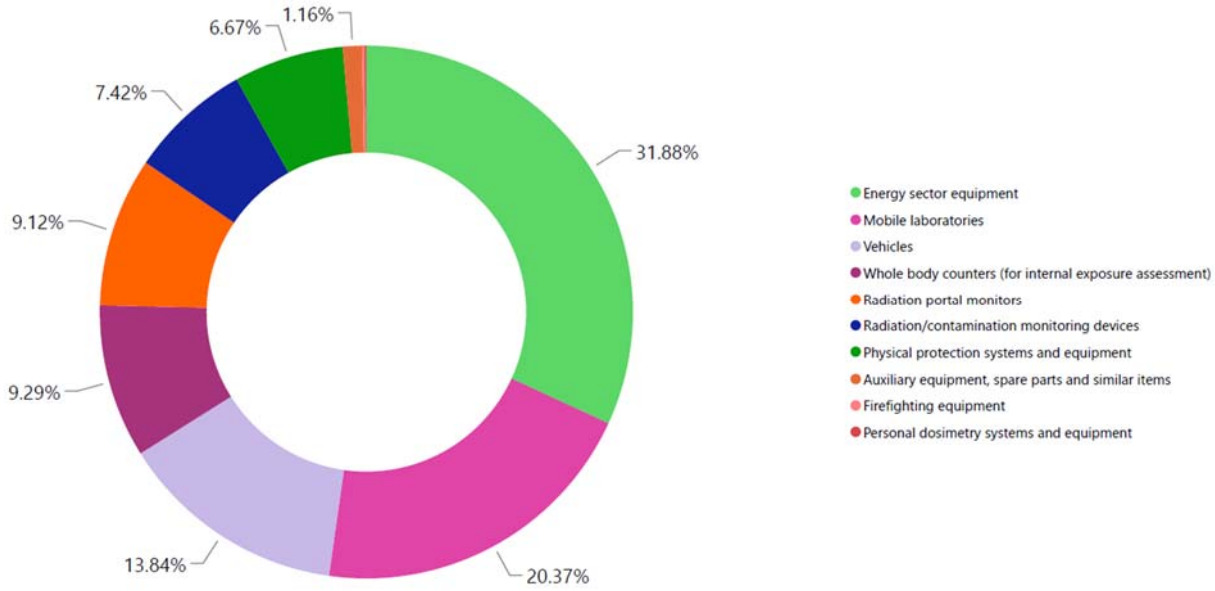
[42] Includes in-kind contributions and equipment provided through partnerships.

discussions on delivery of the in-kind contribution from Japan following decision taken at the national level.

117. Additional nuclear safety- and security-related equipment procured by the Agency is expected to be transported to 11 different organizations in Ukraine in the coming months. The total cost of these expected deliveries exceeds €3.7 million. Additional nuclear safety- and security-related equipment is in various stages of procurement and exceeds €2.7 million, with many more items and pieces of priority equipment in the preparation and funding allocation stage.



Overview of the monetary value of items as a percentage of the total monetary value of the nuclear safety- and security-related equipment procured (in transit or pending readiness) for delivery to Ukraine.

B.3.2. ISAMRAD

118. The Agency and Ukraine, through the SNRIU, agreed on an Assistance Action Plan for the second phase of delivering assistance within the framework of the IAEA Support and Assistance Mission on the Safety and Security of Radioactive Sources (ISAMRAD) in the light of the findings and observations of the second ISAMRAD mission conducted in Ukraine from 2 to 8 November 2024, as reported on in document GOV/2024/63.

119. On 15 April 2025, the Agency held a remote meeting with Ukrainian authorities to discuss the implementation of the second phase envisaged under the agreed Assistance Action Plan. Based on this discussion, it was agreed to prioritize facilities that use or store high activity radioactive sources (Category 1–3 radioactive sources) and are under increased threat due to ongoing military activities in the areas in which they are located, and the provision of further technical expertise and advice to assist with the safe and secure transport and storage of high activity radioactive sources. Furthermore, the conduct of a new ISAMRAD mission was agreed.

120. The assistance envisaged will be provided taking into consideration the nuclear safety- and security-related equipment already delivered by the Agency to identified organizations to enhance the safety and security of their radioactive sources, and the equipment in the process of procurement or delivery (see B.3.1.).

B.3.3. Medical Assistance for Operating Personnel at NPPs

121. During the reporting period, the Agency received three additional requests for assistance within the framework of the medical assistance programme, bringing the total number of such requests to six. The requests comprised various influenza medications, training activities and psychological diagnostic tools for supporting the mental health of the operating personnel of NPPs, as well as various medical equipment and supplies for providing first aid, diagnosis and treatment for the beneficiaries of the programme.

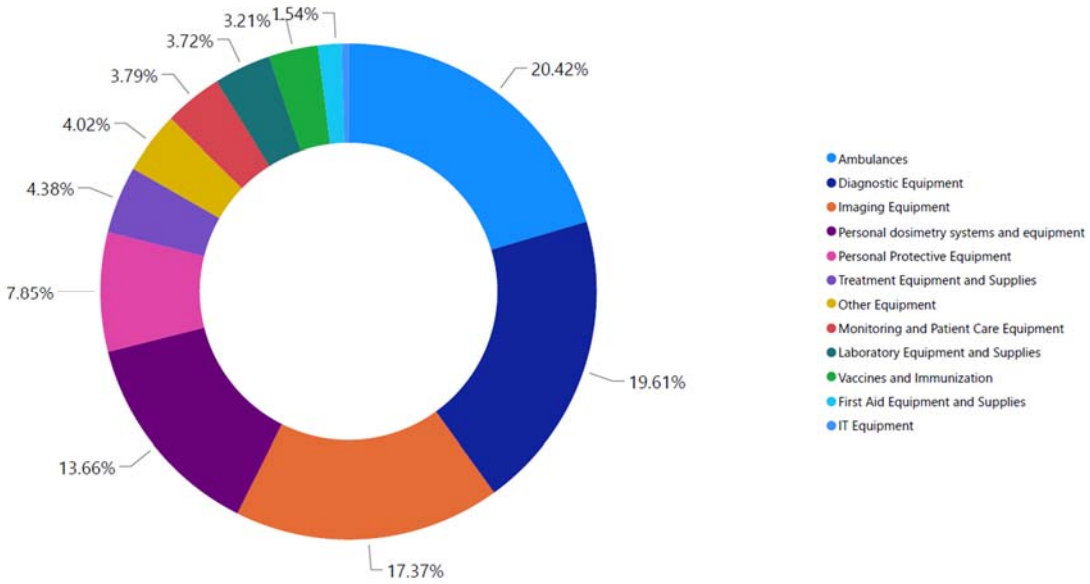
122. The Agency organized a total of 8 deliveries of equipment during the reporting period, bringing the total number of such deliveries to 39.

123. The deliveries comprised equipment and supplies procured by the Agency under extrabudgetary contributions provided by France, Italy, Japan and Norway. As a result of these deliveries, the KhNPP, the SUNPP, Netishyn hospital and the Emergency Technical Centre received medical equipment and supplies such as ultrasound systems, dental care equipment and an ambulance vehicle. Moreover, the ChNPP, the KhNPP, the RNPP and the National Research Centre for Radiation Medicine received various influenza medications to help manage the outbreak of influenza and acute respiratory infections reported in February 2025 in Ukraine and to mitigate the impact of staff unavailability at the affected facilities.

Agency staff delivering influenza medication to the ChNPP medical unit on 10 March 2025.

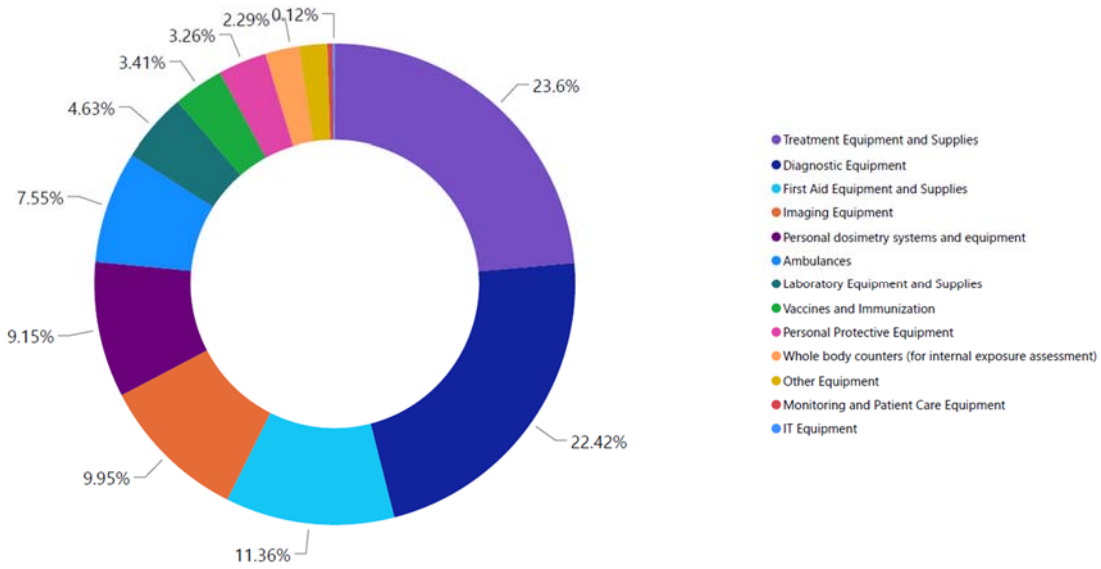
The fully equipped ambulance vehicle delivered to Energoatom's Emergency Technical Centre on 28 March 2025.

124. Following these deliveries, the value of the medical equipment and supplies delivered to Ukraine since the start of the armed conflict amounts to €1.6 million.



Overview of the monetary value of items as a percentage of the total monetary value of medical equipment and supplies, including radiation protection and monitoring equipment, worth €1.6 million for 14 beneficiary organizations of the medical assistance programme.

125. Additional medical equipment and supplies procured by the Agency are expected to be transported to 4 different organizations in Ukraine in the coming months. The total cost of these expected deliveries exceeds €0.6 million. Additional medical equipment and supplies worth approximately €2.1 million is in various stages of procurement.



Overview of the monetary value of items as a percentage of the total monetary value of medical equipment and supplies, including radiation protection and monitoring equipment, in transit or under procurement for beneficiary organizations of the medical assistance programme, in the amount of approximately €2.7 million.

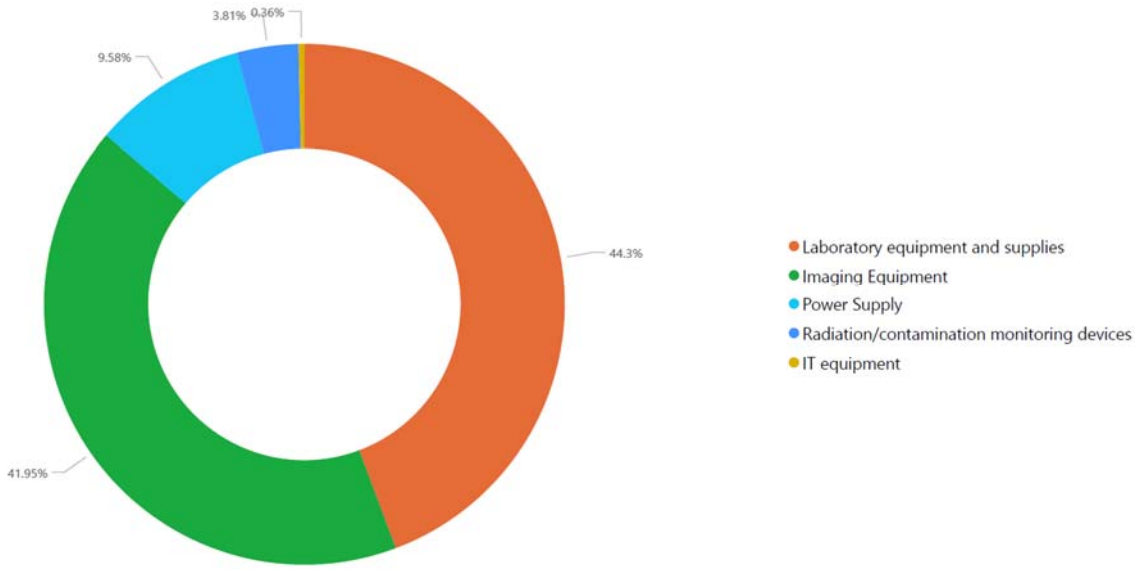
B.3.4. ISAMKO

126. No new request for assistance under this programme in the form of nuclear or isotopic technique-based equipment and supplies (or similar) was received from Ukraine during the reporting period. The total number of official requests remains three, covering the needs of the Ministry of Health of Ukraine, its Regional Centres for Disease Control and Prevention in areas affected by the destruction of the Kakhovka dam, and its healthcare institutions in Kherson; the Ukrainian Geological Survey under the Ministry of Energy and its regional laboratories; the State Service of Ukraine on Food Safety and Consumer Protection and its regional laboratories; the Ukrainian Hydrometeorological Institute of the State Emergency Service of Ukraine; and the State Scientific Research Institute of Laboratory Diagnostics and Veterinary and Sanitary Expertise in Kyiv.

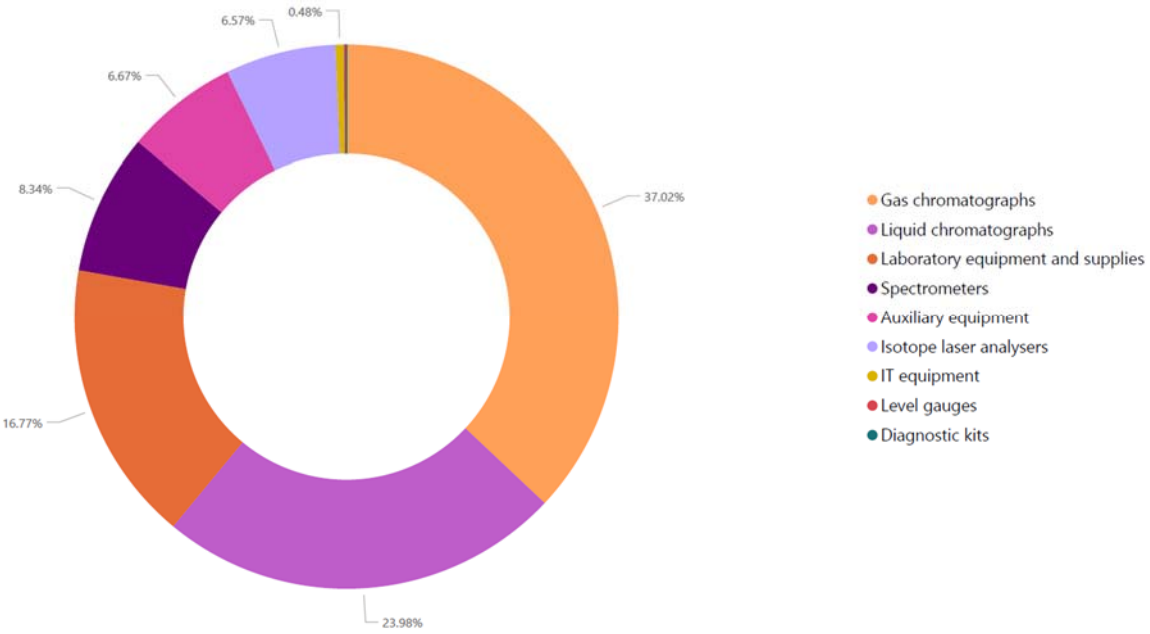
127. The Agency made progress in the procurement and delivery of priority equipment and supplies. On 1 April 2025, the first delivery under the IAEA Support and Assistance Mission to the Kherson Oblast (ISAMKO) resulted in the Kherson Regional Clinical Hospital receiving a digital colour doppler ultrasound system and a portable digital X-ray system. The delivery was supported with funding from Japan.

The ultrasound system delivered to the Kherson Regional Clinical Hospital on 1 April 2025. (Photo: Kherson Regional Clinical Hospital)

128. In addition, deliveries are pending for equipment and supplies worth over €0.2 million. Additional equipment exceeding worth of €2.2 million is in various stages of procurement, with many more items and pieces of priority equipment worth €1.7 million in the preparation and funding allocation stage.



Overview of the monetary value of items as a percentage of the total monetary value of equipment and supplies in transit for two beneficiary organizations of the ISAMKO programme, in the amount of over €0.2 million.



Overview of the monetary value of items as a percentage of the total monetary value of equipment and supplies under procurement as part of the ISAMKO programme in the amount of approximately €1.7 million.

129. In addition, the Agency advanced discussions with potential beneficiaries in Ukraine of assistance in the areas of non-destructive testing and isotope hydrology, with a focus on capacity building through conduct of training activities.

B.3.5. Remote Assistance

130. No remote assistance in the form of training in the areas of nuclear safety and security was delivered to Ukraine during the reporting period.

B.3.6. Deploying Rapid Assistance

131. No nuclear or radiological emergency involving nuclear facilities or activities involving radioactive sources was declared during the reporting period, and no deployment of rapid assistance was requested.

C. Implementation of Safeguards in Ukraine

C.1. Background

132. Ukraine acceded to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) as a non-nuclear-weapon State in December 1994. Ukraine subsequently brought into force a comprehensive safeguards agreement (CSA) with the Agency in connection with the NPT in January 1998 and an additional protocol (AP) thereto in January 2006.

133. The Agency implements safeguards at 35 nuclear facilities and more than a dozen locations outside facilities (LOFs) in Ukraine. The safeguards implementation effort is concentrated at 4 NPP sites, which host 15 operational power reactors, and at the ChNPP site, which hosts 3 shut down reactors, the reactor damaged in the 1986 nuclear accident, and 2 spent fuel processing and storage facilities.

134. On 25 February 2022, Ukraine submitted to the Agency a special report under Article 68 of its CSA informing the Agency that "as a result of the temporarily occupied territory of Chernobyl region, Ukraine has lost control over nuclear material" subject to safeguards on the ChNPP site. Ukraine submitted two additional special reports to the Agency, dated 4 March and 5 July 2022, regarding Ukraine's loss of control over nuclear material at all facilities on the Zaporizhzhya site and at three LOFs in south-eastern parts of Ukraine, respectively.

135. Despite the very challenging circumstances, the Agency has continued to implement safeguards in Ukraine, to verify the declared nuclear material at declared facilities and LOFs and/or design information at such facilities.

C.2. Recent Developments

136. Since the Director General's previous report, the Agency has continued to rely on remotely transmitted data from its cameras, seals and unattended monitors to maintain continuity of knowledge over declared inventories of nuclear material. All data collected by these systems were transmitted successfully to the Agency's Headquarters during the reporting period. The Agency has maintained its continuous acquisition and analyses of open source information, and its analyses of satellite imagery covering nuclear installations in Ukraine. This has proved to be essential for the Agency in the preparation of its in-field verification activities, in particular at the Zaporizhzhya site. The Agency has been acquiring and analysing satellite imagery and continuously monitoring all available open source information to track developments and to assess the operational status of the plants, including the detection of possible damage caused by shelling at the site.

137. With the establishment of a continuous presence of Agency staff at the KhNPP, the RNPP, the SUNPP and the ZNPP, as well as at the ChNPP site, safeguards activities have been integrated with the various IAEA Support and Assistance Missions to the extent possible. Designated safeguards inspectors typically comprise part of the technical experts continuously present in Ukraine. For efficiency reasons, Agency inspectors are scheduled so as to be present whenever safeguards activities are planned — for example, to conduct physical inventory verifications or spent fuel transfer verifications — and otherwise provide technical support to the ongoing safety and security missions. Independent safeguards missions are planned, as needed, for activities that cannot be covered in the course of IAEA Support and Assistance Missions, including the installation or servicing of safeguards equipment and the conduct of complementary access.

138. During the reporting period, the Agency successfully conducted physical inventory verifications at a number of facilities in Ukraine. The Agency verified spent fuel that was transferred from the KhNPP to the centralized storage facility at the ChNPP. In addition, the Agency verified the transfer of spent fuel from the spent fuel storage at the ChNPP to dry storage at Chornobyl. The participation of Agency inspectors as part of the various IAEA Support and Assistance Missions has continued to enable the implementation of interim verifications of declared nuclear material inventories. Finally, Agency technical experts continued to travel to the ChNPP site to install, service and maintain the Agency safeguards systems that monitor the loading and transfer of spent fuel from NPPs and the spent fuel pond at the Chornobyl site to dry storage at Chornobyl.

D. Summary

139. During the reporting period, no significant changes to the nuclear safety and security situation at the ZNPP were observed. The situation at the ZNPP continues to be precarious, with six of the Seven Pillars being compromised fully or partially. The plant kept all units in cold shutdown throughout the reporting period.

140. Military activities including explosions, drone attacks and gunfire in the vicinity of the ZNPP, as well as the presence of Russian armed troops and military equipment on site, continued to be reported by ISAMZ. While ISAMZ did not find any indications that the Five Principles were not being observed during the reporting period, such activities continue to put the Five Principles and the overall nuclear safety and security of the plant at great risk.

141. The Agency's ability to make its assessment and report impartially and objectively on the nuclear safety and security situation at the ZNPP, and to fully assess whether all Five Principles are being observed at all times, continues to be limited by the restrictions on access and information imposed on ISAMZ at the site.

142. The Agency continued to request timely and appropriate access to all areas of the ZNPP of significance for nuclear safety and security and to strongly encourage the ZNPP to ensure that open information sharing take place regularly to enable the Agency to make its independent, impartial and objective assessment of the nuclear safety and security situation at the site.

143. Agency staff present in Ukraine continued to report frequent observations of drones flying in close proximity to the operating NPPs, and frequent air raid alarms at these sites. The drone incident at the NSC at the ChNPP did not result in release of radioactive material into the environment. However, the NSC suffered extensive damage compromising its intended confinement function and planned lifetime, with potential implications for nuclear safety. The response efforts to extinguish fires and smouldering parts of the insulation located within the outer layer of the NSC arch and the walls required extensive resources and continued until 7 March 2025, when the ChNPP declared an end to the "emergency situation".

144. The Agency continued to provide technical support and assistance to Ukraine related to nuclear safety and security, and to make progress in delivering various components of the comprehensive programme of assistance to Ukraine.

145. During the reporting period, 28 deliveries of procured nuclear safety- and security-related equipment, medical equipment and supplies and other nuclear or isotopic-technique based equipment and supplies to various organizations in Ukraine were organized, bringing the total number of deliveries to 136. In total, over €17.8 million[43] of equipment has been delivered to 29 organizations in Ukraine since the start of the armed conflict.

146. The Agency maintained a continuous presence at all nuclear sites without interruption. The rotations at the ChNPP site, the KhNPP, the RNPP and the SUNPP were completed as planned during the reporting period, while the rotations at the ZNPP continued to face challenges arising from the ongoing military activities putting the safety of Agency staff at risk, and were conducted with delays.

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[43] Includes also in-kind contributions and equipment provided through partnerships.

147. Maintaining the continued presence of Agency staff at all 5 nuclear sites in Ukraine continues to be a major undertaking for the Agency, requiring significant resources. As of 30 May 2025, a total of 196 missions comprising 169 Agency staff members had been deployed as part of the continued presence at all 5 nuclear sites in Ukraine, totalling over 424 person-months in Ukraine.

148. The Director General is grateful to 30 Member States and the European Union for the extrabudgetary contributions provided to the Agency for assisting Ukraine in the area of nuclear safety, security and safeguards, and would welcome any further support.

149. The continued commitment of Member States and their close cooperation with the Agency are essential for ensuring nuclear safety and security in Ukraine under all circumstances and for providing assistance efficiently while ensuring the timely delivery of the Agency's programmatic activities.

150. The Agency has continued to undertake a vital verification role to reach independent conclusions that nuclear material under safeguards remains in peaceful activities and that safeguarded facilities are not used for the undeclared production or processing of nuclear material. The Agency continues to implement safeguards in Ukraine, including in-field verification activities, in accordance with Ukraine's CSA and AP. Based on the evaluation of all safeguards-relevant information available to the Agency to date, the Agency has not found any indication that would give rise to a proliferation concern.

Annex: Chronology of Events from 28 February to 30 May 2025

Events at the Zaporizhzhya Nuclear Power Plant

- On 10 March 2025, ISAMZ was informed by the ZNPP that maintenance had commenced on the main transformer of Unit 5, including the circuit breaker linking it to the ZNPP 750 kV open switchyard.
- On 13 March 2025, ISAMZ visited the ZNPP 750 kV open switchyard to observe maintenance activities and reported that a new fixed diesel generator had been installed to provide electricity to the switchyard in case of a loss of off-site power. The post-Fukushima MDG previously[44] observed in this switchyard was no longer present.
- On 17 March 2025, ISAMZ visited the reactor building and safety system rooms of Unit 2 and observed condensation on the walls and floor of the reactor hall and some preliminary signs of corrosion in some unpainted areas. The ZNPP informed ISAMZ that the condensation was result of the reactor being in cold shutdown state.
- On 17 March 2025, the Kakhovka voltage stabilizer (referred to by the ZNPP as a "shunt reactor") was switched on at the request of the Ukrainian grid dispatcher.
- On 20 March 2025, ISAMZ was informed by the ZNPP that the 330 kV Ferosplavna 1 power line had been temporarily disconnected for the purpose of performing maintenance on a circuit breaker in its switchyard. The line was reconnected later the same day.
- On 22 March 2025, ISAMZ was informed by the ZNPP that the 330 kV switchyard had been reconnected to autotransformer in the 750 kV switchyard, approximately one and a half months after the connection had been lost as result of damage to the 330 kV switchyard.

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[44] Report by the Director General to the Board of Governors, document GOV/2025/11, issued on 27 February 2025, para. 57.

- On 24 March 2025, ISAMZ observed the successful testing of one of the three new MDGs.
- On 26 March 2025, the IAEA became aware of a reported spill of diesel fuel held in storage for the ZNPP's diesel generators. When asked about the report the following day, the ZNPP told the ISAMZ team that it was "fake" and that no such leaks had been detected. The plant also said that it had enough fuel in storage for a minimum of 10 days' operation of its diesel generators.
- On 26 March 2025, ISAMZ performed a walkdown of the reactor building of Unit 4 and observed traces of dried boric acid in some rooms, as well as a defective seal on a pump.
- On 28 March 2025, ISAMZ visited the ZNPP's diesel storage tanks and determined that there was no sign of any damage or spillage, and no evidence of any repair work being performed. ISAMZ reported that the levels of diesel fuel in the storage tanks were normal.
- On 16 April 2025, a drone was allegedly shot down near the ZNPP training centre.
- On 17 April 2025, ISAMZ visited the ZNPP training centre, where it observed the remains of what appeared to be a drone. ISAMZ reported that there were no casualties and that no structural damage had been caused to any of the ZNPP facilities.
- On 23 April 2025, ISAMZ heard rapid gunfire from various locations at the ZNPP, and observed armed troops shooting machine guns towards the sky. The ZNPP informed ISAMZ that a drone was flying around the site and requested it to remain in the building housing the team's office and living quarters.
- On 7 May 2025, the 330 kV Ferosplavna 1 back-up line was disconnected as a result of damage caused by military activities to one phase of the power line 23 kilometres from the Ferosplavna substation.
- On 12 May 2025, ISAMZ conducted a walkdown of six EDGs and observed:

– At one EDG for Unit 2, a screw on the oil drainage tube of one of the crank-case doors of a cylinder was very loose.

- At one of the EDGs for Unit 3, one nut from the crank-case door was loose, paint from several screws and nuts of the crank-case housings of some cylinders appeared to have been recently removed, and paint chips and metallic particles were present below the crank-case housings.
- On 13 May 2025, ISAMZ reported hearing gun fire and noise produced by a drone engine.
- On 21 May 2025, ISAMZ reported hearing gun fire. The ZNPP subsequently reported that a drone had attacked the ZNPP training centre. ISAMZ was not granted access to the location of the reported attack.

Events at the Khmelnytskyy, Rivne and South Ukraine Nuclear Power Plants

- On 3 March 2025, ISAMIK had to shelter at the site.
- On 4 March 2025, ISAMISU was informed that one of the site's 330 kV off-site power lines had been disconnected at the request of the grid operator; it was reconnected that same day.
- On 13 March 2025, both ISAMIK and ISAMIR had to shelter at their respective sites.

- On 15 March 2025, the SUNPP had to temporarily reduce power to repair a pump water leak. The repair was completed the same day, and it returned to its pre-maintenance power level on 18 March 2025.
- On 21 March 2025, one 750 kV line at the KhNPP site was disconnected at the request of the grid operator; it was reconnected that same day.
- On 21 March 2025, two units at the RNPP had to temporarily reduce power output at the request of the grid operator.
- On 25 March 2025, one unit at the SUNPP returned to nominal power after having had its power reduced earlier in the month for planned maintenance activities.
- On 28 March, one unit at the RNPP and one unit at the SUNPP had to temporarily reduce power output at the request of the grid operator; both units returned to nominal power on 31 March 2025.
- On 1 April 2025, one unit at the RNPP had to temporarily reduce its power output in response to an operation event; it returned to nominal power on 2 April 2025.
- On 3 April 2025, ISAMIR had to shelter at the site.
- On 5 April 2025, two units at the RNPP had to temporarily reduce their power output due to grid limitations.
- On 10 April 2025, ISAMISU was informed that, late the previous evening and into the early morning, eight drones had been detected flying within 4 kilometres of the SUNPP.
- On 14 April 2025, ISAMISU was informed that, late the previous evening and into the early morning, five drones had been detected flying within 2 kilometres of the SUNPP. ISAMISU, from its place of residence, heard the sound of gunfire intended to repel said drones.
- On 18 April 2025, ISAMIR was informed that the RNPP had conducted an evacuation drill.
- On 20 April 2025, one unit at the SUNPP was requested to reduce its power output for approximately one hour due to grid limitations.
- On 20 April 2025, one unit at the KhNPP was requested to reduce its power output due to grid limitations; it returned to nominal full power on 21 April 2025.
- On 22 April 2025, one unit at the SUNPP was requested to reduce its power output due to grid limitations.
- On 25 April 2025, ISAMISU heard sounds of military activities at a distance and observed shooting into the sky to the north of its hotel.
- On 25 April 2025, the SUNPP informed ISAMISU that six drones had been detected approximately 1.5 kilometres north of the site.
- On 30 April 2025, ISAMIK had to shelter at the site.
- On 5 May 2025, ISAMISU was informed that one 750 kV line had been disconnected from the SUNPP for unplanned maintenance. It was reconnected on 11 May 2025.
- On 8 May 2025, ISAMIK was informed that a leak in a steam generator of Unit 2 had been detected while restarting the reactor after a planned outage. The reactor unit was returned to

cold shutdown, repairs and test were conducted, and the unit was restarted on 17 May 2025 and reconnected to the electricity grid on 18 May 2025.

- On 16 May 2025, ISAMISU was informed that six drones had been detected within the vicinity of the SUNPP, the closest of which was approximately 2 kilometres from the plant. ISAMISU also reported hearing anti-aircraft fire overnight.
- On 23 May 2025, at 22:45 local time, ISAMISU reported hearing a drone followed by anti-aircraft fire followed by observation of a drone being intercepted by the anti-aircraft fire. The SUNPP reported that 10 drones were observed 2.5km south of the site between 20:42 and 23:46 local time on the same evening.
- On 27 May 2025, ISAMIK had to shelter at the site.

Events at the Chornobyl Nuclear Power Plant Site

- On 1 March 2025, the Agency was informed by the Ukrainian regulator that the site had recorded drone flights in the area early that morning.
- On 5 March 2025, ISAMICH was informed that no smouldering fires had been detected at the NSC over the previous two days. All radiation monitoring results showed that there had been no increase in the normal radiation levels previously measured at the site and that no abnormal readings had been detected.
- On 7 March 2025, once firefighters had brought the situation at the NSC fully under control, the site downgraded the event from an “emergency situation” to a “controlled situation”. As a result of the drone incident, fires and smouldering, the NSC suffered extensive damage to the northern side and to a lesser extent to the southern side of its roof. The confinement function of the NSC was compromised. All radiation monitoring results showed that there had not been any increase in radiation at the site following the incident.
- On 9 March 2025, the Agency was informed by the Ukrainian regulator that the site had recorded drone flights in the area during the night of 8 March 2025.
- On 22 March 2025, ISAMICH was informed that a drone had been detected 3 kilometres from the site in the evening of 21 March 2025. At around the same time, ISAMICH heard a loud explosion and witnessed a drone in flight.
- On 23 March 2025, a fire caused an emergency outage of one of the site’s 330 kV lines providing off-site power. It was switched back on that same day once the State Emergency Service of Ukraine had extinguished the fire.
- On 30 March 2025, in the late evening, ISAMICH reported that it had heard a loud explosion and observed a drone in flight.
- On 16 May 2025, ISAMICH was informed that several drones had been observed transiting within the exclusion zone overnight.
- On 23 May 2025, ISAMICH reported hearing anti-aircraft fire at 06:31 local time. ISAMICH was informed that 2 drones were observed within 5km of the site at 04:50 and 06:30 local time.

Events at Other Facilities

- No other events were reported affecting other facilities and activities in Ukraine.