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# Radiation Safety: Legal Aspect

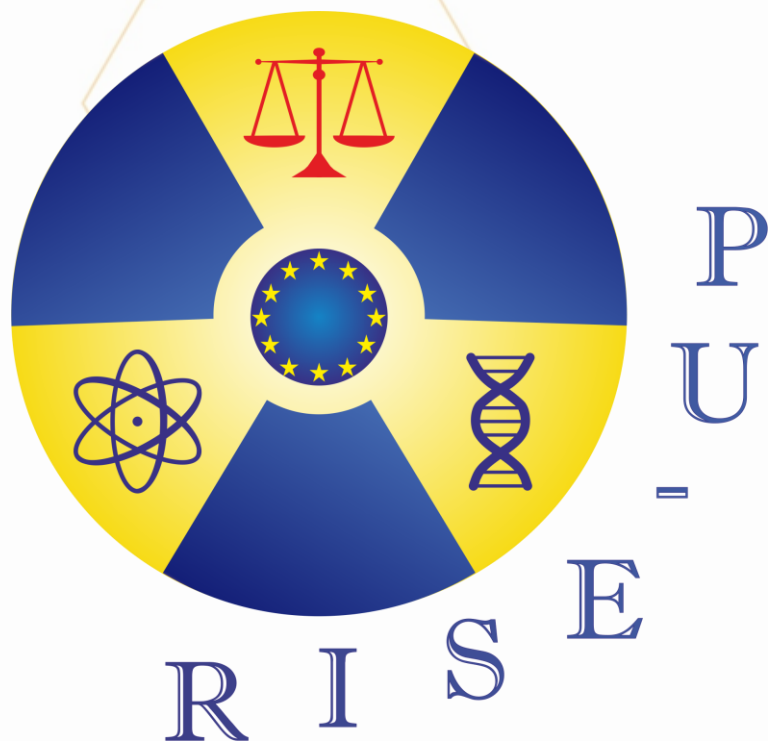
Manual for training

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Ivano-Frankivsk / Kraków

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### Radiation Safety: Legal Aspect

As a result of mastering the **lecture course**, students will gain competences:

- ❑ **Instrumental competences:** ability to analyze and synthesize; basic general knowledge; problem solving.
- ❑ **Interpersonal competences:** the ability to criticize; self-criticism; ethical obligations; interaction (teamwork); interpersonal skills and abilities; ability to work in an interdisciplinary team; ability to communicate with experts from other fields.
- ❑ **System competences:** ability to learn; planning and management of projects.

As a result of the **training**, students will gain competences:

- ❑ **Instrumental competences:** ability to organize activities and manage time; ability to use knowledge in practice; information management skills (the ability to find and analyze information from various sources); problem solving in an international environment; ethical obligations.
- ❑ **System competences:** ability to generate new ideas (creativity); leadership skills; ability to work independently; planning and management of projects; environmental care.

### General Topics of the Training

1. Evolution of the EU legal framework in the field of nuclear energy utilization and radiation safety. Analysis of national legislation of the EU countries in the field of nuclear energy utilization and radiation safety. Case study.
2. Development of national legislation regulating the utilization of nuclear energy and nuclear safety. Its compliance with the requirements of international legal documents and EU law. The latest trends in the development of Ukrainian legislation in this area. The use of statistical materials (national reports, analytical notes, informative messages) to analyze the current state of the regulatory framework. Case study.
3. Study on the licensing process for the use of ionizing radiation sources in Ukraine and the EU for industrial and medical purposes. Applying for the right to use ionizing radiation sources in Ukraine and the EU. Case study.
4. Search for "inconsistencies" in the existing legislative system of Ukraine and the EU in the field of nuclear energy utilization. Case study.



**Rules for training participants:**

- speak briefly, to the point, take turns,
- be tolerant, follow the rules,
- take an active part in the training,
- follow the rules of voluntariness.

**Organizational and technical support for the training:**

- a room divided into zones for the work of separate groups of participants,
- computers, Internet access,
- handouts,
- badges,
- notebooks, etc.



**Task 1.** Evolution of the EU legal framework in the field of nuclear energy utilization and radiation safety. Analysis of national legislation of the EU countries in the field of nuclear energy utilization and radiation safety. Case study.

1. A group of participants analyzes one of the listed Directives, the provisions of which Ukraine has committed to implement in its legislation in accordance with the Association Agreement between the European Union and Ukraine. After the independent analysis, the participants present a brief summary of the main requirements of the Directives:
  - 1) [Council Directive 2014/87/Euratom of 8 July 2014](#) amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations;
  - 2) [Council Directive 2013/59/Euratom of 5 December 2013](#) laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom;
  - 3) [Council Directive 2011/70/Euratom of 19 July 2011](#) establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste;
  - 4) [Council Directive 2006/117/Euratom of 20 November 2006](#) on the supervision and control of shipments of radioactive waste and spent fuel.



2. The other group of participants analyzes the peculiarities of the political and legal strategy of nuclear energy utilization in one of the EU member states (Poland, Germany, France) and presents the main features of the policy and legislative regulation of this area for general discussion.

1) Poland's energy strategy and the place of nuclear power in it: regulatory and legal mechanisms

<https://www.uatom.org/en/2024/02/19/smr-technologies-in-poland-will-have-the-same-construction-requirements-as-nuclear-power-plants.html>

<https://www.trade.gov/market-intelligence/polands-energy-strategy-2040>



2) Peculiarities of political and legal documents of Germany on the shutdown of nuclear power plants

[https://en.wikipedia.org/wiki/Nuclear\\_power\\_in\\_Germany](https://en.wikipedia.org/wiki/Nuclear_power_in_Germany)

<https://edition.cnn.com/2023/04/15/europe/germany-nuclear-phase-out-climate-intl/index.html>

3) Management and regulation of nuclear energy activities in France

<https://world-nuclear.org/information-library/country-profiles/countries-a-f/france.aspx>

[https://www.oecd-nea.org/jcms/pl\\_23560/france](https://www.oecd-nea.org/jcms/pl_23560/france)



**Task 2.** Development of national legislation regulating the utilization of nuclear energy and nuclear safety. Its compliance with the requirements of international legal documents and EU law. The latest trends in the development of Ukrainian legislation in this area. Use of statistical materials (national reports, analytical notes, informative messages) to analyze the current state of the regulatory framework. Case study.

1. Based on the analysis of international, European and national regulatory documents (active links to which are provided in the table), participants fill in a table with definitions of basic concepts in the field of nuclear energy utilization. After completing the task, a general discussion is held to clarify the similarities and differences in their interpretation.

### EXAMPLE

Nuclear Safety	<a href="#">Council Directive 2014/87/Euratom of 8 July 2014</a> amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations <i>"nuclear safety" means achievement of appropriate conditions for management, prevention of an emergency and mitigation of the consequences of an emergency, aimed at protecting the health of workers and the public from the hazard arising from ionizing radiation from nuclear facilities</i>
	Law of Ukraine <a href="#">On Use of Nuclear Power and Radiation Safety</a> <i>nuclear safety is compliance with the rules and regulations and conditions for the utilization of nuclear materials that ensure radiation safety; radiation safety is compliance with the permissible limits of radiation exposure to personnel, the public and the environment established by safety standards and regulations</i>
Nuclear Facility	<a href="#">Convention on Nuclear Safety (CNS)</a>
	<a href="#">Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management</a>
	Law of Ukraine <a href="#">On Use of Nuclear Power and Radiation Safety</a>
Radioactive Waste Handling (Radioactive Waste Management)	<a href="#">Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management</a>
	<a href="#">Council Directive 2011/70/Euratom of 19 July 2011</a> establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste
	Law of Ukraine <a href="#">On Handling Radioactive Wastes</a>



## EXAMPLE

Emergency Situation (Radiation Accident)	<a href="#">Council Directive 2013/59/Euratom of 5 December 2013</a> laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation
	Law of Ukraine <a href="#">On Use of Nuclear Power and Radiation Safety</a>
Radioactive Waste	<a href="#">Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management</a>
	<a href="#">Council Directive 2011/70/Euratom of 19 July 2011</a> establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste
	Law of Ukraine <a href="#">On Handling Radioactive Wastes</a>
Radioactive Waste Handling (Radioactive Waste Management)	<a href="#">Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management</a>
	<a href="#">Council Directive 2011/70/Euratom of 19 July 2011</a> establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste
	Law of Ukraine <a href="#">On Handling Radioactive Wastes</a>



2. Based on the analysis of Section 1 of the Reports on Nuclear and Radiation Safety in Ukraine for 2020, 2021, and 2022, separate groups of participants identify which legislative, by-laws and other regulatory documents in the field of nuclear energy regulation were adopted in the corresponding year and fill in the table. After completing the task, a general discussion takes place.

Links to the Reports:

[Report on Nuclear and Radiation Safety in Ukraine for 2020](#)

[Report on Nuclear and Radiation Safety in Ukraine for 2021](#)

[Report on Nuclear and Radiation Safety in Ukraine for 2022](#)



### EXAMPLE, 2020

Date of Adoption	Title, Brief Summary
19.05.2020	The Law of Ukraine "On Amendment of Certain Laws of Ukraine on Nuclear Energy Use". This law amended the Laws of Ukraine "On Basic Principles of State Oversight (Control) in Economic Activities" and "On Licensing of Economic Activities" <u>ensuring the independence of the state nuclear and radiation safety regulatory body of Ukraine in making decisions on licensing and supervisory activities.</u>
2.12.2019 (registered with the Ministry of Justice on 21.01.2020)	Order of the State Nuclear Regulatory Inspectorate of Ukraine "On Approval of the Requirements for the Structure and Contents of the Safety Analysis Report for Surface and Near-Surface Radioactive Waste Disposal Facilities"



**Task 3:** Study of the licensing process for the use of ionizing radiation sources in Ukraine and the EU for industrial or medical practice. Application for the right to use ionizing radiation sources in Ukraine and the EU. Case study.

Based on the analysis of the regulatory legal acts of Ukraine, certain groups of participants establish the peculiarities and requirements that must be met by an entity planning to carry out activities related to the use of ionizing radiation sources and formulate lists of documents to be submitted with the application for a license to use ionizing radiation sources for medical purposes (radiation therapy).

[On Use of Nuclear Power and Radiation Safety:](#) Law of Ukraine dated 08.02.1995

[On Permit Activity in the Field of Nuclear Energy Utilization:](#) Law of Ukraine dated 11.01.2000

[Safety Requirements and Conditions \(Licensing Conditions\) for the Application of Ionizing Radiation Sources in Radiation Therapy,](#) approved by SNRIU Order No. 193 of December 28, 2007

[Safety Requirements and Conditions \(Licensing Conditions\) for Conducting Activities Using Ionizing Radiation Sources and Requirements for the Safety Analysis Report for Conducting Activities Using Ionizing Radiation Sources,](#) approved by SNRIU Order No. 125 of December 2, 2002.

[Regulation on the List and Requirements for the Form and Content of Documents Submitted for Obtaining a License for Certain Types of Activities in the Field of Nuclear Energy Use,](#) approved by SNRIU Order No. 153 of August 6, 2012.

After completing the work in the groups, the participants take turns to name the document that they think should be prepared and analyze its essence, purpose and necessity for ensuring the safety of using a radiation source.

Verification and self-verification of the correctness of the assignment is based on information on the provision of the respective administrative service at the link: <https://guide.diia.gov.ua/view/vydacha-litsenzii-na-provazhennia-diialnosti-z-vyrobnytstva-dzherel-ionizuiuchoho-vyprominiuvannia-923daebe-48c7-47c1-bb5f-39541047d779>



**Task 4.** Search for "inconsistencies" in the existing legislative system of Ukraine and the EU in the field of nuclear energy utilization. Case study.

Based on the knowledge gained during the previous sessions and the analysis of the [SNRIU's Action Plan for the Implementation of the European Union–Ukraine Association Agreement](#) approved by SNRIU Order No. 570 of December 26, 2019, the groups of participants formulate:

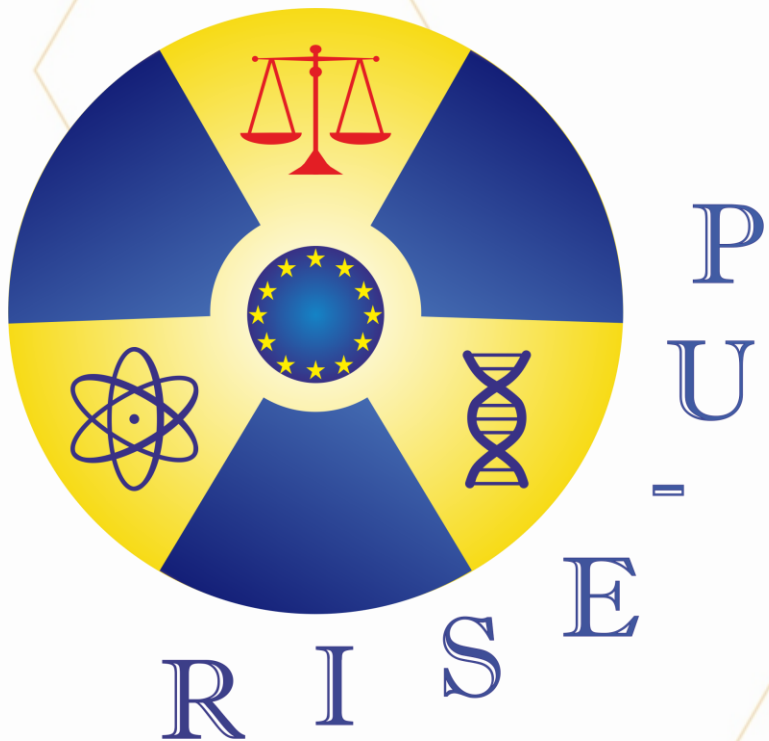
- a list of measures implemented to date (adopted legislative acts and by-laws of Ukraine)

and

- a list of measures to be implemented in the context of the implementation of the EU-Ukraine Association Agreement.

The training session ends with a general discussion and conclusions on Ukraine's fulfillment of its European integration obligations in the field of safe nuclear energy utilization.





# Radiation Safety: Legal Aspect

Tests





1. Prior to 1990, what was the status of legislative regulation regarding nuclear relations in Ukraine?

- a) It was well-established and comprehensive
- b) It was nonexistent
- c) It was periodically reviewed but not enacted
- d) It was overly strict and restrictive

2. According to the Declaration of State Sovereignty of Ukraine, what institution was established for radiation protection?

- a) National Environmental Protection Agency
- b) National Commission on Radiation Protection of the Population
- c) Nuclear Regulatory Commission
- d) International Atomic Energy Agency

3. What rights did the Ukrainian SSR gain concerning environmental safety according to the Declaration?

- a) The right to ignore environmental concerns
- b) The right to exploit natural resources without restrictions
- c) The right to prohibit and terminate operations posing environmental risks
- d) The right to export nuclear waste to other countries

4. Which aspect of environmental safety does the Ukrainian SSR express concern for in the Declaration?

- a) Industrial pollution
- b) Wildlife conservation
- c) Gene pool of the people and its young generation
- d) Preservation of historical sites

5. What is the primary regulatory body responsible for nuclear and radiation safety in Ukraine?

- a) Ministry of Energy and Environmental Protection
- b) State Nuclear Regulatory Inspectorate of Ukraine
- c) National Security and Defense Council of Ukraine
- d) Ministry of Health of Ukraine

6. According to the Concept of State Nuclear Safety Regulation and Nuclear Energy Management in Ukraine, what aspect should future legislation on nuclear energy and radiation protection include?

- a) Regulation of international nuclear trade agreements
- b) Legal regime for the extraction and use of coal
- c) Licensing of non-nuclear industrial facilities
- d) Legal regime for the extraction and use of uranium ores and other nuclear materials



7. Which of the following is NOT mentioned as a component of the legal regime proposed for future legislation on nuclear energy and radiation protection in Ukraine?
- Licensing and state supervision over nuclear facilities
  - Legal regime for radioactive waste management
  - Legal regime for ensuring radiation protection during work with ionizing radiation sources
  - Licensing and state supervision over the use of coal mines
8. Which agency is responsible for overseeing the licensing of nuclear facilities in Ukraine?
- State Emergency Service of Ukraine
  - Ministry of Energy and Environmental Protection
  - State Nuclear Regulatory Inspectorate of Ukraine
  - National Academy of Sciences of Ukraine
9. Which law specifically focuses on regulating legal relations concerning the negative impact of ionizing radiation on people?
- The Law of Ukraine "On Handling Radioactive Wastes"
  - The Law of Ukraine "On Permit Activity in the Field of Nuclear Energy Utilization"
  - The Law of Ukraine "On Civil Liability for Nuclear Damage and its Financial Provision"
  - The Law of Ukraine "On Protection of People against Ionizing Radiation"
10. Which international conventions has Ukraine ratified regarding nuclear safety?
- Vienna Convention on Civil Liability for Nuclear Damage
  - Convention on Early Notification of a Nuclear Accident
  - Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
  - All the mentioned conventions
11. Which directive served as the basis for the adoption of the Law of Ukraine "On Amendments to Certain Laws of Ukraine in the Field of Nuclear Energy Use" on September 18, 2019?
- Council Directive 2013/59/Euratom
  - Council Directive 2009/71/Euratom
  - Council Directive 2011/70/Euratom
  - Council Directive 96/29/Euratom
12. What is the purpose of the State Nuclear Regulatory Inspectorate of Ukraine?
- To promote the use of nuclear energy for peaceful purposes
  - To ensure compliance with international trade agreements related to nuclear technology
  - To regulate and oversee nuclear and radiation safety
  - To develop nuclear weapons for national defense



13. What was the purpose of the Law of Ukraine "On Amendments to the Law of Ukraine "On Use of Nuclear Power and Radiation Safety" enacted on December 11, 2022?

- a) To establish the institute of a radiation protection expert
- b) To unify the terminology of Ukrainian legislation with EU legislation
- c) To improve the procedure for issuing permits in the field of nuclear energy use
- d) To regulate the obligations of nuclear installation operators

14. Which law primarily deals with the regulation of permitting activities related to the use of nuclear energy?

- a) The Law of Ukraine "On Handling Radioactive Wastes"
- b) The Law of Ukraine "On Permit Activity in the Field of Nuclear Energy Utilization"
- c) The Law of Ukraine "On Civil Liability for Nuclear Damage and its Financial Provision"
- d) The Law of Ukraine "On Protection of People against Ionizing Radiation"

15. Which of the following is a key feature of Ukraine's nuclear liability regime?

- a) Unlimited operator liability
- b) Strict liability for nuclear damage
- c) Limited liability for nuclear damage
- d) No liability for nuclear accidents

16. What is the primary objective of the Law of Ukraine "On Use of Nuclear Power and Radiation Safety"?

- a) Promotion of nuclear weapons development
- b) Ensuring the peaceful use of nuclear power and radiation safety
- c) Regulation of nuclear waste disposal only
- d) Facilitation of international nuclear trade agreements

17. What role does the Law of Ukraine "On Use of Nuclear Power and Radiation Safety" play in ensuring the protection of workers in nuclear facilities?

- a) It mandates regular nuclear waste disposal
- b) It requires radiation exposure limits for workers
- c) It provides financial compensation for radiation-related illnesses
- d) It does not address worker protection

18. Which international treaty establishes a framework for international cooperation and assistance in the event of a nuclear accident or radiological emergency?

- a) Vienna Convention on Civil Liability for Nuclear Damage
- b) Convention on Early Notification of a Nuclear Accident
- c) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- d) Treaty on the Non-Proliferation of Nuclear Weapons (NPT)



19. Which international convention addresses the compensation for damage caused by a nuclear incident, including provisions for operator liability?

- a) Vienna Convention on Civil Liability for Nuclear Damage
- b) Convention on Early Notification of a Nuclear Accident
- c) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- d) Convention on Nuclear Safety

20. Which of the following is NOT considered a means of state regulation of nuclear energy utilization?

- a) Regulation
- b) Permitting activities
- c) Supervision
- d) Taxation

21. Which convention establishes general principles and obligations for the safe use of nuclear energy and the protection of people and the environment from radiation risks?

- a) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- b) Convention on Nuclear Safety
- c) Convention on Early Notification of a Nuclear Accident
- d) Convention on the Physical Protection of Nuclear Material

22. Which international organization serves as the global focal point for nuclear cooperation and the promotion of peaceful uses of nuclear energy?

- a) International Atomic Energy Agency (IAEA)
- b) European Nuclear Society (ENS)
- c) Nuclear Energy Agency (NEA)
- d) World Nuclear Association (WNA)

23. Which European organization is responsible for promoting cooperation in the peaceful use of nuclear energy and ensuring high standards of nuclear safety and radiation protection?

- a) European Nuclear Safety Regulators Group (ENSREG)
- b) European Nuclear Society (ENS)
- c) European Atomic Energy Community (EURATOM)
- d) European Commission Directorate-General for Energy (DG ENER)

24. What is the purpose of permitting activities in the field of nuclear energy utilization?

- a) To maximize profits for operating organizations
- b) To ensure compliance with internationally recognized safety requirements
- c) To streamline bureaucratic processes
- d) To facilitate international trade agreements



25. What is one of the main tasks of the International Atomic Energy Agency (IAEA), as outlined in its Statute?

- a) Development of scientific research and dissemination of technical information
- b) Attracting capital investments for nuclear energy projects
- c) Ensuring regularity and equality in the supply of ore and nuclear fuel
- d) Monitoring the peaceful use of nuclear energy and preventing diversion to military purposes

26. Which of the following activities typically requires a license in the field of nuclear energy utilization?

- a) Research and development of nuclear technology
- b) Operation of nuclear power plants
- c) Medical applications of radiation
- d) All the mentioned activities

27. What is the purpose of licensing nuclear activities?

- a) To generate revenue for the government
- b) To regulate and ensure compliance with safety standards
- c) To limit access to nuclear technology
- d) To promote international cooperation

28. Who typically issues licenses for the processing and storage of radioactive waste in Ukraine?

- a) Ministry of Energy and Environmental Protection
- b) State Nuclear Regulatory Inspectorate of Ukraine
- c) National Waste Management Authority
- d) International Atomic Energy Agency (IAEA)

29. Which of the following factors is typically considered during the licensing process for personnel training in the nuclear energy sector?

- a) Curriculum quality and content
- b) Availability of training facilities and resources
- c) Qualifications of instructors
- d) All the mentioned factors

30. Which regulatory document sets safety conditions and requirements for radioactive waste management in Ukraine?

- a) Safety requirements and conditions (licensing conditions) for the transportation of radioactive materials
- b) Rules for the Safe Transportation of Radioactive Materials
- c) Safety conditions and requirements (licensing conditions) for radioactive waste management
- d) Requirements for the report on safety analysis of the transportation of radioactive materials



31. What is the primary purpose of ensuring the availability of an appropriate organizational structure and qualified personnel in entities involved in radioactive waste management?

- a) To minimize transportation costs
- b) To maximize profits for the entities
- c) To reduce unjustified risks of harmful effects of ionizing radiation
- d) To facilitate international trade agreements

32. Which type of personnel training in the nuclear energy sector is subject to the most stringent licensing requirements?

- a) Operator training for nuclear power plants
- b) Radiation protection training for medical professionals
- c) Research reactor operation training for scientists
- d) Emergency response training for first responders

33. In addition to obtaining a license, what other requirement may be necessary for institutions offering personnel training in the nuclear energy sector?

- a) Accreditation by national educational bodies
- b) Membership in international nuclear education organizations
- c) Public consultation and involvement
- d) Approval from the Ministry of Energy and Environmental Protection

34. Which category of NPP personnel is responsible for maintaining power generation equipment?

- a) Operating personnel
- b) Repair personnel
- c) Administrative personnel
- d) General shop personnel

35. What is the primary responsibility of operational personnel at a nuclear power plant?

- a) Administrative management
- b) Round-the-clock maintenance of equipment and process modes
- c) Repairs and modernization of equipment
- d) Warehouse management

36. What role does the state registration process play in ensuring radiation safety?

- a) It guarantees the absolute safety of ionizing radiation sources
- b) It ensures compliance with international trade agreements
- c) It establishes legal liability for radiation accidents
- d) It helps to track and monitor the location and use of ionizing radiation sources





37. What is the primary purpose of state registration of ionizing radiation sources in Ukraine?

- a) To monitor the export and import of radiation sources across the state border
- b) To collect information on ionizing radiation sources and their owners
- c) To establish ownership of radiation sources
- d) To regulate the sale and purchase of radiation sources

38. According to the Law of Ukraine "On Permit Activity in the Field of Nuclear Energy Utilization," under what conditions are activities involving the use of ionizing radiation sources exempt from licensing?

- a) When they are conducted by governmental agencies
- b) When they meet criteria established by the Cabinet of Ministers of Ukraine
- c) When they involve low-risk materials only
- d) When they are conducted for medical purposes only

39. What is the primary criterion for complete exemption from regulatory control of radioactive materials?

- a) The materials must have a short half-life
- b) The expected annual effective dose to any person must not exceed 0.01 mSv/year under all predicted scenarios
- c) The materials must be used for non-commercial purposes
- d) The expected annual effective dose to any person must exceed 1 mSv/year under all scenarios

40. How is financial support for civil liability for nuclear damage primarily carried out?

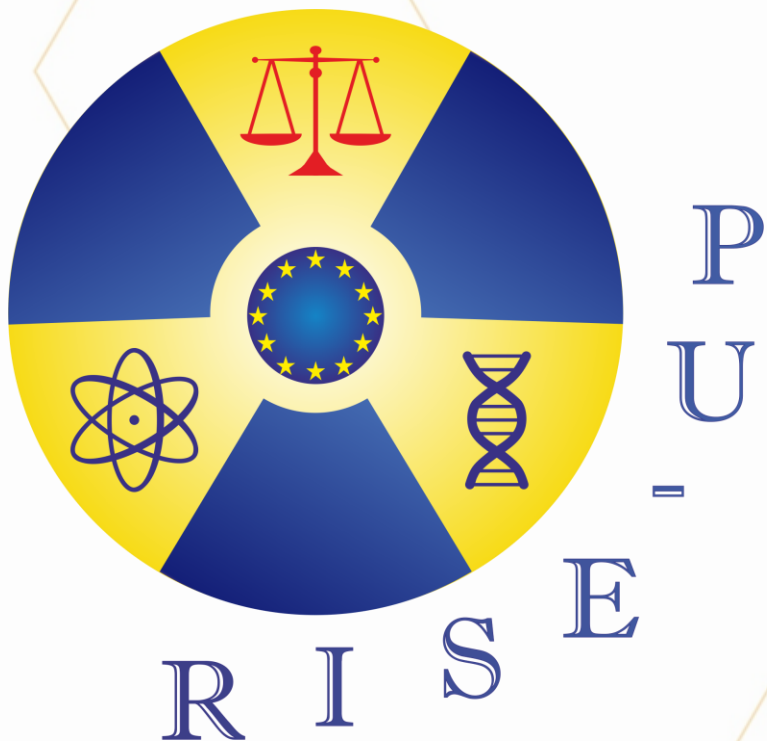
- a) Through direct government funding
- b) Through compulsory insurance of liability for nuclear damage
- c) Through international aid organizations
- d) Through taxation of nuclear facilities





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*Radiation Safety: European-Ukrainian Approach*



## Radiation Safety: Legal Aspect

Manual for training

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