U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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NRC's Support of U.S. Nonproliferation Objectives in the Licensing of Enrichment and Reprocessing Facilities

Nuclear proliferation refers to the spread of nuclear weapons and associated technology, information, materials and expertise. *Nuclear nonproliferation* refers to efforts to control or prevent the spread of nuclear weapons and the means to make them.

Nonproliferation is an important policy focus of the U.S. government and the international community. This requires controlling the spread of sensitive nuclear weapons-related information and the technology used to produce weapons-grade fissile material. Uranium enrichment and the extraction of plutonium through reprocessing spent fuel are the two primary paths for creating weapons-grade fissile material. U.S. nuclear power plants licensed by the Nuclear Regulatory Commission use low-enriched uranium fuel, which cannot be used as a nuclear weapon.

The State Department is the lead U.S. agency on nonproliferation issues, with support from the Commerce, Defense and Energy departments, the intelligence community, and the NRC. The NRC supports overall nonproliferation policy by ensuring that NRC-licensed facilities are constructed and operated safely and securely, and that classified information, for example concerning uranium enrichment technology, is protected. Physical protection, personnel security, information protection and other requirements are built into NRC's regulations for enrichment and reprocessing (ENR) facilities.

The NRC's comprehensive regulatory framework includes: 1) licensing and regulatory requirements; 2) oversight and enforcement; and 3) active interagency cooperation. This framework assesses proliferation risks and concerns associated with the licensing of an ENR facility in the United States.

Licensing and Regulatory Requirements

NRC regulations protect against the theft or diversion of radioactive materials and sensitive or classified technologies and information by imposing specific requirements for ENR facilities.[i]

ENR licensees are required to:

- establish and maintain a physical protection system to guard against sabotage, theft and diversion of special nuclear material (enriched uranium or plutonium), both at their facilities and in transit;
- maintain strict inventory of special nuclear material in order to detect and report any loss, theft, attempted theft or unauthorized production of special nuclear material;

- protect classified information and related technology by preventing unauthorized access to sensitive facilities and information.

During the NRC's ENR license application review process, the NRC examines the license application to ensure the applicant has developed and will implement policies, procedures, and programs that will meet all NRC safety and security requirements.

Oversight and Enforcement

NRC's regular oversight addresses proliferation concerns by inspecting and verifying that licensees are meeting all applicable security requirements. The NRC inspects fuel cycle facilities several times a year to oversee activities related to material control and accounting, information security, nuclear criticality control, chemical processes, emergency preparedness, fire safety, and radiation safety. Annual licensee performance reviews confirm fuel cycle facilities maintain adequate safety and security of nuclear material, and help identify any broader concerns that should be addressed. If the inspectors identify generic concerns that apply to all licensees, the NRC may initiate rulemaking or issue orders, as appropriate.

Violations of NRC requirements can result in civil and criminal sanctions, and must be corrected. Violations may also lead to NRC orders to modify, suspend or revoke licenses.

Active Interagency Cooperation

The President and Congress are responsible for developing national nuclear nonproliferation policies and goals. The State Department, working with the Energy, Defense and Commerce departments, has the primary responsibility for implementing nonproliferation policy. The NRC routinely provides technical expertise and other support to these agencies. This cooperation ensures NRC's licensing activities are aligned with U.S. and international nonproliferation goals and policies, including in the export of nuclear materials and facilities.

Significant U.S. civil nuclear exports (including reactors, critical parts of reactors, and reactor fuel) can only occur pursuant to an agreement for peaceful nuclear cooperation under Section 123 of the U.S. Atomic Energy Act of 1954, as amended (AEA). The United States has in force "123 Agreements" with 21 countries, Taiwan, the European Atomic Energy Community (EURATOM) covering the 27 European Union member states, and the International Atomic Energy Agency.

For each 123 agreement, the federal government is required to prepare a nuclear proliferation assessment to determine whether the agreement meets U.S. nonproliferation goals and AEA requirements. The NRC assists in the assessment by evaluating the recipient country's nonproliferation record and security programs to guard against illegal diversion of the equipment or material to a weapons program.[ii] This is another example of how the NRC engages with other federal agencies on U.S. nonproliferation policy.

Anyone in the United States who develops a new ENR technology must report their invention to DOE. If DOE determines that any of the technology is classified, the person will be required to protect

it. By the time a domestic technology is mature enough to seek a license from the NRC, such information will have already been classified and protected in accordance with DOE requirements.

The NRC also actively supports U.S. participation in the Nuclear Suppliers Group. This group of nuclear supplier states seeks to prevent the proliferation of nuclear weapons through the implementation of guidelines for nuclear and nuclear-related exports. The NRC implements the group's guidelines through its regulations.[iii]

The NRC will issue a license for an ENR facility only if it determines the facility would protect the health and safety of the public and would not harm the common defense and security. The NRC's comprehensive licensing framework properly addresses proliferation concerns through regulatory requirements. The NRC is an important partner in the implementation of U.S. nonproliferation policy.

References

- October 25, 2012, SECY-12-0145, "Denial of Petition For Rulemaking (PRM-70-9) – American Physical Society."
- May 31, 2013, Blog Post, "Assessing NRC's Nonproliferation Efforts."
- June 6, 2013, Federal Register Notice, "Nuclear Proliferation Assessment in Licensing Process for Enrichment or Reprocessing Facilities" (78 FR 33,995).

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[i] Specifically, regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Parts 25, 73, 74, 95 and 110 impose requirements for the protection and responsible use of sensitive or classified information, technologies, materials, and equipment, including those related to ENR facilities.

[ii] A special bilateral agreement for civil nuclear cooperation was concluded between the United States and Australia in 1999 to facilitate Separation of Isotopes by Laser Excitation ("SILEX") technology to be imported from Australia to the United States.

[iii] The June 6, 2013, *Federal Register* notice (see "References") concerning the American Physical Society petition for rulemaking further describes how the NRC supports U.S. government participation in the Nuclear Suppliers Group, as well as overall U.S. nonproliferation policy.

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