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DOE 10 CFR Part 810

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10 CFR Part 810

- Comprehensive review and updates to 10 CFR 810 have not occurred since 1986
- Rulemaking was initiated with a Federal Register notice in 2011 requesting public comments
- Second round of public comments initiated in 2013
- Final rule compliance by August 24, 2015



Atomic Energy Act (AEA) Sec. 57 b.(2)

- Prohibits:
 - ALL direct or indirect engagement or participation in production or development of Special Nuclear Material (SNM) outside the United States
- Exceptions:
 - As authorized by the Secretary of Energy...
 - Upon a determination that such activity WILL NOT BE INIMICAL to the interest of the United States OR
 - As specifically authorized under an agreement for cooperation under section 123, including a subsequent arrangement under section 131 (section 57b.1)



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Interagency process

- Law requires:
 - concurrence of the Department of State
 - Government to government assurances
 - Consultations with the Nuclear Regulatory Commission, the Department of Commerce, and the Department of Defense
- Law doesn't allow:
 - Delegation of authorization

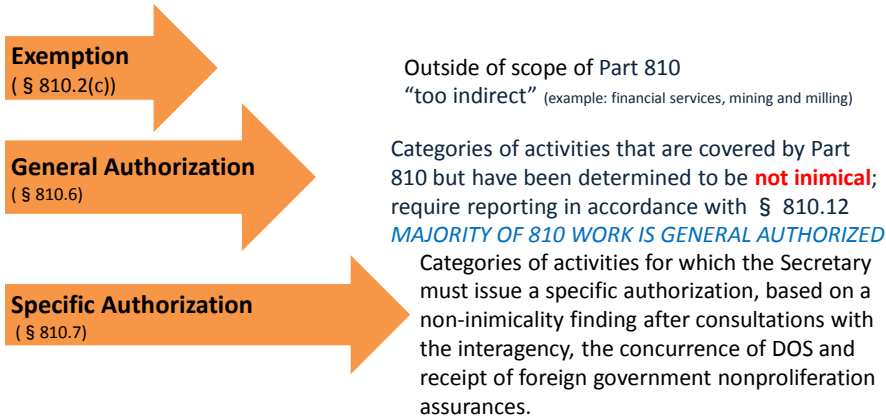


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How Part 810 Implements Sec. 57 b.(2)

- Three Ways to Classify Assistance



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Philosophy of the Rule Generally Unchanged

- Non-Inimicality determination factors include:
 - 1) United States relationship with destination OR
 - 2) Sensitivity of technology to the fuel cycle
- Non-Inimicality finding largely based on:
 - For General Authorizations –
123 Agreement in place (except China, Russia, India)
 - For Specific Authorizations –
all information available to the U. S. government



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Appendix A: Destination Classification

- Old Regulation:
 - Outdated country list
 - Cold war prohibited list philosophy
- New Regulation:
 - Identifies generally authorized destinations

No change proposed for 117 destinations



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Deemed Export

- Philosophy is basically unchanged
- “Deemed Export” is transfer of technology or assistance within the US to a non US citizen
- DOE considers ALL countries of citizenship (dual – citizenship)
- Different interpretation from Department of Commerce
- Green card holders, Permanent Resident Aliens, and Asylees are treated as US



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Major Changes

- Major revisions to the following sections:
 - § 810.2 (Technical Scope)
 - Linked to NRC and NSG language based on multilateral obligations
 - § 810.3 (New Definitions)
 - Also in line with NRC and NSG language
 - § 810.6 (Generally Authorized Activities)
 - § 810.7 (Activities Requiring Specific Authorizations)
 - § 810.14 (Special Provisions for Ukraine)



§ 810.2 - Scope

Based on industry comments and feedback – significant clarification of scope

- § 810.2(a) DOE's jurisdiction under AEA Sec. 57 b.(2)
- § 810.2(b) Expands detail on what activities ARE covered
- § 810.2(c) Expands detail on what activities are NOT covered



§ 810.3 - New Definitions

- Definitions added and or revised to provide clarity, reflect terminological changes and technological developments
 - Align with NRC and NSG definitions
- Some Key Ones:
 - Cooperative enrichment enterprise
 - Fundamental research
 - Operational safety



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§ 810.6 - Generally Authorized (GA) Activities

- Assistance to destinations in Appendix A not involving SNT
- Deemed exports:
 - Unescorted access to NRC licensed facility in accordance with NRC regulations (10 CFR Part 73)
 - Non-disclosure agreement in place
 - The U.S. employer complies with all reporting requirements (§ 810.12)
- Exchange programs approved by DOS in consultation with DOE
- Activities conducted by IAEA employees or sponsored by DOS/DOE in support of the IAEA
- Extraction of Moly-99 isotopes for medical use from irradiated targets (reprocessing – diff chemical/materials)



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§ 810.6 GA Operational Safety Authorizations

- Generally authorized with notice and approval by DOE
- Use: Part810-OperationalSafety@nnsa.doe.gov
- Imminent radiological emergency DOE will respond within 48 hours (example: Fukushima)
- Foreign Activities
 - Activity must support domestic or international requirements for operational safety standards (include this in report to DOE)
 - Activities only permitted at safeguarded facilities.
- Domestic Activities
 - Provide information and assistance at plants in the U.S. by international entities (e.g. INPO and WANO)
- Requires 45 day advance notification to and approval by DOE



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§ 810.7 – Specifically Authorized Activities

- Engaging in civil nuclear cooperation with any destination NOT in Appendix A unless it generally authorized in 810.6
- Engaging in the following activities to ANY destination
 - Providing/transferring sensitive nuclear technology (as defined in the Nuclear Nonproliferation Act of 1978)
 - Plutonium bearing fuel technology
 - Heavy Water production
 - Production accelerator-driven subcritical assembly system



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§ 810.14 - Special Provisions for Ukraine

- The final rule moves Ukraine to Appendix A however:
 - pre-activity notification
 - post-activity reporting requirements
 - **Pre-activity notification provision is *not intended* for deemed exports to Ukrainian nationals working in the U.S.**



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Process Improvement Plan (PIP)

- Process Goals
 - Timeliness
 - Transparency
 - Efficiency
 - Effectiveness
 - ISO-9001 compliant
- Six Sigma approach
 - quantitative analysis of available data
 - interviews with stakeholders (including industry, interagency, and DOE)
 - detailed process mapping and value chain analysis
- e810 is being developed concurrently



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Contact Us

- Final Rule
 - <http://www.gpo.gov/fdsys/pkg/FR-2015-02-23/pdf/2015-03479.pdf>
- Website
 - <http://www.nnsa.energy.gov/Part810>
- E-mail
 - Part810@nnsa.doe.gov
All applications, reports, inquires, and requests for determination should copy this email address
- Phone
 - 202-586-1007



Questions?



Back-up Slides

- Section 810.2 – Full List of Activities Covered
- Section 810.3 – New Definitions
- Appendix A – Generally Authorized Destinations



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Part 810.2(b) - Full list of activities covered

1. Chemical conversion and purification of uranium and thorium from milling plant concentrates and in all subsequent steps in the nuclear fuel cycle;
2. Chemical conversion and purification of plutonium and neptunium;
3. Nuclear fuel fabrication, including preparation of fuel elements, fuel assemblies and cladding thereof;
4. Uranium isotope separation (uranium enrichment), plutonium isotope separation, and isotope separation of any other elements (including stable isotope separation) when the technology or process can be applied directly or indirectly to uranium or plutonium;
5. Nuclear reactor development, production or use of the components within or attached directly to the reactor vessel, the equipment that controls the level of power in the core, and the equipment or components that normally contain or come in direct contact with or control the primary coolant of the reactor core;



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Part 810.2(b) - Full list of activities covered (cont'd)

6. Development, production or use of production accelerator-driven subcritical assembly systems;
7. Heavy water production and hydrogen isotope separation when the technology or process has reasonable potential for large-scale separation of deuterium (2H) from protium (1H);
8. Reprocessing of irradiated nuclear fuel or targets containing special nuclear material, and post-irradiation examination of fuel elements, fuel assemblies and cladding thereof, if it is part of a reprocessing program; and
9. The transfer of technology for the development, production, or use of equipment or material especially designed or prepared for any of the above listed activities



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Part 810.3 –New Definitions

- **Assistance** means assistance in such forms as instruction, skills, training, working knowledge, consulting services, or any other assistance as determined by the Secretary. Assistance may involve the transfer of technical data
- **Cooperative enrichment enterprise** means a multi-country or multi- company (where at least two of the companies are incorporated in different countries) joint development or production effort. The term includes a consortium of countries or companies or a multinational corporation.
- **Country**, as well as government, nation, state, and similar entity, shall be read to include Taiwan, consistent with section 4 of the Taiwan Relations Act (22 U.S.C. 3303).
- **Development** means any activity related to all phases before production such as: design, design research, design analysis, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into a product, configuration design, integration design, and layouts.
- **DOE** means the U.S. Department of Energy.
- **Enrichment** means isotope separation of uranium or isotope separation of plutonium, regardless of the type of process or separation mechanism used.



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Part 810.3 –New Definitions (cont'd)

- **Fissile material** means isotopes that readily fission after absorbing a neutron of any energy, either fast or slow. Fissile materials are uranium- 235, uranium-233, plutonium-239, and plutonium-241.
- **Foreign national** means an individual who is not a citizen or national of the United States, but excludes U.S. lawful permanent residents and protected individuals under the Immigration and Naturalization Act (8 U.S.C. 1324b(a)(3)).
- **Fundamental research** means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.
- **Operational safety** means the capability of a reactor to be operated in a manner that complies with national standards or requirements or widely- accepted international standards and recommendations to prevent uncontrolled or inadvertent criticality, prevent or mitigate uncontrolled release of radioactivity to the environment, monitor and limit staff exposure to radiation and radioactivity, and protect off-site population from exposure to radiation or radioactivity. Operational safety may be enhanced by providing expert advice, equipment, instrumentation, technology, software, services, analyses, procedures, training, or other assistance that improves the capability of the reactor to be operated in compliance with such standards, requirements or recommendations.



Part 810.3 –New Definitions (cont'd)

- **Person** means: 1.. Any individual, corporation, partnership, firm, association, trust, estate, public or private institution; 2. Any group, government agency other than DOE, or any State or political entity within a State; and 3. Any legal successor, representative, agent, or agency of the foregoing.
- **Production** means all production phases such as: construction, production engineering, manufacture, integration, assembly or mounting, inspection, testing, and quality assurance.
- **Production accelerator** means a particle accelerator especially designed, used, or intended for use with a production subcritical assembly.
- **Production accelerator-driven subcritical assembly system** means a system comprised of a production subcritical assembly and a production accelerator and which is especially designed, used, or intended for the production of plutonium or uranium-233. In such a system, the production accelerator target provides a source of neutrons used to effect special nuclear material production in the production subcritical assembly.
- **Production subcritical assembly** means an apparatus that contains source material or special nuclear material to produce a nuclear fission chain reaction that is not self-sustaining and that is especially designed, used, or intended for the production of plutonium or uranium-233.
- **Publicly available information** means information in any form that is generally accessible, without restriction, to the public.



Part 810.3 –New Definitions (cont'd)

- **Publicly available technology** means technology that is already published or has been prepared for publication; arises during, or results from, fundamental research; or is included in an application filed with the U.S. Patent Office and eligible for foreign filing under 35 U.S.C. 184.
- **Secretary** means the Secretary of Energy.
- **Sensitive nuclear technology (Additional language)**. The information may take a tangible form such as a model, prototype, blueprint, or operation manual or an intangible form such as assistance.
- **Technical data** means data in such forms as blueprints, plans, diagrams, models, formulae, engineering designs, specifications, manuals, and instructions written or recorded on other media or devices such as disks, tapes, read-only memories, and computational methodologies, algorithms, and computer codes that can directly or indirectly affect the production of special nuclear material.
- **Technology** means assistance or technical data required for the development, production or use of any plant, facility, or especially designed or prepared equipment for the activities described in § 810.2(b).
- **Use** means operation, installation (including on-site installation), maintenance (checking), repair, overhaul, or refurbishing.



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Appendix A – Generally Authorized Destinations

| | | | |
|---|------------------------------------|--|--|
| Argentina | Egypt | Korea, Republic of | Slovakia |
| Australia | Estonia | Latvia | Slovenia |
| Austria | Finland | Lithuania | South Africa |
| Belgium | France | Luxembourg | Spain |
| Brazil | Germany | Malta | Sweden |
| Bulgaria | Greece | Mexico (For all activities related to INFCIRC/203 INFCIRC/203/Add. 1, and INFCIRC/825 only) | Switzerland |
| Canada | Hungary | Morocco | Taiwan |
| Chile (For all activities related to INFCIRC/834 only) | Indonesia | Netherlands | Turkey |
| Colombia | International Atomic Energy Agency | Norway | Ukraine (Refer to § 810.14 for specific information and requirements) |
| Croatia | Ireland | Poland | United Arab Emirates |
| Cyprus | Italy | Portugal | United Kingdom |
| Czech Republic | Japan | Romania | Vietnam |
| Denmark | Kazakhstan | | |



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