



Exempt Distribution of Irradiated Gemstones

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Mission of the Nuclear Regulatory Commission

- Regulate the Nation's civilian use of byproduct, source, and special nuclear material
 - Ensure the adequate protection of public health and safety
 - Promote common defense and security
 - Protect the environment



Protection of Health and Safety

- Current situation – irradiated gemstones create an insignificant impact on public health and safety; small fraction of allowable public dose
- Non-compliance with NRC regulations is a violation of federal law, and can be enforced



What the Regulations Mean

- The initial distribution of gemstones to the public, after inducing radioactivity, must be done under an exempt distribution license
- All subsequent distributions do not require a license
- Should be able to verify that distribution was done under an exempt distribution license



NRC Regulations

- NRC regulations do not specifically address gemstones
- NRC regulations are generic for
 - Defining radioactive material requiring a license (10 CFR 20.1003)
 - Exemption from licensing to possess products containing radioactive material below a certain concentration (10 CFR 30.14)
 - Licensing the introduction of byproduct material in exempt concentrations into products or materials, and the transfer of ownership or possession of the product (10 CFR 32.11)
 - Recording and material transfer reports (10 CFR 32.12)



Definition of Byproduct Material

- Types of byproduct materials
 - Material made radioactive in a nuclear reactor
 - Material made radioactive in a particle accelerator, and produced, extracted, or converted after extraction, for use for a commercial, medical, or research activity



Persons Possessing Byproduct Material

- Persons can possess a product containing radioactive material without a license under certain conditions:
 - Product has radioactive material concentrations not exceeding 10 CFR 30.70 levels, and
 - Product was manufactured and distributed by someone with a license



Making a Product with Byproduct Material

- Authorizes the introduction of byproduct material into a product or material owned by a licensee, and the transfer of ownership or possession of the product to another that does not have or need a licensee
- Several conditions must be met to allow the transfer from a licensee to a non-licensee



Making a Product with Byproduct Material (con't)

- Licensee who is distributing the product must provide to the NRC
 - Description and intent of product
 - Method of introduction of radioactive material
 - Initial concentration of radioactive material
 - Control methods to assure concentrations
 - Time between introduction and transfer
 - Estimated concentration at time of transfer



Making a Product with Byproduct Material (con't)

- Licensee distributing the product is to provide
 - Reasonable assurance that concentrations do not exceed concentrations allowed for possession by an unlicensed persons
 - Use of lower concentrations not feasible
 - Assurance that product or material not likely to be incorporated in a product designed for application to a human being



Making a Product with Byproduct Material (con't)

- Exempt Distribution Licensee annual reporting requirements:
 - Type and quantity of product into which radioactive material is introduced
 - Type and quantity of radioactive material introduced into product
 - Initial concentration of radioactive material in the product at the time of transfer



What NRC Regulations Mean for Gemstones with Byproduct Material

- For irradiated gemstones containing byproduct material to be transferred to an individual not requiring a license, must be distributed under an exempt distribution license;
- Once the gemstones containing byproduct material are distributed under an exempt distribution license, there is no further NRC regulatory control over the gemstones (unless radioactive material is introduced again, after the exempt distribution)



How Gemstones Can be Imported

- Irradiated gemstones containing radioactive material may be imported, under the following conditions:
 - Do not import irradiated gemstones unless you have a proper license; or
 - You know that the irradiated gemstones have been released under an NRC exempt distribution license of another distributor/importer
 - If gemstones were previously released/distributed under the terms of a valid NRC exempt distribution license, they do not need any further regulatory control, and a license is not needed for import.



Guidance to Obtain a License to Distribute Gemstones Containing Radioactive Material

- NUREG-1556, Volume 8, “Program Specific Guidance About Exempt Distribution Licenses”

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v8/>

- Fact Sheet on Irradiated Gemstones on NRC website

<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/irradiated-gemstones.html>

- Call or email staff at NRC Headquarters



NRC Future Steps

- Continue license application reviews
- Issue a Regulatory Issue Summary
 - A signed communication that expands on or clarifies an existing regulation
 - Placed on NRC website www.nrc.gov
 - Disseminate via professional organizations
- Perform inspections and surveys at licensee facility
- Rulemaking



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NRC holds the last of 3 public meetings, facilitated by Lance Rakovan, on security requirements for transporting certain radioactive material considered potentially of interest to terrorists. [more](#)

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