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# PUBLIC SUBMISSION

**Docket:** NRC-2011-0003

Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions

**Comment On:** NRC-2011-0003-0001

Implementation Guidance for Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions; Draft Guidance Document for Comment

**Document:** NRC-2011-0003-DRAFT-0003

Comment on FR Doc # 2011-00107

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## Submitter Information

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## General Comment

See attached file(s)

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## Attachments

**NRC-2011-0003-DRAFT-0003.1:** Comment on FR Doc # 2011-00107

SUNSI Review Complete  
Template = ADM-013

FRIDS = ADM-03  
Call = G. Comfort (gcc1)

**RE: DRAFT GUIDANCE FOR IMPLEMENTATION OF THE PROPOSED RULE,  
“DISTRIBUTION OF SOURCE MATERIAL TO EXEMPT PERSONS AND TO GENERAL  
LICENSEES AND REVISION OF GENERAL LICENSE AND EXEMPTIONS,”  
IN 10 CFR PARTS 30, 40, 70, 170, AND 171**

Docket I.D. No. NRC-2011-0003, 76 Fed. Reg. 1100 (January 7, 2011)

Dear Sir or Madam:

The following comments are submitted with respect to the above--captioned rulemaking on behalf of the Zirconium Environmental Committee ("ZEC). The ZEC is a collection of companies that are engaged in the mining, production, research and development and commercial distribution of zircon, Zirconia, and zirconium metal in a variety of forms and products. For reasons explained in comments on the proposed rule, the proposed rule and therefore the accompanying draft Guidance may potentially affect the regulatory status of materials used by the ZEC.

Section 40.22(a)(2) of the proposed rule imposes quantity limitations for possession of source material by a general licensee based on the physical form of the source material being "solid" and "nondispersible." A general licensee may possess:

Not more than 7 kg (15.4 lb) of uranium and thorium at any one time so long as the form is solid and nondispersible.

While the proposed rule does not define "nondispersible," the Draft Guidance offers the following explanation at page 9:

**Q6. What is considered "solid and nondispersible" uranium and thorium?**

**A6.** For source material to be considered as "solid and nondispersible," it cannot be in a form that is **readily ingested or inhaled (i.e., could be breathed in or swallowed by accident)**. Source material in the form of powders or liquids would not be considered "solid and nondispersible." In addition, source material in solid form but small enough to **accidentally ingest or inhale** would not be considered "solid and nondispersible." (*Emphasis supplied.*)

Similarly, A7 on page 10 of the draft Guidance offers the following guidance with respect to nondispersible:

The exception would be if the shavings or filings were possessed by someone other than the originator of the shavings or filings and they were of **sufficient size to not be ingested or inhaled**—in this case, the possession limit in 10 CFR 40.22(a)(2) would apply. (*Emphasis supplied.*)

**Comment: "Nondispersible" should be objectively described in the Guidance**

The attribute of "nondispersibility" has a material effect on the source material possession limits of a general licensee under the proposed rule, yet is too vaguely and imprecisely discussed in the draft Guidance to be useful to a general licensee in possession of small objects under the general license. For solids, dispersibility encompasses physical and chemical attributes of environmental mobility through airborne particulate or leaching. Liquids and gases are

dispersible fluids by definition. Solids, on the other hand, may or may not be dispersible depending on their propensity to become airborne, which in turn depends on their physical size, size distribution and density. Yet, dispersibility of solids may be quantified by objective measure, as IAEA has done for "low dispersible" material in its TS-R-1 *Regulations for the Safe Transport of Radioactive Material* at paragraph 605, based on airborne particulate and leaching:

*Low dispersible radioactive material* shall be such that the total amount of this *radioactive material* in a *package* shall meet the following requirements:

- (a) The *radiation level* at 3 m from the unshielded *radioactive material* does not exceed 10 mSv/h;
- (b) If subjected to the tests specified in paras 736 and 737, the airborne release in gaseous and particulate forms of up to 100  $\mu\text{m}$  aerodynamic equivalent diameter would not exceed 100 A2. A separate specimen may be used for each test; and
- (c) If subjected to the test specified in para. 703 the activity in the water would not exceed 100 A2. In the application of this test, the damaging effects of the tests specified in (b) above shall be taken into account.

Ingestibility-other than arising from ingestion upon swallowing particulate of inhalable size-is far too subjective a measure to be used in assigning possession limits that can materially affect a licensee's business. Accordingly, it is recommended that the Guidance incorporate an objective measure of dispersibility based on particle size (aerodynamic equivalent diameter), as is done by IAEA, and delete references to ingestion as an inappropriately subjective measure of dispersibility.

**Comment: "Readily ingested" and "accidentally ingested" are not equivalent to "dispersible"**

The proposed rule makes no mention of ingestibility in determining possession limits under 40.22(a)(2) and it is inappropriate to introduce this parameter in the Guidance. Moreover, while a dispersible particulate of inhalable size range ( $<10 \mu\text{m}$  EAD) may indeed be "readily ingested," a solid object of small size may be "readily ingested," yet be indispersible. Consider, for example, ceramic beads having a density of 5-7 g/cm<sup>3</sup> and diameter of 1 cm: such objects might be considered "ingestible" because they can fit in a mouth, yet are hardly dispersible in any physical or chemical sense. Accordingly, references to "ingestible" as a measure of "indispersibility" should be deleted from the Guidance, as ingestibility is without any basis in the proposed rule.

Thank you for this opportunity to submit comments on the draft Guidance. Please do not hesitate to contact the undersigned if you have any questions regarding these comments or require further information.

Very Truly Yours,

Charles T. Simmons