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Canberra Industries, Inc. offers the following comments on the security and continued use of radioactive Cesium-137 chloride sources as presented in the Federal Register, Volume 73, No. 148, dated Thursday, July 31, 2008:

Issue No. 1 – Alternatives to the Use of Cesium Chloride (CsCl) Sources.

Issue No. 1.2: Feasibility of the Use of Isotopes Other Than Cs-137

Q1.2-1 (a) Can cobalt-60 (Co-60) be substituted for radioactive CsCl for any applications?

No

Q1.2-1 (c) If not, why not?

The current ANSI and ISO Standards specify Cs-137 as the reference source, not Co-60.

Q1.2-2 Can the shielding challenges for Co-60 be addressed by switching from lead shields to more effective tungsten or depleted uranium shielding

The current Calibrators used in the Canberra Meriden facility could not be modified to hold Co-60 to replace the Cs-137.

- **The physical size of the equivalent Co-60 source(s) is too large for the source assembly.**
- **The thickness of shielding needed to accommodate Co-60 would need to change and the floor load at the location would need to be assessed.**
- **Tungsten is very expensive with a possible long lead time to procure**
- **Depleted uranium is also very expensive and requires a source license for possession.**

Q1.2-3 What are the attendant risks associated with Co-60 source transportation?

A Co-60 Source would require replacement 6 times as often as the Cs-137 source. More replacements would mean more shipments and more shipments would mean more accidents. In addition, sources are most vulnerable during transportation.

Issue 3 - Possible Phase-Out of CsCl Sources.

Issue 3.1: Potential Rulemaking Issues and Justification for Regulatory Change

Q3.1-2 (a) What would the consequences if CsCl was to be banned for irradiators that are used for industrial and calibration purposes?

Since there are no other forms of large activity cesium currently available the consequences would be bad since this would essentially paralyze our ability to calibrate anything. It would have a profound effect on our ability to do business in the USA.

Q3.1-2 (b) What is the impact on existing ANSI standards and license conditions that require the use of Cs-137 for calibration purposes?

The current ANSI and ISO Standards that specify Cs-137 as the reference source would have to be changed as well as all of Canberra's test procedures and manuals.

SUNSI Review Complete

Canberra Industries, Inc. 800 Research Parkway, Meriden, CT 06450, US, 203-238-2351

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J. Jankovich (JR52)



Issue 3 - Possible Phase-Out of CsCl Sources, Continued

Issue 3.1: Potential Rulemaking Issues and Justification for Regulatory Change, Continued

Q3.1-3 What would the economic consequences to users if CsCl was to be banned?

The cost to replace each Cs-137 with a suitable Co-60 substitute could be between \$150K to \$200K each as well as the cost to develop new procedures, ALARA concerns because of the removal of the sources from the calibrators on-site and reload the new ones. The added personnel exposure may be significant.

Issue 3.2: Transportation and Storage Issues Associated with Removal of CsCl sources from Licensee Facilities

Q3.2-1 (a) Are there transportation packages available for transportation?

Transport for sources will require a Type "B" container. There are no approved type "B" shipping containers for these sources.

Q3.2-1 (b) Who should bear the transportation costs?

If user's pay for transport for sources it could average around \$50K each way and some users may not have funds available to pay for transport.

Q3.2-3 (a) Where could the decommissioned sources be stored?

Canberra's current Cs-137 sources can be returned to the supplier for recycling but if CsCl is banned then the recycling market will disappear.

Issue No. 4 – Additional Requirements for enhanced Security of CsCl Sources

Q4.1. Should the NRC and Agreement States require more stringent security measures than those currently mandated?

We, company wide, have spent and continue to spend, a considerable amount of money to meet existing regulations and the new "enhanced" regulations for radioactive source security. This includes physical protection like facility design, alarm systems and Calibrator design as well as Personnel background checks on personnel with unlimited access.

Q4.2. Should the NRC and Agreement States require more stringent security measures for lower than Category 2 CsCl sources and devices (e.g., Category 3 sources)?

If Category 3 sources were not CsCl than there is no risk and more stringent security measures would not be required.

Issue No. 5 – Role of Risk Analysis in Potential Future CsCl Requirements

Q5.1 (a). How should the NRC determine the economic and social disruptions/impacts to the public, licensees, and the environment?

The NRC should determine the risks to the proposed elimination of CsCl with variables with standards development, disposal and shipping issues. They should also include the increased replacement cost changes due to the need to replace the Co-60.

We would recommend that the USNRC and the legislature to leave things "as is" for the users of Cs-137, particularly the category 1 and 2 sources. Requiring enhanced security changes where needed, and, that the switchover to a Cs-137 in a different physical form (glass or ceramic) be accomplished as the old technology is replaced.