



Technical Meeting on the Experiences in the Management of Depleted Uranium Shielding Used in Radioactive Source Containers

**IAEA Headquarters
Vienna, Austria**

19 to 23 August 2019

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Information Sheet

Introduction

Depleted uranium (DU) arises as a by-product of the production of enriched uranium for use in nuclear reactors and in the manufacture of nuclear weapons. By definition, DU contains U-235 with a concentration lower than the 0.72% occurring in nature. It is slightly radioactive due to its alpha and beta emissions from the uranium isotopes and their decay daughters. Commercially, DU is used in medicine, space, aviation and petroleum exploration. Of particular importance is its widespread use as source holders for radiation shielding of sealed radioactive sources in a wide variety of applications, including agriculture, medicine, industrial applications, transport, as well as other technical and research areas, in various Member States.

Sealed radioactive sources (SRS) have been used globally for many decades in a wide range of applications. At the end of their useful life, usually 5-15 years, the radioactive sources become disused. However, associated with the end of the useful life of radioactive sources, especially the higher-activity sources, is the generation of residual radiation shielding materials containing DU. For example, portable industrial gamma radiography devices contain up to 20 kilograms of shielding material, consisting of DU, lead, or tungsten. Oil well-logging devices contain DU as housings for the gamma sources. Teletherapy machines, used for cancer treatment, also contain DU as shielding material, as well as in the collimators.

There is a large inventory of disused sealed radioactive sources (DSRS) that have been accumulated in

various Member States, and it is likely to continue increasing over time, given the current and future potential use of SRS worldwide. In the context of the safe management of DSRS, an important and emerging issue of immediate concern is the management of DU contained in radiation shielding materials as potential radioactive waste. DU also must be physically protected and may be subjected to international safeguards.

During the past decade, the IAEA and its Member States have taken steps to lower the risks associated with DSRS. The IAEA has issued a series of technical guidance documents and safety standards, in addition to providing technical assistance to Member States, in the safe management of DSRS. However, the issue related to the management of DU contained in the shielding once the sealed source has been removed from the device, has not been addressed to date in a comprehensive manner. The need for such a document has been discussed and highlighted at various IAEA consultants' meetings, technical meetings, as well as at regional events (coordination meetings, workshops, and training courses) of the Technical Co-operation Programme.

Given this background, it is very timely as well as important from the IAEA's perspective that a report be prepared on this issue, focusing on the various aspects related to the management of DU arising from the relevant inventories of DSRS generated in the Member States. Given that this topic has not been addressed to date, the report will provide the much-needed information required by Member States on the management options for the DU associated with DSRS. The report will be of direct relevance to operators and regulators in Member States that are exploring options and developing strategies for the safe management of DSRS.

This document is expected to be published as a Technical Document so that it is readily accessible to all Member States, interested in this issue, as well as complement the existing series of reports issued by the IAEA on the safe management of DSRS.

Participants will describe the experiences and lessons learned from implementation of operations related to the management of DU shielding used in radioactive source containers.

Objectives

The purpose of the event is to prepare guidance on the management of depleted uranium shielding associated with the disused sealed radioactive sources remaining in Member States after the sources have been removed.

Expected Outputs

The meeting will focus on exchange of information regarding the following topics:

1. Identification of devices and equipment that contain DU as radiation shielding housing or holders for sealed radioactive sources;
2. Characteristics of the DU shielding materials; physical and radiological properties, volumes,
3. Consideration of reuse and recycling options; degree of contamination, risk analysis, decontamination if contaminated, demand for reuse, economics, practicality, return to supplier/manufacturer, potential

use as transport container material,

4. Consideration of radiological properties in the context of international and national regulatory criteria for the free-release option; packaging and transportation issues, cost;

5. Practical examples and experiences. Project description, experience and lessons learned.

Target Audience

The participant should have experience in the management of radioactive waste and disused sealed radioactive sources. The participant should be familiar with the management of empty devices that contains depleted uranium (DU) as shielding material for radioactive sources.

Working Language(s)

English

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **30 June 2019**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C)** which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **23 June 2019**.

Venue

The event will be held at the Vienna International Centre (VIC) where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

<http://www-pub.iaea.org/iaeaevents/GeneralInfo/Guide/VIC>.

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

Additional Information

- a. The Technical Meeting will review the existing draft Nuclear Energy Series Document on "Management of disused Devices containing depleted uranium (DU) as shielding for sealed radioactive sources (SRS)".
- b. To discuss and describe the methodologies that has already been successfully implemented in some Member States related to the management of empty devices that contains DU as shielding material for radioactive sources.
- c. Identify solutions that can help in overcoming existing challenges in this area.

Organization

Scientific Secretary

Mr Juan Carlos Benitez Navarro

Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22673

Fax: +43 1 26007

Email: J.C.Benitez-Navarro@iaea.org

Administrative Secretary

Ms Zsuzsanna Zohori

Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 24544

Fax: +43 1 26007

Email: Z.Zohori@iaea.org

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.