

**Technical Meeting on
Characterization Methods and Technologies to
Meet Waste Acceptance Criteria**

**Hosted by the**

International Atomic Energy Agency (IAEA)

**IAEA Headquarters
Vienna, Austria**

**14–17 May 2019**

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**Information Sheet**

# Background

Radioactive waste is generated from the operation of nuclear power plants and nuclear fuel cycle facilities, and from the use of radionuclides in research, health care and industrial applications. Depending on the origin, there are different types of radioactive waste with a wide range of radiological, physical and chemical properties.

Determining these properties is part of the characterization of radioactive waste, which plays an important role at various stages of the process of safely managing radioactive waste, from generation to disposal. For example, it can help to establish the appropriate treatment or conditioning needed; to provide information needed for process control; and to provide assurance that the waste or waste package will meet the waste acceptance criteria for the processing, storage, transport and disposal of the waste.

Waste characterization involves the use of state-of-the-art assay methods and radiation metrology to verify the properties and characteristics of the waste. In addition, characterization includes product quality control to verify the compliance of waste properties with the waste acceptance criteria of a waste predisposal facility or a repository.

Verifying that the waste acceptance criteria for radioactive waste immobilization and disposal are fulfilled is a key action in the process of radioactive waste management. A key criterion is the radionuclide inventory of the radioactive waste or waste packages, and different methods exist to determine this. The radionuclide inventory can be determined using: non-destructive assay or destructive analysis; calculations, such as a combination of activation codes and Monte Carlo methods; and the scaling factor method. Some radionuclides that must be determined are easier to measure than others, and different methods of determination may lead to a very different quality of both outcome and budget. The preferred methodology will also depend on the type of waste or waste package, in particular on the level of radioactivity, homogeneity, and knowledge of the primary waste. Therefore, it is highly recommended that the methodology for determining the radionuclide inventory be carefully considered.

Over the past decade, significant progress has been achieved in the development of waste characterization, control procedures and equipment as a direct response to ever-increasing requirements for quality and reliability of information on waste characteristics. The failure of control procedures at any step can have significant, adverse consequences. In some cases, errors in waste characterization may result in the production of waste packages that are not compliant with the waste acceptance criteria for disposal, thereby adversely impacting the repository and the waste generating.

Over the years, a wealth of information has been accumulated on the principles and practices of waste characterization, as well as on the development and use of waste acceptance criteria. Some of this information is now available in the public domain in the form of IAEA publications. In fact, there are ten such publications dealing with various facets of the characterization of radioactive waste, on waste forms and waste packages, and on waste acceptance criteria. While all this information is useful to the end users in Member States, there is room for improvement in the way the information is presented and shared so that it may become easier to use for specific needs in this area. It is also necessary to update existing information.

This event is being organized by the IAEA with the technical support of the International Network of Laboratories for Nuclear Waste Characterization (LABONET) Steering Committee. The aim is to increase efficiency in sharing international experience in the application of proven, quality assured practices for the characterization of radioactive wastes and waste packages in order to meet the planned or established waste acceptance criteria for storage or disposal. The exchange of information and best practices in the operation of characterization laboratories is expected to underpin both public and regulatory confidence in the secure management and responsible storage and disposal of radioactive waste.

# Objectives

The purpose of the event is to share information from the LABONET on the practices and challenges associated with the characterization of radioactive waste to meet waste acceptance criteria.

The event will provide a forum for the exchange of information and discussions on good practices, latest developments, challenges and future directions in the area of radioactive waste characterization with the aim of meeting the waste acceptance criteria, as well as providing the latest state-of-the-art technical methods and technologies to characterization laboratory planners, managers and technicians, as well as to designers, operators and regulators involved in the management of radioactive waste in Member States.

# Target Audience

The event is targeted at operators or managers of laboratories, regulatory or supporting organizations, or radioactive waste processing and storage facilities in Member States who are responsible for the characterization and management of low and intermediate level waste, waste packages, and sealed radioactive sources; are actively engaged in planning, improving and implementing radioactive waste management programmes, with a special focus on WAC; and who are willing to share their experience or to gain knowledge on the subject.

Approximately 20-25 participants from the invited countries and organizations are expected to attend, as well as representative(s) from the IAEA and LABONET Steering Committee.

# Working language

The working language of the event will be English with no interpretation provided. All communications and papers must be submitted in this language.

# Expected outputs

The expected output includes sharing international experiences and best practices for the development and usage of waste acceptance criteria throughout the radioactive waste lifecycle. The event should help to strengthen the knowledge of Member States’ representatives in radioactive waste management practices, and to enhance the understanding of characterization methods and technologies that need to be applied to meet waste acceptance criteria.

# Structure

The event will include presentations by the participants outlining Member States’ experiences and issues related to one of the topics mentioned below. Participants are requested to indicate in the Participation Form (Form A) the title of the presentation, and to send an abstract of the presentation at least two weeks prior to the event.

The technical programme will consist of plenaries and breakout sessions. The plenaries will include presentations and discussions on particular waste characterization programmes and on the more focused topics noted below. The breakout sessions will include discussions on relevant issues and topics of common interest.

# Topics

The event will involve exchanges on practices and trends in radioactive waste characterization covering five major topics:

1. Methodologies for demonstrating compliance with waste acceptance criteria, including non-destructive assay, destructive analysis, and scaling factor methods;
2. Characterization based on the end-point (disposal route available/disposal concept available/no disposal route or disposal concept available);
3. Characterization of legacy waste to facilitate further processing;
4. Non-radiological characterization of radioactive waste to ensure compliance with waste acceptance criteria; and
5. Radioactive waste characterization optimization, and design solutions for characterization systems and facilities.
6. **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 **5** **April 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.

Please note that the IAEA is in a transition phase to manage the entire registration process for all regular programme events electronically through the new InTouch+ (<https://intouchplus.iaea.org>) facility, which is the improved and expanded successor to the InTouch platform that has been used in recent years for the IAEA’s technical cooperation events. Through InTouch+, prospective participants will be able to apply for events and submit all required documents online. National authorities will be able to use InTouch+ to review and approve these applications. Interested parties that would like to use this new facility should write to: InTouchPlus.Contact-Point@iaea.org.

# Papers and Presentations

The IAEA encourages participants to give presentations on the work of their respective institutions that falls under the topics listed in Section G above.

Participants who wish to give presentations are requested to submit an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should extend to no more than [Number of pages] pages (including figures and tables) and should not exceed [Number of Words] words. It should be sent electronically to Ms Felicia Dragolici, the Scientific Secretary of the event (see contact details in Section M below), not later than **5 April 2019**. Authors will be notified of the acceptance of their proposed presentations by **Acceptance Deadline**.

In addition, participants have to submit the abstract together with the **Participation Form (Form A)** and the attached **Form for Submission of a Paper (Form B)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than **5 April 2019**.

# 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 **5 April 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>.

The event will begin at 09:30 on Tuesday, 14 May 2019 in Room MOE100, Building M of the 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.

# IAEA Contacts

**Scientific Secretary:**

**Ms Felicia Nicoleta Dragolici**

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