



IAEA

Atoms for Peace and Development

الوكالة الدولية للطاقة الذرية

国际原子能机构

International Atomic Energy Agency

Agence internationale de l'énergie atomique

Международное агентство по атомной энергии

Organismo Internacional de Energía Atómica

Vienna International Centre, PO Box 100, 1400 Vienna, Austria

Phone: (+43 1) 2600 • Fax: (+43 1) 26007

Email: Official.Mail@iaea.org • Internet: <https://www.iaea.org>

In reply please refer to: **EVT1904701**

Dial directly to extension: (+43 1) 260022863

The Secretariat of the International Atomic Energy Agency (IAEA) presents its compliments to the IAEA's Member States and has the honour to draw their attention to the **Technical Meeting on Temper Bead Welding** (hereinafter referred to as "event"), which had to be postponed owing to the COVID-19 outbreak and will now be held virtually via Cisco WebEx from **16 to 17 December 2020**.

The purpose of the event is to provide a forum for international experts to exchange information and experiences related to temper bead welding; to review the new draft IAEA Technical Document on temper bead welding techniques; and to help Member States find ways to repair aged and exposed pressure equipment, piping and other components.

The attached Information Sheet provides further details of the event.

The event will be held in English.

Member States are informed that designations already received for this event will remain valid. Should Member States not have submitted any designations or wish to change their designation, they are invited to designate one participant or more participants to represent the Government at this event. Member States are strongly encouraged to identify suitable women participants.

Designations should be submitted to the IAEA through the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) not later than **13 November 2020** using the attached Participation Form (Form A). Completed and authorized Participation Forms should be sent either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Copies should be sent by email to the Scientific Secretary of the event, Mr Harri Tapani Varjonen, Division of Nuclear Power, Department of Nuclear Energy (Email: H.Varjonen@iaea.org), and to the Administrative Secretary, Ms Inessa Kovalenko (Email: I.Kovalenko@iaea.org). The Scientific Secretary of the event will liaise with the participants directly concerning further arrangements, as appropriate, once the official designations have been received.

Should Governments wish, in addition, to appoint one or more observers to assist and advise the designated participants, they are kindly requested to inform the IAEA of the names and contact details of any such observers by the above date.

The IAEA takes no responsibility for, and the provider of the virtual meeting services has represented and warranted that the Services shall not contain, and that no end user shall receive from the software used to hold the virtual meeting, any virus, worm, trap door, back door, timer, clock, counter or other limiting routine, instruction or design, or other malicious, illicit or similar unrequested code, including

surveillance software or routines which may, or is designed to, permit access by any person, or on its own, to erase, or otherwise harm or modify any data or any system, server, facility or other infrastructure of any end user (collectively, a “Disabling Code”).

The Secretariat of the International Atomic Energy Agency avails itself of this opportunity to renew to the IAEA’s Member States the assurances of its highest consideration.



2020-09-15

Enclosures: Information Sheet
 Participation Form (Form A)



Technical Meeting on Temper Bead Welding

Virtual Event

16-17 December 2020

Ref. No.: EVT1904701

Information Sheet

Introduction

Temper bead welding is a technique to repair ferritic aged and exposed pressure equipment and piping in Nuclear Power Plants (NPPs). Equipment and piping repair can be challenging for welding engineers. During the temper bead welding process, it is important to select the correct welding parameters and weld bead position with the objective to maintain or improve the toughness in Heat Affected Zone (HAZ).

Temper bead welding techniques were developed as an alternative to post Weld Heat Treatment (PHWT) to temper HAZ after welded repair to aged and exposed pressure equipment. Temper bead welding technique is one of the most important repair welding techniques/methods for large size structures where it is impossible or extremely difficult to perform localized PHWT.

According to the CASTI Codes and Standards Training Institute *Connecting-the-Codes from Temper Bead Welding Procedure*

“Temper Bead Welding (TBW) is utilized as welding technique when a carbon steel, low alloy steel, or alloy steel is designed to be used in the as-welded condition or when a post weld heat treatment (PHWT) is impractical.”¹

¹ Connecting-the-Codes from Temper Bead Welding to the ASME Codes, CSA Codes and the NBIC. CASTI Codes and Standards Training Institute.

The American Society of Mechanical Engineers (ASME) defines temper bead technique as follows:

“Temper bead welding: a weld bead placed at a specific location in or at the surface of a weld for the purpose of affecting the metallurgical properties of the heat-affected zone or previously deposited weld metal. The bead may be above, flush with, or below the surrounding base metal surface. If above the base metal surface, the beads may cover all or only part of the weld deposit and may or may not be removed following welding.”²

Objectives

The purpose of the event is to provide a forum for international experts to exchange information and experiences related to temper bead welding; to review the new draft IAEA Technical Document on temper bead welding techniques; and to help Member States find ways to repair aged and exposed pressure equipment, piping and other components.

The objectives to be discussed:

- Collect the latest information on the knowledge and practices of temper bead welding, including:
 - temper bead welding process and it’s conditions of similar and dissimilar materials;
 - qualification requirements for welding;
 - regulatory requirements;
 - microstructures and materials;
 - inspection and monitoring practices;
- Quantify the accuracy of structural integrity assessment procedures for defect-containing temper bead welding in aged LWR safety class 1 piping and components;
- Describe up-to-date best practices related to temper bead welding techniques and processes, inspections, microstructures and materials.

The TECODC will address latest good practices and lessons learned associated with temper bead welding processes, inspections and monitoring in NPP.

This publication uses as basis requirements such as ASME Section XI IWA-4600 Alternative Welding Methods, including coverage of the stainless steel weld and also the classification of areas subject to inspection, responsibilities, provision for access, inspection techniques and procedures, qualification of personnel, inspection frequency, documentation, evaluation of results and repair requirements.

Target Audience

The publication is intended for the use of personnel involved in the design, qualification, licensing, operation, and maintenance of NPP and following organizations:

- Nuclear generating organizations;
- Work management organizations;
- Maintenance organizations;

² ASME Section IX-QG-109 Definitions

- Design organizations;
- Engineering organizations;
- Regulatory bodies;
- Technical support organizations responsible for inspection and monitoring; and
- Other involved organizations.

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 **13 November 2020**. 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 technical matters.

IAEA Contacts

Scientific Secretary:

Mr Harri Tapani Varjonen

Division of Nuclear Power
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22863/22801

Fax: +43 1 26007

Email: H.Varjonen@iaea.org

Administrative Secretary

Ms Inessa Kovalenko

Division of Nuclear Power
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22801

Fax: +43 1 26007

Email: I.Kovalenko@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.

Event Web Page

Please visit the following IAEA web page regularly for new information regarding this event:

www.iaea.org/events/EVT1904701

Participation Form

Technical Meeting on Temper Bead Welding

Virtual Event

16-17 December 2020

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary H.Varjonen@iaea.org and to the Administrative Secretary I.Kovalenko@iaea.org.

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Deadline for receipt by IAEA through official channels: 13 November 2020

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Institution:		
Full address:		
Tel. (Fax):		
Email:		
Nationality:	Representing following Member State/non-Member State/entity or invited organization:	
If/as applicable: Do you intend to submit a paper? Yes <input type="checkbox"/> No <input type="checkbox"/> Would you prefer to present your paper as a poster? Yes <input type="checkbox"/> No <input type="checkbox"/> Title:		