



# **Technical Meeting on the Safety of High Temperature Gas Cooled Reactors in the Light of the Fukushima Daiichi Accident**

**IAEA Headquarters<sup>1</sup>**

**Vienna, Austria**

**8-11 April 2014**

## **TERMS OF REFERENCE**

### **1. BACKGROUND**

Following the Fukushima Daiichi nuclear accident, the safety of all nuclear installations is once again a main focal point, and all developers of nuclear reactor technologies have an added responsibility to demonstrate that whatever nuclear reactor design they propose, will be able to survive the challenges that befell the Fukushima NPP.

The intrinsic properties of modular HTGRs minimize, and in many cases eliminate concerns with offsite and onsite AC power, the need for active safety systems and required operator actions to avoid large radionuclide releases from multi-reactor plant sites to the offsite public. Despite these favourable characteristics, the reactor designer must still assure a safe design.

The development and implementation of comprehensive Safety Design Criteria that take HTGR specific characteristics into account would provide a high level of assurance that modular HTGRs are consistently designed, constructed, and operated in a manner that takes advantage of these intrinsic properties, while also avoiding unintended compromises in plant safety.

### **2. PURPOSE**

The purpose of the technical meeting is to: (1) report on HTGR design features that demonstrate how it addresses the challenges that befell the Fukushima NPP and related HTGR safety research; and (2) further discuss the scope of the proposed CRP on HTGR Safety Design, taking into account the potential contributions from Member States and their role; and the expected contribution of the CRP towards overall efforts for the implementation of the IAEA Action Plan on Nuclear Safety.

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<sup>1</sup> The specific venue is Room VIC M0E26 in the M Building of the Vienna International Centre.

### 3. AUDIENCE

The target audience for this meeting comprises researchers and engineers performing safety research or technology development work on HTGRs.

The meeting will have two parts:

#### **Part 1: Presentations:**

Presentations are invited on two main HTGR safety focus areas in the light of the Fukushima Accidents:

- HTGR Safety design features that illustrate how the design will be able to survive the challenges that befell the Fukushima NPP, and also other postulated design basis and design extension conditions.
- Aspects of HTGR Safety research

#### **Part 2: Workshop on HTGR Safety:**

A work session will be held during the meeting to further refine the proposed CRP on HTGR Safety Design, discuss the framework for how design criteria might be defined and to explore areas where further research in Safety of HTGRs are required.

In order to facilitate a constructive discussion participants are requested to familiarise themselves on the content of the following background information:

- ANSI/ANS-53.1-2011: Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants ([http://www.ans.org/store/i\\_240289/r\\_a](http://www.ans.org/store/i_240289/r_a)).
- IAEA-Safety-Reports-Series No. 54: Accident Analysis for Nuclear Power Plants with Modular High Temperature Gas Cooled Reactors ([http://www-pub.iaea.org/MTCD/publications/PDF/pub1318\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/pub1318_web.pdf)).
- IAEA-TECDOC-1366: Considerations in the Development of Safety requirements for Innovative Reactors: Application to Modular High Temperature Gas Cooled Reactors ([http://www-pub.iaea.org/MTCD/Publications/PDF/te\\_1366\\_web.pdf](http://www-pub.iaea.org/MTCD/Publications/PDF/te_1366_web.pdf)).
- IAEA-TECDOC-1570: Proposal for a Technology-Neutral Safety Approach for New Reactor Designs ([http://www-pub.iaea.org/MTCD/publications/PDF/TE\\_1570\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/TE_1570_web.pdf)).
- NGNP presentation to NRC: “Risk-Informed Performance-Based Licensing Approach” made on 16 April 2012 (made available on IAEA Share-point work area – registration on request).

### 4. IAEA SECRETARIAT

The IAEA Scientific Secretary for the meeting is Mr Frederik Reitsma of the Nuclear Power Technology Development Section, Division of Nuclear Power, Department of Nuclear Energy, IAEA, Vienna International Centre, PO Box 100, 1400 Vienna, Austria (Tel.: +43 1 2600 22565; Fax: +43 2600 29598; Email: F.Reitsma@iaea.org).