# Hitachi-GE Nuclear Energy, Ltd. UK ABWR GENERIC DESIGN ASSESSMENT Resolution Plan for RO-ABWR-0036 (Demonstration that the approach taken to radioactive waste management reduces risks SFAIRP)

RO TITLE:	Demonstration that the approach taken to radioactive waste management reduces risks SFAIRP	
REVISION :	<u>3</u>	
<b>Overall RO Closure Date (Planned):</b>		<u>31<sup>st</sup> May</u> 2017
REFERENCE DOCUMENTATION RELATED TO REGULATORY OBSERVATION		
Regulatory Queries	-	
Linked ROs	RO-ABWR-0017, RO-ABWR-0006, RO-ABWR-0035, RO-ABWR-0037 RO-ABWR-0044, RO-ABWR-0054, <u>RO-ABWR-0064, RO-ABWR-0073,</u> <u>RO-ABWR-0075,</u> RI-ABWR-0001	
Other Documentation	-	

#### Scope of work :

#### BACKGROUND

ONR's radioactive waste, spent fuel and decommissioning assessment during Step 2 of GDA of UK ABWR concluded that Hitachi-GE had presented an adequate basis to proceed to Step 3.

For radioactive waste management, the selection of appropriate pre-disposal methods (including equipment choice) and operating regime requires a detailed holistic assessment of all of the relevant risks and a demonstration that on balance, they are reduced SFAIRP for the plant as a whole. Without that robust demonstration ONR is unable to judge whether the legal duty of controlling risks and reducing risks SFAIRP, also referred to, interchangeably, as ALARP, will be demonstrated.

#### Scope of Work

This Resolution Plan shows the actions and milestones needed for delivery of UK ABWR and provides Demonstration that the approach taken to radioactive waste management reduces risks SFAIRP.

#### **Description of work:**

The main actions to be undertaken to resolve the RO are described as follows.

**RO-ABWR-0036.A1** – Hitachi-GE to provide a robust demonstration to show that the approach taken to the management of radioactive waste reduces risks SFAIRP

Hitachi-GE should provide a robust demonstration for the methods chosen for management of radioactive waste for

UK ABWR, which demonstrates that:

- (1) The option chosen reduces risks SFAIRP;
- (2) A process of optimisation has been followed, that this process can be demonstrated to ONR in a transparent manner, and that it forms part of the safety-case for UK ABWR

Scope and the administrative and operational activities.

- (1) Scope of the system will be;
  - a) Gaseous Radioactive Waste Management System
  - b) Liquid Radioactive Waste Management System
  - c) Solid Radioactive Waste Management System
- (2) The following activities to be included [Ref-1];
  - a) Disposal
  - b) Predisposal
    - Transport
    - Storage

– Treatment

- Pretreatment
- *A1–1* Developing the methodology

Hitachi-GE has developed the methodology for the demonstration of ALARP, which is the UK-ABWR's general ALARP methodology. GDA ALARP methodology (Rev.0) was issued on 12<sup>th</sup> May 2015 and rev.1 was issued on 30<sup>th</sup> Nov. 2015.

The methodology includes;

- a) Identification of Main Functions
- b) Demonstration of Good Practice
- c) Fault Study/Risk Assessment
- d) ALARP Assessment

A1-2 Topic Report about Demonstration of ALARP for Off-Gas Treatment System, using the methodology described in A1-1

The topic report (rev.0) for Off-Gas Radioactive Treatment System was issued on 30<sup>th</sup> March 2015 and Rev.1was issued on 28<sup>th</sup> May 2015. Rev.2 was issued at 14<sup>th</sup> December 2015. Rev 3 was issued on 3<sup>rd</sup> February 2017.

*A1 –3* Topic report about Demonstration of ALARP for HVAC System, using the methodology described in A1-1 BSC of HVAC rev.2 was issued at the end of November 2015 from the mechanical view point. "ALARP Demonstration" of HVAC was issued on the 19<sup>th</sup> February 2016. <u>Further development will be described in Basis of Safety Case on HVAC system which will be issued by 13<sup>th</sup> April 2017.</u>

*A1*–4 Topic report about Demonstration of ALARP for Liquid Radioactive Waste Management System, using the methodology described in A1-1.

The topic report (rev.0) for Liquid Radioactive Waste Management System was issued on the 29<sup>th</sup> May 2015 and Rev.1 was issued on the 31<sup>st</sup> July 2015.

*A1–5* Topic Report about Demonstration of ALARP for Solid Radioactive Waste Management System, using the methodology described in A1-1.

The topic report for Solid Radioactive Waste Management System was issued at 29<sup>th</sup> May 2015 and Rev.1 was issued on 31<sup>st</sup> July 2015.

The topic report (Rev.3) will be issued by 13<sup>th</sup> April 2017 to incorporate the information which was described in the reference documents.

#### Remarks : RO Closing

Hitachi-GE would close this RO by the end of May 2017 on the following conditions.

- 1) The next submission of the ALARP Report for the SWMS will be by <u>13<sup>th</sup> April 2017.</u>
- 2) The next submission of the BSC on the HVAC system will be by 13<sup>th</sup> April 2017.
- 3) The above reports include the major action results.

## Summary of impact on GDA submissions:

An initial assessment suggests that the following GDA topics will be affected by the actions to resolve this RO:

Radioactive Waste Management, Radiation Protection, Decommissioning, Mechanical Engineering and GEP.

As the work progress other areas affected may be identified and will be updated as required.

## Programme Milestones / Schedule:

Refer to the attached Gantt-chart for the programmed activities and the schedule for the resolution of the RO.

# Reference:

[Ref-1] INTERNATIONAL ATOMIC ENERGY AGENCY, IAEA Safety Glossary: Terminology Used in Nuclear Safety and Radiation Protection, 2007 Edition

# Table 1 RO-ABWR-0036 Gantt Chart

