

Hitachi-GE Nuclear Energy, Ltd.
UK ABWR GENERIC DESIGN ASSESSMENT
Resolution Plan for RO-ABWR-0026
Back-up Building C&I

RO TITLE:	Back-up Building C&I	
REVISION :	0	
Overall RO Closure Date (Planned):	25 th December 2015	
REFERENCE DOCUMENTATION RELATED TO REGULATORY OBSERVATION		
Regulatory Queries	-	
Linked ROs	-	
Other Documentation	-	

Scope of work :
<p>Background</p> <p>The original role described for the Backup Building (BuB) was to provide safety functions for beyond the design basis accident (BDBA) sequences and severe accident (SA) sequences. However recent work on fault studies design basis accidents (DBA) involving postulated initiating events coincident with common cause failure of the claimed Class 1 safety systems have revealed that the BuB is required to perform safety functions for this class of events.</p> <p>The PCSR (GA91-9101-0101-14000 Generic PCSR Chapter 14 ; Control and Instrumentation Section 14.5.3 hardwired backup system) and Basis of Safety Cases on Hardwired Backup System (GA91-9201-0002-00029) focus on the Cat/Class A2 functions and, hence, do not provide sufficient explanation or justification of all of the BuB C&I functionality or systems. This Resolution Plan covers the activities required to address this and to respond to RO-ABWR-0026.</p> <p>Scope of work</p> <p>Hitachi-GE will examine the C&I controlling the safety functions developed in response to infrequent faults design basis faults, beyond the design basis faults and severe accidents located in the BuB and describe about it in the PCSR Chapter 14 and supporting Basis of Safety Case and Topic Report documents.</p> <p>This Resolution Plan describes Hitachi-GE's current plan to address the RO; however, ,as the work develops, it may be necessary to choose an alternative means to address the RO.</p>

Description of work:

RO-ABWR-0026 R00 Action 1 :

The RO action states that:

Provide a high level description in Chapter 14 of the C&I located in the Back-up Building including good references to the derivation of the plant safety functions in the accident analysis chapters.

Hitachi- GE will provide a high level description of C&I located in BuB in PCSR Chapter 14 (GA91-9101-0101-14000) including good references to the derivation of the plant safety functions.

This action will be addressed in two ways – C&I Functionality and C&I Systems.

- a) C&I Functionality. Hitachi-GE will identify and list the Category A and B safety functions allocated to C&I associated with the BuB. These safety functions will be listed along with;
 - The source of the requirement; i.e. Fault Schedule reference(s) and other relevant references to documents in the C&I Safety and Engineering Document Maps.
 - Whether it is a BDBA/SA or an Infrequent DBA measure.
 - Category.
 - A high level description of the functional requirement.
 - The C&I systems to implement the functionality.
- b) C&I Systems (and Equipment). Hitachi-GE will identify and provide a high level description of the C&I Systems associated with the BuB. The descriptions will include;
 - The platforms used for each system.
 - The principal functionality allocated to each system, including key parameters monitored and plant controlled.
 - The architecture of each system.
 - The location of the system and equipment.
 - The C&I equipment attached to each system, such as sensors, actuators, signal conditioning equipment, voting logic and HMIS.
 - The support systems for each C&I system.
 - The independence, segregation and diversity claimed for each system.

This information will be included in Generic PCSR Chapter 14, (GA91-9101-0101-14000 Rev.B).

RO-ABWR-0026 R00 Action 2 :

The RO action states that:

Provide a Basis for Safety Case with supporting references on the Back-up building C&I.

Hitachi-GE will prepare a Basis of Safety Case (BSC) and a Topic Report (TR) on the BuB C&I. The contents of these documents will be guided by the C&I Safety and Engineering Document Maps and the associated terms of reference for each document.

Hitachi-GE will prepare BSC on BuB C&I. The BSC will describe;

- A high level description of the BuB C&I Systems and their architecture.
- The claims made on the C&I systems and their links back to the PCSR.
- The arguments that relate the C&I systems to the claims, including references to the supporting information in the TR.

Further information is developed in TR on BuB C&I. This information will be linked to the claims and arguments made in the BSC.

Summary of impact on GDA submissions:

GDA Submitted documents (Title / Document I.D.)	Related GDA RO actions	Submission Date to ONR	Potential Impact
Submitted Document			
Generic PCSR Chapter 14 / GA91-9101-0101-14000 Rev.A	Action 1	May 2015 (to submit Rev. B draft) August 2015 (to submit Rev. B)	To add a high level description of C&I located in BuB
Planned submissions			
Basis of Safety Cases on Back-up Building C&I / TBD	Action 2	August 2015	To describe the claims and arguments on the BuB C&I systems
Topic Report on Back-up Building C&I / TBD	Action 2	December 2015	To describe the further information of BuB C&I e.g. monitoring item and operation item of BuB C&I, location of system and equipment

Programme Milestones/ Schedule:
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See attached Gantt Chart (Table 1).

Reference:

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Table 1 RO-ABWR-0026 R00 Gantt Chart

C&I Resolution Plan for RO-ABWR-0026 (2014)				October				November				December			
				6	13	20	27	3	10	17	24	1	8	15	22
Level	Action Title	Start	Finish												
1	Preparation of Submissions and Closure of RO Actions	10-Dec-14	25-Dec-15												
1.1	RO Action 1	10-Dec-14	30-Sep-15												
1.2	RO Action 2	10-Dec-14	25-Dec-15												

C&I Resolution Plan for RO-ABWR-0026 (2015)				January				February				March				April				May				June				July				August				September				October				November				December			
				5	12	19	26	2	9	16	23	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30
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