

REGULATORY OBSERVATION

REGULATOR TO COMPLETE

RO unique no.:	RO-ABWR-0047
Date sent:	6th May 2015
Acknowledgement required by:	28th May 2015
Agreement of Resolution Plan Required by:	28th May 2015
Resolution of Regulatory Observation required by:	<i>To be determined by the Hitachi-GE Resolution Plan</i>
TRIM Ref.:	2015/167409
Related RQ / RO No. and TRIM Ref. (if any):	
Observation title:	Mechanical Engineering – Wet Lifting Beams – Material of Construction
Technical area(s) 11. Mechanical Engineering	Related technical area(s) 10. Radiation Protection & (Level 3 PSA) 15. Radwaste & Decommissioning

Regulatory Observation

Summary

This mechanical engineering regulatory observation is cross cutting. It is being raised to ensure the engineering basis for selection of materials for the construction of lifting beams used in a wet environment is ALARP.

Assessment Observation

During the first Step 2 mechanical engineering technical workshop; Jan 2014 (2014/62657), the Requesting Party (RP) stated that the lifting beam for manoeuvring the steam dryer and separator modules between the reactor pressure vessel and the steam dryer and separator storage pool during each outage is of a carbon steel construction.

I consider the use of a carbon steel lifting beam in a wet pool environment not to be aligned with UK relevant good practice; does not reduced the risks so far as reasonably practicable (SFAIRP) and does not secure an As Low As Reasonably Practicable (ALARP) design.

A carbon steel lifting beam:

1. Has the potential to contaminate the reactor pressure vessel and the spent fuel storage pool with rust and paint debris, and will thus not meet regulatory expectations (relevant good practice) in regards to Foreign Material Exclusion (FME);
2. Is likely to place additional demands on the Examination, Maintenance, Inspection and Testing (EMI&T) activities required to ensure it remains within its design basis examples include the:
 - a. Ability to undertake adequate inspection of the base material; and
 - b. Requirement to undertake surface coating repairs.
3. Is more onerous to decontaminate than other materials; thus the potential to have a detrimental effect to operator dose uptake and to radioactive waste volume.

RQ-ABWR-0259 (2014/407171) response sets out the RP's arguments and rationale for retaining carbon steel as the basis of the steam dryer and the separator module lifting beam. I consider the presented arguments and rationale to be short of meeting my regulatory expectations.

I consider this regulatory observation to be cross-cutting and of interest to:

1. radiation protection,
2. decommissioning and radioactive waste;

In conclusion, I consider:

1. The lifting beam selection does not reduce the risks SFAIRP; thus is not an ALARP design; and
2. A GDA can't be concluded without the assessment observation being adequately addressed in an auditable manner.

Regulatory Expectations

It is my regulatory expectation that:

1. each UK ABWR lifting beam used in a wet environment is reviewed and optioneered to:
 - a. Reduce the risks SFAIRP; a requirement of UK legislation (Health & Safety at Work etc. Act 1974);
 - b. Minimise the volume and level of radioactive waste generated; and
 - c. Minimise operator dose uptake (a requirement if the Ionising Radiations Regulations 1999).

Regulatory Observation Actions

RO-ABWR-0047.A1

The RP is expected to:

1. Generate a resolution plan that will:
 - a. present its detailed strategy to demonstrate each UK ABWR lifting beam used in a wet environment is reviewed and optioneered to be ALARP;
 - b. define and scope the planned activities;
 - c. include a controlled programme identifying: planned activities; deliverables; milestones; timescales and resource requirements; and
 - d. provide the audit trail to demonstrate each UK ABWR wet lifting beam design risks have been reduced SFAIRP and to demonstrate the designs are ALARP.

Resolution required by: To be determined by the Hitachi-GE Resolution Plan

RO-ABWR-0047.A2

Provide progress updates to ONR through the planned GDA engagements.

Resolution required by: To be determined by the Hitachi-GE Resolution Plan

RO-ABWR-0047.A3

Make available to ONR activity deliverables, conclusions and recommendations.

Resolution required by: To be determined by the Hitachi-GE Resolution Plan

RO-ABWR-0047.A4

If appropriate:

- a. raise design changes; and
- b. update the UK ABWR safety case, system designs and substantiation.

Resolution required by: To be determined by the Hitachi-GE Resolution Plan

RO-ABWR-0047.A5

Make available any appropriate updated documents and substantiation for ONR assessment.

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REQUESTING PARTY TO COMPLETE

Actual Acknowledgement date:

RP stated Resolution Plan agreement date: