REGULATORY OBSERVATION	
REGULATOR TO COMPLETE	
RO unique no.:	RO-ABWR-0018
Date sent:	16 September 2014
Acknowledgement required by:	07 October 2014
Agreement of Resolution Plan Required by:	28 November 2014
Resolution of Regulatory Observation required by:	26 June 2015
TRIM Ref.:	2014/252937
Related RQ / RO No. and TRIM Ref. (if any)**:**	
Observation title:	Examination, Inspection Maintenance and Testing (EIM&T) Isolations and Configurations
Technical area(s) Mechanical engineering	**Related technical area(s)** Radiation protection Conventional safety MSQA

Regulatory Observation

Summary

This mechanical engineering regulatory observation is cross cutting and is being raised to ensure all the UK ABWR structures, systems and components (SSCs) examination, inspection, maintenance and testing (EIM&T) isolations and configurations are:

1. designed in accordance with UK relevant good practice (RGP); and
2. the optioneering risks have been reduced so far as is reasonably practicable (SFAIRP).

Assessment Observation

My assessment has highlighted an example of planned EIM&T with the reactor internal pump plug that relies on a single isolation seal for confinement. The single seal is the only design measure preventing active fluid that is under a significant hydraulic pressure within the reactor pressure vessel from leaking onto operators undertaking EIM&T activities in the drywell area directly underneath the reactor pressure vessel.

I judge the reactor internal pump plug reliance on a single confinement measure be to a shortfall in the regulatory expectations of SAP series “EKP” key engineering principles. I consider the design has not been fully optioneered to reduce the risks SFAIRP.

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

1. conventional safety;
2. radiation protection; and
3. MSQA

In conclusion I consider:

1. the RP’s arrangements do not meet all aspects of UK RGP;
2. the reactor internal pump plug reliance on a single confinement measure be to a shortfall in

regulatory expectations; as it does not reduce the risks SFAIRP; and
3. a GDA cannot be concluded without this assessment observation being adequately addressed in an auditable manner.

Regulatory Expectations

It is my regulatory expectation that the RP:

1. is able to demonstrate and substantiate that each UK ABWR mechanical engineering SSC:
    a. is of an inherent safe design one that avoids radiological hazards rather than controlling them;
    b. sensitivity to potential faults is minimised;
    c. level of protection prevent faults, or if protection fails should ensure protection limits the potential consequences and prevent escalation; and
    d. optioneering has reduced risks SFAIRP.
2. SSCs' EIM&T isolations and configurations are in accordance with UK RGP HSG253 "The safe isolation of plant and equipment (ISBN 978 0 7176 6171 8). Noting it is a principal regulatory expectation that "positive isolation" is provided for an SSC that is adjacent to an energised SSC.

Regulatory Observation Actions

The RP is expected to:

1. generate a resolution plan that will:
    a. present its detailed strategy to demonstrate each mechanical engineering SSC EIM&T isolation and configuration design is aligned to UK RGP and the design has been optioneered to reduce the risks SFAIRP;
    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 each revised SSC design.
2. identify all the applicable UK RGP codes, standards, guidance and legislation;
3. identify all the mechanical engineering SSCs that need to be reviewed;
4. review its extant design process arrangement against the stated expectations;
5. make available to ONR the review conclusions, implications and recommendations;
6. if appropriate:
    a. raise design changes; and
    b. update its design process arrangement, the UK ABWR safety case, system designs and substantiation; and
7. provide progress updates to ONR through the planned engagements; and
8. make available any appropriate updated documents and substantiation for ONR assessment.

Actual Acknowledgement date:	
RP stated Resolution Plan agreement date:	