

Generic assessment of candidate nuclear power plant designs


Interim statement of design acceptability for the AP1000[®] design submitted by **Westinghouse Electric Company LLC** (Westinghouse)

The Environment Agency has undertaken a Generic Design Assessment of the Westinghouse UK AP1000[®] design, during the period July 2007 to June 2011, using the process set out in the document Process and Information Document for Generic Assessment of Candidate Nuclear Power Plant Designs¹.

The findings of our assessment are summarised in the decision document for the Generic Design Assessment of Westinghouse's UK AP1000².

The Environment Agency is satisfied that Westinghouse has demonstrated the acceptability for environmental permitting of the AP1000 on the generic site, as defined in Schedule 1, subject to the GDA issues identified in Schedule 2.

This statement is provided as advice to Westinghouse, under section 37 of the Environment Act 1995. It does not guarantee that any site-specific applications for environmental permits for the AP1000 will be successful.

Name	Date
<p>[name of authorised person]</p>  <p>Ian Parker Manager, Nuclear Regulation Group (North)</p>	<p>14 December 2011</p>

Authorised on behalf of the Environment Agency

References

1. Process and Information Document for Generic Assessment of Candidate Nuclear Power Plant Designs, Environment Agency, January 2007. <http://publications.environment-agency.gov.uk/pdf/GEHO0107BLTN-e-e.pdf>
2. Decision document for the Generic Design Assessment of Westinghouse's AP1000[®], Environment Agency, December 2011.

Schedule 1 – Scope of the GDA

This interim statement of design acceptability refers to the AP1000 design as described in the design reference documentation:

- a) *AP1000 Design Reference Point for UK GDA Reference date: 16 September 2010.* UKP-GW-GL-060 Revision 5. 1 November 2011. Westinghouse Electric Company LLC.
- b) *AP1000 Environment Report.* UKP-GW-GL-790 Revision 4. Westinghouse Electric Company LLC.
- c) The documents contained in the *Master Submission List: Maintaining the Configuration of the United Kingdom Generic Design Assessment of the European AP1000 Design, 2007-2011.* UKP-GW-GLX-001 Revision 1. Dated 1 October 2011. Westinghouse Electric Company LLC.

Certain aspects have been agreed as being out of scope for GDA and these are defined by Westinghouse in its letter WEC00728 GDA, Out of Scope Items, dated 7 November 2011.

Schedule 2 – GDA Issues

WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

GDA ISSUE

PCSR TO SUPPORT GDA

GI-AP1000-CC-02 REVISION 3

Technical Area		CROSS CUTTING	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-CC-02	GDA Issue Action Reference	GI-AP1000-CC-02.A1
GDA Issue	<p>Westinghouse to submit a safety case to support the GDA Design Reference and then to control, maintain and develop the GDA submission documentation, including the Safety, Security and Environment Report (SSER), the Master Submission List (MSL) and design reference document and deliver final consolidated versions of these as the key references to any Design Acceptance Confirmation (DAC) / Statement of Design Acceptability (SoDA) the Office for Nuclear Regulation (ONR) or the Environment Agency (the joint Regulators) may issue at the end of GDA.</p> <p>This GDA Issue is raised by both the ONR and Environment Agency</p>		
GDA Issue Action	<p>Westinghouse to submit to the joint Regulators a consolidated Pre-Construction Safety Report (PCSR) and associated references which provides the necessary claims, arguments and evidence to substantiate the adequacy of the AP1000 described by Design Reference Point (DRP) UKP-GW-GL-060 revision 2 and make available via the Westinghouse Website a public version of the consolidated PCSR, the Design Reference Document and the Master Submission List.</p> <p>Westinghouse is required to carry out a review and reassessment of their PCSR. This review should cover:</p> <ul style="list-style-type: none"> • PCSR UKP-GW-GL-793 Revision 0. • Weaknesses identified with the PCSR UKP-GW-GL-732 Revision 2. • Alignment of the DRP and MSL with the PCSR and associated references and ensure there is no adverse affect on impacted documents from the Design Change Proposals (DCPs) awaiting incorporation. • The application of UK safety classification for modifications. • Comments against the draft replacement PCSR UKP-GW-GL-793 Revision A. • Agreed responses Technical Queries (TQs), Regulatory Observations (ROs) and Regulatory Issues (RIs) generated during GDA Steps 2, 3, and 4. <p>Based on their review, Westinghouse should either confirm that their PCSR UKP-GW-GL-793 Revision 0 is the extant GDA safety case and is suitable and sufficient to substantiate the design defined in UKP-GW-GL-060 Revision 3 or submit a revised PCSR to the Regulators as necessary.</p>		

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Technical Area		CROSS CUTTING	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-CC-02	GDA Issue Action Reference	GI-AP1000-CC-02.A1
	<p>Westinghouse is required to provide their safety case, Design Reference Document UKP-GW-GL-060 and the Master Submission List UKP-GW-GLX-001 and place subsequent updates on their website (removing commercial information, and security sensitive information)</p> <p>With agreement from the joint Regulators this action may be completed by alternative means.</p>		

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GI-AP1000-CC-02 REVISION 3

Technical Area		CROSS CUTTING	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-CC-02	GDA Issue Action Reference	GI-AP1000-CC-02.A2
GDA Issue Action	<p>Westinghouse is required to make and implement arrangements to control, maintain and develop the GDA safety submission documentation. This must include the SSER, MSL and design reference documents. As part of this action, Westinghouse shall deliver final consolidated versions of these documents as the key references to any DAC/SoDA ONR or the Environment Agency (the joint Regulators) may issue at the end of GDA.</p> <p>This should involve the incorporation of all relevant amendments into the impacted documentation associated with design changes, including the Design Reference UKP-GW-GL-060 MSL and the PCSR. This should include any other additionally agreed design changes associated with other GDA issue Resolution Plans.</p> <p>Westinghouse arrangements shall ensure no modification to the design or safety case, which may affect safety, is made except in accordance with agreed arrangements and will provide for the classification of modifications according to their safety significance.</p> <p>Evidence the joint Regulators expect to see to address this action:</p> <ol style="list-style-type: none"> 1. Application of Westinghouse due processes, including Quality Assurance (QA) and technical reviews for the control and development of the GDA submission documentation contained within the SSER, MSL and design reference document to address <ol style="list-style-type: none"> 1.1. GDA Issue resolution, 1.2. Agreed design changes 1.3. Any other updates agreed with the Regulators. 2. Application of Westinghouse due processes, including technical reviews, Independent Review and QA consolidation checks on final GDA submission documentation contained within the SSER, MSL and design reference document to be referenced from any DAC/SoDA ONR or the Environment Agency may issue. The joint Regulators will require: <ol style="list-style-type: none"> 2.1. Evidence that review comments have been managed and incorporated in the final consolidated documentation as necessary. 3. Timely delivery of final consolidated GDA submission documentation including SSER, MSL and design reference document to be referenced from any DAC/SoDA ONR may issue. Westinghouse will need to provide a public version of these documents made available via their website. To facilitate our assessments /inspections in this area, in addition to the submission of the documentation the joint Regulators will require: 		

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GI-AP1000-CC-02 REVISION 3

Technical Area		CROSS CUTTING	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-CC-02	GDA Issue Action Reference	GI-AP1000-CC-02.A2
	<p>3.1. the programme of deliverables of amended impacted design change documentation which will need to allow sufficient time for us to complete our assessments before ONR or Environmental Agency may issue any DAC/SoDA.</p> <p>With agreement from the joint Regulators this action may be completed by alternative means.</p>		

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GI-AP1000-CC-02 REVISION 3

Technical Area		CROSS CUTTING	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-CC-02	GDA Issue Action Reference	GI-AP1000-CC-02.A3
GDA Issue Action	<p>Westinghouse to implement the outstanding GDA agreed design changes, by incorporating the change details into all impacted DR, the MSL documentation including the PCSR, ER.</p> <p>The scope of this work should include those design changes already agreed for inclusion in GDA Step 4 but not incorporated and any additional design changes arising as part of other GDA issues resolution plans or arising during the GDA close out stage.</p> <p>Evidence ONR or the Environment Agency (the joint Regulators) expect to see to address this action includes:</p> <ol style="list-style-type: none"> 1. A revised Design Reference Document that shows the DCPs agreed by the regulators for inclusion in GDA which were not fully incorporated at the DRP of 16 September 2010. 2. A delivery schedule which; <ol style="list-style-type: none"> 2.1. Identifies when those DCPs identified in item 1 above and any subsequent DCPs agreed by the regulators for inclusion in GDA will be incorporated into the impacted support documentation in the MSL and DR 2.2. Identifies what design change details will be carried over into the site specific Phase, supported by a justification for this later delivery 3. Delivery of 2a part of the schedule and define the quality assurance arrangements to be applied for 2b. <p>To facilitate our assessments in this area the programme of deliverables of impacted GDA submission documentation should be phased to allow for early assessment of the process performance.</p> <p>It is noted that some changes may not be incorporated into the GDA submission documentation until the site specific phase. This work needs to be clearly identified and agreed with the joint Regulators prior to the end of GDA.</p> <p>Westinghouse to review the Design Reference Point and update the Design Reference Document as necessary to reflect incorporation of the design changes, submit this to the regulators and place any update on their website (removing commercial information, and security sensitive information) prior to the final GDA SSER submission.</p> <p>With agreement from the joint Regulators this action may be completed by alternative means.</p>		

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GDA ISSUE

**CONSIDER AND ACTION PLANS TO ADDRESS THE LESSONS LEARNT FROM THE
FUKUSHIMA EVENT**

GI-AP1000-CC-03 REVISION 2

Technical Area		CROSS CUTTING	
Related Technical Areas		All	
GDA Issue Reference	GI-AP1000-CC-03	GDA Issue Action Reference	GI-AP1000-CC-03.A1
GDA Issue	<p>Westinghouse are required to demonstrate how they will be taking account of the lessons learnt from the unprecedented events at Fukushima, including those lessons and recommendations that are identified in the HM Chief Inspector’s interim and final reports.</p>		
GDA Issue Action	<p>Westinghouse to address the lessons learnt from their internal review following the Fukushima event relevant to GDA for the AP1000.</p> <p>Evidence we expect to see provided to address this action includes:</p> <ol style="list-style-type: none"> 1) Internal review summary report 2) A plan for the necessary actions arising from the internal review report 3) Modification of the following, as appropriate: <ol style="list-style-type: none"> a. Design Reference and SSERs b. Submission Master List documentation (Levels 1-3), including amendments to submission level 2 design information such as SDMs in accordance with GDA Issue GI-AP1000-TR.02 c. Resolution Plans in response to other relevant GDA Issues 4) Confirmation that any design changes resulting from these reviews for inclusion into GDA will be managed in accordance with the Westinghouse Level III Procedure Design Reference Point Change for GDA. UKP-GW-GAP-026 Revision 0. <p>With agreement from the Regulators this action may be completed by alternative means.</p>		

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GDA ISSUE

**CONSIDER AND ACTION PLANS TO ADDRESS THE LESSONS LEARNT FROM THE
FUKUSHIMA EVENT**

GI-AP1000-CC-03 REVISION 2

Technical Area		CROSS CUTTING	
Related Technical Areas		All	
GDA Issue Reference	GI-AP1000-CC-03	GDA Issue Action Reference	GI-AP1000-CC-03.A2
GDA Issue	<p>Westinghouse are required to demonstrate how they will be taking account of the lessons learnt from the unprecedented events at Fukushima, including those lessons and recommendations that are identified in the HM Chief Inspector's interim and final reports.</p>		
GDA Issue Action	<p>Westinghouse to address the lessons learnt that are relevant to GDA for AP1000 from HM Chief Inspector Nuclear Installations' interim and final reports.</p> <p>Evidence we expect to see provided to address this action includes:</p> <ol style="list-style-type: none"> 1) A Plan to address the relevant actions arising from HM Chief Inspector's interim and final reports. 2) Modification of the following, as appropriate: <ol style="list-style-type: none"> a. Design Reference and SSERs b. Submission Master List documentation (Levels 1-3), including amendments to submission level 2 design information such as SDMs in accordance with GDA Issue GI-AP1000-TR.02 c. Resolution Plans in response to other relevant GDA Issues 3) Confirmation that any design changes resulting from these reviews for inclusion into GDA will be managed in accordance with the Westinghouse Level III Procedure Design Reference Point Change for GDA. UKP-GW-GAP-026 Revision 0. <p>With agreement from the Regulators this action may be completed by alternative means.</p>		