



RI-AP1000-2

UK Regulatory Position Statement on the Westinghouse AP1000

The HSE's Nuclear Directorate, the UK's nuclear safety and security regulator, has raised a Regulatory Issue (RI) against Westinghouse's AP1000 nuclear reactor design. The RI relates to the proposed new steel-concrete-steel construction design for key structures within the "Nuclear Island", where there is a lack of evidence to demonstrate that they would be sufficiently robust to protect the reactor's safety systems under normal conditions, and also from severe weather and other external hazards.

1. The UK nuclear safety regulator (HSE's Nuclear Directorate (ND)) is currently working to assess the AP1000 Pressurised Water Reactor. In carrying out its assessments, it has raised a Regulatory Issue against the proposed new Steel-Concrete-Steel sandwich modular construction¹ for the AP1000. This is a civil engineering issue.
2. ND is not yet satisfied that the proposed Steel-Concrete-Steel modular construction methodology, which would be used for some key structures, could protect the reactor's safety systems from severe weather and other external hazards such as physical impact. ND has therefore requested appropriate evidence to demonstrate that the strength and durability of the structures have been adequately justified.
3. Westinghouse is considering a number of possible solutions, such as further analysis and testing and possible changes to the design, and intends to provide detailed proposals and supporting evidence by the end of October 2010.
4. The US nuclear regulator, NRC, has also raised an issue regarding the design methodology and modification proposals for the shield building. ND is working closely with NRC to ensure maximum leverage and harmonisation of outcomes.
5. Although the AP1000 design being developed for the UK and US may vary slightly, the issues raised on the civil structures by ND are broadly similar to those raised by NRC. It is for Westinghouse to respond to each of the nuclear regulators to address their respective issues. However, as the designs and issues are similar, it is anticipated that the solution will be similar, although not necessarily identical, taking into account individual utilities requirements and national regulatory requirements or practises. In all cases, however, the solutions will lead to equivalent high levels of safety.

¹ The modular construction approach proposed by Westinghouse involves a sandwich of steel plates filled with concrete, rather than using more conventional reinforced concrete, which is strengthened with internal steel bars.



6. This is a good example of how independent regulators working closely together can promote a shared understanding and application of existing international standards, and promote the harmonisation of regulatory standards and the build of reactor designs with high levels of safety.

7. Raising RIs does not mean that the designs are unsafe – ND is still assessing designs on paper, so any safety detriment is still in the design stage. The Generic Design Assessment (GDA) process ND is using is specifically designed to help it identify potential problems at the design stage, when a solution can be identified and implemented more effectively and efficiently. The fact that ND is identifying these issues so early in the development of these designs demonstrates that GDA is working.