

# **New nuclear power stations Generic Design Assessment**

Strategy for working with overseas regulators

## Introduction

- 1 This document sets out the strategy for working with, and using information from, overseas regulators during the current work being undertaken by HSE's Nuclear Installations Inspectorate (NII) on new nuclear power stations.
- 2 The document provides some background information, and then goes on to develop and describe our strategy.

## Background

- 3 The nuclear power industry is global in scale. Any reactors that might be proposed for the UK are likely to be of a similar design to those being constructed or under consideration in other countries. The nuclear regulators in these countries may therefore have assessment work completed or underway that might be of interest to us. In addition to our assessment of any new UK nuclear power stations, we will seek to liaise with overseas regulators where appropriate. This has potential benefits, including access to independent analyses and audits, sharing of technical opinions, early advice on construction issues, and promotion of a more consistent and harmonised international approach.
- 4 The general international context for NII's safety assessment work for Generic Design Assessment (GDA) is given in the document *New nuclear power stations Generic Design Assessment: Safety assessment in an international context* ([www.hse.gov.uk/newreactors/international.htm](http://www.hse.gov.uk/newreactors/international.htm)).
- 5 It gives an explanation of why the UK needs to do its own safety assessment for new reactors, how we take into account international standards, international experience, and the ways in which we exchange information with overseas regulators on a general basis.
- 6 This strategy document describes how this general context is applied to the current GDA work on new nuclear power stations. We are currently assessing the EdF/Areva EPR and Westinghouse's AP1000.
- 7 It should be noted, however, that interactions with overseas regulators require a significant effort by NII, in particular by the specialist inspectors who are undertaking NII's assessment. So it is important to strike a balance between effort diverted from our own assessment and the likely benefit from discussions with overseas regulators.
- 8 In addition, the IAEA IRRS mission to the UK in 2006 gave the opinion of its experts on the planning and execution of new build activities for consideration by NII (report reference IAEA/NS/IRRS/03/03 April 2006), and the relevant proposals have been incorporated into this strategy. The IRRS report suggests that the following types of information for overseas regulators might be relevant:
  - technical issues discussed at length overseas and the respective technical judgment of the resolution adopted;
  - independent analytical work done by the foreign regulators or their consultants to resolve complicated technical issues;
  - experiments used to support specific technical solutions or to qualify the analytical models used for licensing assessment;
  - information on audits conducted by a foreign regulator to verify adequate third-party qualification of vital safety systems and equipment (eg environmental testing of equipment, qualification of digital I&C software and hardware);

- information on observations made during audits of the vendor, the equipment manufacturers, and of other contractors;
- quality problems encountered during manufacturing and construction.

## Generic Design Assessment guidance

9 The GDA process is described in the HSE guidance document *New nuclear power stations Generic Design Assessment: Guidance to Requesting Parties* ([www.hse.gov.uk/newreactors/guidance.htm](http://www.hse.gov.uk/newreactors/guidance.htm)).

10 GDA is divided into four steps, with the assessment being conducted in Steps 2, 3, and 4 in increasing detail and with increasing resource applied. In line with this, our plan has been to use overseas regulator information increasingly as we move through GDA.

11 In relation to working with overseas regulators, the guidance states that:

- for Step 2 Requesting Parties should provide a Preliminary Safety Report with information about all the assessments completed by overseas regulators;
- in Step 3 HSE will review what overseas regulators have done and review how HSE can make use of it;
- in Step 4 HSE will review overseas progress and issues raised by overseas regulators.

12 The guidance also states that the extent to which overseas assessments can be taken into account will depend on a number of factors including:

- the date of the assessment and its continuing validity;
- the level of detail and the purpose of the assessment;
- the local conditions of use relating to the assessment;
- the depth of information provided by the Requesting Party including the evidence of issue resolution;
- whether overseas assumptions (eg on plant operating regime) will remain valid if the technology is adopted in the UK;
- whether a demonstration can be made satisfying the legal requirement that the risks have been reduced to a level that is as low as reasonably practicable (ALARP).
- the scope of HSE's formal information exchange agreements with the overseas regulator;
- HSE's knowledge of the overseas regulatory system;
- the willingness of the overseas regulator to engage with HSE on issues of primary interest to the UK, including providing access to detailed information.

13 The strategy proposed below builds on these original intentions.

## Work with overseas regulators in GDA Step 2

14 GDA Step 2 for EPR, ESBWR, AP1000 was completed in March 2008 (also included was AECL's ACR 1000, but this has subsequently been withdrawn from GDA). At this time we published a report entitled: *New Reactor Build - GDA Step 2 Summary of Overseas Regulatory Assessments* ([www.hse.gov.uk/newreactors/reports-assess-others.htm](http://www.hse.gov.uk/newreactors/reports-assess-others.htm)).

15 This report summarises:

- the safety reviews of the designs undergoing GDA that have been carried out or are being carried out by nuclear safety regulatory authorities in other countries;
- the means by which HSE can obtain access to this information;
- how we can collaborate with the other regulators in the future.

16 We noted that none of the reactors being considered within UK GDA have been licensed to operate in any country. Some work has been completed and documented (not always in English) by overseas regulators, but their assessment work will be continuing in parallel with GDA and is likely to continue until 2010 or later. We also noted that NII participate in international forums and working groups to promote multi-national information sharing between regulators.

17 Overall, we were able to use this information to help us complete Step 2 of GDA within a relatively short timescale.

## Overseas regulator strategy for GDA Steps 3 and 4

18 We started GDA Step 3 in June 2008. It is expected to complete in late 2009, and be followed by Step 4, with an anticipated completion in mid-2011.

19 Our strategy for using information from, and working with, overseas regulators during Steps 3 and 4 is built on three main strands:

- using information that already exists;
- working in co-operation on new assessment work;
- participating in international forums for multi-national information sharing between regulators.

20 Given that the Canadian company AECL has withdrawn the ACR1000 reactor from GDA and GE-Hitachi have asked us to suspend work on the ESBWR, it is appropriate that, for assessment of AP1000 and EPR, we work particularly closely with the nuclear safety authorities from USA (the AP1000 country of origin), and France and Finland (the EPR is under construction in both countries).

### Using overseas regulator information that already exists

21 It should be noted that the prime objective of NII's assessment is to consider the designs against UK requirements. However, where it is considered that an overseas regulator's assessment can provide substantial/significant additional assurance, as a result of its scope and rigour, then we will take this into account during our detailed assessment work. Conversely, where another regulator's assessment identifies issues of concern, then we will use this information to help us focus our assessment efforts. In some areas, this may help us to agree common positions with overseas regulators. In deciding to draw upon overseas assessments we will consider the strength of evidence available to support them and how this can best be taken account of in our own work.

22 Therefore our strategy here is to:

- consider what information already exists and establish initially whether this may be useful to us. This work is already underway and will continue during Steps 3 and 4.

Examples of the types of information that is relevant are given in the IAEA IRRS report;

- as part of their assessment work, our specialist inspectors will, as far as time and resource allow, familiarise themselves with the information that is available within their technical area and take this into account within their own plans for additional assessment work, areas that require sampling, and areas that have been studied sufficiently already etc. This may require technical meetings and exchanges with overseas regulator specialists;
- our specialists will use these insights to take the work of overseas regulators into account, where appropriate, in arriving at their conclusions for GDA.

### **Working in co-operation with overseas regulators on new assessment work**

23 As the overseas regulators have further work to do on AP1000 and EPR there may possibly be areas where we can work co-operatively. This could include:

- regular technical exchanges on topics of common interest;
- independent validation;
- joint inspections;
- collaborative research.

24 Therefore our strategy is to:

- have exploratory discussions with regulators to see if there are common areas of interest for co-operative working;
- if it is beneficial, some of our specialist inspectors may work co-operatively with their overseas counterparts in targeted technical areas and take the results into account in arriving at their conclusions for GDA.

### **Participating with international forums for multi-national information sharing between regulators**

25 We are already involved in a number of technical international forums for multi-national information sharing among regulators. These are identified in our document *New nuclear power stations Generic Design Assessment: Safety assessment in an international context* (see paragraph 4).

26 Throughout GDA, we will continue participating in such forums, in particular the Multi-National Design Evaluation Programme (MDEP) design-specific working groups, as we believe these will be the most effective international groups for supporting our assessment work. We also participate in the work of the MDEP generic topic groups. These have longer-term work programmes, but nevertheless will help us to understand and therefore use other regulators' work.

## **Responsibilities of Requesting Parties**

27 Notwithstanding the strategy set out above, Requesting Parties should bear in mind that it is not for NII to search for safety support information for proposed reactor designs. Requesting Parties are responsible for presenting evidence of the safety of their designs to NII and if they believe that there is relevant information from other regulators that will help their case then they should present that to us, in a structured format which reflects the UK regulatory context. This responsibility is made clear in the HSE guidance document *New nuclear power stations Generic Design Assessment: Guidance to Requesting Parties* ([www.hse.gov.uk/newreactors/guidance.htm](http://www.hse.gov.uk/newreactors/guidance.htm)).

## Conclusions

- Our initial strategy for working with overseas regulators was published in our GDA guidance.
- Our initial findings in this area were published at the end of Step 2, and helped us to complete Step 2 in a timely manner.
- In the light of this progress and our future plans, we have developed a more detailed strategy for Steps 3 and 4 and this is summarised in this document.
- The responsibility for providing a safety case for reactors being assessed in GDA lies with the Requesting Parties.
- This strategy is consistent with NII's general practice for international work and responds to advice from the IAEA.

## Contacts

The Joint Programme Office, set up by HSE and the Environment Agency to administer the GDA process, can be contacted at Joint Programme Office, Nuclear Reactor Generic Design Assessment, 4N.G Redgrave Court, Merton Road, Bootle, Merseyside L20 7HS or at [new.reactor.build@hse.gsi.gov.uk](mailto:new.reactor.build@hse.gsi.gov.uk).

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