

Public report on the Generic Design Assessment of new nuclear reactor designs

New nuclear reactors: Generic Design Assessment.
Update on the Public Involvement Process for Step 4 of
the Generic Design Assessment Process

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Executive summary

This report provides a summary of the Office for Nuclear Regulation (ONR), an agency of the Health and Safety Executive (HSE), and Environment Agency's "Public Involvement Process" (PIP) for the Generic Design Assessment (GDA) of two nuclear reactor designs: the Electricité de France SA and AREVA NP SAS (EDF and AREVA) UK EPR™ reactor and the Westinghouse Electric Company LLC (Westinghouse) AP1000® reactor, during Step 4 of GDA.

As nuclear regulators, we think it is important to build public confidence in our ability to secure the protection of people and society from the hazards of new nuclear power stations by ensuring high standards of safety, security and environmental protection. We recognise that working in a way that is open and transparent helps build that confidence.

The GDA process was designed to be open and transparent, and decisions were taken early on to encourage the Requesting Parties to publish their safety, security and environmental submissions and to invite comments from the public on those. Summaries of the comments received are published in reports on the "Public Involvement Process" at the end of each step of the GDA process.

Since publishing our Public Involvement Report on GDA Step 3, in November 2009, we have received a total of 56 comments, 21 directed at the Requesting Parties and 35 directed at the regulators. Of these, 16 related to the designs being assessed, 14 to the GDA process more generally, and 26 fell outside the scope of GDA. Where appropriate, these were passed on to the relevant authorities.

In addition to this, we continued to update the joint new-build website. This received an average, 5000 visitors per month. We also introduced a new improved format for our e-bulletins to make them easier to read and continued to publish "new-build" e-bulletins to notify subscribers of new developments.

As well as publishing general information – GDA guidance and technical assessment reports – we continued to publish other useful documents, including quarterly reports summarising progress and highlighting key challenges.

We also continued to speak at regional, national and international events, and proactively organised seminars to update the Requesting Parties and potential licensees at key stages of the GDA process. The presentations we gave at events, and any questions and answers that followed, were published on our website, www.hse.gov.uk/newreactors.

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Introduction

This report sets out the conclusions of the Public Involvement Process (PIP) carried out by the Office for Nuclear Regulation – an agency of the Health and Safety Executive (HSE) – and the Environment Agency (the nuclear regulators) during Step 4 of the GDA process. It explains how the PIP arose from the desire for GDA to be open and transparent, describes the key elements of PIP and outlines the results of the process during Step 4 of GDA.

The initial target was to complete GDA Step 4 in June 2011. However, following the nuclear accident at Fukushima in March 2011, the Secretary of State for Energy and Climate Change requested that HM Chief Inspector of Nuclear Installations examine the circumstances of the Fukushima accident and report on what lessons could be learnt to enhance the safety of the UK nuclear industry. ONR and the Environment Agency decided to delay the end of GDA Step 4 to allow the Requesting Parties to take account of any relevant lessons to be learnt from the accident.

In July 2011, ONR and the Environment Agency published a schedule of GDA Issues identified by the regulators as requiring resolution by industry, along with the majority of the plans that the Requesting Parties had put in place to resolve those issues. The Requesting Parties developed resolutions plans for these, which were judged credible by the regulators and published in July 2011. One final issue related to the recommendations coming out of the Chief Nuclear Inspector's final report on the lessons learnt from the Fukushima accident, which was published on 11 October 2011. EDF and AREVA have provided a resolution plan for the Fukushima GDA Issue, including a description of how they will address the Chief Inspector's report's recommendations. ONR will continue to assess their progress on this matter.

Background

As part of the Government's Energy review in 2006^a, the nuclear regulators set out proposals for the "pre-licensing" of nuclear power station designs. The process, which we called Generic Design Assessment (GDA), was designed to enable the nuclear regulators to assess the safety, security and environmental impacts of new reactor designs at a generic level, i.e. before receiving an application to build a particular nuclear power station design at a specific location.

Both ONR and the Environment Agency are committed to working in an open and transparent way. This demonstrates our independence from Government and the nuclear industry, and is part of our strategy to help reassure the public that the safety, security and environmental implications of the designs are properly considered. However, while we want to make sure that the regulatory decisions we make are informed, it is important to stress that the regulators are singularly responsible for the regulatory decisions that they make.

The original proposal from the regulators to Government included a proposal that any applicant for GDA should place information about their proposal and safety case into the public domain, so

^a www.decc.gov.uk/en/content/cms/publications/energy_rev_06/energy_rev_06.aspx

that any interested party could provide comments. This is a key element of the Public Involvement Process (PIP) for GDA.

This process has been in place since the beginning of GDA, and the information received so far has helped inform our assessment. In addition to this, we receive direct correspondence via e-mails and letters on an ongoing basis, which we also use to inform our assessment. Where the correspondence does not relate to our work on GDA, it is passed on to the relevant authority.

The Environment Agency's GDA process was based on two steps, consisting of a preliminary and detailed assessment, followed by a consultation. The comments were used to inform the Decision Documents that supported the Environment Agency's decision to issue interim Statements of Design Acceptability for both reactor designs in December 2011. Comments received as part of the PIP, but after the closing date for the consultation, are being considered by the Environment Agency as part of its site environmental permitting process.

ONR's GDA process was based on an assessment in four steps. At the end of each step they published reports that provided an update on the detailed technical assessment work being undertaken by its nuclear assessors, and highlighted technical issues. Unlike the Environment Agency, ONR did not undertake a formal consultation, but instead invited comments on the reports it published at the end of GDA Step 3. Relevant information was used to inform the technical reports that supported ONR's decision to issue an interim Design Acceptance Confirmation in December 2011.

The nuclear regulators also established joint nuclear new build web pages covering the GDA process. These contained links to the websites of each Requesting Party (Westinghouse Electric Company LLC – Westinghouse – and Electricité de France SA and AREVA NP SAS – EDF and AREVA) - the organisations that asked the regulators to assess their reactor designs using the GDA process. The website was used extensively to publish information on the GDA process, including technical assessment reports, guidance and regular updates.

Update on the Public Involvement Process

Under the PIP, the Requesting Parties provided public access to their Safety, Security and Environmental Reports, except for commercially confidential information and security sensitive nuclear information, and members of the public were invited to comment on the information. The Requesting Parties committed to respond to all relevant questions. The issues raised, and the Requesting Parties responses to them, were then considered by the regulators as part of their assessment of the designs. Comments were also invited on the ONR Step 3 Assessment Reports, and those that were relevant were taken into account.

Inviting comments

In total, 56 comments were received during ONR's Step 4 assessment; 21 directed at the Requesting Parties and 35 directed at the GDA Joint Programme Office (JPO) via e-mail. Of the comments received, 16 related to the designs being assessed, 14 related to the GDA process more generally, and 26 fell outside the scope of GDA. Comments were forwarded to the appropriate Requesting Parties or relevant authority and responded to where appropriate. All relevant comments, along with the responses, were reviewed by the assessment teams. The

main issues responded to by the nuclear regulators are summarised at Annex 1. In addition to this, we received 8 requests for information under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Westinghouse revised its GDA website and published updated safety, security and environmental information in August 2009, and EDF and AREVA published theirs in October 2009. The comments received were largely based on this version of the safety, security and environmental submissions.

Environment Agency Consultation

The Environment Agency held a consultation exercise from 28 June to 18 October 2010 on its initial view on the acceptability of the two reactor designs to:

- explain the pre-consultation findings of the Environment Agency's assessment of new nuclear power plant design, the UK EPR™ reactor by EDF and AREVA;
- explain the pre-consultation findings of the Environment Agency's assessment of a new nuclear power plant design, the AP1000 reactor, by Westinghouse; and
- seek views on the designs, and the Environment Agency's assessment of the designs so far.

Over 100 responses were received during the consultation, and all relevant responses were taken into consideration to help inform the Environment Agency's final decision on the acceptability of the designs.

Publishing information

GDA was developed to be open and transparent, and publishing relevant and timely information was key to this. In addition to publishing general information on the GDA process, GDA guidance and our technical assessment reports (and summary reports designed for a more general audience), we published a range of other useful documents, for example presentations and questions raised (together with the answers) at stakeholder events.

Quarterly Reports

We began publishing quarterly reports on the GDA process on 7 May 2009. The reports summarised where we were in taking forward our assessment and highlighted the key challenges we faced going forward.

The reports are available at: www.hse.gov.uk/newreactors/quarterly-updates.htm.

GDA Metrics

GDA Metrics were used to measure the progress being made on the GDA Programme. Information was provided by our specialist inspectors, and collated into a metrics "dashboard". This "dashboard" illustrated the progress made, and highlighted areas of concern, using a traffic-light colour system. The metrics were updated on a monthly basis and published in the GDA quarterly update reports.

e-Bulletins

The “new-build” e-Bulletin network was set up to allow people to sign up to receive information on the GDA process. Over 4700 people signed up to receive e-bulletins.

New build website

The primary means of publishing information on the GDA process is via the internet. Together, the nuclear regulators developed a dedicated new build website, containing information on the GDA process. The website was re-designed during 2009 in order to make it easier to use, and was reviewed and updated again in 2010.

During GDA we continued to receive a steady number of visitors to our website, averaging 5000 visitors per month, rising to over 8000 at key stages of the assessment.

We used the Joint Website to publish the following information and guidance:

- General information and guidance on the GDA process, Licensing and Environmental Permits.
- Quarterly update reports on the GDA process.
- Joint Stakeholder Engagement Strategy and Action Plan.
- Information on the Public Involvement Process.
- Details of any Regulatory Issues we have raised.
- Summary Reports and Technical Reports produced at the end of each step in the process.
- Reports and responses from the GDA Process Review Board.
- Information on our Interface with Overseas Regulators.
- Presentations and Q&A from seminars and events.
- Latest news and developments.
- Details of Technical Support contractors supporting GDA.
- Opportunity to sign up to a free e-bulletin service.
- Links to wider information, i.e. site licensing.
- Links to the requesting parties websites.

The new build website can be found at: www.hse.gov.uk/newreactors.

Engaging directly with stakeholders

We have attended and presented at international, national and regional events, including Site Stakeholder Groups and Local Community Liaison Councils around existing nuclear sites, as well as specific events for Non-governmental Organisations (NGO) and industry. More information, including copies of the presentations, is available on the new build website at:

www.hse.gov.uk/newreactors.

Evaluation

In order to assess the effectiveness of our stakeholder engagement activity, we put in train a number of initiatives to monitor and assess our effectiveness and these are described below.

Internal and external reviews

As part of the GDA governance arrangements for GDA, ONR put in place an Independent Process Review Board (PRB). Their reviews of the GDA process include assessing the effectiveness of the PIP. PRB reports and our responses to them are available on the new build website.

In addition to this, ONR carried out internal audits after each step of the GDA process, including on stakeholder engagement. The last audit covering stakeholder engagement took place in October 2010.

The Environment Agency will publish the results of an independent evaluation of its GDA consultation early in 2012.

Looking forward

As the assessment stage of GDA is now complete, we are no longer inviting comments on the safety, security and environmental submissions published by the Requesting Parties. However, we will continue to welcome comments on GDA or on our new nuclear build work more generally via the JPO.

Milestones

The following table sets out the key dates for the public involvement process during GDA Step 4.

Date	Event
December 2009	Start of Step 4 GDA
June 2010	Launch of Environment Agency Consultation
October 2010	Environment Agency Consultation closed
December 2010	End of public comments process for GDA Step 4
July 2011	GDA Issues published
December 2011	GDA assessment of the reactor design safety case complete and interim Design Acceptance Confirmations (DAC) and Interim Statements of Design Acceptability (SoDA) issued for the Westinghouse AP1000 reactor and the EDF and AREVA UK EPR™ reactor.

Annex 1: Summary of issues raised during the public comment process

Issues Raised	Regulators' Response
Use of codes and standards for construction / manufacturing.	We do not prescribe what codes should be used, but the Requesting Party must demonstrate that any codes used are adequate and in-line with International good practice.
Concern about the Structural Safety of the containment buildings.	Containment structures will be sufficiently protected against corrosion through a combination of appropriate design, materials inspection and maintenance.
Explanation of the GDA Metrics Dashboard.	The GDA metrics dashboard is a summary or overview of our progress against our working targets on GDA. It helps us identify if GDA is on track and the colour coding red/amber/green indicates the significance of the issues.
Information on where the latest guidance and information on GDA can be found.	All information, guidance, updates and reports can be found at www.hse.gov.uk/newreactors .
The use of Imperial Units rather than metric units for the AP1000 reactor.	We are seeking to resolve this by the end of Step 4. If it has not been resolved then Metrication of the AP1000 reactor will become a GDA Issue.
Whether reactor designers are required to commission a completely independent Probabilistic Safety Analysis (PSA).	We do not require an independent PSA. However, we do require the reactor vendors to submit their full PSA models and data sets together with their PSA reports.
The level of openness and transparency applied to the site licensing process.	We are committed to working in a way that is as open and transparent as possible and we are currently reviewing how we can practicably apply principles of openness and transparency to the work we do for site licensing.

Abbreviations

DAC	Design Acceptance Confirmation (ONR)
EDF and AREVA	Electricité de France SA and AREVA NP SAS
GDA	Generic Design Assessment
HSE	Health and Safety Executive
JPO	Joint Programme Office
NGO	Non-governmental Organisation
ONR	Office for Nuclear Regulation (formerly the Nuclear Directorate of the Health and Safety Executive)
PIP	Public Involvement Process
PRB	Reactor Pressure Vessel
PSA	Probabilistic Safety Analysis
SoDA	Statement of Design Acceptability (Environment Agency)
Westinghouse	Westinghouse Electric Company LLC

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