

**GENERIC DESIGN ASSESSMENT
PROGRESS REPORT
REPORTING PERIOD 1 OCTOBER 2011 – 31 DECEMBER 2011**

FOREWORD

This last quarter has been one of the most significant in the GDA programme as we completed Step 4 and thus completed our planned assessment of the generic safety cases for the AP1000[®] and UK EPR[™] reactors. On the basis of our findings we decided to grant an interim Design Acceptance Confirmation (DAC) and interim Statement of Design Acceptability (SoDA) to the designers of each of the reactors.

This key milestone marks the culmination of four years of work by the Office for Nuclear Regulation and the Environment Agency, during which our specialists have examined thousands of documents, and EDF and AREVA, and Westinghouse have worked hard to respond to the many technical questions we raised. As a result, we have been able to accept many aspects of the generic safety, security and environment cases.

Focus will now shift towards those issues that need to be resolved before we will be in a position to consider granting a final DAC or final SoDA. Currently this work targets the UK EPR[™] as Westinghouse is not presently addressing the GDA Issues for the AP1000[®]. This is the first routine quarterly progress report that describes how this GDA close-out work is proceeding and we have introduced new metrics to help illustrate both our and EDF and AREVA's progress on resolving the remaining GDA Issues for the UK EPR[™]. If Westinghouse secures a UK customer and begins work with us to resolve its GDA Issues we will remobilise our resources and introduce similar metrics to help track progress.

Successful completion of Step 4, and publication of our reports and the GDA Issues that remain, has reinforced our confidence that GDA is proving to be an effective, efficient and internationally unique process for examining the safety, security and environmental protection aspects of new reactors well in advance of their construction in this country.

If you have comments on any aspect of this report then please send them to us at: new.reactor.build@hse.gsi.gov.uk.

Kevin Allars

Director for Nuclear New Build
Office for Nuclear Regulation

Joe McHugh

Head of Radioactive Substances Regulation
Environment Agency

COMPLETION OF GDA STEP 4 AND PROVISION OF INTERIM DAC AND INTERIM SODA

- 1 We completed GDA Step 4 and provided an interim DAC and interim SoDA for both the AP1000[®] and UK EPR[™] reactors on 14 December 2011. This signalled the end of our planned GDA assessment, but not the end of GDA itself as there are issues remaining that need to be resolved to our satisfaction before we will consider whether we can provide final DACs and final SoDAs. We refer to these outstanding issues as GDA Issues.
- 2 To support our decision to provide interim DACs and interim SoDAs we published a suite of 73 reports on our websites. These included:
 - An ONR report for each reactor design that summarised our GDA work and explained our decision to provide each interim DAC, together with a series of reports that detailed the assessment we have undertaken in each technical topic area.
 - An Environment Agency decision document for each reactor design that summarised our GDA work and explained our decision to provide interim SoDAs, together with a series of reports that detailed the assessment we have undertaken. The decision documents also explained how we considered all the comments we received during our public consultation.
- 3 These can all be viewed at
<http://www.hse.gov.uk/newreactors/regulators-issue-interim-dac-soda-gda-key-milestone.htm>

GDA ISSUES AND RESOLUTION PLANS

- 4 We published the GDA Issues and the available Requesting Party (RP) resolution plans on 14 July 2011 (www.hse.gov.uk/newreactors/reports.htm). These show what still needs to be done to fully complete GDA and allow us to consider whether to grant a final DAC or final SoDA for each reactor. The full background to each GDA Issue is detailed in the published assessment report for the relevant technical area.
- 5 There was one resolution plan for each reactor that was not available on 14 July 2011, relating to the GDA Issue that requires the RPs to address the lessons learnt from the Fukushima nuclear accident.
- 6 Following publication of the Chief Inspector's final lessons learnt report in October 2011 (www.hse.gov.uk/nuclear/fukushima/final-report.pdf), both RPs were able to complete and provide these resolution plans and demonstrate how they will address the lessons learnt, both from the Chief Inspector's and their own reviews. These final resolution plans were published on 14 December.

GENERAL PROGRESS OVERALL

- 7 Our work during this last quarter has been primarily in a transition phase comprising several separate elements, including:
 - Preparation for the publication of the Step 4 reports.
 - Undertaking the work required to enable decisions to be made about granting of interim DACs and interim SoDAs.
 - Reorganising our teams following completion of the planned assessment work on both reactors, and to take account of the Westinghouse 'pause'.
 - Commencing assessment of the responses to the GDA Issues for the UK EPR[™] reactor.

- Development of new reporting metrics for the work to address the GDA Issues on the UK EPR™.

8 With the publication of our Step 4 reports and interim DAC/SoDA decisions, this transition work has come to an end. Our work focus is now on the close-out phase for the UK EPR™ reactor.

WESTINGHOUSE PAUSE

9 Westinghouse has advised us that it will not address any of the GDA Issues until it secures a UK customer, at which point it will make suitable funding available. Accordingly, the AP1000® resolution plans do not have start dates assigned to them, but they are based simply on estimated overall timescales.

10 As a result of this 'pause' our work has ceased on the AP1000® reactor and we have released GDA staff onto other work within ONR and the Environment Agency.

11 If and when Westinghouse want to re-start the GDA work, and address the GDA Issues, then a re-mobilisation phase will be required. Westinghouse would have to re-mobilise its GDA team, agree financial arrangements with us, and provide baseline resolution plans with timescales and any other information necessary to allow us to produce resourced project plans for our assessment. In parallel, we would have to re-mobilise our regulatory assessment teams and their management support, re-mobilise technical support contractors, and make plans to manage and assess the resolution plan outputs.

GDA CLOSE-OUT PHASE FOR THE UK EPR™ REACTOR

12 In accordance with their published resolution plans, EDF and AREVA are sending us new information to address the UK EPR™ GDA Issues. The timescale for the GDA Issue responses and our assessment of them is largely dependent on the work programmes of EDF and AREVA. We planned our assessment in detail based on the deliverable descriptions and dates in the resolution plans and we are now well underway with our work. As an example, we have already raised 92 formal technical questions on this new information.

13 When we have received and assessed this new information, and if we are satisfied that a particular GDA Issue can be closed, we will complete a report summarising our assessment, and we will write to inform EDF and AREVA. These letters and reports will be published on our website alongside the original GDA Issue.

14 We intend to continue regular progress reporting during this GDA close-out phase for the UK EPR™ reactor. In support of this, we have developed new reporting metrics to help illustrate progress and these are published here for the first time, at Annex 2 to this report. The metrics provide a red, amber or green 'traffic light' indication for current and predicted progress and quality of interactions for each of the GDA Issues. In addition, we provide at Annex 3 a graph that further illustrates the progress being made on GDA Issue close-out.

15 A significant number of EDF and AREVA's resolution plan deliverables have already been received and the remainder are planned to arrive over the next year. Progress on some of the GDA Issues is good, as indicated by the green metrics and we expect the first Issue to be closed in the next few months.

16 Some of the deliverables, however, have been late or do not provide the quality of information or depth of evidence that we expected. Accordingly, a number of the metrics are amber or red, indicating that, if no action is taken to improve matters, it is unlikely that

the GDA Issues will be closed-out on the timescales indicated in the resolution plans. EDF and AREVA have told us that these delays have resulted from their resources being deployed on assessment of the impact of the Fukushima event and on reflecting the agreed improvements from the GDA Step 4 assessments into the UK EPR design. Allowances for this work were included in the resolution plans which were issued in July 2011, but this was an early stage in the understanding of these topics and a greater workload has been required to address them than was previously envisaged.

- 17 We have been monitoring this situation and discussing it with EDF and AREVA. They have agreed to deploy additional resource and revise the resolution plan timescales with a view to re-establishing a stable and predictable programme. While this may help our future work, the current situation will require a re-baselining of our assessment team resource allocation, as their plans, and those of our technical support contractors (TSCs), are aligned to the currently published resolution plans.
- 18 When all the GDA Issues have been closed we will be in a position to consider granting a DAC and SoDA, and these would be supported by final reports of our assessment.
- 19 It is ONR's current intent that we will not grant Consent for nuclear island safety-related construction for a power station based on the UK EPR™ reactor generic design before the unresolved GDA Issues have been addressed to our satisfaction.

INTERACTIONS WITH WIDER NEW BUILD PLANS

- 20 As GDA is running in parallel with some site specific projects, we have had further discussions with EDF, AREVA, NNB GenCo, Horizon Nuclear Power and NuGEN about key points from GDA that might have an affect on their licensing and construction plans. In particular, we are assessing the Nuclear Site Licence and operational environment permit applications for Hinkley Point C (see our websites at <http://www.hse.gov.uk/nuclear/hinkley-point-c/index.htm> and <http://www.environment-agency.gov.uk/hinkleypoint>).
- 21 The company planning to build the first UK EPR™, at Hinkley Point C, NNB GenCo, has asked the reactor designers, EDF and AREVA, to provide it with earlier confirmation that the methodologies and strategies for the GDA Issues will result in positive and early outcomes that align with the Hinkley Point C programme. This is necessary to provide timely support to the Hinkley Point C design engineering sequence and the contracting process. NNB GenCo is also asking the designers to reach agreement with us on a final GDA design envelope. We are continuing in discussion with NNB Genco, EDF and AREVA with a view to achieving these aims collectively with them, as such agreements will improve clarity for GDA and nuclear site licensing and thus will benefit all parties.

MORE INFORMATION ON GDA

To find out more about Generic Design Assessment (GDA) - visit: www.hse.gov.uk/newreactors

To receive the latest news and information on GDA, subscribe to our eBulletin by visiting www.hse.gov.uk/newreactors/ebulletin.htm

ANNEX 1

Some GDA Statistics

Meeting summary up to issue of iDAC & iSoDA

Westinghouse: 437 of which 383 were in the UK, and 54 in the USA.

EDF and AREVA: 503 of which 389 were in the UK, and 114 in France.

Approximate GDA Regulatory costs charged to Requesting Parties up to issue of iDAC & iSoDA

Office for Nuclear Regulation

Westinghouse: £23.2m

EDF and AREVA: £23.9m

Environment Agency

Westinghouse = £2.41m

EDF and AREVA = £2.33m

Annex 2 - EPR Metrics Trending Summary - September 2011 - December 2011

		Civil Engineering	Control and Instrumentation	Fault Studies	Internal Hazards	Reactor Chemistry	Structural Integrity	Electrical Power Systems	Radiation Protection	Human Factors	Cross Cutting 1	Cross Cutting 2	Cross Cutting 3 Fukushima
GDA on track?	RP Progress	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	ONR Progress	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
EDF/Areva delivery/quality	Predicted	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Likelihood current outcome from Resolution Plan will result in closure of the GDA Issue	Issue 1	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Issue 2	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Issue 3	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Issue 4	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Issue 5	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Issue 6	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
		S O N D	S O N D	S O N D	S O N D	S O N D	S O N D	S O N D	S O N D	S O N D	S O N D	S O N D	S O N D

Process & Progress

	RP generally on plan to deliver GDA Issue Actions in accordance with its Resolution Plan. Any delays capable of being recovered.
	An early warning signalling that significant, prompt action is required to avoid delays to the target closure date of the GDA Issues.
	Delays cannot be recovered and will impact on the target closure date for GDA Issues. If this occurs the Resolution Plan will need to be re-baselined and the target dates changed (via Change Order).

Resolution Difficulty

	Green - Closure of the GDA Issue appears highly likely and there are no major risks which at this stage appear to threaten closure of the GDA Issue
	Amber - Closure of the GDA Issue appears feasible but significant risks exist requiring prompt attention. These appear resolvable at this stage and if addressed should enable closure of the GDA Issue.
	Red - Closure of the GDA Issue is in serious doubt with major risks apparent. Resolution of the GDA Issue is unlikely to be achieved by performing the planned safety analysis or changes to the design of the NPP and further GDA Issue Actions and amendments to the Resolution Plan are required.
	Grey - GDA Issues Closed
	Blank - Judgement on this issue can not be formed as insufficient assessment has been undertaken to date

The topic areas and the GDA Issues are defined in the Step 4 reports, which can be viewed at

<http://www.hse.gov.uk/newreactors/regulators-issue-interim-dac-soda-gda-key-milestone.htm>

ANNEX 3 – PROGRESS TOWARDS EPR GDA ISSUE CLOSE-OUT

