

GENERIC DESIGN ASSESSMENT

PROGRESS REPORT

REPORTING PERIOD 1 APRIL 2009 – 30 JUNE 2009

FOREWORD

I present here the second Generic Design Assessment (GDA) quarterly report. As with the first report, it summarises where we are and what the key challenges are, moving forward. This is now a joint regulators' progress report covering both HSE and the Environment Agency's work, and future editions will feature increasingly the Environment Agency as it also ramps up its GDA assessment.

I am pleased to report that we continue to make good progress. Our technical dialogue with the Requesting Parties (the companies that have asked us to assess their designs) is continuing to increase; I have recently appointed two experienced project managers and restructured my team to provide a greater focus on project management; and we continue to make good progress on resources.

In response to comments from government, industry and the public about providing greater clarity on our progress, we have started to develop some illustrative performance metrics, which you will find at Annex 3. This is early work, so if you have comments on these, or on any other aspects of this report, then please send them to us at: new.reactor.build@hse.gov.uk.

On 7 May, I issued a discussion document on the management process for the end of the GDA. This explained that, whilst our assessments would be as complete as possible, any Design Acceptance Confirmation we provide may need to be subject to 'exclusions' if regulators consider that issues remain unresolved at that time, but could subsequently be resolved at an appropriate time during the ongoing new build process. Some comments from the public and in the media have suggested that this will undermine the robustness of our assessments. This is not the case, as all of these issues will still need to be resolved to our satisfaction before the licensee is allowed to progress beyond the appropriate hold point in the construction/commissioning process. I have said that we are determined, and I remain confident in that determination, to deliver a meaningful GDA by June 2011: if by then we are not convinced that a reactor is suitable for construction in the UK, then we will not issue a Design Acceptance Confirmation for that design.

Kevin Allars
Director, New Nuclear Build Generic Design Assessment
Health and Safety Executive

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

Receive the latest news and information on GDA - subscribe to our free e:mail bulletin -
<http://www.hse.gov.uk/newreactors/ebulletin.htm>

EXECUTIVE SUMMARY

Progress this last quarter has been good, in terms of both identifying technical issues and increasing HSE's assessment resources. We remain on-course to publish the HSE Step 3 reports on 27 November 2009, to carry out the Environment Agency consultation in May 2010, and to complete GDA in June 2011.

As well as our normal interchange with the Requesting Parties (RPs), potential licence applicants, overseas regulators and other stakeholders, we have continued to issue guidance and discussion documents and we have encouraged feedback on developing topics. We have also met with some NGOs to update them and to exchange views on GDA and other new nuclear build issues.

REPORT

Programme

1. We are on course to publish our HSE Step 3 Reports on 27 November 2009, undertake an Environment Agency Consultation in May 2010 and finish GDA in June 2011. We are continuing to develop our project planning arrangements and we have recently re-structured the HSE's GDA organisation and engaged two new project managers to help us in this. A top level GDA plan is attached at Annex 1 for information. Annex 2 highlights the current key project issues that could potentially threaten the successful achievement of our programme, together with appropriate counter-measures. Annex 4 shows the new NII GDA management organisation.
2. Our stakeholders have advised that they would like to see clearer evidence of our progress towards the timely and thorough completion of GDA. As a consequence, we have started to develop, with industry, some illustrative performance indicators, or 'metrics', to show the progress being made on the programme by the regulators and industry. These are derived primarily from information provided by our specialist inspectors on a range of measures and then collated into a metric 'dashboard' that illustrates progress, using a traffic-light colour system. Our first presentation of this is at Annex 3 - this is early work, still being developed. In addition, we have updated the metric data presented in the first quarterly report.

Key Requesting Party (RP) Interactions

3. We have continued our regular and routine interactions with EDF/AREVA and Westinghouse. Over this period, we have held a number of technical meetings in the UK, France and the USA.
4. In addition, we held high-level meetings with senior managers from both Requesting Parties to promote an open dialogue and to review GDA progress: both theirs and ours. In parallel, the Department of Energy and Climate Change (DECC) organised a senior management GDA review meeting in May. This was chaired by DECC and attended by regulators and RPs. The aim was to review progress, identify current issues and look toward moving ahead in an efficient manner. This on-going dialogue has been helpful in progressing key issues such as resources, design completion and performance metrics.

GDA Assessment

5. Now that HSE has additional resources and support contracts in place, we have seen a significant acceleration in the pace of our work in several areas. One of the measures of this is the increase in the number of Technical Queries relating to both EDF/AREVA's UK EPR and Westinghouse's AP1000. This increase can be seen in the diagrams at Annex 3. Although we have seen improvements in the timeliness, and quality of RP responses to these TQs, in some areas their responses have not allowed the issue to be resolved to our satisfaction.
6. During this last quarter, the GDA team completed inspections in the USA and France. These examined the RPs' quality assurance and design control procedures, and we will publish our reports on the GDA website shortly.
7. The previous Quarterly Report mentioned that, if we accept the designs, we would issue GDA Design Acceptance Confirmation 'Certificates' (HSE) or Statements of Acceptability (Environment Agency), at the end of our assessments. Both regulators therefore need to have an assurance that the designs and the safety cases are sufficiently advanced and are not subject to further change (i.e. there is a design freeze) in order to form a sound basis on which to issue these documents.
8. A lack of detailed design information in some areas is normal for the early stages of a design and construction project. Nevertheless, the fact that neither design is 100% complete makes our assessment more difficult and any shortfalls increase the possibility of us raising technical issues during our assessment.
9. We are continuing to discuss GDA safety cases and design freezes with the RPs and a satisfactory solution to these issues will be vital to the success of GDA.

Metrics

10. As described previously, we are introducing new performance metrics to provide clearer evidence of our progress and to highlight areas of present concern in a simple format. These are shown in Annex 3, where it can be seen that seven technical areas include 'red' indicators. These are:

For the AP1000

- Civil Engineering: slow progress is being made in providing adequate responses to our questions on design codes and standards.
- Electrical Power Systems: we remain to be convinced as to the compliance with international design codes and safety classification standards, and where there presently is a lack of design detail.
- Structural Integrity: we are having some difficulty in arriving at an agreed way forward on our expectations for demonstrating the integrity of the highest reliability components, such as the reactor pressure vessels.
- Radiation Protection: our assessment has not made good progress due to an initial lack of NII nuclear regulatory resources.

For the EPR

- Control & Instrumentation: our questions were significant enough to be raised as a Regulatory Issue. We have signalled that, should the issue not be satisfactorily resolved, then it would, at best, become an exclusion to the GDA confirmation, and might actually jeopardise our provision of that confirmation (see para 11).

For both designs

- External Hazards: the input data required for the RPs to analyse the resistance to aircraft impact has not yet been provided to them, and so the key analysis and assessment phase is late starting.
- Human Factors: our assessment has not made good progress due to an initial lack of NII nuclear regulatory resources, and where a very recent meeting with Westinghouse has clarified less than we had hoped for.

Regulatory Issues

11. As described in the last report, we are continuing to progress many technical questions and issues on a variety of topics. One of these we felt was significant enough to be formalised as a Regulatory Issue (i.e. where we judge that a particular feature of the design might not meet UK regulatory standards).
12. On 16 April 2009, HSE raised a Regulatory Issue against the Control & Instrumentation System (C&I) of the EPR and we are currently discussing this issue with EDF/AREVA.
13. Our concern on C&I is primarily around ensuring that control systems (those used to operate the plant under normal conditions) are separated from safety systems (those used to maintain control of the plant if it goes outside normal conditions). This is important because, if a safety system provides protection against the failure of a control system, then the two should be independent. The proposed UK EPR design breaks this principle as there is a very high degree of complex interconnectivity between the control and safety systems. We have also discussed this issue with the Finnish and French regulators. The Finnish regulators have raised similar concerns with the design, and the French Regulators are currently considering their position.
14. This highlights one of the key benefits of GDA – it allows us to identify potential issues at an early stage, where it is more likely that solutions can be identified and implemented more easily.
15. More information is available on our website at:
www.hse.gov.uk/newreactors/regissues.htm.

Management process for the end of the GDA assessment

16. On 7 May, we issued a discussion document on the management process for the end of GDA. This document covered proposals for: design freeze; design completion; GDA design acceptance confirmation; exclusions; conditions; and

change control. The document sets out the management processes that we propose to apply at the end of GDA, and explained that, whilst our assessments will be as complete as possible, we may need to apply certain caveats or 'exclusions' if we judge that unresolved issues remain. This is not a new proposal as the possibility of having exclusions was included in the original GDA guidance issued in January 2007 (Ref: Nuclear Power Station Generic Design Assessment - Guidance to Requesting Parties, Version 1, dated January 2007). This guidance document is now at version 3 and is available on the GDA website [<http://www.hse.gov.uk/newreactors/ngn03.pdf>]. Nevertheless, it has attracted some public and media attention, with suggestions that we are waiving part of our assessment. This is not the case, as we will not undermine the robustness of our requirements for safe and secure designs. If we have exclusions or conditions, it will be because we believe that it is appropriate for these to be addressed later in the site-specific phase, where they will be scrutinised with the full rigour of our licensing process.

17. Using 'caveats' in this way is not a new concept; it is an existing regulatory mechanism that is used in conjunction with hold points to allow us to regulate progress through stages of construction in a controlled manner, with technical issues being linked to appropriate stages in the programme. This ensures that construction cannot proceed beyond a hold point until related technical issues have been resolved to the satisfaction of the regulators. We would treat any exclusion or condition attached to a Design Acceptance Confirmation in this tried and tested way.
18. We are determined to deliver a 'meaningful' GDA, either with or without exclusions. However, if we are unable to come to a satisfactory overall conclusion by the end of GDA as to whether a reactor is suitable for construction in the UK, then we will not issue a Design Acceptance Confirmation for that design.
19. Through this process, and by operating in an open and transparent way, the HSE and the Environment Agency will ensure that potential investors and others understand what information has been made available to regulators and what issues our assessment has identified.

Resources

20. The Environment Agency GDA team is fully resourced and the HSE assessment team has risen to 90% of the proposed compliment, allowing now progress in all 15 of the specialist topic areas. The HSE's position continues to improve, with the latest recruitment campaign attracting significant interest and resulting in a number of job offers. With the possible exception of Human Factors regulatory specialists, we anticipate the GDA team being at full strength from December 2009.
21. These developments will help galvanise a stable and properly resourced team through to June 2011 and beyond. The overall target of completing a meaningful GDA assessment by June 2011 remains a significant challenge, but one we believe we can meet.

HSE use of Technical Contractors and Working with Overseas Regulators

22. Under the technical support framework we set up to provide additional technical support for our HSE assessment teams we have now placed 21 contracts with a total value of £1.8M for GDA-related work. These are helping to accelerate our technical

assessment. More information on this can be found on our website at: www.hse.gov.uk/newreactors/progress.htm.

23. Both the HSE and Environment Agency are also continuing to work with overseas regulators, particularly those in the USA, France and Finland, which is where the two designs emanate from and/or are being constructed. In June, we received a team from the US Nuclear Regulatory Commission (the equivalent of HSE's Nuclear Installations Inspectorate) for extensive discussions on radiation protection, radioactive waste and radioactive discharge control. We use these exchanges both to help our assessment (and theirs) and to confirm that we are applying the best international standards.

Stakeholder Engagement

24. We continue to engage with a wide range of stakeholders in a variety of ways and continue to develop our GDA website.
25. On 25 June, the HSE and Environment Agency organised a seminar for Non-Government Organisations (NGOs). The purpose of the event was to: update NGOs on aspects of GDA for nuclear new-build; provide clarity about the roles and responsibilities of the nuclear regulators; provide a forum where NGOs could ask questions and express their views; and build a professional working relationship for future stakeholder engagement. The event was useful in bringing the NGOs up to speed with the GDA process and progress, and for us to hear their views on GDA.
26. In addition, we provided updates on GDA at the Nuclear Industry Forum on 11 June, the Department for Energy and Climate Change's (DECC) Nuclear Development Forum on 24 June and at the Hinkley Point Site Stakeholder Group on 26 June.

Working with Department for Energy and Climate Change (DECC)

27. We continue to provide expert advice to DECC's Office for Nuclear Development (OND), the sponsoring Government Department for new nuclear development. OND is leading on topics such as siting, regulatory justification, waste and decommissioning costs, and the nuclear National Policy Statement: www.berr.gov.uk/consultations/page47143.html.

Planning for Site Licensing/Interaction with future Operators

28. Before construction of nuclear power stations begins, a Nuclear Site Licence, Security Plan and various environmental permits are required. HSE and the Environment Agency have therefore been engaging with potential future operators to advise them on the requirements of the licensing and permitting process.
29. On 13 May, we held a seminar for requesting parties and potential reactor licensees. Eleven companies interested in either becoming nuclear operators in the UK, or forming business partnerships with potential operators, attended the event along with the two Requesting Parties (EDF/AREVA and Westinghouse). This gave us the opportunity to explain our regulatory expectations for organisations wishing to become nuclear site licensees in the UK. Representatives from the Department of Energy and Climate Change and the Department of Communities and Local Government also attended the event and provided updates on wider initiatives relating to new nuclear build.

30. In addition, we held a high level meeting with EDF (as a potential licensee) on 5 June, to discuss their proposed plans for a new reactor at Hinkley Point.

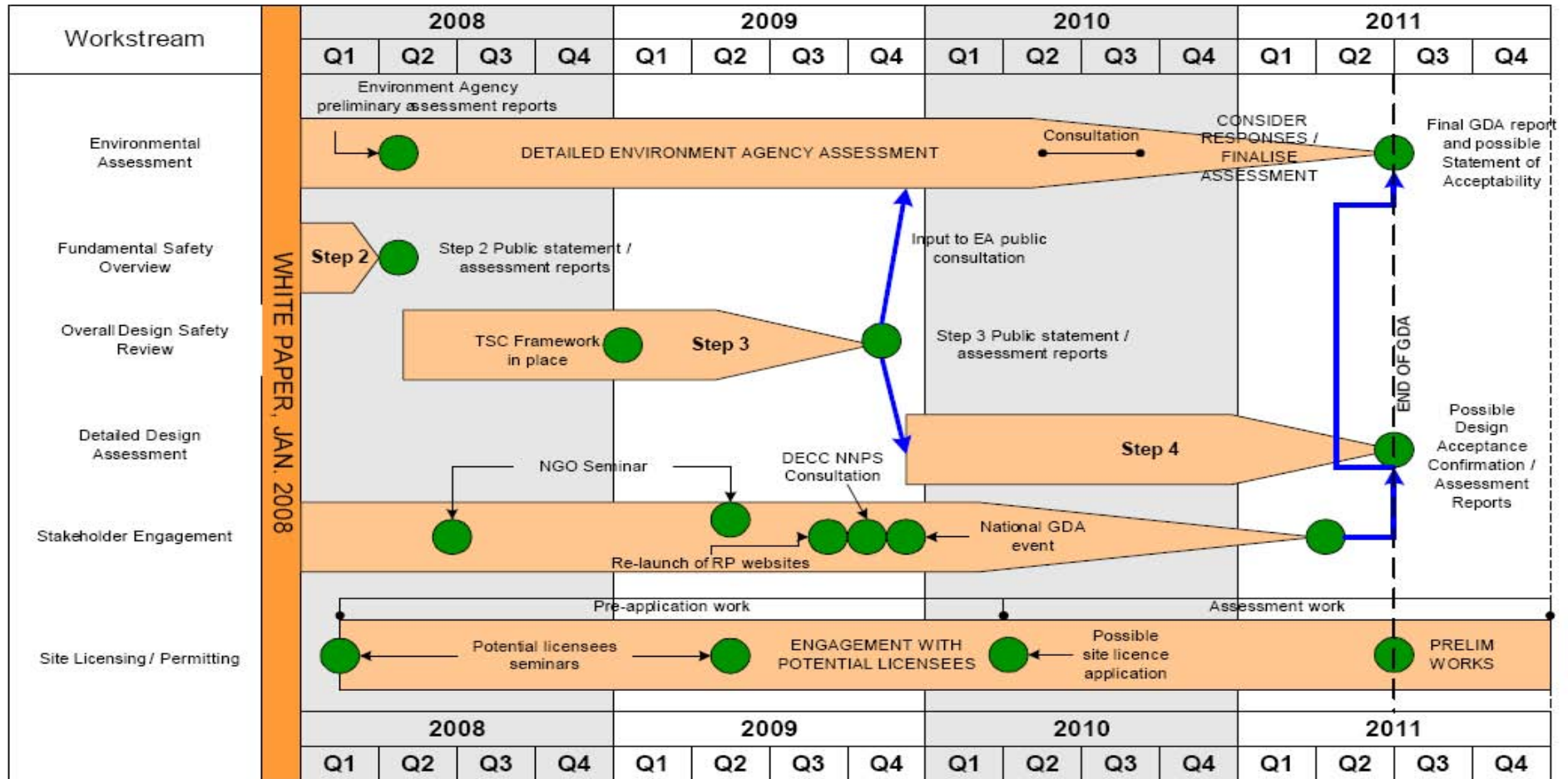
Conclusions

31. In conclusion, we have continued to make good progress on technical issues and assessment resources. We have continued to work closely with the Requesting Parties, potential operators, overseas regulators and other stakeholders, as well as issuing guidance and discussion documents, and improving public access to information and ourselves.

32. The HSE is on track to publish its Step 3 reports on 27 November 2009, and the Environment Agency will issue its consultation in May 2010. Together, we remain on track to complete GDA in June 2011.

ANNEX 1

GENERIC DESIGN ASSESSMENT INDICATIVE TIMELINE

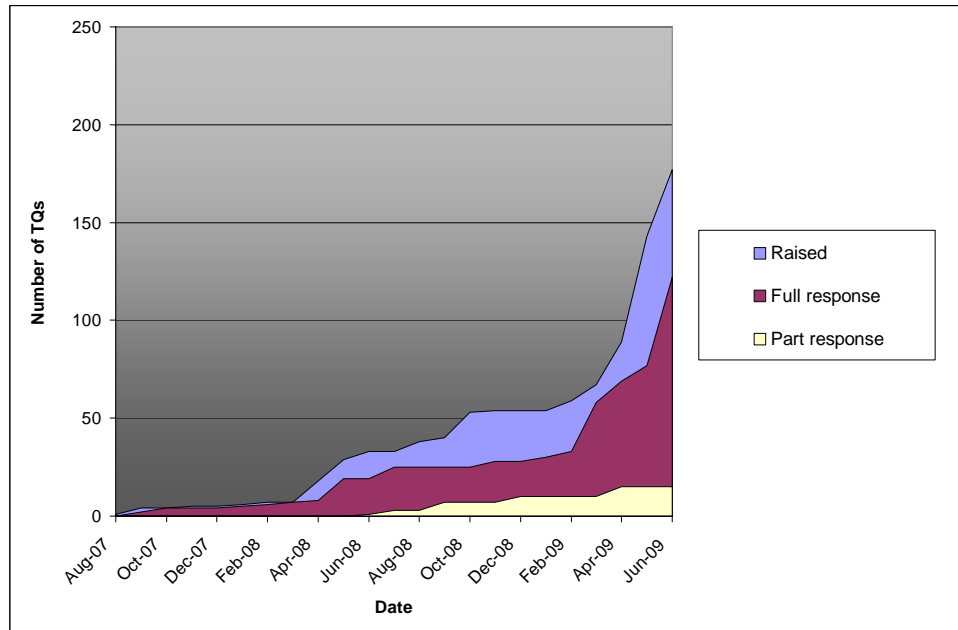


ANNEX 2 CURRENT KEY PROJECT ISSUES

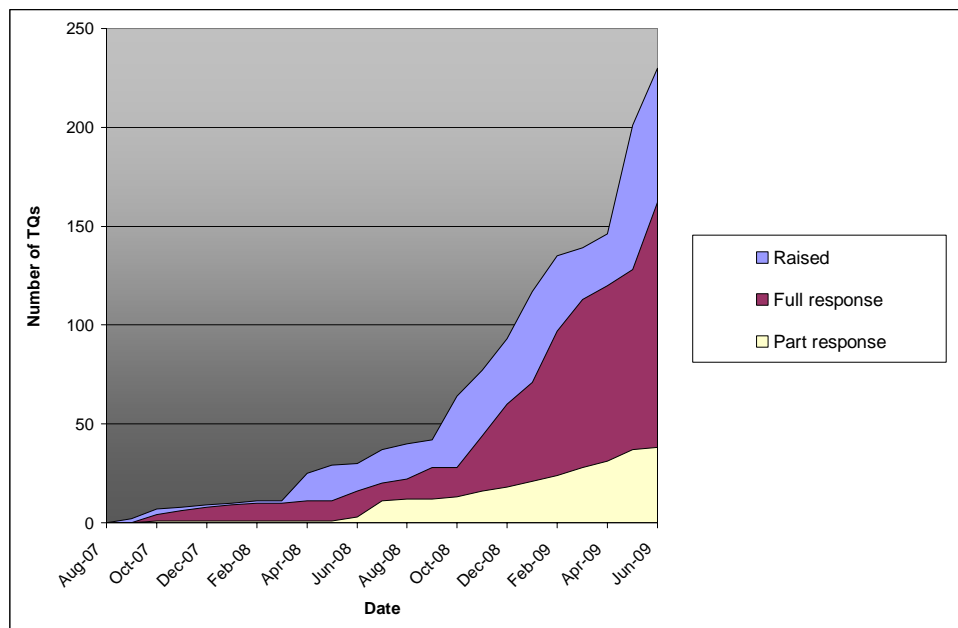
Issue	Description	Actions
1	Lack of sufficient, suitable assessment resource for Steps 3 and 4.	<ul style="list-style-type: none"> • Improved recruitment/redeployment with new terms and locations improving recruitment – GDA team 90% staffed. • 21 support contracts placed (value £1.8m). • Non-GDA distractions largely removed (e.g. non-GDA work undertaken now by non-GDA staff). • 2 additional Project Managers deployed.
2	Phase 2 Site Licensing in parallel with GDA.	<ul style="list-style-type: none"> • Plans for phase 2 developed. • GDA Joint Programme Office will be used as gateway for both GDA and site licensing. • other (non GDA) parts of NII will undertake phase 2 licensing work.
3	Large number of issues remain at end of GDA.	<ul style="list-style-type: none"> • TQ, RO, RI process in place for early identification of issues: RPs need to respond. • Well-signalled exclusions. • Design completion to be progressed. • Exclusion Discussion Document issued. Comments received are being considered.
4	Lack of clarity on security issues.	<ul style="list-style-type: none"> • Revised OCNS guidance for information publication nearing completion.
5	Effectiveness of communication and engagement with key stakeholders.	<ul style="list-style-type: none"> • Quarterly reports introduced. • Website improved & re-launched. • Planning to take part in DECC's nuclear National Policy Statement stakeholder consultation events. • National GDA stakeholder event planned for December. • HSE and Environment Agency gearing up for local community engagement around nominated sites in Quarter 4, 2009.
6	Suitable metrics for effective monitoring and control of the GDA programme.	<ul style="list-style-type: none"> • Additional metrics developed (attached to this report), and will continue to be refined.
7	No agreement in place with RPs (and potential licensees) for the preferred management and quality assurance process for the design and manufacture of long lead items.	<ul style="list-style-type: none"> • RPs agreed not to place orders until after discussion with HSE. • Long lead item procurement guidance under development by HSE, in discussion with industry (no show-stoppers identified).
8	Governance arrangements for the Site Licensing process and its interface with the GDA programme not formalised.	<ul style="list-style-type: none"> • Management arrangements for GDA and site licensing agreed, with Governance and detailed working arrangements being developed. • HSE to resource licensing from wider non-GDA pool.
9	Availability of detailed assessment plans for all of the 15 NII technical assessment areas.	<ul style="list-style-type: none"> • Resource now available in each technical area and assessments progressing. • Detailed plans now in place in most areas.

ANNEX 3 GDA INTERACTION METRICS

Westinghouse response to TQs (correct at end June 2009)



EDF/AREVA response to TQs (correct at end June 2009)



MEETING SUMMARY DURING Q2 2009

Westinghouse 40, of which 36 were in the UK, and 4 in USA
 EDF/AREVA 23, of which 15 were in the UK, and 8 in France

Overseas regulators meetings: France (3); USA (3); Finland (2); Multi-National (1).

REGULATORY COSTS CHARGED TO RPs to end March 2009 (one quarter behind the rest of this report):

Westinghouse: £3.4m; EDF/AREVA: £3.6m

GDA METRICS SUMMARY FOR WESTINGHOUSE - 1 APRIL 2009 TO 30 JUNE 2009

<p>Technical Area</p> <p>Item</p>	<p>Internal Hazards (1)</p> <p>Civil Engineering (2)</p> <p>External Hazards (3)</p> <p>Probabilistic Safety Analysis (4)</p> <p>Fault Studies (5)</p> <p>Control & Instrumentation (6)</p> <p>Essential Electrical Power Systems (7)</p> <p>Fuel Design (8)</p> <p>Reactor Chemistry (9)</p> <p>Radiation Protection & Level 3 PSA (10)</p> <p>Mechanical Engineering (11)</p> <p>Structural Integrity (12)</p> <p>Human Factors (13)</p> <p>Management for Safety & Quality Assurance (14)</p> <p>Rad Waste & Decommissioning (15)</p>
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* Is GDA on track to complete a meaningful assessment by June 2011?	
Is the depth, quality and timeliness of interactions, submissions and the responses to TQs ROs and RIs adequate?	- to date - predicted
Exclusions	- potential - difficulty of resolution

- Key:
- not assessed (e.g. insufficient information or assessment to be able to form a judgement)
 - meets regulator expectations at this time
 - shortfall against regulator expectations
 - significant shortfall against regulator expectations

Notes:
 * Includes ND resource and assessment progress.
 Items judged RED are discussed in the main text of the quarterly report.

GDA METRICS SUMMARY FOR EDF/AREVA - 1 APRIL 2009 TO 30 JUNE 2009

<p>Technical Area</p> <p>Item</p>	<p>Internal Hazards (1)</p> <p>Civil Engineering (2)</p> <p>External Hazards (3)</p> <p>Probabilistic Safety Analysis (4)</p> <p>Fault Studies (5)</p> <p>Control & Instrumentation (6)</p> <p>Essential Electrical Power Systems (7)</p> <p>Fuel Design (8)</p> <p>Reactor Chemistry (9)</p> <p>Radiation Protection & Level 3 PSA (10)</p> <p>Mechanical Engineering (11)</p> <p>Structural Integrity (12)</p> <p>Human Factors (13)</p> <p>Management for Safety & Quality Assurance (14)</p> <p>Rad Waste & Decommissioning (15)</p>
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*** Is GDA on track to complete a meaningful assessment by June 2011?**



Is the depth, quality and timeliness of interactions, submissions and the responses to TQs ROs and RIs adequate?

- to date
- predicted



Exclusions

- potential
- difficulty of resolution



Notes:
* Includes ND resource and assessment progress.
Items judged RED are discussed in the main text of the quarterly report.

Key:

- not assessed (e.g. insufficient information or assessment to be able to form a judgement)
- meets regulator expectations at this time
- shortfall against regulator expectations
- significant shortfall against regulator expectations

NII Generic Design Assessment Programme Management Structure

