



Environment
Agency

New nuclear power stations Generic Design Assessment

A guide to the regulatory processes

Contents

Introduction	3
The nuclear regulators and their roles	3
Generic Design Assessment	4
Regulators' working arrangements	5
Administrative processes	5
Public input	6
Overall timescale	6
Nature of public statements by regulators	6
Site-specific assessment	7
References	10
Contacts	10

Introduction

1 This guide sets out the arrangements that the regulators have put in place for the assessment of new nuclear power station designs. This process, called 'Generic Design Assessment' (GDA), allows the safety, security and environmental implications of new power station designs to be assessed before an application is made for the permissions required to build that design at a particular site.

2 This guidance has been prepared primarily for organisations intending to submit their reactor designs for regulatory review before applying for the permissions for a specific site. It gives a general overview and the links to the more detailed guidance documents of the safety, security and environmental regulators. It may also be of interest to other parties following the GDA process.

3 A number of permissions must be obtained by an operator before construction or operation of any nuclear installation, including nuclear power stations. These permissions are granted by a number of separate regulators including:

- the Health and Safety Executive's (HSE's) Nuclear Installations Inspectorate (NII) for licences to allow certain nuclear operations (including the operation of a nuclear reactor) on a specified site;
- HSE's Office for Civil Nuclear Security (OCNS) for approval of site security plans;
- the Environment Agency (in England and Wales) or the Scottish Environment Protection Agency (SEPA) for authorisations to allow disposal of radioactive waste from nuclear sites and for other environmental permissions; and
- the Department for Transport's (DfT's) Dangerous Goods Division for approval of transport packages for radioactive materials and wastes.

Other permissions, such as planning, are also required.

4 The GDA process is being introduced jointly by the UK nuclear regulators – HSE (incorporating NII and OCNS) and the Environment Agency (SEPA is not taking part). This document outlines the overall regulatory process for GDA. It describes how the regulators' processes are integrated, and refers to more detailed guidance.

The nuclear regulators and their roles

5 HSE's NII grants site licences to the operators of nuclear power stations. Applicants have to satisfy HSE about the safety aspects of the design, manufacture, construction, commissioning, operation, maintenance and decommissioning of the installation, and the management of radioactive waste on the site, before a licence is granted.

6 HSE's OCNS regulates security at all civil nuclear sites. It is concerned with physical security of nuclear material, IT security, security of nuclear material in transit, and vets people who access nuclear sites. OCNS requires the holder of a nuclear site licence to submit a site security plan, which must be approved before nuclear material arrives on site.

7 The Environment Agency (in England and Wales) regulates:

- radioactive waste disposal, including discharges;
- abstraction from and discharges to controlled waters, including rivers, estuaries, the sea and groundwaters;

- operation of specific 'conventional' plant;
- assessment and, where necessary, clean-up of contaminated land;
- disposal of conventional waste; and
- certain flood risk management matters.

It also has wider responsibilities with regard to Euratom Article 37 requirements concerning the impact of nuclear sites on other EU Member States. Operators have to satisfy the Environment Agency that discharges and disposals made into the environment are minimised and their effects are acceptable, such that people and the environment will be properly protected throughout the whole lifecycle of the plant, from construction to decommissioning.

8 DfT's Dangerous Goods Division is the UK Competent Authority for the safe transport of all radioactive material by all modes, and issues Design and Shipment Approvals for certain package designs. It directly regulates road transport and some aspects of rail transport, and advises/supports the Civil Aviation Authority and the Maritime and Coastguard Agency in air and maritime transport matters.

Generic Design Assessment

9 While the regulators will work together to provide an integrated approach to GDA, each has a different legislative regime which will lead to some necessary differences in approach. Figure 1 outlines how the regulatory processes fit together.

10 The arrangements each nuclear regulator has introduced for GDA are set out in paragraphs 14–17. These assessments will be undertaken in a staged manner to help reduce regulatory uncertainty as each step of the process is completed.

11 Requests for a GDA will normally originate from a reactor vendor. However, requests may also be initiated by vendor/operator partnerships. Consequently, the term 'Requesting Party' is used to identify the organisation seeking the GDA and to distinguish it from a nuclear site licence applicant.

12 The regulators consider that it is important for potential site operators/ licensees to be engaged in the GDA process, as ultimately they will be required to demonstrate sufficient knowledge of the design before receiving permission to construct and operate a nuclear power station. The operator may also wish to be part of the design process to allow the design to be adapted to its particular needs.

13 HSE and the Environment Agency expect Requesting Parties to seek advice from the Nuclear Decommissioning Authority to assure the regulators that adequate consideration is being given to the disposability of the waste intended to be produced.

HSE

14 NII will carry out a detailed assessment of the safety elements of a design, based on a submission made by the Requesting Party. More information on this is set out in *Nuclear power station Generic Design Assessment: Guidance to Requesting Parties*.¹

15 OCNS reviews security issues associated with a design to allow a conceptual security plan to be agreed for the specific technology proposed. It has also issued new guidance relevant to the management of sensitive nuclear information during

the GDA process: *Guidance document for Generic Design Assessment activities*² and *The management of Sensitive Nuclear Information during the Generic Design Assessment of nuclear technologies*.³

Environment Agency

16 The Environment Agency has also introduced a new GDA process that considers radioactive waste discharges and disposal matters, issues such as water abstraction and discharge, and the operation of conventional plant (see *Process and Information Document for Generic assessment of candidate nuclear power plant designs*⁴). This work will be carried out under section 37 of the Environment Act 1995 through which the Environment Agency will advise Requesting Parties about the acceptability of their generic design. The Environment Agency will consult the Food Standards Agency (FSA) during the course of this work. FSA has responsibilities relating to the food chain and will be a statutory consultee on any site-specific application.

Department for Transport

17 DfT engages in the GDA process through its contact with other regulators. The regulation of the transport of nuclear material is largely based on international standards and recommendations from the International Atomic Energy Agency (IAEA) and international transport agencies (see DfT's guidance on the transport of radioactive material⁵ and IAEA's *Advisory material for the IAEA Regulations for the safe transport of radioactive material: Safety guide*⁶). No additional guidance is required for assessment of transport issues during the GDA process, although there may be some new issues that arise during the consideration of designs by the regulators.

Regulators' working arrangements

18 Although each regulator can only make its decisions on matters for which it is responsible, well-developed arrangements exist to ensure that they properly co-ordinate their activities. These arrangements include a Memorandum of Understanding between HSE and the Environment Agency. A Regulators' Assessment Co-ordination Board (with a Joint Project Co-ordination Team reporting to it) has been established to closely co-ordinate the activities of HSE and the Environment Agency during the GDA and site-specific licensing and authorisation processes.

Administrative procedures

19 Requesting Parties seeking a GDA should prepare a single integrated submission for all the regulators which should address, in one or a series of documents, the requirements of all regulators. 'Route-maps' indicating those parts of the submission relevant to each regulator should be provided.

20 Requesting Parties should provide all the required information at the start of GDA or as soon as possible afterwards. The timetable for submissions should be agreed with the regulators. It should be noted that HSE and the Environment Agency may have different requirements for the timing of submissions.

21 The regulators have set up a Joint Programme Office as a single point of contact to process Requesting Parties' submissions.

22 The regulators require submissions with a sufficient level of detail to enable them to carry out their assessment. It is recognised that design and submission changes may ensue. Requesting Parties must notify the regulators of any such changes proposed during the course of the assessment, and must recognise that such changes might impact on the regulators' expected timescales for completion.

Public input

23 The regulators intend that the GDA process operates in a transparent and open way. They:

- expect that the Safety, Security and Environment Report provided for GDA will be made available to the public by the Requesting Party, with the exclusion of sensitive nuclear information and commercially confidential information;
- expect that the Requesting Party will invite and respond to comments from the public to the Requesting Party during the GDA process;
- will consider the public comments made, together with any response from the Requesting Party, during their assessment of the design;
- will monitor the process and publish their views on the main issues raised; and
- have developed processes for more general public and stakeholder engagement.

Overall timescale

24 An indicative timetable is set out in Figures 1 and 2. However, it is not possible to give definitive statements about the length of each step because there are many factors which might affect this, such as:

- the content, quality and timeliness of the submissions;
- the completeness of the design;
- the introduction of design changes;
- the significance of assessment issues arising;
- the responsiveness of Requesting Parties to issues and questions;
- the availability of resources to the regulators;
- the ability to make best use of information from overseas nuclear regulators;
- the number of designs being assessed in parallel; and
- the experience of the regulators with similar reactor designs.

25 Bespoke timetables will be drawn up by the regulators and the Requesting Parties. These timetables will be kept under review as the assessment work progresses.

Nature of public statements by regulators

26 The regulators will make public statements on their progress and interim findings at key stages during the GDA process, and also publish their technical reports.

27 On completion of the Generic Design Assessments, the regulators will issue reports on their findings. If the design is judged to be satisfactory, the regulators will issue the following:

- NII: Design Acceptance Confirmation;
- OCNS: Generic Conceptual Security Plan approval;
- Environment Agency: Statement of Generic Design Acceptability.

28 If the regulators' assessment of the design is generally positive, but some nuclear safety, security or environmental issues remain, or where shortfalls in information have been identified, they will be identified in the form of exclusions or caveats at the time of the public statements.

Site-specific assessment

29 Where applications are made for site-specific permissions (nuclear site licence, environmental authorisations and permits, and security plan approval) the regulators will follow their existing procedures. Where these site-specific applications are based on a design that has undergone GDA, the regulators will take full account of the work that they have already carried out and the advice that they have provided. Figure 2 outlines how these processes fit together.

30 Following a Generic Design Assessment, NII's licensing assessment would mainly centre on those site-specific issues that have consequences for the safety of the station and matters relating to the organisational structure and capabilities of the potential operator.

31 Similarly, if site-specific applications are made, the principles of the conceptual security plan would be taken forward and developed into a site security plan that will be considered for approval by OCNS before material is brought to the site. A construction security plan, which builds upon the conceptual security plan taking account of the intended location and articulates how this will be developed into the site security plan, is required to be approved by OCNS before construction activities are undertaken.

32 The Environment Agency's consideration of site-specific applications will take full account of the detailed design of the proposed station, including any changes since GDA, and generally focus on local impacts associated with the permissions sought and the suitability of the potential operator.

33 Potential operators will need to address exclusions or caveats from the GDA process.

Figure 1 Outline timetable: Generic Design Assessment

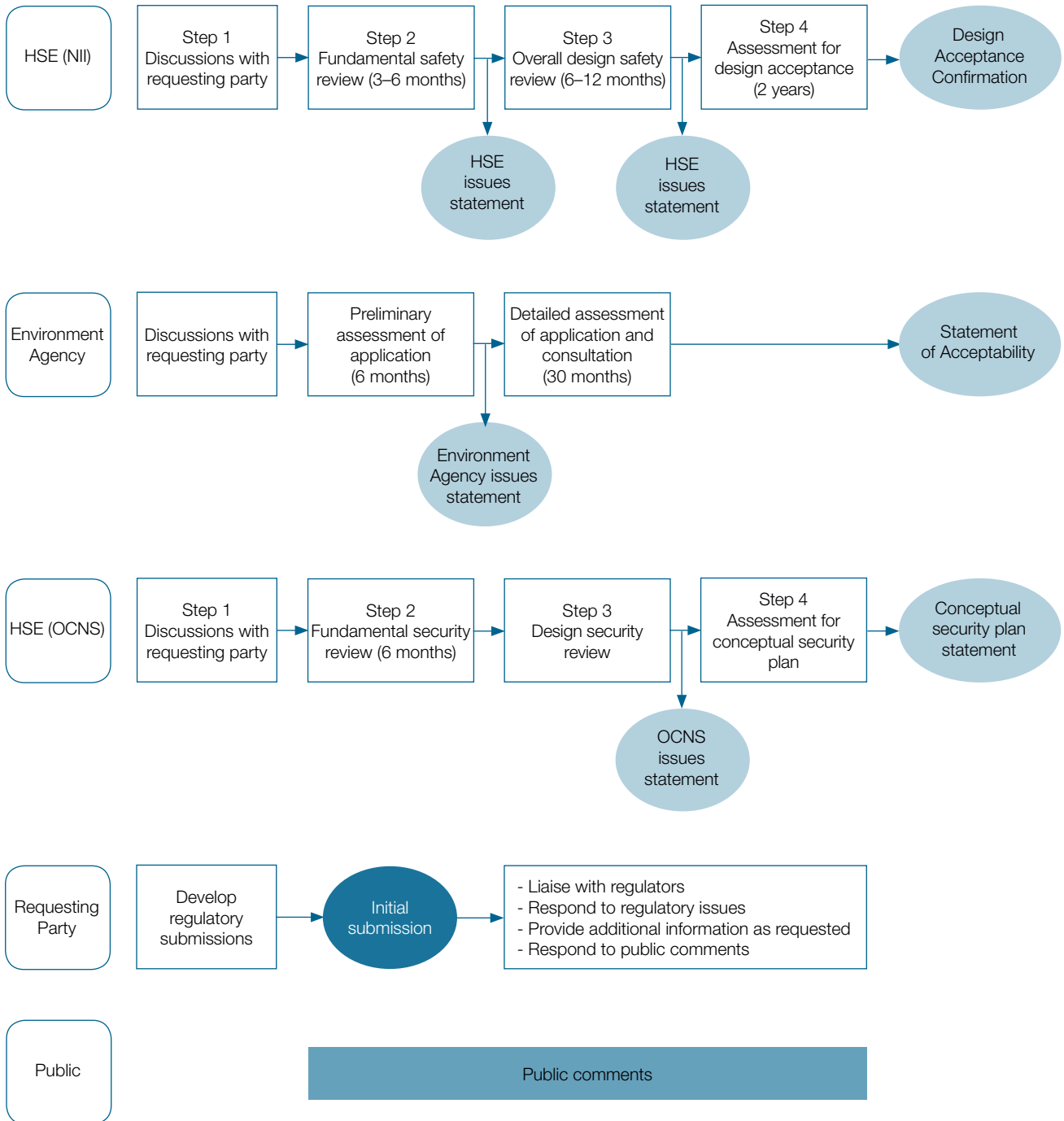
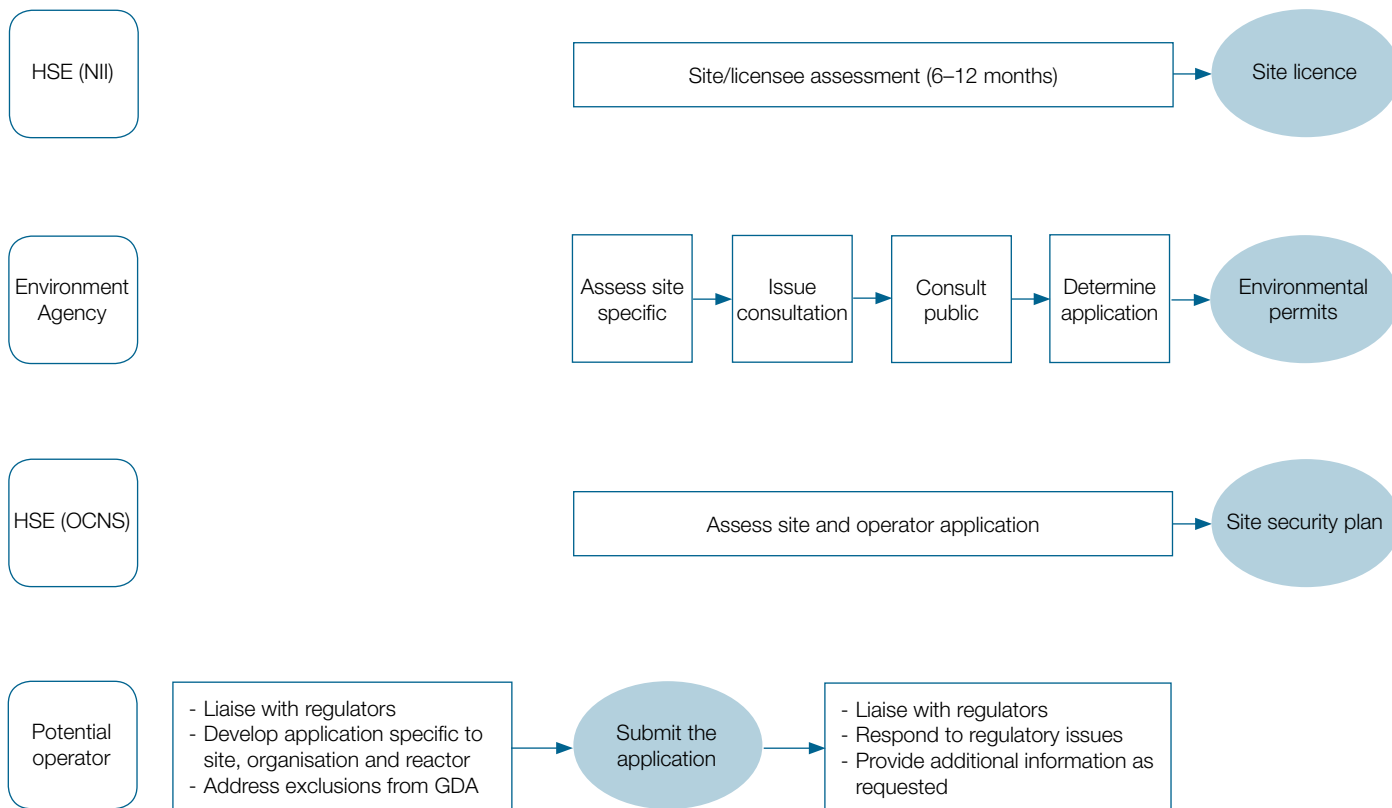


Figure 2 Outline timetable: Site assessment/licensing



References

More information on the GDA process can be found on the regulators' joint website at www.hse.gov.uk/newreactors/index.htm. See also the Environment Agency website www.environment-agency.gov.uk and the Health and Safety Executive website www.hse.gov.uk.

1 *Nuclear power station Generic Design Assessment: Guidance to Requesting Parties* HSE www.hse.gov.uk/newreactors/guidance.htm

2 *Guidance document for Generic Design Assessment activities* OCNS 2007 www.hse.gov.uk/newreactors/guidance.htm

3 *The management of Sensitive Nuclear Information during the Generic Design Assessment of nuclear technologies* OCNS 2008 www.hse.gov.uk/newreactors/guidance.htm

4 *Process and Information Document for Generic assessment of candidate nuclear power plant designs* Environment Agency 2007 www.hse.gov.uk/newreactors/guidance.htm

5 Guidance on the transport of radioactive material (Dangerous Goods Class 7) can be found at: www.dft.gov.uk/pgr/freight/dgt1/guidance/guidance7class/

6 *Advisory material for the IAEA Regulations for the safe transport of radioactive material: Safety guide* Safety Standards Series TS-G-1.1 (ST-2) IAEA www-pub.iaea.org/MTCD/publications/PDF/Pub1109_scr.pdf

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.

This document is available online at www.hse.gov.uk/newreactors/guidance.htm.

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