NNR INFORMATION DOCUMENT REGARDING NUCLEAR INSTALLATION SITE LICENSING PROCESS

Background

The regulation of nuclear power plants varies, internationally, depending on the legal framework and the regulatory approach of the respective countries. These differences may include the number of licensing stages and/or the possibility of pre-licensing activities such as siting and design assessments. In most countries with nuclear power programmes, there are at least two licensing stages (e.g. a construction licence and operating licence) and sometimes up to four stages (e.g. a siting licence or a commissioning licence in addition). There are some countries that have a one-stage licensing process and other countries that offer multi stage options.

There can be pre-licensing steps, where the regulatory authority gives generic approval for a design or a site, independently of a particular nuclear power plant project. These steps might be referred to as certifications, acceptance confirmations or other terms. The important aspect is that in a subsequent licensing process for a particular nuclear power plant, such approvals can be referenced so that the assessment and evaluation does not have to be done again.

A Nuclear Installation Licence to operate represent the primary authorisation for the operation of the nuclear installation. The conditions attached to the licence may require that further, more specific authorisation or approval be obtained by the licensee before carrying out particular activities. Licensing of nuclear installations is a process and includes various stages, interactions with stakeholders including the public but also the applicant.

Introduction

The NNR is mandated by the National Nuclear Regulator Act, (Act No 47 of 1999) [1] to regulate nuclear installations and nuclear related activities in South Africa. Before any person or company can prepare a site, design, construct, operate, manufacture, decommission and close a nuclear facility; or possess, use, transport or store nuclear materials, they must obtain a nuclear authorisation issued by the NNR.

The purpose of this information document is therefore to provide an overview of the process for licensing of sites in South Africa, taking into consideration the provisions of the NNR Act and associated regulations.

NNR approach to licensing

The NNR Act is the cornerstone of the NNR's regulatory framework, which consists of regulations and conditions of authorisations developed under Section 36 and Section 23 of the NNR Act respectively.

The Safety Standards and Regulatory Practices [2] and the regulations on Licensing of Sites for New Nuclear Installations [3] were issued by the NNR to provide regulatory requirements and form the basis

for the assessment of applications. The NNR also issues other regulatory documents such as requirements documents that becomes legally binding on operators through conditions of authorisations, and guidance documents and position papers to provide guidance on acceptable ways of complying with regulatory requirements.

In accordance with section 5 of the NNR Act [1], the NNR exercises regulatory control related to safety over the siting, design, construction, operation, manufacturing of component parts, and decontamination, decommissioning and closure of nuclear installations through the issuance of nuclear authorisations.

The applicant for a nuclear authorisation may adopt a multi-stage approach to licensing or a combination of stages with the agreement of the NNR. The typical stages for a nuclear authorisation would be siting, design, manufacturing of component parts, construction, operation and eventual decommissioning in accordance with the NNR Act. For each of these stages, or combination of stages, the applicant will have to submit documents relevant to the stage of licensing.

The NNR regulatory framework also allows for the following pre-licensing steps as part of exercising oversight of these activities through the issuance of the following nuclear authorisations:

(a) Nuclear Installation Site Licence (NISL); and
(b) Design Authorisation Framework.

A NISL is limited to the evaluation of the suitability of a site for new nuclear installations and this is done in accordance with the regulations on Licensing of Sites for New Nuclear Installations. The NNR has also developed and issued interim guidance for the siting of nuclear facilities. These guidance are contained in RG-0011 [5].

The process of pre-licensing, as mentioned, includes interaction with the applicant once an application has been accepted for further processing. These interactions include agreement on submittal of safety documents, clarification of regulatory requirements and guidance, familiarization with the site, as well as project related meetings amongst others. The pre-licensing process is interactive in nature, and includes the review of safety documents by the NNR that could result in review comments to be addressed and additional information to be submitted by the applicant. This process culminates in a recommendation to the Board to either issue or decline the application for a NISL. The recommendation considers the outcome of both the technical review and the public participation process.

The timelines for the review of NISL applications may vary depending on various factors such as staffing, the quality, comprehensiveness and availability of submissions required from the applicant, the schedule of document submittals, and type of technology. The pre-licensing process for NISL includes the following important steps:

(i) Initial review of an application;
(ii) Public notice and comment period;
(iii) Preparation;
(iv) Review of technical submissions, including organisational and business processes; and

(v) Public hearings.

NNR Public Participation Process

The NNR public participation process may include two distinct stages, pursuant to sections 21 (3) and (4) of the NNR Act, depending on the type of the authorisation application. These stages are:

1) Public Notice and Comment
2) Public hearings

The purpose of the public notice and comment stage is to inform interested and affected parties that the NNR has received an application for a specific nuclear authorisation; has accepted the application for further processing; and to solicit initial public representation. The applicant will then be directed to serve copies of the application to every municipality affected by the application and any other bodies as determined by the NNR, and to publish notices of the application in the *Gazette* and newspapers circulating in the area of every such municipality. Interested and affected parties may make representations relating to health, safety and environmental issues connected with the application. Comments received during the public notice and comment stage are duly considered and recorded and may inform the need for public hearings.

The NNR Board may decide on the need for further public hearings. In that case, the applicant will be directed to serve and publish a notice at least 30 days prior to the planned public hearings. The notice will take into account amongst others the language preferences and usage in the province(s) or municipal area(s) concerned; invite members of the public to attend the hearing; state that written representations may be made; state the requirement that persons who intend to make representations during the public hearing shall register as interveners; etc.

The notice will be accompanied by a public information document detailing relevant details of the application. The following information shall be included in the public information document –

(i) Summary of the project and a historical background to similar projects worldwide, as appropriate.
(ii) Applicant's information:
(iii) Project description:
(iv) Site description and summary of site justification,
(v) Summary of the safety analysis including hazards and proposed design features to address these;
(vi) Emergency planning:
(vii) Waste management and decommissioning
(viii) Transport

Public hearings are presided over by a panel appointed by the NNR Board and registered persons may make representations in the official language of choice.

Current review and process of the NISL applications

In March 2016, the NNR received applications from Eskom for a NISL for both the Duynefontyn and Thyspunt sites. These applications have been submitted in accordance with the provisions of the NNR Act and the regulations on Licensing of Sites for New Nuclear Installations. The format and content of applications are prescribed in Government Notice 1219 [4].

The initial review of these applications was to completed and accepted for further processing by the NNR. The purpose of this initial review was to determine whether the applications are compliant with the NNR Act and associated regulations. The applicant has been directed to inform and publish notices of their applications in relevant media. Interested and affected parties have been invited to make representation on the applications to the NNR. Further to this process the NNR has granted the applicant permission to extend to comment period by another 30 days.

Upon receipt of the technical submissions from the applicant, the NNR will conduct a thorough review and schedule public hearings. With regard to the current NISL applications, the NNR Board has resolved to conduct public hearings.

The technical review will consider enveloping characteristics of all the nuclear installations contemplated to be constructed on the site as well as assess all the siting factors, also known as external events, relevant to the specific site. The safety documents must therefore demonstrate that the relevant siting factors have been appropriately characterised and that the impact and risk to the public from all nuclear facilities planned for the site and in the vicinity of the site will respect the NNR principal safety criteria. In the event that the above conditions are met, the site may be acceptable for future siting and construction of nuclear installations, subject to a separate licensing process, which will require conforming to the range of technologies specified in the application and other conditions specified in the licence.

The nuclear installation site licence should therefore serve to:

a) Confirm the NNR's acceptance of the safety case including the Site Safety Report (SSR);
b) Impose conditions on the holder to ensure its validity; and
c) Give permission for specific, limited site work to proceed.

Activities allowed on the site in terms of a NISL

The NNR recognises that applicants may want to perform site preparation activities prior to a potential NIL for either siting, construction or operation. The nature of these activities may be viewed as related to siting considering the provisions of the NNR Act. To this end the NNR would allow certain limited site establishment activities to progress subject to an application for a NISL or a NIL. "**Site establishment**" means the establishment on the site of security infrastructure, construction of temporary support buildings and site clearance. It must be noted that nuclear authorisations of any form obtained from the NNR do not relieve the applicant from provisions of other applicable legislative provisions.

NIL to site, construct, operate and decommission a nuclear installation

There is a distinct difference between a NISL as explained above and a Nuclear Installation Licence (NIL). A NISL application allows an applicant to apply for a site evaluation even though the specific technology might not be decided upon. For a NIL the applicant must provide the NNR with sufficient information, including the design covering the full technical safety basis to enable the NNR to perform a detail assessment against NNR safety standards. The NNR then formulates its position whether to grant or decline the nuclear installation licence application to site or construct.

Once the decision is taken to grant a NIL to site or construct, the NNR may impose in terms of section 23 of the NNR Act specific conditions related to the respective stage such as mandatory hold and/or witness points beyond which work must not proceed without the approval of the NNR. These hold and/or witness points, depending on the type of installation and the associated nuclear risk as well as the completeness of the safety assessment, could be for important steps such as:

- Site establishment
- Early site activities
- Component manufacturing (Otherwise authorised under an Authorisation to Manufacture)
- Carrying out of civil works
- Installation of components and equipment
- Performance of pre-commissioning or functional tests of individual subsystems of components
- Cold commissioning testing up to and including non-nuclear integrated tests
- Hot commissioning testing (including nuclear material on site, loading of nuclear material, initial criticality, low power testing, full power testing)

For subsequent licensing stages the applicant will request a variation (amendments to the conditions) to this NIL supported by the relevant information. Subject to the NNR review of the submitted documents, the conditions of the NIL will be amended for the specific stage of licensing and a variation of the NIL will be issued to the applicant.

References[1]

[1] National Nuclear Regulator Act, Act No. 47 of 1999

[2] Regulations in terms of section 36, read with section 47 of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999), on Safety Standards and Regulatory Practices, R388, 28 April 2006

[3] The regulations on the licensing of sites for new nuclear installations, R927, 11 November 2011

[4] Regulations in terms of section 36, read with section 47 of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999), on the format for the application for a nuclear installation licence or a certificate of registration or a certificate of exemption, GN1219, 21 December 2007

[1] All references are available on the NNR website: www.nnr.co.za

[5] RG-0011, Interim guidance for the siting of nuclear facilities, Regulatory Guide, 2015