GENERAL NOTICES

NOTICE 914 OF 2009

DEPARTMENT OF MINERALS AND ENERGY

NATIONAL NUCLEAR REGULATOR ACT, 1999

INVITATION FOR THE PUBLIC TO COMMENT ON PROPOSED DRAFT REGULATIONS ON THE SITING OF NEW NUCLEAR INSTALLATIONS

I, Elizabeth Dipuo Peters, Minister of Energy hereby, in terms of section 36(2) read together with section 47 of the National Nuclear Regulator Act, 1999 (Act No.47 of 1999), invite the public to comment on the proposed regulations contained in the Annexure.

Interested persons may submit their comments in writing on the proposed regulations to the Director-General of the Department of Minerals and Energy, within 30 days of the date of publication of this notice in the following manner:

(a) Physical Address: 234 Visagie Street, Pretoria, 0001
(b) Postal Address: Private Bag x59, Pretoria, 0001
(c) E-Mail: .Ditebogo.Kgomo@dme.gov.za

Comments must be marked for the attention of Ms D. Kgomo.

ANNEXURE

DEPARTMENT OF MINERALS AND ENERGY

No. R. .... **.....2009**

NATIONAL NUCLEAR REGULATOR ACT, 1999

DRAFT REGULATIONS ON SITING OF NEW NUCLEAR INSTALLATIONS

I, Elizabeth Dipuo Peters, Minister of Energy hereby, in terms of section 36 read together with section 47 of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999), and after consultation with the Board of Directors of the National Nuclear Regulator, make the regulations in the Schedule.

SCHEDULE

CONTENTS

Definitions

1. In these Regulations any word or expression to which a meaning has been assigned in the Act or in the Regulations on Safety Standards and Regulatory Practices (Government Notice No. R. 388 in Government Gazette 28755 of 28 April 2006) shall have the meaning so assigned and unless the context otherwise indicates-

"external events" means events originating outside the nuclear installation with the potential to cause adverse conditions or even damage to safety important structures, systems or components;

"infrastructure" means all infrastructure and services, outside the site boundary, necessary for the implementation of an emergency plan, including public communication, protection of the environment and property, transport, personnel, radiation monitoring, decontamination, mass care and medical care.

"internal events" means events originating inside the nuclear installation with the potential to cause adverse conditions or even damage to safety important structures, systems or components;

"**new nuclear installation**" means a nuclear installation constructed after the date on which these Regulations come into effect;

"**old nuclear installation**" means a nuclear installation constructed before the date on which these Regulations come into effect;

"**probabilistic risk limit**" means probabilistic risk limits stipulated in Regulations R388;

"**source term**" means the amount and isotopic composition of material released or postulated to be released from a nuclear installation or action as well as the release characteristics and associated data required for the impact analysis;

"**stochastic effects**" means health effects, the probability of occurrence of which is greater for a higher radiation dose and the severity of which if it occurs is independent of dose and generally occurs without a threshold;

"**the Act**" means the National Nuclear Regulator Act (Act No. 47 of 1999).

Purpose and scope of regulations

2. (1) The purpose of these Regulations is to establish regulatory requirements for the siting of new nuclear installations.

(2) The requirements contained in these Regulations apply to applications for nuclear installation licences for the siting of new nuclear installations (NILS) for the purpose of design, construction, operation, decontamination, decommissioning and closure of such nuclear installations.

Requirements for the siting of new nuclear installations

3. Siting factors and criteria must ensure that radiological doses and risks from normal operation and postulated events associated with a nuclear installation will be acceptably low, that natural phenomena and potential man-made hazards will be appropriately accounted for in the design of the nuclear installation, that site characteristics are such that adequate security measures to protect the nuclear installation can be developed, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified.

Factors to be considered when evaluating sites

4. Factors considered in the evaluation of sites must include those relating both to the proposed nuclear installation design and the characteristics specific to the site. It is required that the new nuclear installation reflects through its design, construction and operation an extremely low probability for postulated events that could result in release of quantities of radioactive fission products. In addition, the site location and the engineered features of the nuclear installation included as safety measures against the hazardous consequences of a postulated event must ensure a low risk of public exposure.

Application for nuclear installation licence for siting of new nuclear installation

5. Any person who applies in terms of section 21 of the Act for a nuclear installation licence for the siting of a new nuclear installation must submit, in support of his or her application, a Site Safety Report to the chief executive officer and the Site Safety Report must contain the following:

(1) Motivation for the choice of the site to ensure a low risk of public exposure from the operation of the nuclear installation;

(2) a statement as to the proposed use of the site in terms of the scope of technologies being considered for the nuclear installation and use on the site, including where appropriate the maximum thermal power, general design characteristics such as the engineered safety features of the nuclear installations included as safety measures against the hazardous consequences of postulated events, and the layout on the site;

(3) source term analysis that is representative of the overall potential hazards posed to the public and the environment owing to the range of technologies under consideration for the nuclear installation at the site, taking into consideration a representative scope of internal and external events enveloping all potential technologies of the nuclear installation considered for construction and operation on the site;

(4) the identification and specification of characteristics of the site in terms of external events of natural origin or human induced occurring in the region of the particular site. The characteristics shall be monitored and the current and future uncertainties discussed. The design of the nuclear installation must take into

consideration the identified and analysed external risk events that potentially can lead to radiation exposure.

(5) a Probabilistic Risk Assessment (PRA) using the source terms referred to above as well as the site-specific environmental data, including meteorology, land use, population demographics, regional development , based on projections to account for the design life of the nuclear installation, to demonstrate compliance with the probabilistic risk limits. The cumulative impact of all nuclear installations planned or existing must be taken into account in this analysis;

(6) analysis of the impact on the public due to normal operations of the nuclear installations to demonstrate compliance with the dose limits. Such analysis must be carried out taking cognizance of enveloping operational parameters of the potential technologies being considered for the nuclear installations to be constructed and operated on the site;

(7) analysis to demonstrate the viability of an emergency plan taking into account the above factors, including transport and disaster management infrastructure. This analysis must include the identification and determination of external zones to the site whose

sizes must be established based on the source term analysis, PRA and the site specific environmental data indicated above;

(8) the identification and determination of the external zones for a proposed site including the consideration of the potential for radiological consequences for the public and the environment, arising from accidents at all nuclear installations on the site and in the vicinity, including the proposed new installations, and the feasibility of implementing emergency plans as well as monitoring and protective measures. In determining the external zones, due account must be taken of physical boundaries such as rivers, dams, mountain ranges, as well as municipal boundaries;

(9) the population density and population distribution and other characteristics of the potentially affected region, taking cognizance of projections to account for the design life of the nuclear installations in terms of an adequate implementation of zones and emergency measures, that are acceptable in terms of keeping the risks to individuals and the population as well as the financial consequences caused by damage and radioactive contamination as low as reasonably achievable;

(10) the identification and determination of the site external zones, which must include the following:

(a) the determination of an exclusion zone in accordance with paragraph (8) beyond which no evacuation of members of the public would be required in the event of accidents occurring in the new installations. Within the boundaries of that zone or any intersection with the boundaries that zone, there shall be no members of the public resident, no recreational activities, no commercial activities, or institutions which are not directly linked to the operation of the nuclear installations;

(b) an overall Emergency Planning Zone (EPZ) of such size that emergency or remedial measures must be considered where the potential exists that any members of the public may receive more than an annual effective dose of 1mSv ;

(c) a Long Term Protective Action Planning Zone (LPZ), extending beyond the EPZ boundaries, where preparations for effective implementation of protective actions to reduce the risk of stochastic health effects from long term exposure to deposition and ingestion must be developed in advance;

(11) an assessment from the relevant national security authorities on the suitability of the site for the siting of nuclear installations from a security perspective.

(12) a programme to monitor all the site specific characteristics and environmental data necessary for the Site Safety Report, including a programme of reporting to the Regulator.

General requirements

6. (1) All information provided in terms of these Regulations must conform to the provisions of the entire Regulations.

(2) The NILS will stipulate activities on site that are not allowed, including inter alia the construction of a nuclear installation.

(3) A reassessment is required 5 years after the issuance of the NILS

(4). The period of validity of a NILS is 10 years from its date of issue until the issuance of the first licence to construct a nuclear installation on that site.

(5) The NILS shall refer to the submissions required by paragraph 5, including the data, analyses, commitments and undertakings referred to in these submissions, which will be conditions of licence.

Title

7. These Regulation shall be called the Regulations on Siting of New Nuclear Installations, 2009.