CHAPTER 11: CONCLUSIONS

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Author declaration: I declare that appropriate diligence and quality assurance was applied in the compilation of this report. As such I am confident in the results here described and the conclusions drawn.

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Name: Anita Kilian Date: 2024-03-15

Peer Reviewer: I declare that this report has undergone independent peer review by myself, that comments were addressed to my satisfaction, and that as such, it is considered fit for publication.

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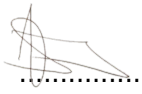

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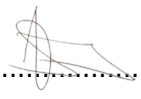

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AMENDMENT RECORD			
Rev	**Draft**	**Date**	**Description**
0		04 June 2015	New chapter, replacing old KSSR Rev 0
1		21 July 2022	Chapter updated to reflect the latest site characteristics.
1a		15 March 2024	Chapter updated to address NNR comments

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11 CONCLUSIONS

This chapter presents key conclusions on the suitability of the Duynefontyn site to host new nuclear installation(s) and for the support of long term operation (LTO) of Koeberg Nuclear Power Station (KNPS). It provides important information on site related factors that are important to the safety of the existing KNPS and the proposed new nuclear installation(s).

This SSR has been developed in line with the legal requirements as presented in ***Chapter 2***, and in particular, the requirements as contained in the regulations on licensing of sites for new nuclear installations (Department of Energy, 2011) as well as the NNR Interim Guidance for the siting of nuclear facilities (National Nuclear Regulator, 2016). The document provides detailed information on the characteristics of the site, i.e., use of the site; the motivation for the choice of the site; the land use; adjacent sea use; demography; meteorology; oceanography; hydrology; geohydrology; geotechnical characterisation; geology; seismic hazard; water supply; nearby transportation, industrial and military facilities; the cumulative radiological impact on people and the environment and the feasibility of emergency planning.

From the site specific investigations conducted, and in line with the requirements as contained in the regulations R.927 (Department of Energy, 2011) it can be concluded that the Duynefontyn site to support LTO operations in that:

- the radiological dose to the public during normal operations and risks due to potential nuclear accidents will be acceptably low and within the regulatory limits.

  The total effective doses of the representative person compared to the KNPS dose constraints of 250 µSv/y:

  - Total annual dose = 94.0 µSv/y (KNPS) + 36.4 µSv/y (NNI) + 4.46E-03 µSv/y = 130.4 µSv/y.

  A screening dose rate assessment that was done for non-human biota concluded that the liquid and airborne discharges from the proposed NNI and KNPS are unlikely to pose any radiological risk to non-human biota.

- The current Integrated Koeberg Nuclear Emergency Plan provides for all nuclear and radiological emergencies that may arise from postulated credible nuclear accidents on the site based on the safety assessment of KNPS. The SSR have also not identified any significant impediments to the existing emergency plan (EP).

  Eskom has committed to the EUR objectives for emergency planning for

NNIs. This commitment and a limited technical assessment of GEN III technology accidents presented in ***Chapter 8*** form the basis for a provisional conclusion that the current Emergency Planning Zones defined in the Integrated Koeberg Nuclear Emergency Plan will envelop an NNI.

- All identified hazards have been assessed and no significant impact on the safety of the installation has been identified).
- Hazards that have been screened in for the new nuclear installation(s) can be dealt with in the design.
- Site specific hazards have been adequately characterised for KNPS and no fatal flaws were found.

Clear evidence on site characteristics has therefore been provided to support the suitability of the site to meet the licensing conditions for siting of a nuclear installation(s). Compliance of the investigations and processes for this SSR with the relevant governing Acts and regulations has been demonstrated and international best practice has also been followed. Any remaining uncertainties have been identified and plans for their resolution and management have been formulated, including the continuation of already established long-term monitoring programmes. All work has been carried out under an Integrated Management System that conforms to, *inter alia*, NNR and International Atomic Energy Agency quality and safety requirements for nuclear installations.

Eskom will continue to monitor the characteristics of the site and site vicinity and region and will update this SSR to reflect the latest characteristics of the site and its environs prior to construction of any new nuclear installation(s).