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1. Introduction

Eskom's strategy for demonstrating safe long-term operation of Koeberg Nuclear Power Station (KNPS) has been devised to meet requirements stipulated in NNR regulatory guide RG-0027 (*Ageing Management and Long-Term Operations of Nuclear Power Plants)*. The International Atomic Energy Agency (IAEA) Safety Aspects of Long-Term Operation (SALTO) framework has been used as a guide developing the Scoping methodology. The SALTO framework dictates the need for a systematic process to determine the scope of systems, structures, and components (SSCs) that need to be included in the ageing management safety assessment for long-term operation (LTO) and thus be subjected to an ageing management evaluation (AME). This document provides the KNPS methodology for the SALTO scoping process performed under the Koeberg SALTO assessment.

The guidance provided herein is in accordance with National Nuclear Regulator (NNR) Interim Regulatory Guide RG-0027.

The Koeberg SALTO assessment consists of two major activities, namely:

- SALTO scoping process: A systematic scope-setting process to identify items important-to-safety subject to assessment for ageing, which is the subject of this document.
- SALTO ageing management evaluation (AME) and revalidation of the time limited ageing analysis (TLAAs): A process to demonstrate that effects of ageing and degradation for in-scope SSCs are managed for the planned period of LTO and the validation of time-limited ageing analyses (TLAAs). This is covered in the AME procedure 240-125122792 (*Koeberg Safety Aspects of Long-Term Operating (SALTO) Ageing Management Evaluation Process and Revalidation of the Time Limited Ageing Analyses*).

2. Supporting Clauses

2.1 Scope

The scope of this document is limited to providing the methodology for the scoping of items important to safety for the Koeberg SALTO ageing management evaluation.

The following constraints are applied:

1. The scope is limited to SSCs that are either installed or stored on site at the Koeberg Nuclear Power Station (KNPS), hence it excludes the analysis of off-site services or secondary emergency infrastructure, for example remote emergency power facilities.
2. The scope is limited to SSCs that are focussed on plant operation and protection. It thus excludes the analysis of equipment used to assess the suitability of personnel for service, provide emergency medical support, or intended to monitor or communicate with the public for the purpose of emergency evacuation.

The justification for these exclusions is that these specific SSCs are (i) subject to assessment by existing monitoring and testing programmes, and (ii) available to be inspected, tested, or repaired while the plant is operating without affecting the safety of the plant or the public.

The implementation of the method described in this procedure results in the scope list of SSCs subject to AME.

The scope list will form part of inputs into the Periodic Safety Report (PSR) for LTO currently being executed as a separate project in the Koeberg LTO Programme. For the results of previous PSR's performed at KNPS, where necessary, plant changes have updated the affected equipment classification. Therefore, by utilising the Koeberg classification as a basis for Scoping, these previous PSR results are incorporated into the scoping process.

2.1.1 Purpose

The purpose of this document is to provide a systematic scoping process to identify SSCs that are subjected to the SALTO ageing management evaluation.

The document outlines the process followed during the scoping activities to meet the scoping regulatory requirements in accordance with RG-0027..

2.1.2 Applicability

This document applies to the SALTO activities relating to scoping of SSCs for Koeberg units.

2.1.3 Effective date

This document is effective from the authorisation date hereof.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] 240-101459264: Strategy for Demonstrating Safe Long-Term Operation for Koeberg Nuclear Power Station

[2] 240-128716554: Koeberg Safety Aspects of Long-Term Operation Input Sources

[3] 240-89294359 (KSA-010): Nuclear Safety, Seismic, Environmental, Quality, and Importance and Management System Level Classification Standard

[4] IAEA Safety Specific Guide No. 48: Ageing Management and Development of a Programme for Long-Term Operation of Nuclear Power Plants

[5] RG-0027: Interim Regulatory Guide Ageing Management and Long-Term Operations of Nuclear Power Plants

2.2.2 Informative

[6] 331-93: Guide for Classification of Plant Components, Structures, and Parts

[7] 331-203: The Component-Structure Classification Form

[8] 240-97087308: Fourth Interval In-Service Testing Programme Requirements Manual (ISTPRM)

[9] 240-100984199: Koeberg Safe Aspects of Long-Term Operating (SALTO) Methodology

[10] 240-125122792: Koeberg Safety Aspects of Long-Term Operation (SALTO) Ageing Management Evaluation Process and Revalidation of the Time Limited Ageing Analyses

[11] ANSI 18.2: Nuclear Safety Criteria for the Design of Stationary PWR Plants

[12] JN195/NC/ESKOM/J2/365 : KPNS Internal Flooding Analysis

[13] JN285/NCI/ESKOM/TR/2064: Fire Risk Assessment for Koeberg Nuclear Power Station (Parts 1 to 6)

[14] JN377/AMEC/NCI/TR/6393: Seismic Event Fall-Down: Hazard Report

[15] KBA 0022 E02 1004: Electrical Penetration Lists

[16] KBA 1215 H03 103: Reactor Building Medium and Low Voltage Electrical Penetrations Listing

[17] KBA 1215 K06 180: Electrical Penetrations Cabling Diagram

[18] KAU-029: Basis and Scope for Non-Licence Binding Civil Surveillances at Koeberg Nuclear Power Station

[19] KAU-030: Basis and Scope for Licence Binding Civil Surveillances at Koeberg Nuclear Power Station

[20] KGU-035: Integrated Equipment Reliability Process: Scoping and Classification of Components

[21] EERT-11-019: Explosion Hazard Report

[22] EERT-11-015: Seismic Hazard Study

[23] EERT-11-001: Review of Emergency Operating Procedures to assess the Functionality of Beyond-Design-Basis Line-Ups

[24] 331-94 (KLA-001): Importance Category Classification Listing

2.3 Definitions

2.3.1 Availability Related (AR): A category assigned to systems, functions, components, structures, software, services, or processes not designated CSR, SR or DER, which are required for maintaining plant availability and have an insignificant impact on nuclear risk.

2.3.2 Classification: Generic term encompassing safety, seismic, quality, environmental, and importance level, or the process of assigning these designations.

2.3.3 Class 1E: The safety classification of the electric equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or are otherwise essential in preventing significant release of radioactive material to the environment.

2.3.4 Controlled Disclosure: Controlled disclosure to external parties (either enforced by law or discretionary).

2.3.5 Critically Safety Related: A category for components, systems, functions, structures, services and processes where the function is necessary to prevent or mitigate the consequences of a nuclear accident or which, by its failure, will directly result in a breach of the reactor coolant system pressure boundary.

2.3.6 Design Extension Condition (DEC): A specific accident condition that is not considered a design basis accident, but is considered in the design process for SSCs required for the prevention or mitigation of accidents that exceed the design basis requirements. The design process (requirements) will be in accordance with best estimate methodology for which release of radioactive material is kept within acceptable limits. Design extension conditions include severe accident conditions.

2.3.7 Design Extension Related (DER): Importance category assigned to systems, functions, components, structures, software, services, or processes that are designed or required for the prevention or mitigation of design extension conditions (i.e. exceeding the original design basis). DER equipment requires similar levels of maintenance and availability as those items with an importance category of CSR or SR, to ensure their reliability and availability.

2.3.8 Design Safety Class: Indicates the impact on nuclear safety of functions, systems, components, structures, parts, and software. It is also used to determine technical requirements (e.g. safety class 1, 2, or 3 for mechanical components) and is linked to ANSI 18.2.

2.3.9 Importance Category: A Koeberg-specific classification category that indicates the importance of functions, systems, processes, components, structures, services, and software pertaining to nuclear safety and plant availability.

2.3.10 Items Important to Safety: An item that is part of a safety group and/or whose malfunction or failure could lead to radiation exposure of the site personnel or members of the public. Items important to safety include: Those structures, systems, and components whose malfunction or failure could lead to undue radiation exposure of site personnel or members of the public; structures, systems, and components that prevent anticipated operational occurrences from leading to accident conditions; safety features (for design extension conditions); those features that are provided to mitigate the consequences of malfunction or failure of structures, systems, and components.

2.3.11 Initiating Event: An event that creates a disturbance in plant operation that has the potential to lead to core damage, depending on the successful operation of required mitigating systems in the plant.

2.3.12 IQReview: equipment reliability (ER) software module used to facilitate preventive maintenance optimisation with asset classification, maintenance templates, and integrated basis optimisation workflows. It includes pre-loaded maintenance templates that are based on standards from the Electric Power Research Institute (EPRI), Nuclear Energy Institute (NEI), and other standards organisations for the bulk evaluation and classification of components based on criticality, duty cycle, and operating environment. It also facilitates central management of preventive maintenance change requests (PMCR) including tracking, routing, approvals, and implementation.

2.3.13 Non-Safety Affecting Safety (NSAS): SSCs that have not been designed and constructed with nuclear safety in mind whose failure may prevent items important to nuclear safety from fulfilling their intended function.

2.3.14 Not Safety or Availability Related (NSA): A category assigned to systems, functions, components, structures, software, services or processes, not designated CSR or SR that are designed for or required for the prevention or mitigation of DEC (that is, exceeding the original design basis).

2.3.15 Safety Related (SR): A category for components, systems, functions, structures, services, and processes other than those defined as CSR, or which, by its failure, has a significant impact on overall nuclear risk.

2.3.16 Scoping: A systematic process to identify SSCs that are subject to ageing management evaluation.

2.3.17 Seismic Class 'Non-Destruct' (ND): Covers components and structures that may not be safety-related but whose integrity must be maintained during and/or after the design basis earthquake, i.e. whose failure in the design basis earthquake could damage adjacent safety-related equipment.

2.4 Abbreviations

Abbreviation	Explanation
AR	Availability Related
CSR	Critical Safety Related
DEC	Design Extension Conditions
DER	Design Extension Related
KNPS	Koeberg Nuclear Power Station
ND	Non-Destruct
NSA	Not Safety or Availability related
NSAS	Non-Safety Affecting Safety
NSF	No Safety Function
LS	Linked to Safety
LTO	Long-Term Operation
SALTO	Safe Aspects of Long-Term Operation
SR	Safety Related
SSC	Systems, Structures, and Components

2.5 Roles and Responsibilities

Design Engineering is responsible for development of the scoping methodology, review and acceptance of the final scoping list. The scope exercise will be performed by the contractor under the SALTO assessment project.

2.6 Process for Monitoring

The process described in this document was implemented for the SALTO assessment project 08016. The review of the deliverables (i.e. the list of in-scope SSCs) will be performed in a manner that confirms that the methodology detailed in this document has been followed.

2.7 Related/Supporting Documents

Not applicable.

3. Background

There is significant alignment between the Koeberg classification system and the process for assigning SSCs to the list of equipment that require ageing management evaluation. This section therefore presents an overview of the Koeberg classification system.

3.1 Koeberg's Classification System Overview

The Koeberg classification system forms the basis for SALTO scoping. The classification standard, documented in 240-8929359 (KSA-010) (*Nuclear Safety, Seismic, Environmental, Quality and Importance Classification*), establishes the safety classifications used at KNPS, and a detailed description of the classification categories is provided in this standard.

For the Koeberg SALTO scoping process, the following classifications are relevant:

- Design safety class;
- Importance category;
- Seismic class.

3.1.1 Design Safety Class

The design safety classification is in accordance with ANSI 18.2 (*American National Standard Nuclear Safety Criteria for the Design of Stationary Pressurised Water Reactor Plants*). The following safety classes are applicable at Koeberg:

- Mechanical classes 1, 2, 3, LS, and NSF;
- Electrical classes 1E and NSF;
- Civil Structures are assigned importance categories SR, AR, NSA.

3.1.2 Importance Category

In addition to the design safety classifications as described in subsection **Error! Reference source not found.** above, the Koeberg importance category is a classification that defines the nuclear safety importance of functions, systems, processes, components, structures, services, and software. The importance classifications stem from deterministic and probabilistic risk assessment (PSA) considerations. A listing 331-94 (KLA-001), (*Importance Category Classification Listing*), records importance categories.

Importance categories assigned to all plant SSCs (defined in 240-8929359 (KSA-010)) are:

- Critical Safety Related (CSR);
- Safety Related (SR);
- Design Extension Related (DER);
- Availability Related (AR);
- Not Safety or Availability Related (NSA).

3.1.3 Seismic Classes

Seismic classes are defined as follows:

- 1 Active (1A);
- 1 Passive (1P);
- Seismic 1 (1);
- Non-Destruct (ND);
- Non-Classified (NC).

3.1.4 Classification of the Civil SSCs

Civil structures and buildings are assigned importance categories SR, AR and NSA in accordance with 240-8929359 (KSA-010). Building with their associated importance categories are listed in listing 331-94 (KLA-001).

3.2 Koeberg Equipment Data Sources

Koeberg has a variety of data storing facilities that contain information pertaining to plant SSCs. The combination of these sources provides a comprehensive basis for the SALTO scope list.

Information sources for the SALTO scoping activities are listed in 240-128716554 (*Koeberg Safety Aspect of Long-Term Operation Input Sources*).

4. SALTO Scoping Requirements

This section describes the regulatory scoping requirements in accordance with section 6.6 of RG-0027, as well as the clarification and application of these requirements to establish the KNPS requirements for the Koeberg SALTO scoping methodology.

4.1 NNR Scoping Requirements

According to section 6.6 of RG-0027, the scope setting process should meet the requirements presented below in the extracted text boxes below. The text box below each block provides the Eskom understanding and application of the requirement.

> ***6.6 Scope Setting for SSCs***
>
> *1) A systematic scope setting ('scoping') process to identify SSCs subject to ageing management should be developed and implemented*
>
> *2) Be based on relevant international standards and practices; and include benchmarking of the in-scope SSC's.*
>
> *3) A list or database of all SSCs at the NPP should be made available before the scope setting process is commenced.*

For requirements 6.6 1) to 3) above, a systematic methodology for Koeberg scoping activities, described in this document is based on both RG-0027 and IAEA SSG-48.

4) The following SSCs should be included in the scope of ageing management:

a) SSCs important to nuclear safety that are necessary to fulfil the fundamental safety functions for that nuclear facility.

b) Other SSCs whose failure may prevent SSCs important to nuclear safety from fulfilling their intended functions.

c) Other SSCs that are credited in the safety analyses (deterministic and probabilistic) as performing the function of coping with certain types of events, including design base extension conditions and severe accident management.

Regulatory requirements 6.6 4) a) to 6.6 4) c) are expanded in SSG-48. Section 4.2 below expand on these requirement and provides Koeberg interpretation.

5) Structures and components that satisfy both (a) and (b) of the following conditions can be excluded from the scope of ageing management:

a) Structures and components subject to periodic replacement or a scheduled refurbishment plan on the basis of predefined rules (based on a manufacturers recommendation or other basis and not on an assessment of the condition of the structure or component, which would comprise implementation of ageing management for the structure or component) within the period of LTO;

b) Structures and components accepted by the NNR not to be included in the scope. Any adjustment to revise the frequency agreed upon should be submitted to NNR for approval.

A comprehensive list of SSCs requiring periodic replacement or scheduled refurbishment is not well defined or identifiable from Koeberg's maintenance plan or engineering programmes. As such, SSCs subject to a periodic replacement or a scheduled refurbishment plan based purely on a manufacturer's recommendation are included into the scope of SALTO assessment. The scope of SALTO also includes qualified equipment and those SSCs that are replaced periodically based on condition assessments.

6) If an SSC within the scope is directly connected to an SSC out of the scope, clear definitions of the boundaries between them should be established.

Boundary between SSCs within the scope and those out of the scope is defined by the classifications assigned to SSCs. Classifications are defined in the classifications standard 240-89294359 (KSA-010).

7) In addition, nuclear facility walkdowns should be used to check the completeness of the list of SSCs whose failure may prevent SSCs important to nuclear safety from performing their intended functions.

Plant walk-downs for confirming and verifying the completeness of the scope will be performed and documented in a separate report The decision and approach to plant walk downs are recorded in 08016.ROD.012, 'SALTO Non-Safety affecting Safety equipment scope verification'.

9) All information and conclusions with regard to the scope of ageing management review should be documented, including:

a) A description and justification of the methods used to determine the structures or components that are subject to an ageing management review;

b) An identification and listing of structures or components subject to an ageing management review and their intended function(s);

c) The information sources used to accomplish the above, and any description necessary to clarify their use.

The description and justification of the methods used to determine the SSCs that are subject to an ageing management review and a description of the information sources are captured in this document. The types of information sources used are described in section 5.1. Detailed information on input sources is provided in 240-128716554, 'Koeberg Safety Aspects of Long-Term Operation Input Sources'. A scoping results output list will be available for NNR review.

10) After the scope setting process, a clear distinction between SSCs within the scope and those out of the scope should be evident.

Distinction between SSCs within the scope and those out of the scope is primarily set by the use of classifications. Both the SALTO scope for ageing management and the excluded lists will have a clear distinction and will be available for NNR review.

4.2 IAEA Scoping Requirements and Koeberg Application

The IAEA requirements for SSCs to be included in the SALTO scope are provided below:

Requirement No. 1

1)

a) SSCs important to safety that are necessary to fulfil the fundamental safety functions {1}:

Control of reactivity;

b) Removal of heat from the reactor and from the used fuel storage facility;

c) *Confinement of radioactive material, shielding against radiation, control of planned radioactive releases, and limitation of accidental radioactive releases.*

This requirement is interpreted as design basis equipment defined in accordance with the definitions of ANSI 18.2.

For Koeberg, SSCs required to fulfil the fundamental safety functions as described above, are design basis SSCs and are assigned design safety classes: 1, 2, 3, LS (for mechanical SSCs) and 1E (for electrical SSCs).

Requirement No. 2

> *2) Other SSCs whose failure may prevent SSCs important to safety from fulfilling their intended functions. Examples of such potential failures are:*
>
> *a) Missile impact from rotating machines;*
>
> *b) Failure of lifting equipment;*
>
> *c) Flooding;*
>
> *d) High-energy line break;*
>
> e) *Leakage of liquids (e.g. from piping or other pressure boundary components).*

It is interpreted that this requirement is addressed by the identification of non-safety equipment that can affect the design safety function defined in Requirement No. 1.

For Koeberg, part of this equipment is classified for seismic impact as seismic class 1A, 1P, and ND, and safety class LS. Finally, non-safety class items of equipment that meet this requirement are identified in specific commissioned studies and assessments such as the fire, flooding, explosion, and seismic studies. These studies and assessment were based on extensive walkdowns undertaken to identify potential hazards to items important to safety. Section 5.2 gives more detail.

Requirement No. 3

> *3) Other SSCs that are credited in the safety analyses (deterministic and probabilistic) as performing the function of coping with certain types of events consistent with national regulatory requirements, such as:*
>
> *a) SSCs needed to cope with internal events (e.g. internal fire and internal flooding);*
>
> *b) SSCs needed to cope with external hazards (e.g. extreme weather conditions, earthquakes, tsunamis, external flooding, tornados, and external fire);*
>
> *c) SSCs needed to cope with specific regulated events (e.g. pressurised thermal shock, anticipated transient without scram and station black-out);*
>
> *d) SSCs needed to cope with design extension conditions [1] or to mitigate the consequences of severe accidents.*

This requirement is understood to be equipment needed to address risk-significant plant impacts, complimentary accidents, beyond-design-basis accidents, and other probabilistic risks.

For Koeberg, this equipment is identified by:

- Importance categories SR and CSR based on deterministic considerations;
- Importance category SR based on probabilistic considerations;
- Importance category DER;
- AR SSCs used in beyond design basis accidents documentation.

4.3 Summary of Koeberg Scoping Requirements

The application of the requirements above ensures that all items important-to-safety are scoped in for the SALTO ageing management evaluation. This satisfies the requirements of RG-0027:

- All design basis items important-to-safety of equipment are included in the SALTO scope. All items of equipment that are directly involved in nuclear safety activities are included.
- All items of safety related equipment that support design basis SSCs are included in the scope.
- All items of equipment that can affect safety classified design basis equipment are included in the scope.
- All items of equipment that are deemed risk significant with importance classification CSR and SR are included in the scope.
- All DER items of equipment are included in the scope.

The table below summarises the Koeberg SALTO scoping requirements as discussed in section 4.1.

IAEA Requirements	Safety Class	Importance Category	Seismic Class	Other
Requirement No. 1 Design Basis Equipment (ANSI 18.2)	1, 2, 3, LS, 1E	CSR SR		
Requirement No. 2 Non-Safety Equipment Affecting Safety Function		CSR SR,AR	ND	[1]Studies
Requirement No. 3 Complementary Accidents, Beyond-Design-Basis Accidents, and Risk-Significant Concerns		CSR SR DER		

[1] Reports for previously performed fire studies, seismic and flooding hazard assessment, and explosion risk assessment were used in identifying non-safety equipment that could impact on safety.

5. SALTO Scoping Methodology

This section describes the steps for developing the scope for the SALTO ageing management evaluation. A flow chart for the Koeberg SALTO scoping methodology is provided in Appendix A and is used in conjunction with this section. The flowchart describes the inputs used, the process method, decision points, and the output deliverables.

5.1 Input Information sources

Scoping activities utilise a number of information sources as documented in 240-128716554, ‘Koeberg Safety Aspects of Long-Term Operation Input Sources’.The input information sources collated for the scoping process fall under the following categories:

- SSCs Lists (for example SAP, Koeberg Safety Analysis Report, 331-94 (KLA-001) (*Importance Category Listing*));
- Koeberg Safety Analysis Report (SAR Table T-II-1.2-1)
- IQReview Database
- Classifications and Specifications (for example classification catalogue);
- Design Documentation (for example DSEs);
- Plant Drawings and Engineering Documentation (Process and flow diagrams);
- Cable Information (electrical cable database);
- Programmes Documentation (for example environmental qualification programme);
- Procedures (for example operating procedures, incidence procedures);
- Operating Experience and Maintenance history;
- Reports for previously performed studies such as the fire studies, seismic and flooding hazard assessment, and explosion risk assessment studies

5.2 Method

The description of the scoping methodology is broken down and detailed in this section. The processes listed refers to process diagram in appendix A (for example Process 1 represents P1 in Appendix A).

Multiple scoping input information sources were made available before commencing with the scoping of SSCs for ageing management as stated in §5.1.

Process 1 (P1): for all systems classified as CSR or SR, according to 331-94 (KLA-001), extract structures, components and equipment trigrammes from input information listed in §5.2 (such as IQ Review, P&ID and SAR).

Process 2 (P2): to identify other SSCs where their failure may prevent items important to safety from fulfilling their intended functions, perform the following functions:

- Extract all SSCs with seismic classes 1A, 1P or ND or safety class LS for ALL systems (including systems with importance category AR).
- The previously undertaken seismic hazards studies provided assessments of the seismic event fall-down hazard posed by non-seismic designed SSCs during a safe shut-down earthquake (SSE). Using the reports EERT-11-015, ‘Seismic Hazard Report’ [22] and JN377/AMEC/NCI/TR/6393, ‘Seismic Event Fall-down Hazard Report’ [14]**Error! Reference source not found.** identify and extract components and structures where their potential fall or disintegration could affect items important to safety, for inclusion into the SALTO scope.
- Use the previously undertaken JN195/NCI/ESKOM/J2/365, ‘Koeberg Internal Flooding Analysis’ [12] to identify and extract potential sources of flooding for inclusion into the SALTO scope.

- Use the Explosion hazard analysis report [21]to identify and extract SSCs posing a risk of explosion to safety related components for inclusion into the SALTO scope.

Process 3 (P3): identify and extract SSCs needed to cope with design extension conditions or mitigate the consequences of severe accidents from the EOPs, SAMGs, a lists of fire risk management emergency equipment, and portable equipment for design extension condition and external event accident mitigation.

Process 4 (P4): additional SSCs are identified into the SALTO scope, including but not limited to: fire systems, mechanical and electrical penetrations and the earthing system.

Processes 6 and 7 (P6 &P7): A list of all SSC considered for SALTO and extracted from various input sources, excluding electrical cables is assigned full classification at this stage using classification sources, namely the classification catalogue, original classification engineering records, 331-94 (formerly known as KLA-001), DSEs, P&IDs and the SAR.

Decision 1 (D1): Determine if the SSCs identified above meets the criteria to be included in scope.

SALTO Scope criteria: SCCs meeting the following criteria are added to the SALTO scope:

- Mechanical, electrical, C&I and civil SSCs with importance category SR or CSR are included in the SALTO scope.
- Mechanical, electrical, C&I SSCs with Safety class SC1, SC2, SC3, IE or LS.
- Mechanical, electrical SSCs Seismic class 1A, 1P, or ND.
- SSCs identified for use in DEC or beyond design basis accidents, as identified in P3.
- Components and equipment posing a hazard to items important to safety, as identified in P2.

Process 8 (P8): Equipment or components that do not meet the SALTO scope criteria are put in the SALTO exclusion list (NOTE: this list is to be reviewed).

Process 9 (P9): Equipment or components that meet the SALTO scope criteria are put in the SALTO scope list.

Decision 2 (D2): Identify electrical and I&C components from the SALTO Scope List.

Process 5 (P5): identify and extract ALL electrical cables associated with electrical and C&I components already added into the SALTO scope. Add these electrical cables to the SALTO scope list.

Process 10 (P10): review the excluded scope, SCCs meeting the criteria for SALTO scope are to be added to the SALTO scope.

Decision 3 (D3): Identify SCCs meeting the criteria for SALTO Scope and add these to the SALTO scope list. Components that do not meet the SALTO scope criteria remain in the SALTO exclusion list.

6. Out-of-Scope SSCs used in other Regulatory Programmes

Some non-plant SSCs that are out-of-scope will not be subject to an ageing management evaluation. A review of the Koeberg Licensing Basis Manual (KLBM) and NIL- VAR 19 has identified regulatory programmes that use non-plant SSCs that do not meet the SALTO scoping criteria inclusion criteria of RG-0027 nor that of SSG-48. These programmes include: Radiation Protection; Emergency Planning; Nuclear Security; Environmental and Chemistry Monitoring; and Training (more specifically, the Full-scope Operating Simulator). The individual programmes are managed in accordance with the documents presented in the table below.

Licensing Programme	Requirements
Radiation Protection	238-54: Radiation Protection Licensing Requirements for Koeberg Nuclear Power Station 238-36: Operational Radiation Protection Requirements 238-19: Generation Division Radiation Protection Manual 238-42: Radiation Dosimetry Requirements 238-44: Requirements for Radiological Surveillance Instrumentation
Emergency Planning	RD-0014: Section 9 (Requirements for Infrastructure) 238-53: Emergency Preparedness and Response Requirements for Nuclear Installations 238-52: Emergency Planning: Meteorological Requirements for Nuclear Installations
Nuclear Security	RG-0006: Guidance on Physical Protection Systems for Nuclear Facilities (see section 5.20) 238-14: Security Requirements Manual KSA-100: Physical Security at Koeberg Nuclear Power

	Station
Environmental and Chemistry Monitoring	238-47: Radiological Environmental Surveillance Requirements 238-52: Meteorological Requirements for Nuclear Installations
Training (Full-scope Operating Simulator)	LD-1093: Requirements for the Full Scope Operator Training Simulator at Koeberg Nuclear Power Station - See Section 5 (Performance Criteria) and Section 7 (Simulator Testing) KAA-503: Modifications to Simulator KGT-025: Simulator Maintenance, Access , Operation and Initial Conditions and the Training and Authorisation of Simulator Operators

Benchmarking conducted during an IAEA mission has confirmed that these components are not generally considered for ageing management scope in accordance with SSG-48. The SSCs are not required for any design basis plant operations or safe shutdown functions.

The general requirements for these regulatory programmes are already established in their governing procedures and these include requirements for ageing management and long-term reliability (such as maintenance and functional testing). Due to the varied nature of these programmes and the SSCs that ensure their functional requirements, governance on long-term operation is best managed under these licensing programmes.

The governing documents for the programmes and their SSCs are therefore considered adequate for ensuring reliability during the LTO period. Furthermore, Koeberg is performing a PSR in support of LTO. Additional requirements that could inform the long-term reliability of these SSCs will be evaluated under the respective safety factor assessments.

For these SSCs that form part of the functioning of these regulatory programmes replacement parts and components are generally readily available. Where long lead times are required for SSC replacement, the replacement of components or parts that have long lead times will be managed under 331-146(*Obsolescence Management Programme*).

7. Summary

This document provides a systematic scoping methodology to identify SSCs that are subject to SALTO ageing management evaluation. The document outlines the method to be followed during the scoping activities and is aligned to NNR RG-0027. Furthermore, it demonstrates how the national and international requirements are catered for by the Koeberg scoping methodology, utilising the Koeberg classification system and other identified input sources. The document describes the steps to achieve a listing of items important-to-safety that can be used for ageing management evaluation. Lastly, it lists the output deliverables that are expected from the scoping process.

The outputs of the scoping deliverable will be submitted to the NNR for review and approval.

8. Acceptance

This document has been seen and accepted by:

Name	Designation
Anton Kotze	Chief Engineer
Darren Bissell	Engineer
Kabelo Moroka	Senior Engineer

9. Revisions

Date	Rev.	Compiler	Remarks
October 2020	2	R Maapola	Updated the procedure to address NNR review comments issued under letter reference k25649N
June 2019	1	R Maapola	Review and updating of the procedure after issue of SSG 048 and RG 0027.
July 2017	0	R Maapola	Issuance of the original scoping procedure for the SALTO project.

10. Development Team

The following people were involved in the development of this document:

- Raymond Maapola: Design Engineer
- Isaac Malgas: LTO Programme Integration

Appendix A – Scoping Methodology Diagram