

	USER REQUIREMENT SPECIFICATION	Nuclear Engineering
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Civil/Structural Engineering
Services**

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1. Introduction

The Employer (Eskom Holdings SOC Ltd) has initiated Spent Fuel Storage Project to embark on the process of procuring and licensing dual purpose metal spent fuel casks for Koeberg Nuclear Power Station (KNPS). For the successful installation of the Cask Storage Building (CSB) Phase 2 pad (slab), the employer requires services of a Contractor to provide Civil and Structural Engineering services as the owner's engineer.

2. Scope

- 2.1 As the owners engineer the Contractor to provide civil and structural engineering services during the implementation of the CSB Storage Pad Phase 2 in accordance with design 07147 DPDRR007, Revision 2: Detailed Design Package - Cask Storage Building (CSB) Storage Pad Upgrade
- 2.2 The engineering services performed on behalf of the Employer shall include, but are not limited to:
 - 2.2.1 Compilation or review of memos, specifications, designs, drawings, safety cases, studies and reports;
 - 2.2.2 Perform acceptance reviews of civil engineering related documents submitted by the supplier;
 - 2.2.3 Provide assistance to the Eskom team in addressing the Supplier or NNR related concerns and comments;
 - 2.2.4 Conduct reviews and acceptance of testing procedures, methodologies and plans submitted by the supplier;
 - 2.2.5 Conduct reviews and acceptance of construction method statements, quality control plans, commissioning plans and provide oversight to all assessment points throughout the plans.
 - 2.2.6 Perform oversight of testing preparations, including of specimen manufacture, storage, and transport. This may include specifying and participating in hold and witness points;
 - 2.2.7 Attend factory acceptance tests, site acceptance tests as required;
 - 2.2.8 Interface with, and perform oversight of, the supplier during the project implementation and commissioning activities;
 - 2.2.9 Review and acceptance of contractors' testing reports and conclusions;
 - 2.2.10 Process design field changes and design revisions;
 - 2.2.11 Execute design-related document configuration including but not limited to the review of drawing changes, classification changes, specification changes; and
 - 2.2.12 Investigate design and configuration-related problem reports raised on Eskom's problem management system, write assessment reports, and propose corrective actions.
- 2.3 When required to carry out engineering services as requested by the Employer, the Contractor is responsible to make the necessary calculations, assessments, analysis and informed assumptions for cases where required information from KNPS may not be available. The Contractor is responsible for the correctness and suitability of these assumptions, assessments, calculations and analyses required to carry out the services.

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3. Applicability

This User Requirement Specification (URS) is applicable for all parties interested in tendering and who meet the requirements of this specification.

4. Effective date

This document is effective from the date of authorisation.

5. References

When using this document the most recent edition of the listed references shall apply.

- [1] 238-6: Nuclear Document and Records Management Requirement.
- [2] 240-86502715 (KAA-803): Processing Minor Modifications
- [3] 240-89294359: Nuclear Safety, Seismic, Environmental, Quality, Importance and Management System Level Classification standard
- [4] 240-99837788: KOU Configuration Management Manual
- [5] 240-119744497 (KAA-697): Control of the Safety Analysis Report
- [6] 240-143604773 (KAA-709): Safety Screening, Evaluation and Justification
- [7] 331-85 (KAA 560): Design Basis Documentation Change
- [8] 331-86 (KAA 815): Design Changes to Plant
- [9] 331-87 (KGU 017): Design Engineering Guide
- [10] 331-93 (KGA-003): Guide to Classifications
- [11] 331-94 (KLA-001): Importance Category Classification Listing
- [12] 331-155 (KGU-018): Guide for the preparation of an equivalency study
- [13] 331-143: The Equivalency Process to Change the Plant
- [14] 331-433 (KFU-026): Detailed Design Review Report
- [15] 335-68: Fitness for Duty Process for Contractors who are required to Perform Work Inside the Owner Controlled Area of Koeberg Nuclear Power Station
- [16] KAA-501: Project Management Process for KNPS Modifications
- [17] KAA-656: OPS Periodic Tests
- [18] KAA-689: Control of Operating Technical Specifications
- [19] KAA-840: Non-Conformances
- [20] KFA-MS-007: Procedure Change Request
- [21] KSA-119: Management and Control of Supplemental Workers Koeberg Nuclear Power Station
- [22] KSA-119: Fitness for Duty requirements
- [23] OHS Act: Occupational Health and Safety Act 85 of 1993

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6. Definitions

- 6.1 **Acceptance:** The Employer's use of this word on the supplier's documentation (including drawings, procedures, schedules, and so on) means that the Employer has observed no deviation from the stated requirements. The Employer's acceptance does not relieve the supplier of its obligation to adhere to all stated requirements and all applicable laws and regulations as well as for completeness, accuracy, or quality of workmanship.
- 6.2 **Contractor/Vendor:** Service provider or consultant that has been deemed successful (via a tender process) to provide this requested service on behalf of Eskom.
- 6.3 **Document:** Information and its support medium for example policy, specification, procedure, drawing, report, standard, instruction etc. Examples of Design Engineering documents are engineering letters, engineering memo's, engineering reports, feasibility studies, technical requirement specifications, concept designs, designs, safety screenings, safety evaluations, safety justifications.
- 6.4 **Employer:** Eskom Holdings SOC Ltd
- 6.5 **Owner's engineer:** The engineering service provided by the successful Contractor to this URS. The owner's engineer's role is to protect Eskom's interests by ensuring that the Eskom's appointed suppliers are adhering to Eskom's requirements and standards.
- 6.6 **Requirement:** A condition or capability needed by a user to solve a problem or achieve an objective.
- 6.7 **Shall, should, may:** "Shall" is used to denote a requirement, "should" a recommendation and "may" to denote permission
- 6.8 **Supplier:** Service provider or consultant who is involved in the implementation of tasks as requested by the Employer.

7. Abbreviations

Abbreviation	Explanation
COVID	Corona Virus Disease
CSB	Cask Storage Building
CV	Curriculum Vitae
ECSA	Engineering Council of South Africa
KNPS	Koeberg Nuclear Power Station
NOU	Nuclear Operating Unit
NNR	National Nuclear Regulator
PID	Public Information Document
PPE	Personal Protective Equipment
QCP	Quality Control Plan
TISF	Transient Interim Storage Facility
TRS	Technical Requirements Specifications
URS	User Requirements Specifications

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8. Roles and Responsibilities

8.1 The Contractors Civil Engineer shall conform to the following:

- 8.1.1 Conduct all activities in accordance with the relevant NOU processes
- 8.1.2 Adhere to all the requirements of this URS
- 8.1.3 Adhere to the timelines agreed with the Employer
- 8.1.4 Provide weekly work progress reports and projections
- 8.1.5 Prepare project plans to indicate interfaces with internal NOU stakeholders and external suppliers.
- 8.1.6 Willing to teach and share industry best practise principles with the Employer's engineers.

8.2 The Employer shall provide the Contractor:

- 8.2.1 Access to the Koeberg Nuclear Power Station site
- 8.2.2 Onsite workspace with LAN access (when required)
- 8.2.3 Access to documentation referenced in this URS, all relevant plant information, including but not limited to maintenance, design, and other document templates. This excludes publicly available information
- 8.2.4 Access to digital information sources such as Excalibur, SAP and Hyperwave

8.3 Real and Potential Conflicts of Interest are the following:

- 8.3.1 The Employer will use the services procured using this URS primarily for the Spent Fuel Storage Project.
- 8.3.2 Potential Contractors must note that they cannot participate in the Spent Fuel Storage Project both as a supplier (or sub-supplier) and provide the civil engineering services described in this URS.
- 8.3.3 Eskom reserves the right not to place this contract with suppliers where a conflict of interest may occur during the performance of these duties (notwithstanding the price nor veracity of the offer). This is to ensure that no possibility exists of a conflict of interest prejudicing possible competitors.
- 8.3.4 Eskom may make use of the Contractor's civil engineering services on other projects with the prior agreement of the Contractor, and after ensuring no potential or real conflicts of interests exist for such work.

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9. Pricing Structure

9.1 The provision of civil engineering for the intended services for the hours stated below:

Item	Name of Resource	Rate	Hours	Price (ZAR)
1.	Registered professional Nuclear civil engineer		500	
2.	Senior civil structural engineer		1200	

10. Time and Planning

10.1 Start Date: 02 August 2021

10.2 Completion Date: 31 July 2022

11. Qualification and Competency of Civil Engineering Resources

11.1 The Contractor shall make available the relevant experience and quality management system to deliver services with regard to all categories of classifications stipulated in [3] and [10] that relates to the civil and structural scope of a nuclear power plant.

11.2 The Contractor shall provide CVs and certificates showing proof of qualifications and competencies of the proposed civil engineering resources as specified below:

11.2.1 Civil / Structural Engineering degree;

11.2.2 10-15 years post-qualification experience; and

11.2.3 Registration as a professional engineer with ECSA.

11.3 The CVs shall include experience and background to perform nuclear related projects that include:

11.3.1 Engineering designs and reports;

11.3.2 Engineering reviews;

11.3.3 Concrete and structural engineering;

11.3.4 Dealing with nuclear regulatory matters; and

11.3.5 Understanding of engineering, including nuclear, codes and standards.

11.4 The CVs shall further include an indication of the following:

11.4.1 Excellent written communication skills;

11.4.2 Excellent verbal communication skills;

11.4.3 Good problem solving skills; and

11.4.4 Good time management.

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12. Safety and Quality Management

- 12.1 The Contractor's personnel shall at all times adhere to the KNPS site safety requirements and all legislation including the OHS Act [22] and related Regulations.
- 12.2 It is the Contractor's duty to supply their employees with PPE, overalls, hard hat, safety goggles, safety shoes, safety gloves, COVID masks, and any other site and/or activity specific PPE that might be required.
- 12.3 The Corona Virus Disease (COVID) testing and plant access requirements are the following:
 - 12.3.1 The Contractor will need to submit to the Employer proof that his personnel have had a COVID test in the last ten days prior to their initial proposed plant entry and that the test results were negative.
 - 12.3.2 The Contractor's personnel shall monitor themselves daily for the COVID symptoms and follow the Employer's COVID screening protocols.
 - 12.3.3 If the Contractor's personnel are sick, they must inform their supervisor/manager, consult their health facilities and NOT come to the workplace without submitting the Employer proof of a negative COVID test result.
 - 12.3.4 The Contractor and his personnel shall also adhere to all the Employer's COVID prevention control measures, including but not limited to the mandatory wearing of masks, ensuring good ventilation in the workplace, wearing PPE as required, following appropriate hand washing and cough hygiene, etc., that are applicable at the workplace at ALL TIMES.

13. Documentation

- 13.1 All documentation processes, standards, keeping of record and distribution of information shall be managed by Design Engineering as the responsible department.
- 13.2 All source documentation used shall be tracked and referenced using Employer approved document templates and/or tools.
- 13.3 All records produced shall be processed using the relevant Records Management Process
- 13.4 All work produced by the Contractor in the performance of the duties under this URS shall be owned by Eskom and form part of Eskom's intellectual property.

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14. Training

14.1 In order to be authorised to provide the civil engineering services at KNPS, all contractors shall comply with the fitness for duty requirements (335-68) and shall complete the following, if required, at KNPS prior to the commencement of work:

14.1.1 Drug Test (1 hour);

14.1.2 Clearance Test (2 hours);

14.1.3 Safety Induction Course (1 hour);

14.1.4 Plant Access Training (1/2 day);

14.1.5 Human Performance Tools Training (1 day);

14.1.6 Working at Heights Training (1 day);

14.1.7 Technical FME and Confined Space Training (1 day); and

14.1.8 Radiation Protection Training (3 days).

14.2 The contractor/vendor will not be paid nor-reimbursed for time used to participate in such training.

15. Acceptance

This document has been seen and accepted by:

Name	Designation
H Sataar	Spent Fuel Storage Project Manager
R Lavelot	Nuclear Project Manager
P Raliwedzha	Civil Engineer
B Francis	Civil Engineer

16. Revisions

Date	Rev.	Compiler	Remarks
2021-06-25	1	A Lawrence	Original Compilation Rev 1

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