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APPROVAL & DISTRIBUTION





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1 INTRODUCTION

This document specifies the requirements to be adhered to for the modification of the existing house to be used as the Radio-nuclide monitoring station RN62 at *Slangkop* lighthouse in Cape Town.

2 OBJECTIVES

This document will describe the main activities and deliverables that have to be procured for all construction modifications.

3 REFERENCES

Table 1: Reference Documents

Documents Title	Document number	Revision
[1] Fire and explosion evaluation of the proposed radionuclide monitoring station at Kommetjie in the Cape.	ES-FP2013-REP-0034	0

Table 2: Applicable Documents

Document title	Document number	Revision
RN62 monitoring station Slangkop Lighthouse Cape Town.	600-A021-00	0.1
EES-QMS-SPE-0008 Specification for standby diesel generator set	EES-QMS-SPE-0008	1
EES-QMS-SPE-0001 Specification for the supply and erection of electrical installations	EES-QMS-SPE-0001	4

4 ABBREVIATIONS

4.1 The following abbreviations are used in this document:

ECSA	Engineering Council of South Africa
ES	Engineering Services
Necsa	The South African Nuclear Energy Corporation
SANS	South African National Standard
SHEQ	Safety Health Environment and Quality
SOW	Scope of Work
US	Utility Services
Commission	Preparatory commission for the Comprehensive Nuclear-Test-Ban Treaty Organization

5 BACKGROUND

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban-Treaty Organization intends to establish the IMS station RN62 in Cape Town, South Africa. This has been designated as a facility of the radionuclide network of the comprehensive Nuclear-Test-Ban Treaty and it will be constructed as part of the Commission's 2013 IMS works program. The station will be established at the Slangkop Lighthouse on the Cape peninsula in South Africa. This site was approved by the PTS on 05 July 2012 and by the PreCom at its 39th session in October 2012, following the site survey carried out by NECSA in collaboration with Commission. The Commission will provide some of the equipment to be installed at the station. Equipment such as VSAT antenna will be installed by a specialist contractor appointed by the Commission. The Commission has appointed NECSA as the project Manager on this project. NECSA will be responsible for the establishment of the required infrastructure at the station and supervise the installation of equipment to be supplied by the Commission.

6 THE SCOPE FOR RN62 MONITORING STATION CONSTRUCTION IS AS FOLLOWS:

- a) Renovate the current building.
- b) Supply and install electricity to the renovated house.
- c) Supply and install auxiliary power generator with the following specifications; Be operated automatically, starts within 5 minutes of power being switched off, should run for at least 30 minutes.
- d) Install, test and commission the Uninterruptable Power Supply (UPS) supplied by the commission.
- e) Install HVAC system to maintain temperature and humidity in various rooms of the house.
- f) Construct the air sampler structure (concrete and roof).
- g) Construct a VSAT antenna slab.
- h) Supply and install fencing around the facility.
- i) Modify the existing lighthouse facility for use as a radio-nuclide particulate detection station.
- j) Produce as-built drawings for all new facilities at the station.
- k) Produce detailed civil drawings and layout details for the entire facility.

Detailed work breakdown

- a) Renovate and modify the existing building
 - Restore electricity supply to the chosen house, the electricity connection should supply a minimum of 25kW.
 - Install three phase 380V to 400V electricity to the renovated house.
 - Supply and install three phase power supply to air sampler shelter.
- b) Supply and install electricity cable to the renovated house;
 - Supply, install, test and commission, cables for all equipment.
 - Supply, install, test and commission earthing in accordance with SANS regulations, having conducted the soil conductivity tests of the area.

- Supply, install, test and commission electricity meter to measure electric consumption of the station.
- c) Supply and install auxiliary power supply systems with the following characteristics;
- It will operate automatically when power from the national grid is switched off and be fitted with Uninterruptable Power Supply (UPS).
 - It should be switched on within 5 minutes of power loss.
 - It should be able to run for at least 30 minutes when power switched on.
 - Should transmit information about the power status to the main computer systems.
- d) Install, test and commission the Uninterruptable Power Supply (UPS) supplied by the Commission.
- The following equipment to be connected to the UPS; air sampler data logger.
 - The UPS should grant at least 20 minutes power supply for all components without sampler and air condition.
 - The UPS shall be able to switch the auxiliary power source on and off automatically.
 - The UPS should switch any or all parts of the station in a specified time sequence.
 - The UPS shall report the power status to the remote computer system.
 - The UPS must be able to switch the main power switch of the facility.
 - It should monitor and react to power availability.
 - It should switch its power supply on/off.
 - It should be a True online UPS.
- e) Install HVAC system to maintain temperature and humidity in various rooms of the house.
- Supply, install, test and commission air-condition system that operates within the following parameters; 18° to 25° with a maximum temperate variation of 3° in 24 hours, and relative humidity of less than 80%.
- f) Construct the air sampler structure with the following properties;
- The closest obstruction to the air sampler must be 5 to 10 times the sampler height away from it.
 - The shelter house should have a concrete floor built 300mm above natural ground level, at its lowest point.
 - The shelter should have a roof.
 - The shelter shall have the following dimensions; 3m x3m and 2.8m high.
 - The air sampler can be installed as shown on the drawing 600-A021-00 Rev 0.1.
- g) Requirements at the station; i.e. the existing house;
- Construct a platform for auxiliary power source (i.e. the generator)
 - Supply and install all required inert gas system inlets and outlets.
 - Supply and install cable ducts for sensors outside the building, such cable ducts shall be sealed and protected from salt, humidity, rodent and any other environmental influences.
 - Install alarm in the station building and surveillance cameras.
 - Ensure the house is sealed against insects, rodents.
 - Supply and install adequate lighting for working areas.
 - Supply and install sockets for electrical cables and network connections, all these connections shall be wall mounted.

- Construct a rain shelter of the following dimensions for the installation of a manual air sampler, as an emergency measure; length 2m x 3m and 2.8m high.
- h) Construct a VSAT antenna concrete base.
- Construct a concrete base of the following dimensions; 3.5m x 4m x 0.6m. The concrete base shall be made of 30MPA concrete.
 - Supply and install M20 chemical anchor bolts to secure the antenna.
 - Construct a 2m x 2m x 0.6m concrete plinth.
 - Reinforce the plinth with Y12@200 c/c reinforcement.
 - Construct underground cable sleeve of the following dimensions; 300mm with a minimum bend radius of 150mm.
- i) Supply fencing (possibly palisade fencing) around the facility.
- Purchase fencing High Security or similar to be installed in accordance with “boundary walls and fence policies of the city of Cape Town”.
 - Supply and install relevant gates at access control points.

7 SPECIFICATIONS

7.1 Technical requirements

- 7.1.1 Personnel shall be suitably qualified and experienced to perform tasks typically like project management, and draughting. All labour personnel shall be suitably qualified and experienced to carry out the works. They should provide CVs and qualifications (up to date). Proof of any relevant training shall also be submitted. The organizational structure shall be provided to Necsa representatives for approval.
- 7.1.2 Service Provider shall accompany their bid by letter of appointments from relevant companies on similar work performed.

7.2 Contractor responsibility and Additional Requirements as listed in Table 3. Items marked in the “Date” column of Table 3 as “Provide together with submission of bid”, are mandatory and automatic disqualification shall be effected for the Service Provider if not applied with.

Table 3: Contractor Responsibilities and Additional Requirements

Requirements	Responsibility	Date
[1] Project Schedule	A detailed schedule showing all major milestones. To be submitted by Service Provider.	Provide together with submission bid.
[2] Payment Schedule	To be submitted by Service Provider	Provide together with submission bid.
[3] VAT Registration	To be submitted by Service Provider	Provide together with submission bid.
[4] Tax Clearance	To be submitted by Service Provider	Provide together with submission bid.
[5] BBBEE Certificate	To be submitted by Service Provider	Provide together with submission bid.

Requirements	Responsibility	Date
[6] Company profile	To be submitted by Service Provider	Provide together with submission bid.
[7] CIBD	To be level 3CE	Provide together with submission bid.
[8] Audited Financial Statement	To be submitted by Service Provider	Together with submission of bid
[9] Letter of good standing	The letter of good standing shall be valid for a minimum period of six months	Provide together with submission bid.
[10] Health and Safety File	To be submitted by service provider to show OHS Act compliance	Prior to commencement of work
[11] Work Permit	The work permit shall be issued to the Service Provider before work commences.	Prior to commencement of work
[12] Declaration of secrecy	Necsa to supply template for Service Provider to complete. The form shall be completed by each and every employee to work on site.	Prior to commencement of work
[13] Quality Assurance	The Service provider shall submit an approved quality procedure. A professional engineer should ensure quality results of every milestone	Prior to commencement of work
[14] Professional Indemnity Insurance	To be submitted by contactor	Prior to commencement of work

8 NECSA RESPONSIBILITIES AND ADDITIONAL REQUIREMENTS

In certain designated areas, electrical supply shall be provided for by Necsa. The contractor shall be responsible for its own supply of electricity in remote areas; Necsa shall therefore not be liable for the supply of electricity in those areas. Necsa will also be responsible for the supply of a set of drawings with the baseline information, see Table 2. Necsa ENS will endeavor to provide available information as require by the Contractor. A contact person shall be appointed to co-ordinate the site work to represent Necsa. Necsa shall perform the training to personnel for radiation and chemical work, non-compliance with this requirement shall result in automatic disqualification for the service Provider.

9 PROGRESS REPORTING

The service Provider shall provide monthly, last working day of every month, reports with regards to all the works performed. These reports shall include the allocation of resources, task performed, project risk identification/analysis and completed tasks. In addition weekly meetings shall occur and be chaired by authorized Necsa representatives where necessary. The service provider shall supply an updated program clearly indicating work done as a percentage of the total works.

10 BILL OF MATERIAL

The bill of materials for the civil, renovations and electrical are attached to this document.