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South African Nuclear Energy Corporation SOC Limited

Utilities Services (US)

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TITLE	**PROCUREMENT SPECIFICATION FOR NECSA COAL**

	NAME	*SIGNED*	*DATE*
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REVISIONS

This document has been revised in accordance with the following schedule:

Rev. No.	Date approved	Nature of Revision	Prepared
00	See title page	First Issue	Booysen DJ
01	See title page	Content revision	Iti Modipane
02	See title page	Content revision	Murovhi A

1. PURPOSE

This document is the specification of the coal that is required at Necsa.

2. INTRODUCTION

Necsa needs coal to generate steam. As such, coal needs to be procured for

- V12 boiler plant situated at Pelindaba East; and
- B-H4 boiler plant situated at Pelindaba West Site.

These two facilities are situated on the Pelindaba site in the North West province; 25 kilometres west of Pretoria.

3. NECSA's REQUIREMENTS

3.1 Physical Specification/Properties

The most important requirements is to meet the physical and chemical specifications because:

- If there is too much of fine particles in the coal it will lead to:
  - Too high temperatures in the boiler which may cause damage;
  - Coal dust in the boiler house and surrounding areas as well as at the stacks;
  - Blockage of air passages through the stoker chain belt, which will lead to poor air flow, poor combustion and inefficiency;
  - Stack outlet gasses may not comply with environmental requirements;
  - Incomplete combustion that can lead to explosions downstream; and
  - Increased ash to be disposed; (higher removal cost and environmental contamination)

- If there are too much of nuts in the coal it will lead to:
  - Insufficient time on the stoker chain conveyer; thus unburnt coal.
  - The water trough of the ash conveyor may start to boil because of hot discharged coal pieces; thus affecting the strength properties of the belt.
  - Too much heavy ash (higher disposal cost and environmental issues); and
  - Possible ash conveyor dysfunction and damage

3.2 Sampling and analytical certificates

- Samples must be taken by an accredited person, with agreed sampling techniques and equipment to ensure representativeness of the batch or loads delivered.
- Both physical and chemical properties need to be analysed.
- Analysis must be performed by accredited laboratories.
- The sample frequency will be revised by Necsa, depending on the performance of the coal supplied to Necsa.
- Necsa will do its own sampling as per Necsa requirements for such.

3.3 Deliveries and Weighing

- Supply weigh bridge certificates with the applicable load numbers that can be traced/linked to the analytical certificates will be required upon delivery to Necsa;
- Trucks will be weighed upon arrival and after delivery at Necsa;
- Delivery must take place from Monday to Friday between 9h00 to 15h00;
- Delivery must be effected by the supplier as required by Necsa.
- Delivery will take place in accordance with a schedule which Necsa shall determine in consultation with the supplier to ensure continuous delivery.

3.4 Waste/unburnt Coal

If there is a problem with the quality of the coal delivered, then the supplier will be held responsible for the cost to remove unburnt coal or excess waste from site. Necsa will also source the required quality of coal from and alternative supplier and deduct such amount from the contract value of the supplier who provided Necsa with coal that is not in accordance with the spec. The supplier will be liable for the cost of repairs of the damage in the boilers due to the coal that is not in accordance with the spec as well as the Ash removal thereof.

4. COAL SPECIFICATION

The boilers are designed to burn Grade B Peas Coal. Coal must be supplied to Necsa consistently in accordance with the following Grade B Peas coal as specified in 4.1 below and in such quantities and quality as Necsa requires.

4.1 Specification for coal required

Below is the specification as required.

Grade B Coal	**Peas: Pelindaba East & West**	**Necsa Specification**	
		Required Analysis	**Actual Analysis**
Inherent moisture	Max	3.00%	
Total moisture	Max	4.00%	
Ash content	Max	18.00%	
Volatile matter	Min	23.00%	
Fixed carbon	Min	58.00%	
Gross Calorific Value	Min	26.5 MJ/kg	
Phosphorus	Max	0.01%	
Sulphur	Max	0.20%	
Ash fusion temperature	Min	1400 °C	
SIZE GRADING			
<25mm	Max	3.50%	
25mm to + 12mm	Min	86.00%	
12mm to + 6mm	Min	6.00%	
6mm to + 3mm	Max	4.00%	
3mm	Max	0.50%	
Current Consumption	Average	250 ton /month	
	Minimum	210 ton /month	
	Maximum	600 ton /month	

NB: All prices shall be exclusive of VAT and inclusive of transport costs & toll fees as applicable.