

	Work Instruction	Generation/Peaking/ Sere Wind Farm
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**Title: Crane and Hoist Inspections at
Sere Wind Farm**

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1. Introduction

This document provides the Work Instruction for the statutory six monthly routine inspections on cranes and hoists as per the requirements of OCCUPATION HEALTH AND SAFETY ACT (OHS ACT 85 OF 1993) with particular reference to the DRIVEN MACHINERY REGULATION 18 – LIFTING MACHINES AND LIFTING TACKLE –SUB-REGULATION 6 at Sere Wind Farm.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

To specify the employer's requirements for the six-monthly routine inspections on cranes and hoists.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

2.1.3 Effective date

This Work Instruction shall be effective once signed by the authorising manager.

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] ISO 9001 Quality Management Systems

2.2.2 Informative

[1] Occupational Health and Safety Act No. 85 of 1993 and Regulations

2.3 Definitions

Contractor: A LME that undertakes a task to perform Crane and Hoist inspections according to this Scope of Work and OHS ACT.

Employer: Eskom Holdings SOC Ltd

LME: "lifting machinery entity" means a legal entity approved and registered by the chief inspector in terms of regulation 19 of the DMR

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LMI: "lifting machinery inspector" means a person who is employed by a Lifting Machinery Entity and who is registered by the Engineering Council of South Africa in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000).

Nacelle: Is a cover housing that houses all of the generating components in a wind turbine, including the generator, gearbox, drive train, and brake assembly.

Plant: Means WTG and includes the foundation bolts, service maintenance lifts, electrical balance of plant and SCADA system.

Site: Lot 1862 Olifants River Settlement, Koekenaap, Western Cape, South Africa

Wind Turbine Generator: Means a wind turbine generator including without limitation the nacelle, rotor(s), blades, controller(s), turbine switchgear and transformer(s), and all associated equipment (including the SCADA system), parts and components.

2.4 Abbreviations

Abbreviation	Explanation
DMR	Driven Machinery Regulations
LME	Lifting Machinery Entity
LMI	Lifting Machinery Inspector
OHS ACT	Occupational Health and Safety Act
O&M	Operating and Maintenance
PPE	Personal Protective Equipment
SHE	Safety Health & Environment
WTG	Wind Turbine Generator

2.5 Roles and Responsibilities

It is the responsibility of the O&M Manager at Sere Wind Farm to ensure that this document is implemented.

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3. Crane and Hoist Inspections at Sere Wind Farm

3.1 Location



Figure 1: Location of Sere Wind Farm

Sere Wind Farm is located near Koekenaap in the Western Cape, South Africa. The Wind Farm's precise location is in Lot 1862 Olifants River Settlement as shown in Figure 1 below. GPS Coordinates 31.5288513S 18.1925658E. The nearest major town from the Wind Farm is Vredendal, which is located 55km away. The distance between Sere Wind Farm and Cape Town International Airport is 356km via the N7.

3.2 Description of Sere Wind Farm

Sere Wind Farm consists of 46 Wind Turbines (SWT 2.3-108) having a total installed capacity of 105.8MW. Each wind turbine has a 2.3MW asynchronous generator located in the nacelle and a converter located at the bottom of the tower. The 0.69/33kV transformer for each Wind Turbine Generator (WTG) is located on a plinth next to the tower. The 3-bladed horizontal, upwind rotor has a diameter of 108m. Each blade has a length of 53m consisting of glass fibre reinforced epoxy resin. The active yaw system consists of an externally geared slew bearing driven by eight braked electric motors.

3.3 Scope of Work

3.3.1 DMR 18 Subsection 6 states "Notwithstanding sub regulation (5), the user shall cause all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine or hand-powered lifting device to be subjected to a thorough examination by a competent person at intervals not exceeding six months.

3.3.2 The contractor shall provide an examination report which will include the integral parts of the lifting machine that was inspected and a list of defective components and the corrective actions, general condition of lifting machinery, and test certificates for the tests done. For ease of identification, such report shall give all relevant information such as the manufacturer, serial number, safe working load and location description.

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2.3.3 The LMI who is employed by a LME shall perform the 6 monthly inspection service of the lifting machinery in the nacelle of wind turbine generators. There are 46 Wind Turbine Generators. The inspections per WTG are for the following lifting machines:

- 1) HMF Handy 265 Folding Hydraulic jib arm crane
- 2) 250kg Liftket chain hoist

The jib crane is fitted with the 250kg Liftket electrical chain hoist. Appendix A shown a picture of the jib crane in the nacelle and the name plate of the hoist.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Lehlohonolo Tinte	Senior Manager Renewables
Shawn Hurling	Plant Manager Renewables
Deon van der Merwe	O&M Manager - Sere Wind Farm

5. Revisions

Date	Rev.	Compiler	Remarks
March 2020	1	K Naicker	First Revision
March 2023	2	GJ van der Merwe	Document review. Removal of sub section 2.4.

6. Development Team

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

- K Naicker
- GJ van der Merwe

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Appendix A – Crane and Hoist

A.1 Nacelle Mounted JIB Crane



A.2 Electric Hoist Name Plate

HOFFMANN Fördertechnik GmbH Wurzen Dresdener Straße 64-68 / Wurzen / Germany Tel. +49 3425 89240 / http://www.liftket.de		LIFTKET		
ELEKTROKETTENZUG / ELECTRIC CHAIN HOIST				
Typ/type 050/92	Fabrik-Nr./serial no. D25036	Baujahr/fabr. year 2013		
Laststränge/load falls 1	KLOR 71G2	60% ED	240 S/h	
Traglast/S.W.L. (kg) 250	690V; 50 // 60 Hz; 3 ph	FEM/ISO	3m/M6	
Hub/speed (m/min) 24,0 // 28,8	1,1kW // 1,1kW	Klasse/class	F; IP55	
Kette/chain (mm) 5,2x15 EN 818-7, T	1,6A // 1,7A	Steuerung/control 24 V AC		
FEM/ISO Kette/chain 1Bm/M3	2830U/min // 3380U/min	cos φ 0,76 // 0,82		
Prüf./cert 08057	D8	Made in Germany		CE

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