Eskom	Scope of Work	Hendrina Power Station

Title:	**Inspection of passenger and goods lift for Hendrina Power Station**	Unique Identifier:	**TBC**
		Alternative Reference Number:	**N/A**
		Area of Applicability:	**Passenger and goods lift**
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CONTENTS

1. INTRODUCTION

Each Lift, Escalator and Passenger conveyor is an essential part of the plant for the safe transportation of persons and goods within Eskom generating plant and commercial buildings. Lifts and escalators are installed within the structures of many Eskom buildings and power stations to enhance performance and ease of workload. Since lifts and escalators are used in the transportation of people and goods, the management of such installations are to ensure that they are inspected, tested and maintained to the highest degree in accordance with the SANS standards and the OHS Act No 85 of 1993 and to ensure that no injury or fatality will occur in relation to such installations, that could have been anticipated or foreseen.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document covers the scope of work for the inspection of passenger and goods lift for Hendrina Power Station.

2.1.1 Purpose

The purpose of this document is to provide the scope for the inspection of passenger and goods lift for Hendrina Power Station.

2.1.2 Applicability

This document shall apply to Eskom Hendrina Power Station

2.2 NORMATIVE/INFORMATIVE REFERENCES

2.2.1 Normative

[1] ISO 9001 Quality Management Systems

[2] OHS Act: Occupational Health and Safety Act 85 of 1993

[3] MHS Act : Mines Health and Safety Act 29 of 1996

[4] SANS 21: Safety rules for the construction and installation of escalators and passenger conveyors

[5] SANS 1543 -1: Escalators and passenger conveyors

[5] SANS 1545 -1: Safety rules for the construction and installation of lifts Part 1: Electric lifts

[6] SANS 1545 -2: Safety rules for the construction and installation of lifts Part 2: Hydraulic lifts

[7] SANS 1545 -3: Safety rules for the construction and installation of lifts Part 3: Lifts for persons with physical disabilities (stair-lifting platforms)

[8] SANS 1545 -4: Safety rules for the construction and installation of lifts Part 4: Lifts for persons with physical disabilities (vertical platform

2.2.2 Informative

[9] 240-53458738 – Process Control Manual (PCM) for Perform Low Pressure Services Engineering

2.3 DEFINITIONS

N/A

2.4 ABBREVIATIONS

2.5 ROLES AND RESPONSIBILITIES

- Auxiliary Engineering – Compilation of the scope of work for the inspection of passenger and goods lift.
- Contract Manager – Executing the tasks as per the contract

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. SCOPE OF WORK

- Report to Customer / Responsible Person on site
- Check Legal Requirements - Emergency Telephone Number Plate
- Place Maintenance notification signs / cards on all landings for services
- Check Load Plate / Emergency Telephone Plate visible at main landing
- Check all COP Functions including 2nd COP (if fitted)
- Check Lift Car Interior Fixtures
- Check In-Car Communication Device to central office
- Check Car Lighting, Diffuser & Ceiling
- Check Car Door Reversal Devices, include 2nd entrance
- Check Car Door Closing Force Limiter
- Check general condition of Car Doors & Attachments
- Check Car Door Operation
- Check Landing Door Operation (Manual & Automatic)
- Check Landing Fixtures (Sills)
- Monitor Ride Quality (Accel, Decel, Stop) Noise, Vibration
- Check Floor Levelling Accuracy on all landings
- Check that Machine Room Access Clear & Safe
- Perform a Risk Assessment of Surroundings in MR
- Check and Verify the Record Book (since last visit)
- Controller Error-log Check (where possible)
- Safely remove lift from public use for inspection
- Isolate Main Supply (OEM Local Isolation)
- 23 Test Main Supply Disconnect Switches

- Check Final Limit Tripping Distance
- Check all Safety Circuit Switches & Contacts (LV less than 50V)
- Check Suspension Hitching Equipment (> 2:1 Roping)
- Check the lift "On Level" indicator or Markings on ropes
- Observe Main Brake & Machine Operation for abnormal noise / vibration
- Check Brake (As per brake type)
- Check Brake Drum & Shoes Free of Oil
- Check Brake Shoe Lifting Clearance
- Check Brake Holding Force
- Test Manual Evacuation Devices (Brake Release)
- Check the Rope Brake Device & Test (where fitted)
- Check Main Suspension Ropes on Sheaves
- Check Pedestal Bearing (Noice and Visual)
- Check Gearbox Noise, Vibration & Oil Level
- Check and Inspect Machine Isolation Rubbers (cracks)
- Check Main Motor Bearings & Cooling Fan (Noice and Visual)
- Check Commutator Condition & Brushes
- Check Tacho / Encoder & Belt or Coupling
- Check Governor & Rope (car & counterweight)
- Test Governor Functionality, Car & CWT
- Check Selector Rope & Drum (where applicable)
- Check Selector Operation & Contact Wear
- Check Correct Fuses Used (no wired fuses)
- Check All Components, Labelled, Secured & Clean
- Checking Controller Components
- Check Relays & Contactors for Worn Contacts
- Check Generator & Exciter Brushes
- Check Commentator Condition
- Check Bearings & Grease Cups
- Perform a Risk Assessment
- Check all Safety Circuit Switches & Contacts
- Clean TOC
- Check Connection Box for Loose Connections
- Ensure all Plugs & Cables are Secure

- Check car Steady Brackets
- Check Car Suspension Hitching Equipment (1:1 Roping)
- Check TOC Sheaves & Rope Keepers (2:1 Roping)
- Check Main Suspension Rope Tensions
- Check Guide Shoes / Rollers & Assembly
- Check Automatic Guide Lubricators
- Check Governor Rope Hitching Point
- Check Safety Gear Mechanisms are Free (Lift & Drop)
- Check Safety Gear Switches Trip when Activated
- Check Selector Rope Hitching Point
- Check Hoist Way Information Equipment
- Clean Car Door Operator, Mechanisms & Track
- Check V-belt Tensions & Condition
- Check all Moving Parts for Wear & Tear
- Check Car Door Safety Circuit
- Check Condition of Car Door Panels
- Check Reopen Devices & Cable Fixing & Condition
- Check Car Door Motor, Cam & Linkages
- Ensure Correct Adjustment / Operation of Couplers
- Check Sheave(s) at the top of shaft (TOS)
- Check Final Limit Mechanism
- Clean Shaft Equipment
- Check all Door Locking Mechanisms & Contacts
- Check Door Coupler Rollers / Guides
- Check Tracks, Hanger Rollers (Hinges & Closers)
- Check Vision Panels & Beadings
- Check Car and Landing door Slippers, Sills & Aprons
- Check Bottom of Scanner & Sight Guards
- Check Slippers, Sills & Apron
- Clean all Components as required
- Check Guide Rails & Brackets
- Inspect Over speed Governor Rope
- Check Trailing Cable Condition & Hitch Point
- Inspect Compensating Chain or Rope Condition & Record

- Check CWT when Midway in Shaft
- Check CWT Safety Gear & Linkages are Free to Move
- Check Guide Shoes / Rollers & Assembly
- Check Weight Keepers are in Place & Secured
- Clean & Lubricate Components as required
- Inspect Main Suspension Rope Terminations (1:1 Roping)
- Inspect Sheaves, Bearings & Rope Keepers (2:1 Roping
- Inspect Main Suspension Ropes & Record Condition
- Check Main Suspension Rope Tensions are Equal
- Inspect Rope Selectors
- Ensure TOC is still Clean
- Return Lift to Normal Mode
- Access to pit - Use "Pit Access" Procedure to Gain Access
- Check for Sufficient Lighting to Perform Tasks
- Verify all Pit Safety Circuit Switches
- Empty Guide Drip or Run-off Containers
- Check Sump Pump Operation, when fitted
- Clean the Pit & all Pit Equipment
- Check Compensating Rope Sheave and Attachments
- Check Compensating Chain Rollers / Guides
- Check Governor Rope Tension Sheave & Attachments
- Check Selector Rope Tension Sheave & Attachments
- Check Buffer Condition & Oil Level (when installed)
- Measure Distance Between CWT & Buffer & Record
- Check Final Limit Mechanisms
- Inspect & Clean Safety Gear
- Check TC & Hitch Point
- Inspect Compensating Hitch Point
- Inspect & Clean Roller Stands & Sliding Shoes
- Check Car Platform Isolation Rubbers
- Check Load Measuring Device / Movable Car Floor
- Inspect Sheaves, Bearings & Rope Keepers (2:1 Roping)
- Test Automatic Rescue Device (ARD)
- Check Alarm Bell System & Emergency Light

- Check In-Car Communication Device
- Complete Examination Reports & Sign Record Book
- Ensure Machine Room is Clean & Tidy
- Remove all Waste Materials & Spare Parts
- Lock Machine Room (windows closed & lights are "Off")
- Remove Maintenance Notification Signs / Cards
- Inform the owner / responsible person of any risk / deviations
- Owner / Responsible Person to Sign Documentation
- Inform Owner / Responsible Person You are Leaving.
- Issue comprehensive report with 24hours after inspection.
- Development of Project Plans for the implementation of scheduled works.
- Communication with the service provider representatives as well as client issues reported related to lifts.
- Compilation of an up-to-date and accurate database of the unit(s) within the client's portfolio which includes the technical detail as follows:
    a) Installation and modernisation dates.
    b) Installation or modernisation design standard.
    c) Official "unit" numbers
    d) General technical detail of the "units"
    e) Dates of the last inspections and "comprehensive reports"
    f) Due dates of next inspections and "comprehensive reports" (2-years in advance),
    g) Building administration and "maintenance contractor" detail.
    h) All relevant details required to effectively control and manage the follow-up inspection procedures.
    i) All technical and administration detail required to produce an accurate and effective safety and performance
    j) executive reports i.e., general portfolio overview of the current state of safety and maintenance (in graph format).
- Safe keeping of all documentation for a period of 10-years, ensuring that HENDRINA POWER STATION has access to such at any given time within this period.
- Technical Advisory services ensuring that HENDRINA POWER STATION is kept up to date with industry and market trends pertaining to vertical transportation.
- Issuing of a life-cycle database of the units within the HENDRINA POWER STATIONS's portfolio showcasing the current evaluation of the unit(s) identifying the terms to which upgrades and/or replacements will be due.

PREVENTIVE MAINTENANCE SUPERVISION DETAIL DONE BY LIFT INSPECTOR:

Site Meetings

Meeting Reference	Frequency	Category	Output Comments
Meeting with Service Provider	Monthly	Performanc e Review Meetings	Performance of the unit(s) are discussed with the service provider and all concerns raised during site inspections, walkabouts, correspondence and/or project meetings
Meeting with HENDRINA POWER STATION	Monthly	Performance Over-view	Feedback on the findings over the month(s) as well as document the discussions and/or deliverables tabled with the service provider.
Meeting with HENDRINA POWER STATION	Quarterly	Financia l Review	Discuss the financial and cost components of various contracts and contractors which are relative to the performance credit reports issued monthly and due to HENDRINA POWER STATION.
Site Visitation / Inspections / Technical Audits	Monthly	Inspection and Walkabout	Site inspection to view the equipment as well as audit review the performance of the unit(s) and record any areas of concern including the compilation of items-lists for rectification. This includes both Technical and Aesthetic Evaluations and adopts a proactive approach to ensuring reliable service as well as highlighting of all associated risks.

Reports

Down-Time Report	Monthly 3-Months Annually	Per Unit Per Month Per Building Per Contractor (Service Provider)	A Detailed Technical Analysis of each call out captured reflected as a percentage which is tabled based on the criteria stipulated in the Service Level Agreement to which the service provider is obligated to perform. This reflects the time the unit has been out-of-service.
Up-Time Report	Monthly 3-Months Annually	Per Unit Per Month Per Building Per Contractor (Service Provider)	A Detailed Technical Analysis of each unit captured reflected as a percentage which is tabled based on the criteria stipulated in the Service Level Agreement to which the service provider is obligated to perform. This reflects the time the unit has been in-service.
Occupied Stops Report	Monthly 3-Months Annually	Per Unit Per Month Per Building Per Contractor (Service Provider)	An Analysis of the incidents wherein a passenger or passengers may have been 'trapped' inside the lift when the lift had malfunctioned. This includes the duration of the incident including the response deliverables.
Performance Credits Report	Monthly 3-Months Annually	Per Unit Per Month Per Building Per Contractor (Service Provider)	Penalties as stipulated within the Service Level Agreement are tabled where the service provider has been proven not to have achieved their obligatory requirements and therefore, credit notes are issued for these non-performances on a monthly basis.
Call Out Credit Report	Annually Monthly 6-Months	Per Unit Per Month Per Building Per Contractor (Service Provider)	Financial Evaluation of the performance deliverable outputs in relation to the Contractual Obligations set out to the service provider which have been recorded over the year (12-months) that is reimbursed to the user client or HENDRINA POWER STATION.

4. AUTHORISATION

This document has been seen and accepted:

5. DEVELOPMENT TEAM

were involved in the development of this document:

6. ACKNOWLEDGEMENTS

N/A