

	Scope of Work	Matimba Power Station
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1. Introduction

1.1 Matimba Power Station.

Matimba Power Station is in Lephalale, in South Africa's Limpopo Province. Designed to generate 4000 MW, Matimba - the Tsonga word for "Power" – was once the largest direct dry-cooled Power Station in the world, with six 665MW turbo-generator units. Coal reserved guarantees Matimba a minimum lifespan of 35 years, extending to a possible 50 years at 2100 - 2130 tons of coal per hour. The annual send-out power from Matimba amounts to approximately 24,000GWh. Matimba is the holder of the world record of 80 days for six units on load.

Technical details:

- Six 665 MW units
- Installed capacity: 3 990MW
- 2001 capacity: 3 690 MW
- Design efficiency at rated turbine MCR (%): 35.60%
- Ramp rate: 28.57% per hour
- Average availability over last 3 years: 93.67%
- Average production over last 3 years: 23 789GWh

2. Supporting clauses

2.1 Scope

2.1.1 Purpose

The purpose of this scope is for Maintenance on SO₃, Fuel Oil, Bottom Ash Removal & Draught Group external plants at Matimba Power Station.

2.2 Applicability

This scope is applicable for Matimba Power Station and adjacent Eskom power stations (as per when required)

2.3 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs

2.4 Normative

- Occupational Health and Safety Act, 85 of 1993
- Supplier Contract Quality Requirements Specification
- SABS Quality Standards
- Occupational Hygiene
- Quality Programme ISO9000/1/2
- Construction Regulations 2014
- SABS 0162 – Structural Use of Steel
- SABS 767 – Condition of steel and cleanliness achieves

2.5 Informative

Contractor employees shall comply with Eskom's policies and site regulations, including non- use of cell phones in restricted areas, adherence to Eskom's cardinal rules, adherence to Generation Occurrence Management Procedure, no smoking policy, Maintenance URS, etc. These requirements will be detailed during the induction training process and are stipulated in the referenced documents and their references.

- Plant Safety Regulations
- Programming and Progress Monitoring Services-Equipment Supply Contractor
- Accident Prevention Activity Report
- Eskom Environmental Practices and Standards
- Eskom vehicle and driver safety management
- Eskom Standard NWS 1454 Specification for Thermal Insulation

2.6 Definitions

Definitions	Explanations
Base/ Core crew	A complement of the Contractor's personnel based on site for the duration of at least one year and detailed in the Site Addendum
Outage	A planned or unplanned shutdown project related to one or more of the <i>Employer's</i> Power Station units
Regular site maintenance and repair work	Work that does not form part of an outage scope of service. This could include opportunity maintenance performed while a unit is on <i>outage</i>
Contract services	The services specified in this contract including civil maintenance services that complies with all the requirements stated in the Service Information.
Contractor	Service provider contracted for supply specific service to ESKOM Matimba power station.
Employer	Eskom or Eskom Matimba power station representative appointed in writing.
Emergency vehicle	An emergency vehicle is any vehicle that is designated and authorized to respond to an emergency in a life-threatening situation. These vehicles are usually operated by designated agencies, often part of the government, but also run by charities, non-governmental organizations, and some commercial companies

2.7 Abbreviations

Abbreviation	Meaning given to the abbreviation
OHSA	Occupational Health and Safety Act
SABS	South African Bureau of Standards
SANS	South African National Standards
PPPFA	Preferential Procurement Policy Framework Act
CPA	Cost Price Adjustment
AP	Accounts Payable

OHSACT	Occupational Health and Safety Act 85 of 1993
SOW	Scope of Work
PPE	Personal Protection Equipment
SAP	System Application Products
PSR	Plant Safety Regulations
HV	High Voltage
LV	Low Voltage
RP	Responsible Person
LAR	Local Access Register
QCP	Quality Control Plan
ISO	International Organization for Standardization
QMS	Quality Management Systems
SAMTRAC	Safety Management Training Course
SACPCMP	South African Council for the Project and Construction Management Professions

2.8 Roles and Responsibilities

2.8.1 Contract Manager:

- Co-ordinating and manage contract budget and expenses
- Ensure that the contractor operates within the budget
- Holds monthly meetings with the contractor
- Communicate technical interface between Eskom and the contractor
- Ensure that all work performed complies with the OHS act regulation and quality requirements
- Review, verify, and approve receipt of services/deliverables from the contractor
- Manage and maintain a contract records and correspondence between the employer and the contractor
- Ensure that the contractor compliance with the conditions of contract.
- Resolving any deviations and breaches in relation to the agreed conditions of the contract
- Contracts manager must keep the original copy to file for history purposes

2.8.2 Contract Supervisor:

- Assign works order as per maintenance schedule issued by the planner at pre-determined interval
- Assist contract manager with contract management administration
- Assess any work completed and align it to the scope of work and task order.

2.8.3 Contractor:

- Ensure that all (employees, equipment, and materials) comply with the statutory and environmental requirements
- The Contractor to provide technical support and advice on constant failure trends of the equipment
- Provide consistent and cost-effective maintenance strategy as part of continuous improvement
- Ensure that the application and implementation of appropriate maintenance tools and innovative techniques
- Develop Key performance Indicator (KPI), objectives and targets which support and which in line with the Employer's objectives
- The contractor to adhere to all Employer's health and safety requirements and procedures on site
- The contractor to provide relevant documentation caters for the employer's equipment. This will include all records keeping of all activities, plant conditions and quality control and safety documentation
- The contractor shall record and report to the Employer the following
- The contractor submits to the Employer, a fully substantiated written damage report specifying the nature, scope and cost of rectification work required including a programme for execution.

2.9 Process for Monitoring- Technical KPIs

Item	KPI	Targets
1	No. of PM's due	0
2	No. of P1-P3 Overdue	0
3	Manpower Utilisation	> 63%
4	No. of rework	0
5	Total hours overtime	BCEA
6	Safety finding	1/M
7	Assessment > 25th of Month	0
8	No. of NCR's	< 2
9	SD & L	100%
10	PSR authorisation	100%

3. Site Visit

- Clarification meeting and site visit is compulsory for all contractors.
- Procurement officer to form part of the site visit team.
- Invited contractors to bring own PPE during site visits.
- All official communication will be in the form of writing.
- A register will be signed by all in attendance and kept as record
- Contractor who does not attend and goes to site visit won't be considered
- List the contact information of the end users

4. Technical Scope

The Scope of work is not limited to normal, preventative (PM), Corrective (CM) maintenance, and emergency work in accordance with the defined specifications or requirements. The scope of service includes amongst others the management, supervision, labour, material supply, installation, consumable supply, provision of Equipment, administration, warehousing, and storage related to the service. Furthermore, the service required include the following activities from unit 1 to 6:

4.1 Process air blower

- Replace blower if any wear or damage is visible.
- Drain oil.
- Repair any oil leaks.
- Refill blower with correct oil and ensure oil level is correct.
- Clean blower.
- Inspect coupling and replace if wear is visible.
- Verify alignment.
- Inspect blower lobes for any wear and replace blower if wear is visible.
- Grease gear side with correct grease and correct amount of grease.

4.2 SO₂ cooler

- Dismantle SO₂ cooler.
- Replace inner stainless steel pipe section where cooling air enters the SO₂ cooler. Top section first ± 2 meters.
- Replace both reducers on the cooler pipe. 200NB to 150NB 316 stainless steel schedule 10 and to be delivered with material certificate.
- Replace both round endplates connecting cooler inner and outer pipe.
- Replace SO₂ inlet pipe section 1st 1 meter.
- Replace inlet and outlet elbows on cooler
- Ensure qualified welder is on site to do welding when assembling the cooler and all documentation needed by ESKOM 3rd party inspector is in place.

4.3 Left- and right-hand bias blowers

- Replace blower if any wear or damage is visible.
- Drain oil.
- Repair any oil leaks.
- Refill blower with correct oil and ensure oil level is correct.
- Clean blower.
- Inspect coupling and replace if wear is visible.
- Verify alignment.
- Inspect blower lobes for any wear and replace blower if wear is visible. (System engineers hold point).
- Grease gear side with correct grease and correct amount of grease.
- Ensure that the grease escape (vent) is open

4.4 Maintenance principles

- Preventive maintenance
- Condition based maintenance
- Corrective maintenance

4.5 Preventive maintenance

- Preventive maintenance is based on information from the owner's manual. Some preventive maintenance is based on current failures already experienced.

4.6 Condition based maintenance

- Condition based maintenance is done on predetermined intervals. The results are then evaluated, maintenance action is taken after evaluating the defect, criticality, plant availability.

4.7 Corrective maintenance

- Corrective maintenance applies to components not covered by the previous two maintenance principles thus corrected on an as and when basis.

4.8 Quantities: From Unit 1 to 6

- Process air blowers - 6
- Bias air blowers - 12
- Steam traps - 60
- Process air blower flexible rubber joints - 6
- SO₂ cooler fan flexible rubber joints - 6
- Process air filter bellows - 6
- Process air filters - 6
- Bias air filters - 12
- Offloading pump - 1
- Sulphur supply pumps - 2

4.9 Daily: From Unit 1 to 6

- Inspect all six skids and Sulphur storage tank for steam leaks and arrange for repairs if found.
- Inspect all six skids and Sulphur storage tank for Sulphur leaks and arrange for repairs if found.
- Ensure that all lacking and gladding is in place from unit 1 to unit 6 on all skids, Sulphur conveying systems, steam conveying systems, steam stations, left and right-hand bias system at 23meter level, injector lances on Precipitator inlet ducting and at the Sulphur storage tank if not arrange for replacement.
- From unit 1 to 6 check for oil, leaks around process air blowers and left and right-hand bias blowers and arrange for repairs if leaking.
- Inspect all steam traps for correct operation. Replace if not correct.

4.10 Weekly: From Unit 1 to 6

- From unit 1 to 6 verify oil level to be correct on process air blowers and left and right-hand bias air blowers and top up with correct grade of oil if required.
- From unit 1 to 6 inspect flexible rubber joints after process air blower for cracks and air leaks and repair if found.
- Inspect flexible rubber joint after SO₂ cooler fan for cracks and air leaks and repair if found.
- From unit 1 to 6 inspect process air filter bellows and replace if damaged or perished.
- Check if the offloading pump gearbox is filled with oil to the correct level and have no oil leaks. Top up if required with correct grade of oil.

4.11 Monthly: From Unit 1 to 6

- From unit 1 to 6 grease process air blower and left and right-hand bias blowers DE side.
- Grease both east and west Sulphur supply pump bearings with correct type of grease.
- From unit 1 to 6 clean the inside of the skids.

4.12 Quarterly: From Unit 1 to 6

- Replace process air filters and left and right-hand bias air filters. Put plant in hold mode as procedure to purge and then shut down plant.

4.13 Continuous: From Unit 1 to 6

- Do all repairs on an as and when require basis. Notifications will be loaded on SAP.
- 24 hours standby is required as per ESKOMs standby procedure
- Responsible person as per ESKOMs plant safety regulations to be available 24hours
- Mechanical artisan to be available 24hours
- Do all preventative maintenance as per maintenance strategy and plan for the flue gas conditioning plant (SO₃) PG/HQT/001

4.14 Reference (Applicable documents)

- PG/HQT/001 Maintenance strategy and plan for the flue gas conditioning plant SO₃
- PWN/HQT/003 Start up and shut down of so₃ plant
- PS/201/001 Standby and call-out management procedure.
- ESKOMs plant safety regulations.

5. Areas to be included under maintenance (General pipeline maintenance)

- Water leak repairs
- Pipe replacements
- Valve replacements
- Pipework changes
- Cooling water pipelines.
- Demin pipelines in the units
- Air (control and service air) pipelines
- Recovered water
- Potable water pipes
- Potable water tanks
- Demin water tanks
- Floor washing system in the units
- Maintenance on valves
- Maintenance on pipes. Mostly replacing of leaking/corroded pipes.
- Installation of small changes to plant
- Replacement of corroded pipes in the mill trenches during outages.
- Maintenance on drain/condensate traps
- Maintenance on air release valves

6. O₂ Matrix: From Unit 1 to 6

- Remove all the lagging and cladding on the pipes for inspection.
- Do thickness tests on the pipes and replace if less than 1mm thick.
- Inspects the welds by means of visual inspection and MPI on the pipes and re-weld if there is any defect
- Ensure that there are no holes on the pipes by means of visual inspection and repair all the holes.
- Replace the flange gaskets
- Clean all the pipes inside for free flow.
- Replace all the probes (all 12 of them) and all to have protection plates
- Clean the deposited ash on the venturi and ensure that the venturi is free from any ash and ensure that it is facing in the right direction is as per drawing 20.58/56388

- Check the Venturi if is loose repair and adjusting the gap till the maximum temperature measurement (as this correlate to the maximum flow). (This to be done after unit has been started-up)
- If the Venturi is replaced - adjusting the gap till the maximum temperature measurement (as this correlate to the maximum flow). (This to be done after unit has been started-up)
- Check the manual purge system for wholes by opening the service airline as it would blow out at all the areas with leakages.
- Purge the system on all every week for 10 minutes.
- Check auto purge system by ensuring that the valve does not pass and that the air supply lines does not have wholes. This must be done as bi-weekly activity

7. Submerged scraper conveyor general

7.1 SSC water drains valve

- Remove the SSC drain valve
- Overhaul the water drain valve, replace if beyond overhaul
- Install the SSC drain valve after overhaul

7.2 SSC overflow pipe

- Remove the SSC overflow pipe
- Descale the overflow pipe
- Install the overflow pipe after descaling

7.3 SSC chain tensioner right hand

- Inspect the condition of the tensioner slides and guide channels and replace if worn out
- Clean and lubricate chain tensioner

7.4 SSC conveyor chain (100x26mm), main drive sprocket, main drive sprocket hubs and buckets

- Replace conveyor chain (100 x 26mm) if the pitch wear is more than 5% engineering to give the instruction.
- Inspect the condition of the main drive sprockets hubs and replace if worn out or cracked. NB// The whole drive shaft assembly (shaft with bearings, sprocket hubs and sprockets and main duplex system drive sprocket) needs to be removed to be able to replace the sprockets hubs.
- Replace the main shaft drive sprocket if the chain is replaced, engineering to give the instruction.
- Replace the flights (200x200) if the height is $\leq 140\text{mm}$

7.5 Duplex chain, duplex chain sprockets

- Remove the main duplex chain system top guard
- Clean the duplex chain
- inspect the duplex chain for wear
- Inspect duplex system's sprockets for wear
- Replace or repair the chain if worn out.
- Replace sprocket if worn out
- Re grease the chain
- Install the top guard

7.6 Submerged scraper conveyor

- Replace the sprocket shaft cover (drum)
- Replace the wear plate before the drum.
- Replace the flight cleaning flap.
- Remove four submerged wheels for overhaul by maintenance
- Overhaul four underwater wheels
- Replace four submerged wheels after overhaul by Eskom's maintenance
- Inspect the through wall behind the two front underwater wheels and repair by welding a window patch of 300 x 8mm plate if worn.
- Replace the wear plates behind the 2 front underwater wheels (500mm x 8mm)
- Inspect the condition of the two tensioning shaft wheels and shaft, replace if worn out
- Inspect the condition of the tensioning shaft's wheels hubs, replace if worn out.
- Inspect the condition of the tensioning shaft wheel's mounting drum threads, if worn out tap the new holes
- Replace the bolts
- Inspect the condition of the tensioning shaft bearings, replace if ceased or worn
- Inspect the condition of the two reversing shaft wheels and shaft, replace if worn out.
- Inspect the condition of the reversing shaft's wheels hubs, replace if worn out.
- Replace the bolts and nuts
- Inspect the condition of the reversing shaft bearings, replace if ceased or worn
- Inspect the condition of the chain guide wheels and shaft, repair if worn out
- Inspect the condition of the guide wheel's bearings, repair if worn out.
- Inspect the condition of the main drive shaft bearings and shaft, repair if worn out.
- Replace chain guides at beginning of incline section on the return side of the chain.
- Inspect the condition of the rear divider plate slides and the plate, repair if damaged
- Visually inspect the condition of the support structure for corrosion and damage.
- Inspect the condition of the rear guard and the inspection door hinges, replace if worn out
- Inspect the condition of the 14 running wheels and replace if damaged
- Inspect the condition of the spillage prevention plates and rubber skirting at the beginning of the incline section and replace if worn out

7.7 SSC trough lining

- Inspect the tiles on the incline just before the discharge drum (2m x 1m).
- Measure the depth of the ceramic wear tiles on the dewatering slope and submit the report to engineering.
- Tiles to be replaced if worn out 60% (groove depth = 7.6mm).
- Inspect the condition of the tiles on the horizontal section (2m x 2m)

7.8 SSC variable speed gearbox

- Replace the gearbox
- Align the Variable Speed Gearbox and the Primary Gearbox with laser alignment.

7.9 SSC coupling between motor and var speed gearbox

- Check that the coupling is fixed firmly to motor.

7.10 SSC variable speed g/b & prim gearbox torque clutch

- Remove the coupling and send it to the gearbox section
- Check the primary gearbox input shaft keyway.
- Check condition of the Clutch liner
- Check the condition of the coupling keyway
- Inspect the overload sensor bracket

7.11 SSC variable speed g/b and prim gearbox flex coupling

- Inspect coupling rubber
- Check wear and cracks on external and internal margins and covered areas.
- Make sure bolts are properly tightened.
- Replace the coupling if worn out
- Inspect coupling rubber
- Check wear and cracks on external and internal margins and covered areas.
- Make sure bolts are properly tightened.
- Replace the coupling if worn out

7.12 Primary gearbox

7.13 Secondary gearbox

- Replace or repair the gearbox based on condition monitoring report by Performance and Testing Department

7.14 SSC max speed limit at var speed ctrl servo and min speed limit

7.15 SSC emergency make-up level switch

- Function check make-up valve.

7.15.1 SLIP clutch slip monitor

7.16 SSC lifting general

7.16.1 SSC lift hydraulic cylinder 1 to cylinder 14

- Replace 14 dust covering boots on all cylinders.
- Check operation of SSC hydraulic lifting system when unit comes down.

7.16.2 Repair all the defects found during SSC lifting function check

- Lubricate Clevis pins

7.16.3 SSC hydraulic lift oil tank breather

- Replace the breather filter

7.16.4 SSC hydraulic lift oil pump suction filter

- Replace the breather filter Change oil during outage

7.16.5 SSC boiler expansion limit switch 1 to limit switch 4

7.17 SSC immersion dampers general

7.17.1 SSC immersion front sided damper 1 cylinder and rear damper cylinder. Individual front and rear, internal 1 to 13 and external 1 to 17 damper cylinders

- Check the operation of the damper's cylinders from Local Control Panel immediately after the unit shut down.
- Check for oil leaks on the cylinders
- Check the condition of the oil supply and return lines
- Compile defects report.
- Repair all the defects as per the report.

7.17.2 SSC immersion damper hydraulic oil tank breather

- Replace the breather during outage

7.17.3 SSC immersion damper hydraulic oil tank

- Replace oil during outage
- Measure the immersion dampers hinges mounting points center distance, the original distance is 371mm, if the distance is ≥ 376 mm, replace the hinges.
- Inspect the condition of the angle iron (90x90x10) and flat plate for tad pole seal mounting, replace if corroded.
- Compile the inspection report
- Repair damaged dampers according to report and plan for the replacement of 18 damper doors hinges.
- De-scale dampers
- Lubricate hinge pins and ensure all the doors are swinging freely
- Replace seized hinges pins and ensure all doors are swinging freely
- Replace tad pole seals
- Weld inner door plates with stainless steel round and flat bar to support the bolts and prevent doors from falling

7.17.4 SSC immersion damper hydraulic oil tank breather

- Replace the breather during outage

7.18 Grizzly bars

- Refurbish the grizzly bars

7.19 SSC discharge chute hopper general

7.19.1 SSC hopper gate 1 to coarse ash conv A

- Inspect the condition of the hopper gate and repair or replace if damaged

7.19.2 SSC hopper gate 3 to c/ash conv A

- Inspect the condition of the hopper gate and repair or replace if damaged

7.19.3 SSC hopper gate 2 to c/ash conv A

- Inspect the condition of the hopper gate and repair or replace if damaged

7.19.4 SSC hopper gate 4 to coarse ash conv B

- inspect the condition of the hopper gate and repair or replace if damaged
- Inspect the condition of the vertical plate in the middle of the SSC discharge chute and
- replace if worn out or damaged.
- Clean flopper gates hinge pins and ensure the hopper chute gates are moving freely.
- Inspect the condition of the SSC discharge hopper chute mounting beams and replace if corroded or damaged.
- Inspect the two SSC hopper discharge chute inspection doors, repair or replace if ceased and ensure
- the doors are moving freely.
- Inspect the four discharge chutes to coarse ash conveyors inspection doors, replace or repair if ceased.

7.19.5 SSC hopper gate 1 to c/ash conv a hydraulic cylinder

- Remove, overhaul, and replace 4 flopper gate actuators

7.19.6 SSC hopper gate 3 to c/ash conv a hydraulic cylinder

- Remove, overhaul, and replace 4 flopper gate actuators

7.19.7 SSC hopper gate 2 to c/ash conv b hydraulic cylinder

- Remove, overhaul, and replace 4 flopper gate actuators

7.19.8 SSC hopper gate 4 to c/ash conv b hydraulic cylinder

- Remove, overhaul, and replace 4 flopper gate actuators
- Inspect the condition of the chute lining tiles and replace loose, missing, and damaged tiles.

7.20 SSC agitation system general

- De scale the suction and discharge steel pipelines and the discharge nozzles
- De scale discharge PVC pipelines and the discharge nozzles
- Remove the pump to the workshop for the impeller cleaning, inspections and repairs or replace if beyond overhaul
- Replace one 100mm suction gate valve
- Replace two 50mm discharge gate valves
- Install the pump back to the plant after overhaul
- **DE gritting pump 1 and pump 2**
- Remove two DE gritting sump pumps and transport the pumps to the workshop for overhaul
- Replace the pumps after overhaul by Eskom's workshop

7.20.1 DE gritting pump 1 and pump 2

7.20.2 DE gritting pump 1 discharge line

- Replace the PVC section of the discharge line and the nozzles

7.20.3 DE gritting pump 2 discharge line

- De scale the steel section of the discharge line
- Replace the PVC section of the discharge line and the nozzles

7.21 Bottom ash cooling general

7.21.1 SSC make up valve pilot valve

- Set level and do function check after outages

7.21.2 Underwater wheels bearing flushing system

- Replace the bearing flushing water supply lines
- Replace flow indicator (rotating wheel type)
- Replace flow indicator (rotating wheel type)
- Replace flow indicator (rotating wheel type)
- Replace flow indicator (rotating wheel type)

7.22 Emergency make up valve

- Function checks the valve, repair if faulty

7.22.1 SSC bearing flush water iv

- Function checks the valve, repair if faulty

7.22.2 SSC emergencies make up bypass v/v

- Function checks the valve, repair if faulty

7.23 Conveyor chain (100X26mm) washing system

- Replace chain washing water supply lines
- Replace the nozzles

7.24 SSC clayton control

- Replace the Clayton control water supply steel pipes DE scale Clayton valve controls steel chambers properly

7.25 Ducting and dampers

Activity type	Feedback report - FR (Report submitted to be submitted to system Engineer)
	As and When Required - A&WR
	Monthly Inspection – MI (AS PER APPENDIX SHEET)
Primary air ducting	18 monthly Inspections - IN
All PA ducting - from suction at 113m/l to mill inlet - hangers and supports	Inspect mechanical condition and hanger position. MI
Suction duct from PA / FD suction split to PA fans, including expansion bellows	External visual inspection for defects such as distortion and mechanical damage, including duct supports. IN
PA fan discharge duct to tubular air heater inlet, including supply joint and discharge damper	External visual inspection for defects such as distortion and mechanical damage including duct supports. IN
PA ducting from tubular air heater to mills	Inspect for wear and distortion. IN
Repair damaged areas on opportunity. IN	
PA fan and duct isolating dampers	
LH and RH PA fan inlet damper	Inspect the fan inlet isolating dampers for wear and distortion
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	
Replace all the damaged ball joints. A&WR	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). IN	
Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication.	
Also do stroke checking. IN	
RH and LH PA fan inlet vane control damper	Inspect the fan inlet isolating dampers for wear and distortion
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	
Replace all the damaged ball joints. IN	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). IN	
Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Also do stroke checking. IN	
PA fan outlet damper	
RH and LH PA fan outlet damper	Inspect the fan inlet isolating dampers for wear and distortion
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	

Replace all the damaged ball joints	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). IN	
Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Also do stroke checking. IN	
TAH outlet Damper	
RH and LH TAH outlet damper	Inspect the fan inlet isolating dampers for wear and distortion
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	
Replace all the damaged ball joints. A&WR	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. IN	
Also do stroke checking. IN	
Secondary air ducting and dampers	
Secondary air ducts	
Ducting Doors	Open the inspection doors and inspect the condition of the doors. IN
	Fit new door seals. IN
	Close inspection doors. IN
Secondary air ducting	
All secondary air ducting - from suction at 113m/l to burner corners - hangers and supports	Inspect mechanical condition and hanger position. <i>Report to be submitted to engineering.</i> MI
Secondary air suction duct from 113 m/l to FD fan inlet	External visual inspection for defects such as distortion and mechanical damage, including duct supports. IN
FD fan outlet to air heaters	Inspect for distortion and mechanical damage. A&WR
Inspect the fan discharge supply joint condition. A&WR	
Inspect the ducting internally A&WR	
Secondary air heater outlet to burners ducting	Inspect the turning vanes at 46 ml for damages. A&WR
repair the damages. A&WR	
Secondary air heater outlet ducting to burners expansion joints to the A mill. A&WR	Inspect the expansion joints for wear and ash build up. A&WR
Clean expansion joint. A&WR	

If damaged replace the expansion joint. A&WR	
Secondary air heater outlet ducting to burners expansion joints to the B- mill to E-mill. A&WR	Inspect the expansion joints for wear and ash build up. A&WR
clean expansion joint. A&WR	
If damaged replace the expansion joint. A&WR	
Secondary air heater outlet ducting to burners expansion joints to the A- mill to E-mill. A&WR	Inspect the expansion joints before the burners (before the isolating dampers) for damage and repair (the expansion joint shall be replaced). A&WR
	The expansions that are damaged need to be fitted with a skirt plate over the damaged areas. A&WR
Secondary air heater outlet system ducts	Inspect the secondary air system outlet duct for wear and distortion. To include all the A- mill to E-mill ducts. A&WR
Secondary air flow venturis	Inspect and unblock the impulse lines from 43 to 68 meters LVL. IN
	Manual purge the venturis. MI
Secondary air duct to Regulating dampers Repairs	
Secondary air system outlet damper	Inspect dampers for wear and distortion. IN
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	
Replace all the damaged ball joints. A&WR	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). IN	
Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Stroke check the damper. IN	
To include all the A-mill to E-mill ducts. Turn actuator by hand – if moving with difficulty, remove damper links to test individual damper blades and inspect bushes. IN	
Secondary air duct to Regulating dampers	Inspect ducting for wear and distortion
LVL 1 – 5 BNR 1 - 4 Secondary air regulating damper	Inspect dampers for wear and distortion. Also do a thickness test on the damper casing and repair according to note 1. Thickness report to be submitted. A&WR
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	
Replace all the damaged ball joints A&WR	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). IN	

Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Stroke check the damper. IN	
To include all the A-mill to E-mill ducts. Turn actuator by hand – if moving with difficulty, remove damper links to test individual damper blades and inspect bushes. IN	
Secondary air isolating dampers	
Secondary air duct to the burner corners	Inspect ducting for any wear and distortions. A&WR
LVL 1 – 5 BNR 1 - 4 Secondary air isolating damper	Inspect dampers for wear and distortion. Also do a thickness test on the damper casing and repair according to note 1. Thickness report to be submitted. A&WR
Repair all the damaged dampers. A&WR	
Inspect all the ball joints. MI	
Replace all the damaged ball joints. A&WR	
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). IN	
Check actuator condition - look for signs of grease leakage and wear on actuator drive / revolving nut. Inspect the lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Stroke check the damper. IN	
To include all the A-mill to E-mill ducts. Turn actuator by hand – if moving with difficulty, remove damper links to test individual damper blades and inspect bushes. IN	
Fuel oil burner boxes	Inspect fuel oil burner boxes LVL 1 to 5 and report the damages. IN
Inspect ducting for any wear and distortions. A&WR	
Repair the damages. A&WR	
Damper shafts glands packings.	Inspect all the damper shafts glands packings. A&WR
End shafts gaskets	Replace all the end shafts gaskets. A&WR
Cross-over duct	
Cross-over duct	Inspect the crossover duct for cracks and repair. IN
Repair in terms of re-welding	
If any repairs need to be done on the duct where the hanger support joint the duct. Then a detailed plan (report) on how to support the duct need to submit to the system engineer. A&WR	
Calibrate and adjust the hanger supports on the cross- over duct. Method statement to be submitted to engineering. A&WR	
Distribution boxes	
Distribution boxes	Inspect the distribution boxes for secondary air ducts on the LH and RH including the s/steel bellows A&WR
Distribution boxes	Unblock all the holes for the impulse lines inside the distribution box secondary air duct. IN
Core air dampers & Secondary air regulating dampers	
Core air dampers	Inspect core air dampers for operation wear (including mechanical joints)

Core air dampers	Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
RH cold air regulating damper	Inspect damper for free movement, clean shaft bearings if required Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
LH cold air regulating damper	Inspect damper for free movement, clean shaft bearings if required and repair if damaged Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
RH warm air regulating damper	Inspect damper for free movement, clean shaft bearings if required and repair if damaged. IN Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
LH warm air regulating damper	Inspect damper for free movement, clean shaft bearings if required and repair if damaged Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
Repair core air dampers	
RH cold air regulating damper	Stroke checking of the dampers. IN
LH cold air regulating damper	Stroke checking of the dampers. IN
RH warm air regulating damper	Stroke checking of the dampers. IN
LH warm air regulating damper	Stroke checking of the dampers. IN
Fuel Gas Ducting's	
Economiser outlet to Air Heater Outlet	
All flue gas ducting's-from economiser outlet to air heater outlet - hangers and supports	Inspect mechanical condition and hanger position. MI
Boiler outlet to bifurcation inlet	
Bifurcation Inlet to Tubular and Rotary air heater Inlet	
Bifurcation inlet to tubular and rotary air heater inlet	Inspect for high wear areas
Bifurcation LH and R/H inlet to rotary air heater inlet damper	Inspect gas inlet dampers and ball joints for free movement, wear and damaged Inspect the actuator drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
Repair the damaged sections.	

Turn actuator by hand – if moving with difficulty, remove damper links to test	
Bifurcation L/H inlet to rotary air heater inlet damper	<p>Inspect gas inlet dampers for free movement, wear and ball joint conditions</p> <p>Inspect the actuator drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI</p>
Bifurcation R/H inlet to rotary air heater inlet damper	Stroke checking of the dampers. IN
Bifurcation L/H inlet to rotary air heater inlet damper	Stroke checking of the dampers. IN
Rotary air heater to m line	
Rotary air heater to m line L/H and R/H outlet damper	Inspect the ball joints condition. MI
	Inspect the actuator condition
	Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI
	Repair /Replace the damaged actuator A&WR
Rotary air heater to m line L/H and R/H dampers (air heater gas outlet damper)	Replace the damaged ball joints A&WR
Rotary air heater to m line L/H & R/H.	Stroke checking of the dampers. IN and A&WR
M-line to precipitators LH and RH	
M-line to precipitators	Inspect the duct for any wear and distortion. IN
Repair the damages	
M-line to precipitators skirt plates	Remove the skirt plates at the precipitator entry for supply joint inspection. IN
M-line to precipitators supply joint	Replace it with 12 mm thick steel plate. IN
	Inspect the supply joints for wear. IN
Precipitators to stack	
Precipitators to stack	Inspect the duct for high wear areas or ash build-up. Record. (Not a high wear area) If ash has accumulated at the expansion bellows remove and clean bellows. IN
Inspect the smoke - stack inlet expansion bellows externally - Scaffolding required A&WR	
Visual inspection of the turning vane at smoke - stack inlet A&WR	
Remove the skirt plates at the ID fan outlet ducting for supply joint inspection A&WR	
Precipitators to stack supply joint	Inspect the supply joint for wear and damages A&WR
R/H and L/H ID fan to stack isolating damper	Inspect dampers for free movement, clean shaft bushes for dirt.
	Inspect the actuator for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI

Turn actuator by hand – if moving with difficulty, remove damper links to test individual damper blades and inspect bushes. IN	
LH and RH Links and ball joints R/H and L/H ID fan to stack isolating damper	Inspect all the ball joints. MI
	Replace all the damaged ball joints. A&WR
	Stroke checking of the dampers. A&WR
Tubular Air heater To Mixing Point	
Tubular air heater to mixing point LH and RH mixing point control damper	Remove the skirt plates at the ID fan outlet ducting for supply joint inspection. A&WR
Do functional checks including links operation and ensure open and closing positions are correct (part of commissioning). A&WR	
Inspect the damper links and ball joints. MI	
Also, check actuator condition - look for signs of grease leakage and wear on actuator drive/ revolving nut.	
Inspect the actuator linear drive for wear and inspect lubrication tank for leaks and fill the tanks for actuator drive lubrication. MI	
Do stroke checking. A&WR	
The damper to be marked with a grinder on the shaft indicating the closed and open A&WR	
If the damper is damaged to such an extent that it must be replaced, Manufacture a damper. (Provide drawings of the damper to be installed) A&WR	

NB: All defects found during inspections must be reported mechanical maintenance supervisor.

7.25.1 Inspections

- Damaged spares should be inspected by Eskom representative and reflect on the report.
- Do visual inspection in all plant areas governed by this scope.

Record all defects found during inspection.

7.25.2 As per when required services

- Spares as per price list.

8. Fuel oil Plant

Equipment	Components	Asset Class	Asset Type	Parts	Functional Failure	Task	Task Description	Frequency
HP Fuel Oil	HP Piping	Pipe	HP	Unit 1- 6, HP Heater Bank 1 and 2 Supply	Leaking	Inspection	Thickness Test	10Y
HP Fuel Oil	Drain Valve	Valve	Globe	From Transfer and Storage	Passing	Inspection	Internal Inspection	10Y
High Pressure Heater	Isolating Valve	Valve	Gate	HP Heaters Unit 1 – 6 Bank1&2	Passing	Inspection	Internal Inspection	10Y
High Pressure Heater	Outlet Isolating Valve	Valve	Gate	HP Heaters Unit 1 – 6 Bank1&2	Passing	Inspection	Internal Inspection	10Y
High pressure fuel oil heaters pressure relief valve	Pressure relief valve	Valve	Pressure Relief - Spring Actuated	432 KW ELECTRIC LINE HEATER PRESSURE RELIEF VALVE	Does not relieve pressure	Perform MT only on v/v connecting butt weld Overhaul and conduct statutory tests Carry out VI on the internal surface of v/v body , functional testing and resetting of the lifting pressure	PM Overhaul and conduct statutory test and function test on fuel oil heater safety relief valve	3Y
FO STORAGE NORTH LP PUMP A INLET FILTER	Inlet filter	Other	Other	Strainer	Fails to filter oil	Clean filter on diff pressure indication	Wash filter	6M
FO STORAGE NORTH LP PUMP B INLET FILTER	Inlet filter	Other	Other	Strainer	Fails to filter oil	Clean filter on diff pressure indication	Wash filter	6M
FO STORAGE NORTH LP PUMP C INLET FILTER	Inlet filter	Other	Other	Strainer	Fails to filter oil	Clean filter on diff pressure indication	Wash filter	6M

Maintenance on SO₃, Bottom Ash Removal, Fuel oil & Draught Group external plant

FO STORAGE NORTH LP PUMP A RELIEF VALV	Pressure relief valve	Valve	Pressure Relief - Spring Actuated	Relief valve	Fails to relieve pressure	Overhaul valve	Overhaul/ Calibrate pressure relief valve	3Y
FO STORAGE NORTH LP PUMP B RELIEF VALVE	Pressure relief valve	Valve	Pressure Relief - Spring Actuated	Relief valve	Fails to relieve pressure	Overhaul valve	Overhaul/ Calibrate pressure relief valve	3Y
FO STORAGE NORTH LP PUMP C RELIEF VALVE	Pressure relief valve	Valve	Pressure Relief - Spring Actuated	Relief valve	Fails to relieve pressure	Overhaul valve	Overhaul/ Calibrate pressure relief valve	3Y
FO STORAGE NORTH LP PUMP A	LP Pump	Pump	Rotary Screw	Pump	Fails to pump	Overhaul pump	Overhaul pump	1Y
FO STORAGE NORTH LP PUMP B	LP Pump	Pump	Rotary Screw	Pump	Fails to pump	Overhaul pump	Overhaul pump	1Y
FO STORAGE NORTH LP PUMP C	LP Pump	Pump	Rotary Screw	Pump	Fails to pump	Overhaul pump	Overhaul pump	1Y
ACCUMULAT OR 1	Fuel oil LP accumulator	Vessel	Storage - Pressuris ed	Accumulator	Does not accumulate pressure	CHECK ACCUMUL ATOR PRESSUR E AND TEST	Test accumulat or	3M
ACCUMULAT OR 2	Fuel oil LP accumulator	Vessel	Storage - Pressuris ed	Accumulator	Does not accumulate pressure	CHECK ACCUMULA TOR PRESSUR E AND TEST	Test accumulat or	3M
ACCUMULAT OR 3	Fuel oil LP accumulator	Vessel	Storage - Pressuris ed	Accumulator	Does not accumulate pressure	CHECK ACCUMUL ATOR PRESSUR E AND TEST	Test accumulat or	3M
ACCUMULAT OR 4	Fuel oil LP accumulator	Vessel	Storage - Pressuris ed	Accumulator	Does not accumulate pressure	CHECK ACCUMUL ATOR PRESSUR E AND TEST	Test accumulat or	3M
FO STORAGE NORTH LP PUMP PRESS CONTROL	Control valve	Valve	Solenoid Operated (SOV)	Valve	Fails to control pressure	Overhaul valve	Lap valve	
							Replace actuator	

Maintenance on SO₃, Bottom Ash Removal, Fuel oil & Draught Group external plant

432 KW ELECTRIC LINE HEATER PRESSURE RELIEF VALVE	Pressure relief valve	Valve	Pressure Relief - Spring Actuated	Valve	Does not relieve pressure	Overhaul valve	Overhaul and function test	
					Relieves pressure unnecessarily			
432 KW ELECTRIC LINE HEATER PRESSURE RELIEF VALVE	Pressure relief valve	Valve	Pressure Relief - Spring Actuated	Valve	Does not relieve pressure	Overhaul valve	Overhaul and function test	
					Relieves pressure unnecessarily			
HP FO PUMP A SUCTION FILTER	Filter	Other	Other	Strainer	Does not filter	FO SUCTION STRAINE R CLEANIN G	Clean filter	
HP FO PUMP B SUCTION FILTER	Filter	Other	Other	Strainer	Does not filter	FO SUCTION STRAINE R CLEANIN G	Clean filter	
HP Fuel Oil	HP Piping	Pipe	HP	Unit 1- 6, HP Fuel Oil Return Pipe	Leaking	Inspection	Thickness Test	10Y
HP Fuel Oil	HP Piping	Pipe	HP	Unit 1- 6, HP Fuel Oil Pump A and B Supply	Leaking	Inspection	Thickness Test	10Y
HP Fuel Oil Pumps A and B	Inlet Isolating Valves	Valve	Gate	Unit 1 -6 HP Fuel Oil Pump A and B	Passing	Inspection	Internal Inspection	10Y
HP Fuel Oil Pumps A and B	Suction Filter Drain Valve	Valve	Globe	Unit 1 -6 HP Fuel Oil Pump A and B	Passing	Inspection	Internal Inspection	10Y
HP FO Pump A	HP Pump	Pump	Horizont al - Multistag e - Split Case	Pump	Pump failure	Inspection and maintenan ce	Pump failure	1 Weekly
HP FO PUMP A MOTOR	HP pump motor	Motor	Normal	Motor	Motor failure		VISUAL INSPECTI ON OF FUEL OIL SYSTEM	1W
						Overhaul HP FO pump <i>Wear and tear</i>	Check bearings/s eals	2W

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HP FO PUMP B MOTOR	HP pump motor	Motor	Normal	Motor	Motor failure	Inspection	Internal Inspection	10Y
						CHECK ACCUMUL ATOR PRESSUR E	Test accumulat or	3M
HP FO PUMP A DISCHARGE PRESS GG	Gauge	C&I - Gauge	Pressure	Gauge	Fails to read	CHECK ACCUMUL ATOR PRESSUR E	Test accumulat or	3M
HP Fuel Oil	HP Piping	Pipe	HP	Pipe	Leaking	CHECK ACCUMUL ATOR PRESSUR E	Test accumulat or	3M
HP Fuel Oil	HP Fuel Oil Pump Discharge Line NRV	NRV	Swing	Unit 1-6 HP Fuel Oil Pumps Discharge Line NRV	Passing	CHECK ACCUMUL ATOR PRESSUR E	Test accumulat or	3M
HP Fuel Oil	Discharge Line to Burners Accumulator s IV	Valve	Globe	Unit 1- 6, Discharge Line to Burners Accumulator s IV	Passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Discharge Line to Burners Safety V/V (Air Operated)	Valve	Diaphrag m Air Operated	Unit 1- 6, Discharge Line to Burners Safety V/V (Air Operated)	Passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Unit F/Oil Return Press Control Inl IV	Valve	Gate	Unit 1 – 6, Unit F/Oil Return Press Control Inl IV	Passing	Inspect	Internal Inspection	10Y
HP Fuel Oil	HP Piping	Pipe	HP	Pipe	Leaking	Inspect	Internal Inspection	10Y
HP Fuel Oil	Fuel Oil Return Press Control V/V Bypass V/V	Valve	Globe	Unit 1 – 6, Fuel Oil Return Press Control V/V Bypass V/V	Passing	Inspect	Internal Inspection	10Y
HP FO PUMP A DISCHARGE PRESS GG	Gauge	C&I - Gauge	Pressure	Gauge	Fails to read	Inspect	Internal Inspection	10Y

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DISCHARGE LINE TO BURNERS ACC 1	Accumulator	Vessel	Storage - Pressurised	Bladder	Does not accumulate pressure	Inspect	Internal Inspection	10Y
DISCHARGE LINE TO BURNERS ACC 2	Accumulator	Vessel	Storage - Pressurised	Bladder	Does not accumulate pressure	Inspect	Internal Inspection	10Y
DISCHARGE LINE TO BURNERS ACC 3	Accumulator	Vessel	Storage - Pressurised	Bladder	Does not accumulate pressure	Inspect	Internal Inspection	10Y
DISCHARGE LINE TO BURNERS ACC 4	Accumulator	Vessel	Storage - Pressurised	Bladder	Does not accumulate pressure	Inspect	Internal Inspection	10Y
HP Fuel Oil	Corner 1level 1-5 inlet Piping	Pipe	HP	Unit 1- 6, Corner 1level 1-5 inlet Piping	Leaking	Inspect	Internal Inspection	10Y
HP Fuel Oil	Corner 1level 1-5 Outlet Piping	Pipe	HP	Unit 1- 6, Corner 1level 1-5 Outlet Piping	Leaking	Inspect	Internal Inspection	10Y
HP Fuel Oil	Corner 1 Level 1-5 Inlet and Outlet Isolating Valves	Valve	Globe	Unit 1-6, Corner 1 Level 1-5 Inlet and Outlet Isolating Valves	passing	Inspect	Internal Inspection	10Y
HP Fuel Oil	Corner 2 Level 1-5 Inlet and Outlet Isolating Valves	Valve	Globe	Unit 1-6, Corner 2 Level 1-5 Inlet and Outlet Isolating Valves	passing	Inspect	Internal Inspection	10Y
HP Fuel Oil	Corner 3 Level 1-5 Inlet and Outlet Isolating Valves	Valve	Globe	Unit 1-6, Corner 3 Level 1-5 Inlet and Outlet Isolating Valves	passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 4 Level 1-5 Inlet and Outlet Isolating Valves	Valve	Globe	Unit 1-6, Corner 4 Level 1-5 Inlet and Outlet Isolating Valves	passing	Inspection	Thickness Test	10Y

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HP Fuel Oil	Corner 1 Level 1-5 4 Way Valve	Valve	Plug	Unit 1-6, Corner 1 Level 1-5 4 Way Valve	passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 2 Level 1-5 4 Way Valve	Valve	Plug	Unit 1-6, Corner 2 Level 1-5 4 Way Valve	passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 2 Level 1-5 4 Way Valve	Valve	Plug	Unit 1-6, Corner 3 Level 1-5 4 Way Valve	passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 4 Level 1-5 4 Way Valve	Valve	Plug	Unit 1-6, Corner 4 Level 1-5 4 Way Valve	passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 1 Level 1-5 Outlet Non- Return NRV	Valve	NRV	Unit 1-6, Corner 1 Level 1-5 Outlet Non- Return NRV	passing	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 2 Level 1-5 Outlet Non- Return Valve	Valve	NRV	Unit 1-6, Corner 2 Level 1-5 Outlet Non- Return Valve	passing	Inspection	Internal Inspection	10Y
HP Fuel Oil	Corner 2 Level 1-5 Outlet NRV	Valve	NRV	Unit 1-6, Corner 3 Level 1-5 Outlet NRV	passing	Inspect and calibrate/re place when required	Calibrate	
HP Fuel Oil	Corner 4 Level 1-5 Outlet NRV	Valve	NRV	Unit 1-6, Corner 4 Level 1-5 Outlet NRV	passing	Inspection	Internal Inspection	10Y
HP Fuel Oil	Corner 2 level 1-5 inlet Piping	Pipe	HP	Unit 1- 6, Corner 2 level 1-5 inlet Piping	Leaking	Inspection	Internal Inspection	10Y
HP Fuel Oil	Corner 2 level 1-5 Outlet Piping	Pipe	HP	Unit 1- 6, Corner 2 level 1-5 Outlet Piping	Leaking	Inspection	Thickness Test	10Y
HP Fuel Oil	Corner 3 level 1-5 inlet Piping	Pipe	HP	Unit 1- 6, Corner 3 level 1-5 inlet Piping	Leaking	Inspection	Internal Inspection	10Y

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HP Fuel Oil	Corner 3 level 1-5 Outlet Piping	Pipe	HP	Unit 1- 6, Corner 3 level 1-5 Outlet Piping	Leaking	Inspect and calibrate/re place when required	Calibrate	
HP Fuel Oil	Corner 4 level 1-5 inlet Piping	Pipe	HP	Unit 1- 6, Corner 4 level 1-5 inlet Piping	Leaking	Inspection	Internal Inspection	10Y
HP Fuel Oil	Corner 4 level 1-5 Outlet Piping	Pipe	HP	Unit 1- 6, Corner 4 level 1-5 Outlet Piping	Leaking	Inspection	Internal Inspection	10Y
Level 1 Burner	Piping	Pipe	HP	Unit 1- 6, Level 2 Burner Pipe	Leaking	Inspection	Thickness Test	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Piping	Pipe	HP	Unit 1- 6, Level 2 Burner Pipe	Leaking	Inspection	Thickness Test	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Burner Flow Transmitter Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y

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Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Piping	Pipe	HP	Unit 1- 6, Level 3 Burner Pipe	Leaking	Inspection	Thickness Test	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Burner Flow Transmitter Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Piping	Pipe	HP	Unit 1- 6, Level 4 Burner Pipe	Leaking	Inspection	Thickness Test	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Burner Flow Transmitter Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 5 Burner	Piping	Pipe	HP	Unit 1- 6, Level 5 Burner Pipe	Leaking	Inspection	Internal Inspection	10Y

Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Burner Flow Transmitter Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Thickness Test	10Y
Level 1 Burner	Piping	Pipe	HP	Unit 1- 6, Level 1 Burner Pipe	Leaking	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Inlet IV	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Return Flow Reg VV Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Return Flow Reg VV	Passing	Inspection	Internal Inspection	10Y
Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Return Flow Reg VV Outlet	Passing	Inspection	Internal Inspection	10Y

Maintenance on SO₃, Bottom Ash Removal, Fuel oil & Draught Group external plant

Level 1 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Return Flow Reg VV Bypass V/V	Passing	Inspection	Thickness Test	10Y
Level 2 Burner	Piping	Pipe	HP	Unit 1- 6, Level 2 Burner Pipe	Leaking	Inspection	Internal Inspection	10Y
BURNER LEVEL 1 FO RETURN FLOW TX	Flow transmitter	C&I - Transm itter	Flow	Transmitter	Fails to read	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Return Flow Reg VV Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Return Flow Reg VV	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 1 Return Flow Reg VV Outlet	Passing	Inspection	Internal Inspection	10Y
Level 2 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 2 Return Flow Reg VV Bypass V/V	Passing	Inspection	Thickness Test	10Y
Level 3 Burner	Piping	Pipe	HP	Unit 1- 6, Level 3 Burner Pipe	Leaking	Inspection	Internal Inspection	10Y

Maintenance on SO₃, Bottom Ash Removal, Fuel oil & Draught Group external plant

Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Burner Flow Transmitter Inlet IV	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Return Flow Reg VV Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Return Flow Reg VV	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Return Flow Reg VV Outlet	Passing	Inspection	Internal Inspection	10Y
Level 3 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 3 Return Flow Reg VV Bypass V/V	Passing	Inspection	Thickness Test	10Y
Level 4 Burner	Piping	Pipe	HP	Unit 1- 6, Level 4 Burner Pipe	Leaking	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Burner Flow Transmitter Outlet IV	Passing	Inspection	Internal Inspection	10Y

Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Burner Flow Transmitter Bypass Valve	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Return Flow Reg VV Inlet IV	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Return Flow Reg VV	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Return Flow Reg VV Outlet	Passing	Inspection	Internal Inspection	10Y
Level 4 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 4 Return Flow Reg VV Bypass V/V	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 5 Burner	Piping	Pipe	HP	Unit 1- 6, Level 5 Burner Pipe	Leaking	Inspect and calibrate/re place when required	Calibrate	
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Burner Flow Transmitter Inlet IV	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Burner Flow Transmitter Bypass Valve	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Return Flow Reg VV Inlet IV	Passing	Inspect and calibrate/re place when required	Calibrate	

Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Return Flow Reg VV	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Return Flow Reg VV Outlet/V	Passing	Inspect and calibrate/re place when required	Calibrate	
Level 5 Burner	Oil Burner	Valve	Globe	Unit 1-6, Level 5 Return Flow Reg VV Bypass V/V	Passing	Inspect and calibrate/re place when required	Calibrate	
Unit 1 to 6 LEVEL 1-5 BURNER 1-4	Burner	Other	Other	Burner tips	Burner trips	Fuel oil burner function test	FUEL OIL BURNER'S FUNCTION TEST Replace/Adjust amplifier Adjust oil relay Clean scanner pipe Calibrate Repair Clean	3M

NB: All defects found during inspections must be reported mechanical maintenance supervisor.

8.1. Inspections

- Damaged spares should be inspected by Eskom representative and reflect on the report.
- Do visual inspection in all plant areas governed by this scope.
- Record all defects found during inspection.

9. Continuous Improvement

- The Contractor shall implement continuous improvement program to optimize performance and reduce failure rates.
- The Contractor will be responsible for participating in root cause failure investigations as required by the Client representative.
- Develop failure trends, record, and submit reports.
- Ensure that the plant is running effectively and efficiently.
- Assist with recommendations to better the reliability of plant and system.

Note: Contractor Performance Target: **100% reliability** and is **non-negotiable**, specifically because of the safety risk involved in use of the equipment.

10. Non-Exclusive Scope

10.1 Contract performance

- Optimisation of the system and equipment to reduce costs, maintain and enhance the condition of the equipment
- Maintain the equipment according to best practice and Eskom Computerised Maintenance Management System
- Conduct inspection and testing of all equipment to assess and monitor equipment condition.
- Perform maintenance work in accordance with specified standard procedures and check sheet as agreed between the contractor and employer.
- All work performed within the parameter of the scope of work and act
- To keep all instructions/ procedures on hand and supply Eskom power station with reference to be included in this document and supply record and history requirements.
- Ensure that the work is performed to the highest standard and safety standards and regulations

10.2 Critical spares and Equipment

- The contractor will be required to provide all non-stock items spares for the replacement and maintenance as per when required (the request must be from Eskom representative).
- The contractor will only use spares that are approved by Eskom.
- The management and safe keeping of the critical spares reside with the contractor.
- The contractor will be required to hire equipment at the market rate as when required.
- No spares/material/equipment should be purchase by a contractor without the employer's approval.
- The contractor shall timeously identify delays and adjust plans accordingly
- The Contractor will be required to supply spares in which all claims will be supported by substantiating documentation.

10.3 Warrantee, insurance, and Guarantee on repairs

- The employer requires twelve months guarantee on work done.
- The contractor shall take fully cost responsibility of any damage that occurs during transportation of Eskom equipment.

10.4 SHEQ

Each location where the *service* is carried out has a health and safety specification or procedure and safety risk management requirements relevant to that location (the *Employer's* site Health and Safety Plan). The CSM shall ensure that he is a registered recipient of such documentation at each location where work is carried out and is always in possession of the current version of such documentation before any work in this contract is undertaken at that location.

The *Contractor* shall comply with the requirements imposed on a contractor / Contractor stated in the current version of such documentation at each location where work in this contract is carried out and shall identify to the relevant SM the name of the *Contractor's* person responsible for monitoring such compliance.

The *Contractor* shall ensure that he is in possession of documentation relevant to protection of the environment at each location where work in this contract is carried out and shall comply with the requirements imposed on a contractor / Contractor stated therein. The Contractor shall keep records which demonstrate compliance with all health, safety and environmental requirements whether statutory or otherwise and shall allow the SM or relevant SM to inspect them at any time within working hours Employer's Health and Safety Requirements.

In carrying out its obligations to the *Employer* in terms of this contract; in providing the Services; in using Plant, Materials and Equipment; and while at the Site for any reason, the *Contractor* complies and procures and ensures the compliance by its employees, agents, Subcontractors, and mandatories with:

The provisions of the Occupational Health and Safety Act 85 of 1993 (as amended) and all regulations in force from time to time in terms of that Act ("the Occupational Health and Safety Act, ACT 85, OF 1993"); and The Eskom "Safety, Health and Environmental Requirements for Contractors" document (as amended from time to time) and such other Eskom Safety Regulations as are applicable to the Services and are provided in writing to the *Contractor* (collectively "the Eskom Regulations"). The Eskom Regulations may be amended from time to time by the *Employer* and all amendments will be provided in writing to the *Contractor*. The *Contractor* complies with the provisions of the latest written version of the Eskom Regulations with which it has been provided; and the health and safety plan prepared by the *Contractor* in accordance with the SHEQ Requirements.

The *Contractor*, always, considers itself to be the "Employer" for the purposes of the Health and Safety Act, Act 85, OF 1993 and shall not consider itself under the supervision or management of the *Employer* regarding compliance with the SHEQ Requirements, the *Contractor* shall furthermore not consider itself to be a subordinate or under the supervision of the *Employer* in respect of these matters. The *Contractor* is always responsible for the supervision of its employees, agents, Subcontractors, and mandatories and takes full responsibility and accountability for ensuring they are competent, aware of the SHEQ Requirements and execute the Services in accordance with the SHEQ Requirements

The contractor shall follow all Eskom's safety requirements including all lifesaving rules and regulations required to perform the work. No work will be performed without a permit to work being issued; therefore, the contractor must be authorised to take permit within six months from the award of the contract or contract start.

10.5 Data Pack

After failure, an investigation must be conducted. The following shall be submitted to the employer:

- Failure analysis report with pictures
- Detailed service report specifying the work to be done

- All reports to be signed and submitted to the contract manager within 1 week after service

10.6 Quality control standards:

Quality control plan shall be produced, maintained, and implemented per task as agreed by the employer. The QCP must be discussed with the employer for approval. This QCP shall comply with ISO 9001:2015 standards. Any amendments to the QCP shall be discussed with the employer for approval.

10.7 Eskom Policies

The contractor's employees shall comply with Eskom's policies and site regulations, including but not limited to the use of cell phone while driving, in restricted areas, adherence to Eskom's lifesaving rules, smoking policy, zero tolerance on alcohol usage, etc. these requirements will be discussed in detail during induction training process.

10.8 Emergency

The contractor will be required to attend to emergencies.

10.9 Pricing/Cost Breakdown

As per scope

11. Technical evaluation

- Technical evaluation will be based on the technical evaluation criteria
- Valuation report should be signed by Maintenance Manager
- Commercial documents should be signed by Commercial Manager.

12. Records

- Every official meeting will have an attendance register and meeting minutes recorded and kept in a file.
- Minutes of the meeting shall be signed by all parties
- All communications must be recorded in an email and kept in a file.

13. General:

- Housekeeping must always be good and follow proper stacking standards
- Contractor will provide own PPE, branded with contractor's name.
- No contractor is allowed to use Eskom's PPE.
- Ensure that the plant is running effectively and efficiently.
- Develop failure trends, record, and submit report.