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|  | Grootvlei Power Station | | SAP notification No | |
| | | | Date | 2023/08/25 |
| | | | No of pages | 3 |

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| Unit | 1 to 3 | Plant area | Fabric Filter Plant |
| Responsible department | Boiler Maintenance | | |

Background: The responsibility of the contractor is to maintain the Fabric Filter Compressors and Fabric Filter Plants in a good and operational condition. A permanent maintenance crew that will be based at Grootvlei Power Station will perform all maintenance work.

Objective: Provide reliable maintenance services on Fabric Filtering Plant

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| Scope |
| MAINTENANCE SERVICES ON FABRIC FILTER COMPRESSORS AND FABRIC FILTERS PLANT AT GROOTVLEI POWER STATION. |
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1 Description of the service

1.1 Executive overview

The responsibility of the contractor is to maintain the Fabric Filter Compressors and Fabric Filter Plants in a good and operational condition. All maintenance work will be performed by a permanent maintenance crew that will be based at Grootvlei Power Station.

The contractor maintains all year-round base crew, with applicable hand tools required for the works at Grootvlei Power Station. The base crew personnel are to be qualified and in possession of a valid trade test certificate. The contractor manages the base crew and appoints a site manager who will be required to perform at least, but not limited to the following duties:

- Work/task planning and co-ordination.
- Make recommendations regarding the spares stock holding.
- Attend daily meetings.
- Authorised as 'Responsible Person' in terms of Plant Safety Regulations, as per Grootvlei Power Station Requirements

The works consists of the routine maintenance, condition monitoring, breakdown, outage schedule, FFP bag cleaning, industrial vacuuming and corrective maintenance of the Fabric Filter Compressors and Fabric Filter Plant for the efficient running of Grootvlei Power Station over a period of 3 (three) years.

The following boundary conditions will apply to this contract. Note that these boundaries may change when official drawings are approved.

| Plant | Limits |
|---------------------------------|--|
| Fabric Filter Compressors Plant | Starting from new compressor house including all supply pipelines and associated plant. |
| Fabric Filter Plant | Starting from the Air heater outlet to the ID Fan outlet common flue gas duct but excluding the ID Fan and its equipment. This includes the emission monitoring equipment. Units 1, 2, 3, 4, 5 and 6. Dust hoppers up to the slide gate. |

1.2 Employer's requirements for the service

1.2.1 Maintenance, Planning and Scheduling

The contractor complies with the maintenance philosophy, strategy and all applicable procedure for the Fabric Filter Compressors and Fabric Filter Plant systems in line with the Power Station requirements and OEM specifications and agrees the philosophy, strategy and all applicable procedure with the Service Manager. The Contractor will be responsible for the following maintenance of the plant:

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1.2.2 Running/Routine Maintenance

Running maintenance is daily plant walk downs to confirm plant condition and to identify and to address visible faults. During these walk-downs, inspections are done on plant that is in operation and on standby. All defects or potential failures will be recorded. Performance of plant in operation is monitored and optimised. Running/routine maintenance will be done according to original equipment manufacturer instruction.

The defects will be listed, and corrective actions will be planned according to the priority of the defects. Where Permits to Work are required, the work will be planned with the Production Department.

All work will be scheduled via the *Employer's* SAP System. The *Employer's* Plant Safety Regulations will be adhered to under a responsible person in terms of the plant safety regulations.

Where history needs to be captured, defects will be raised on the SAP Stem and the history will be captured on the Works Orders. Comprehensive reporting is to be submitted after each inspection.

1.2.3 Preventative Maintenance

Preventative Maintenance procedures will be followed to prevent any potential breakdowns or failures of equipment. All history will be captured on the Works Order which will be handed to the planner on completion of the work. A list of work orders will be available before the start of the contract but can be altered to optimise the maintenance plan.

1.2.4 Condition Based Maintenance/Monitoring

The purpose of RCM and Condition Based Maintenance is to enable the monitoring of the performance, physical condition and the potential failure modes of equipment. The Grootvlei Maintenance Department will be required to participate in the RCM process. The contractor will be involved in the above process in giving expert advice.

1.2.5 Breakdown/Corrective Maintenance

The *Contractor* will be responsible for repairing all unpreventable and unforeseen plant failures that occur. The *Contractor* will also do mechanical maintenance service for the Grootvlei Power Station Fabric Filter Compressors and Fabric Filter Plant as per approved standby list.

The contractor will be responsible for arranging for the cleaning of the Ash build-ups on the ducting, which can be a subcontracted work, cleaning of the ducting is on as and when required basis, however the subcontractor will be approved by the Employer.

1.2.6 Planning and Scheduling

The planning, scheduling and recording of all plant history will be done by the contractor together with the planner and the plan will be captured on the SAP system. Planning and scheduling will be done every Wednesday or as scheduled by the planner.

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1.2.7 Maintenance Procedures

The contractor will be required to be involved in the following activities or duties:

- The writing and/or revising of Eskom plant and work-related procedures.
- The writing and/or revising of Eskom quality control documents and programs
- Attend Reliability Centred Maintenance (RCM) sessions

1.3 Fabric Filter Plant

The contractor will be responsible for first line, routine and annual maintenance on the whole of the Fabric Filter Plant as defined under section 1.1: Fabric Filter Plant Boundary Conditions. All the ducting to and from the Fabric Filter Plant up to the smokestack is part of the *works*.

The contractor will be responsible for arranging for the cleaning of the FFP Bags, which can be a subcontracted work, cleaning of the bags is on as and when required basis, however the subcontractor will be approved by the Employer

1.3.1 Inspections

A minor visual inspection is one which may be conducted without the necessity for removal or dismantling of equipment. The necessity for minor visual inspection is imposed by one of the following circumstances.

- As dictated by the maintenance cycle schedule
- Subsequent to severe disturbance.
- As a consequence of the observation of an abnormal condition occurring between scheduled inspections

A major inspection requires that the plant be electrically isolated so that the equipment can be removed as necessary, for the detailed examination. The necessity for a major inspection is imposed by one or a combination of the following circumstances:

- As dictated by the maintenance cycle schedule
- Subsequent to severe disturbance
- As specific fault suspected or detected during minor visual inspection.

The contractor should inspect the following equipment:

Casing and Support Steelwork

- A minor visual inspection is carried out at scheduled intervals with the fabric filter plant operation; the inspection is carried out externally.
- Inspect all platforms, stair treads and handrails giving access to the fabric filter plant for the signs of wear and damage.

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- Examine support steelwork to ensure that the bolts are not missing; check on a selective basis that bolts are tight.
- Examine the cladding to establish that it is fixed and undamaged.
- Check the dust hopper poke rod for function.

Dampers

- Inspect the body for cracks or damage
- Inspect gaskets for damage or leaks and check all bolts for looseness.
- Check actuators and lubricate in accordance with the manufactures recommendations

Filter Bags and Cages

- Periodic checks should be carried out to see that the filter bags are not leaking
- Check the operation of impulse air manifolds

Blowers and compressors

- Check the condition of v-belts, couplings and safety guards
- Check the condition of filters

1.3.2 Preventative Maintenance

The contractor will be responsible for the preventative maintenance of the Fabric Filter Plant system equipments:

Casing and Support Steelwork

- A minor visual inspection is carried out at scheduled intervals with the fabric filter plant operation; the inspection is carried out externally.
- Inspect all platforms, stair treads and handrails giving access to the fabric filter plant for the signs of wear and damage.
- Examine support steelwork to ensure that the bolts are not missing; check on a selective basis that bolts are tight.
- Examine the cladding to establish that it is fixed and undamaged.
- Check the dust hopper poke rod for function.

Dampers

- Inspect the body for cracks or damage
- Inspect gaskets for damage or leaks and check all bolts for looseness.
- Check actuators and lubricate in accordance with the manufactures recommendations

Filter Bags and Cages

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- Periodic checks should be carried out to see that the filter bags are not leaking
- Check the operation of impulse air manifolds and valves/solenoids

Blowers and compressors

- Check the condition of v-belts, couplings and safety guards
- Check the condition of filters

1.3.3 Corrective Maintenance

The contractor will be responsible for the preventative maintenance of the Fabric Filter Plant system equipment:

- Casing and support steelwork i.e. the renewal of access door seals and removal
- Filter Bags and Cages
- Blowers
- Common flue gas duct and connection onto the smoke stack
- Hopper slide gate
- All inlet and outlet dampers excluding the actuators in case of electrical actuators
- Power cylinders
- Coupling between an electrical motor and mechanical plant.
- Variable intensity gravity impact rappers

1.3.4 Fault Finding

The contractor will be required to do fault finding on the Fabric Filter Plant equipment. Once the fault condition of the equipment identified, the contractor makes necessary arrangements to rectify it or plan to rectify it during outage.


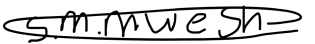
When performing the FFP Bag changes with the unit on load, safe working procedures of heat stress and work in confined space complying with the OHS act have to be followed. The contractor's employees who work on the FFP plant must have to be certified fit to work in heat stress areas at intervals not exceeding one year. These tests will be for the Contractor's cost. Other relevant safety regulations are described in Section 7.

1.4 Compressors

The contractor will be responsible for maintenance of the four (4) Atlas Copco Compressors. The contractor will be responsible for the routine maintenance. The Fabric Filter Plant installed for Unit 1, 2, 3, 4, 5 and 6 uses four Atlas Copco Compressors (ZT 250 units). The compressors are designed to operate with one unit constantly working and the other three on standby. Service of these compressors is done twice a year for each compressor i.e. a total of eight services per year. Service is done every 2000 operating hours.

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