	Scope of Work	Generation
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Title: **The Provision of Efficient Boiler and Turbine Cleaning Services at Tutuka Power Station** Document Identifier: **240-XXXXXX**

Alternative Reference Number: **N/A**

Area of Applicability: **Tutuka Power Station**




Functional Area: **Operating**

Revision: **0**

Total Pages: **17**

Next Review Date: **N/A**

Disclosure Classification: **Controlled Disclosure**

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1. Introduction

Tutuka Power Station is a coal fired power station and has 3600MW installed capacity and was constructed in the mid 1980's. The Tutuka Power Station is located within the Standerton magisterial district, approximately 21 km northeast of the town Standerton in the Mpumalanga Province. Hydrologically, Tutuka Power Station is situated within the Quaternary Catchment C11K, which in turn forms part of the Vaal River catchment area. This catchment area falls largely within the Environmental Water Requirement (EWR) Class C (moderately modified) management class.

Tutuka Power Station has unfortunately deteriorated over time due to poor housekeeping; particularly ash dust and Pulverized Fuel (PF) build up over time. The dust/PF emanates from the boiler plant due to excessive Dust Handling Plant Failures and PF leaks on the milling plant.

The health risk posed to employees working in the area has also increased due to the levels of airborne dust, emergency ash offloading etc. In addition, the plant equipment failures have been observed to be in an increasing trend and affects the reliability and availability of plant.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to outline the scope of work required to execute the efficient cleaning covering the boilers and turbine plants as well as the equipment's required to execute the cleaning requirements at Tutuka Power Station.

2.1.2 Applicability

This document shall apply to Tutuka Power Station only.

2.1.3 Effective date

The effective date will be from the authorisation date.

2.2 Normative/Informative References

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

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] National Water Act, 1998 (Act No. 36 of 1998)
- [3] National Environmental Management Act, Act 107 of 1998
- [4] National Environmental Management: Waste Act, Act 59 of 2008
- [5] Occupational Health and Safety Act (No. 85 of 1993)

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2.2.2 Informative

[1] N/A

2.3 Definitions

None

2.4 Abbreviations

Abbreviation	Explanation
BFPT	Boiler Feed Pressure Turbine
CIDB	Construction Industry Development Board
CoC	Certificate of Compliance
DE	Drive end
DST	Deaerator/Demin Storage Tank
EFP	Extraction Feed Pump
FD	Forced Draught
HP	High Pressure
HV	High Voltage
ISO	International Standards Organisation
LH	Left Hand
LV	Low voltage
ML	Meter Level
N/A	Not Applicable
NCR	Non-Conformance Report
NDE	Non-Drive End
PA	Primary Air
PPE	Personal Protective Equipment
QC	Quality Control
Quality Control Plan	Quality Control Plan
QIP	Quality Inspection Plan
RH	Right Hand
SANS	South African National Standards
SSC	Submerged Scraper Conveyor

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2.5 Roles and Responsibilities

2.5.1 Operating Department

- Responsible to coordinate the works, and for all contract management and liaising with the contractor
- Responsible for supervising the works being executed at all times
- Compiles scope of work for the Industrial Cleaning services required on the specific plant and peripherals
- Conducts technical evaluation, as per the issued technical evaluation strategy

2.5.2 Principal Contractor

- As per OHS Act (85/1993), executes scope of work issued by the Employer

2.5.3 Tutuka Environmental

- Ensures that environmental legislation and standards are adhered to, and environmental practices are implemented at all times during execution of the works.

2.5.4 Tutuka Quality

- Ensures that quality legislation and standards are adhered to, and quality practices are implemented at all times during execution of the works.

2.5.5 Tutuka Safety

- Ensures safety legislation and standards are adhered to, and that safety practices are implemented at all times during execution of the works.

2.6 Process for Monitoring

The procurement department will adjudicate the tender evaluation and contract appointment.

The Contractor will daily/weekly/monthly compile a report which will ensure the works are executed within the relevant technical aspects and SHEQ requirements

2.7 Related/Supporting Documents

N/A

3. Constraints

3.1 General Constraints

- a) Optional site tender briefing session/scope clarification meeting can be conducted or requested by the Tenderer
- b) All technical queries to be directed to Operating department

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- c) Contractor to provide returnable schedules in accordance with the technical evaluation strategy issued by the Employer.

3.2 Site Constraints

- i. All works must be executed while the plant is in operation, some area might be isolated some areas might not have isolations provided, a risk assessment to be conducted for every task and approved by the Contractor's safety officer
- ii. Contractor to provide all machinery, equipment, plant, materials and skilled labour to execute the required works.
- iii. All environmental laws and regulations are to be adhered to during the execution of works.
- iv. The Contractor's tools, machinery, equipment and execution of work must not impair the operation or access to the station and other plant areas.
- v. During execution of the scope of work, Contractor to share the site with other contractor/s conducting observations, operations, and maintenance tasks.

4. Scope of Work

4.1 Executive Summary

The scope of work consists of plant cleaning from unit 1 to 6 which includes, boiler basement, boiler structures from 16meter level to 95meter level, turbine areas from 0meter level, 12meter level and 16meter level.

4.2 Employer's requirements for the Service

The scope of work consists of plant cleaning from unit 1 to 6 in and around the boiler plant and turbine floor until 16meter level at Tutuka Power Station with a 24hr coverage.

- i. Contractor to bring in all machine, equipment, systems/infrastructures and operational requirements including labour required to execute the scope in the shortest possible.
- ii. Contractor to conduct detailed site preparations and put up a daily plan for cleaning requirement including resources to achieve efficient plant cleaning
- iii. The Contractor must record the following when cleaning is being executed:
 - a) Date and time and area cleaned
 - b) Problems identified
 - c) Maintenance action required if any
 - d) Actions taken/recommended during scope execution
- iv. Contractor to note that all cleaning information must be recorded on a daily report. The report must be submitted to the relevant Tutuka stakeholders on a weekly basis.
- v. The Contractor must ensure that the cleaning personnel are well-trained and informed of the industrial cleaning and work requirements. The Contractor's Project Manager/Site Manager/ Site Supervisor must monitor general cleaning and where applicable, supervise specialised cleaning tasks.

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5. Labour, Materials and Machine/Equipment

The Contractor shall be responsible for the supply and delivery of all materials, tools, equipment, tools, machinery, labour, and specialist skills necessary to execute the required cleaning works. All equipment and machinery must be in working order.

Contractor to provide their own resources to secure security of tools, materials, and machinery/equipment that will be stored on site. Employer will not be liable to account for any costs related to damages or theft of Contractor's tools, materials, and machinery and equipment.

6. Manpower Plan Requirements

6.1	(Normal Hours)
6.1.1	Site Manager (1No.)
6.1.2	Supervision (1No.)
6.1.3	Admin Clerk (1No.)
6.1.4	SHEQ Officer (1No.)
6.1.5	General Workers (100No.)

7. Emergency team/24hr coverage

7.1	(Mid - Week Overtime)
7.1.1	Supervision (1 No.)
7.1.2	General Workers (5 No.)
7.2	(Mid - Night Work Overtime)
7.2.1	Supervision (1 No.)
7.2.2	General Workers (15 No.)
7.3	(Saturday Overtime)
7.3.1	Supervision (2 No.)
7.3.2	General Workers (20 No.)
7.4	(Sunday & Public Holidays Overtime)
7.4.1	Supervision (2 No.)
7.4.2	General Workers (20 No.)

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8. Equipment Plan Requirements (As and when required)

8.1	As and when required items
8.1.1	HP Pump (1 No.)
8.1.2	Submersible pump (1 No.)
8.1.3	Diesel Slurry Pump (1 No.)
8.1.4	Super Sucker (2 No.)
8.1.5	TLB (1 No.)
8.1.6	10 Cube Tipper Truck (2 No.)
8.1.7	Electric Vacuum unit with collecting vessel (1 No.)
8.1.8	Bobcats (3 No.)

Note: All equipment's will be on an as and when requirements basis with a response of less than 4 hours minimum and 8 hours maximum. The required machinery will not be limited to the above areas but will be utilized in any other plant area that will require the equipment services.

9. Minimum qualifications requirements of people employed by the *Contractor* are as follows:

Site Manager must have Grade 12 with 05-years related experience as a Site Manager for industrial cleaning
Supervisor must have Grade 12 and 02-years relevant experience as Cleaning Supervisor for industrial cleaning

Operators – Skilled and approved for machine operation and must have Grade 12 and be literate competent to perform their scope of work and power plant experience

General Workers – Skilled and must have a minimum of Grade 10 and be literate competent to perform their scope of work

Safety Officer must possess a National Diploma in Safety Management with SAMTRAC with 02-years related experience

10. The plant lay out and the scope to be executed

Areas not included/omitted/mentioned in the scope will not be exempted when cleaning requirements are need. The Contractor can be moved to any area that required cleaning at the station as per the instruction issued by the Tutuka Contract Manager.

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Boiler Basement unit 1 to 6

10.1.1 Milling Plant

- Cleaning Girth gear sumps
- Pedestal
- DE & NDE Classifier
- Inside and Outside of Sound hood
- Oil system and spillages
- Coal and PF spillages
- Purge air system
- Removal of dropped charge on request.

10.1.2 SSC Floor

- SSC floor washing
- SSC floor ash heaps removal
- Sumps and Trenches cleaning
- Ash box internal
- Bins removal
- Boiler aux cooling water pipe work cleaning
- Sump monitoring for overflow
- SSC and emergency off- loading cleaning

10.1.3 Draught Group Cleaning

- LH & RH FD fan oil system and spillages
- LH & RH FD Fan pedestal
- LH & RH PA fan oil system and spillages
- LH & RH PA fan pedestal; bins removal

10.1.4 Unit 1 to 6 boiler structures

- Removal/Cleaning of hard ash inside and outside the boiler.
- Boiler structures cleaning, on a daily basis from 0-meter level to the top of the boiler. Structure, i.e. 95-meter level. Services required for all units.
- Boiler external washing on request.
- Vacuum with super sucker the boiler structures beams, cable racks all roofing structures, corridors walls. Floors logically belonging to the associated boiler area and all electrical switch rooms.
- Feather dust/ Sweep boiler beams, structures, tanks, gratings, station air-con area, hand railings, pipework, vessels, air heaters, sling decks, DST area and aux manifold area which can be reached.
- All ash collected must be disposed at the ash disposal.
- General cleaning services during planned/forced outages.
- Domestic and hazardous waste bins emptying on a regular basis.

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- Boiler lifts.
- FD suction inlet on request.
- Ducting

10.1.5 Turbine Plant (unit 1 to 6)

- Turbine floor cleaning from 0 m to 16 m and Station cable tunnels
- General cleaning services during planned/forced outages
- Domestic and hazardous waste bins emptying on a regular basis
- Turbine structures cleaning (gratings, Staircases, turbine walls, pipework, vessels, sumps, Station trenches, service transformers and bays, cable racks, cranes, and surrounding areas, 22kV breaker area.
- Auxiliary bay stairs and walls including turbine walls
- Generator canopies including EFP's and BFPT's
- HV yard to turbine floor entrances; Turbine house entrance and car parking area and Turbine lifts
- Vacuuming services (industrial vacuuming machines, ride-on sweepers)
- Inaccessible area on structures/EFP area/Cross Overs/HP Heaters

10.1.6 Equipment Supply Services

- Vacuuming services by means of a heavy-duty mobile vacuum unit
- Ash emergency off-loading on the SSC and Dust Handling Plant
- Domestic and hazardous waste bins emptying on a regular basis
- Moving of coal/ash/debris from site to designated disposal areas that is ash disposal, coal stock yard and hazardous and waste site
- Cleaning and emptying of all site sumps (Degritting Sumps, vessels, Bucket elevator sumps, blow down vessels) on request
- Road sweeping

10.1.7 Outage work

- The *Service Manager* or supervisor will inform *Contractor* of outage dates.
- The preliminary outage program will be forwarded to *Contractor*.
- The *Service Manager* or supervisor will forward any changes to the outage program.
- *Contractor* will submit a preliminary plan for servicing equipment to the *Service Manager* and the supervisor according to the outage plan of the client, no later than two weeks or as specified in terms of the outage requirements.
- As and when required, provide cleaning services as follows
- Boiler basement cleaning scope.
- Boiler structures scope
- Turbine plant scope

10.1.8 General

- All personnel will be available to work 24 hours
- All PPE to be provided by *Contractor* including chemical resistant/retardant PPE

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- Working hours is the *Employer's* working time, overtime might be required depending on the workload
- All extra travelling requested by the *Employer* will be on the *Employer's* account
- Daily time sheet must be kept up to date, reflecting all work performed on a daily basis. *The Employers Contractors* time sheets to be used
- Attendance of meetings as and when required by *The Employer*
- *The Employer's* Safety requirements, safety meeting and regulations to be adhered to.
- All documentation required must be returned with the tender document
- If the *Contractor* replaces personnel under his control, it must be Approved by the *Service Manager*
- *Contractor* to provide plan of how his personnel will be divided to attend training and go on leave
- All new staff to be appointed in writing.
- All new staff to do induction training
- All new staff to be approved by *Service Manager* before entering the site or commencing work
- All new staff must hand in all qualifications and relevant documentation to the *Service Manager*
- When changing personnel, a new access to work form to be completed by the *Contractor*
- Only required specified approved amount of personnel to be allowed on site, pre-arrange and approved by with *Service Manager*
- *Contractor* to provide own transport for all employees to travel to site
- The *The Employer's* Lifesaving rules to be adhered to at all time
- *The Employer's* safety meetings and regulations to be adhered to
- *Contractor* shall comply with the *Employer's* QC Standard's.
- *Contractor* shall comply with the *Employer's* (WWM) workweek management system.
- Good housekeeping to be maintained at all time
- All telephone accounts on *Contractor* account
- All cabins and LV equipment will comply within the *Employer's* standard's (COC)
- Site conditions will be according to the *Employer's* and Safety regulations standard'
- Audit on *Contractor* will be done on a frequent basis
- *Contractor* to provide own cabins for facilities such as office and workshop space
- Transport to be provided by *Contractor* and included in cost, the *Employers* transport procedure to be adhered to at all times
- Safety of personnel and plant is the requirements while on site at all times (Zero harm policy)
- CIDB Certificate must be valid at all times if required
- PPE to be provided by *Contractor* for *Contractor* Employees and must comply to the *Employer's* requirements. eg. Arc flash suits, this includes facial and hand arc flash suit protection, as well as arc flash suit undergarment PPE, acid resistant, fire retardant PPE
- *Contractor* shall be required to maintain good housekeeping at all times
- Risk assessments must be completed before each task as per *Employer's* standard

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- Non – performance of employees, including absenteeism concerns, will be monitored – NCR will be issued accordingly

11. Contractor Change of Management and operations team

- Where the *Contractor* does Name Changes, Mergers, Acquisitions, and Cessions the *Employer's* procedure must be followed. (Eskom Procurement and Supply Management Procedure)
- In a case where one *Contractor* takes over from another *Contractor*, the *Site Service Manager* must be notified in writing immediately.
- The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*.

12. Configuration Management

All documents supplied by the Contractor shall be subject to Eskom's approval. The language of all documentation shall be in English.

All project documents must be submitted to the Employer's Representative with transmittal note. In order to portray a consistent image, it is important that all documents used within the project follow the same standards of layout, style and formatting as described in the Work Instruction. The Contractor is required to submit documents as electronic and hard copies and both copies must be delivered to the Eskom Representative with a transmittal note.

13. Document Returnable

The contractor shall produce and submit a project plan, project quality plan, organogram, safety file for approval prior to the commencement of work. The Contractor to conduct induction and medicals prior to commencement of work.

These documents should contain the following information, which is not limited to -

- Project Programme: Indication of the different activities applicable for the execution of the required works from site establishment to handover as well as the time period allocated for each activity
- Project Quality Plan: Highlight the activity or standard which shall be used to ensure quality materials and workmanship
- Organogram: Indication of the core staff who will be involved in the execution of the required works. Names and qualifications to be specified.
- Detailed method statement specifying skills, labour, materials, tools, equipment, machinery for the execution of the required work (Optional can be discussed one site has been established)

14. Programme

The project programme to specify the different activities applicable for the execution of the required works from site establishment as well as the time period allocated for each activity.

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15. Acceptance

This document has been seen and accepted by:

Name	Designation
Muzi Maseko	Operating Support Manger (Acting)
Oupesh Motlhabane	Operating Middle Manager (Acting)
Elvis Maremene	Production Middle Manager(Acting)
Mogomotsi Edwards	Outside Plant Production Manager (Acting)

16. Revisions

Date	Rev.	Compiler	Remarks
27 June 2022	0	Muzi Maseko	Document development

17. Development Team

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

- Muzi Maseko
- Elvis Maremene

18. Acknowledgements

N/A

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