	Scope of Work	Generation
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Title: **Appointment of Approved Professional Persons for Monitoring of Komati Power Station Ash Dams and Water Dams for A Period of Three Years**

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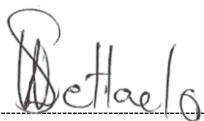
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1. INTRODUCTION

Komati Power Station, located in Mpumalanga, approximately 40 kilometres west of Middelburg along the R35 Bethal Road. Constructed between 1961 and 1964, it was among the initial coal-fired power stations established by Eskom and has now reached the end of its operational life cycle. Presently, there are initiatives underway to decommission the facility and transform it into a Renewable Energy Station.

The power station is equipped with both process water dams and ash dams which are currently operational and require continuous monitoring. These are:

- Ash Dams – Ash Dam 1, Ash Dam Extension 1, Ash Dam Extension 2, Ash Dam Extension 3D, Ash Water Return Dam, Ash Water Return Sump
- Four (4) Raw Water Reservoirs
- Polluted Water/Stormwater Dams -Lake Stoffel, Lake Finn, 3rd Recovery Dam

Furthermore, SANS 10286 and Chapter 12 of the National Water Act (Act No. 36 of 1998) require the appointment of Approved Professional Persons (APP) to assume professional responsibility for the continuous monitoring and reporting to the Dam Safety Office (DSO) located within the Department of Water and Sanitation (DWS) for all dams which are classified, or should be classified, as a Category II or III Dam with a Safety Risk

2. SUPPORTING CLAUSES

2.1 Scope

2.1.1 Purpose

The purpose of this document is to outline the scope of work required of an Approved Professional Person for the monitoring and assumption of professional responsibility for Komati Power Station's Ash Dams and Process Dams.

2.1.2 Applicability

This document shall apply to Komati Power Station only.

2.1.3 Effective date

The effective date will be from the authorisation date.

2.2 Normative/Informative References

2.2.1 Normative

- [1] National Water Act, 1998 (Act No. 36 of 1998) – Chapter 12.
- [2] Government Notice Dam Safety Regulations R.139 of 24 February 2012.
- [3] South African National Standards: Code of Practice, Mine Residue, SANS 10286: 1998.

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[4] Occupational Health and Safety Act, 1993 (Act 85 of 1993).

[5] Ash Dam and Process Water Dam's Operation and Maintenance Manuals.

[6] Inspection Manual for Civil Works at Eskom's Power Stations (240-99527377)

[7] Dam Design Standard (240-55864300)

[8] Guideline for a Scope of Work for Appointment of Approved Professional Persons (APP) for Ash Dams and Water Dams With a Safety Risk (559-477942923)

2.2.2 Informative

[1] Komati Water Use Licence

[2] Komati Integrated Waste Licence [3] Komati Storm Water Management Plan

[3] National Environment Management Act, 1998 (Act No. 107 of 1998)

[4] National Environmental Management: Waste Act 59 of 2008

2.3 Roles and Responsibilities

2.3.1 Employer's Representative

- Responsible to coordinate the works, and for all contract management and liaising with the contractor.
- Responsible for managing and supervising the works being executed at all times.
- Compiles scope of work
- Conducts technical evaluation, as per the issued technical evaluation strategy.

2.3.2 Principal Contractor (APP)

- Executes scope of work issued by the Employer.

2.3.3 Komati Safety

- Ensures compliance to safety legislation and standards, and that safety practices are consistently implemented during execution of the works.

2.3.4 Komati Environmental

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

2.3.5 Komati Quality Management Department

- Assures adherence to quality legislation and standards, and that quality practices are effectively implemented at all stages of the works' execution.

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2.4 Process for Monitoring

The tender committee will adjudicate the tender evaluation and contract appointment.

3. SITE DESCRIPTION

Komati Power Station currently has both process and ash dams that are currently operational and require regular inspections and monitoring by an Approved Professional Person (APP) to ensure compliance with all relevant legislative, environmental and safety requirements. These dams are:

- Ash Dam Complex – Old Ash Dam (Ash Dam 1, Ash Dam Extension 1, Ash Dam Extension 2), New Ash Dam (Ash Dam Extension 3D), Ash Water Return Dam, Ash Water Return Sump



Figure 1: Ash Dam Complex

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- Four (4) Raw Water Reservoirs



Figure 2: Raw Water Reservoirs

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- Polluted Water/Stormwater Dams -Lake Stoffel, Lake Finn, 3rd Recovery Dam



Figure 3: Pollution Control/Effluent Collection dams and catchment areas

The dam characteristics are as follows:

Dam Name	Description	Volume
Old Ash Dam (Ash Dam 1, Ash Dam Extension 1, Ash Dam Extension 2)	Ash disposal, currently not operational.	1661 000t/a
New Ash Dam (Ash Dam Extension 3D)	Ash disposal. Not operational.	1351 000t/a
Ash Water Return Dam	Collection of drainage and decanted water from Old Ash Dam	120 000m3
Ash Water Return Sump	Collection drainage and decanted water from New Ash Dam	2000m3
Four (4) Raw Water Reservoirs	Storage of raw water for potable water production	50 000m3 each dam, total storage volume of 200 000m3
Lake Stoffel	Pollution control/effluent discharge dam	6000m3
Lake Finn	Pollution control/effluent discharge dam	4000m3

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3 rd Recovery Dam	Pollution control/effluent discharge dam	120 000m3
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4. SCOPE OF WORK

- Provide professional engineering services and take responsibility as a registered Approved Professional Person (APP) registered with the Dam Safety Office of the Department of Water and Sanitation.
- Provide ongoing guidance to Komati Power Station to ensure compliance of Komati Power Stations process water and ash dams with all legal, environmental and safety requirements.
- Conduct monthly inspections of the ash dams and process water dams and chair monthly meeting to discuss the operation and maintenance of Komati Power Station dams. Produce monthly inspection reports with recommendations and monitor compliance with recommendations made.
- Dam Safety Evaluation on ash dams every two years.
- Performs slope stability analysis every 2 years to quantify the risks on ash dams and all other dams and advice the client on safety risks and environmental risks with recommendations.
- Perform dam break analysis on all dams every 2 years.
- Ensure that the ash dam's structural integrity is not compromised in any way by any action.
- Provide advice on any actions deemed necessary to ensure the long-term health of the ash dam and all other dams.
- Perform all minor modifications including drawings pertaining to the ash dam operations and other dams.
- Execute the necessary geotechnical investigations to quantify the strength parameters of the ash every 2 years.
- Develop and assist in an overall operational strategy to coordinate activities between engineering, maintenance, and operating functions.
- Develop implementation strategies in the context of how to fix defects and potential defects for ash dams and other dams.
- Review all existing emergency procedures and where none exist compile one.
- Assess distress signs such as cracking, wet spots on the downstream face, and critical settlement.
- Monitor changes on dam embankments which may be critical to stability and to help predict unstable conditions.
- Conduct an aerial survey and capacity analysis for the ash dams annually.
- Carry out bathymetric survey of the process water dams every two years.
- Develop a mentorship and coaching program for Komati Auxiliary Engineering Department that will be implemented for the duration of the contract.

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- The mentorship program must include involving Komati Auxiliary Engineering Department in all designs, inspections and investigation undertaken.
- Quarterly progress report on mentorship and coaching program.
- Check ash dam filter drains and regular monitoring of piezometer readings.
- Investigation reports with recommendations as and when required.
- Develop designs and design report with drawings as and when required.
- Quarterly station drain inspection.
- Calculate 1:50 years storm and freeboard levels on the dams.
- Assess water balance predictions
- Identify and highlight any risks regarding Komati Power Station Dams.
- Any changes to any of the dam structure must be provided in the Eskom title block
- Be available 24hrs for any emergency regarding Ash Dam
- Provide inputs and recommendations into the decommissioning plans for the ash dam complex.
- All the resources (equipment, software's etc) required for the work must be provided by the contractor/consultants. Equipment to include the required plant/equipment required for the following activities:
 - Aerial Survey
 - Bathymetric Survey
 - Geotechnical tests required as part of the Dam Safety Evaluation.

5. CONFIGURATION MANAGEMENT

All documents supplied by the Contractor shall be subject to Eskom's acceptance. 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.

6. ACCEPTANCE

This document has been seen and accepted by:

Name	Designation
Samuel Dooka	Auxiliary Maintenance Manager
Jurie Pieterse	Middle Manager Maintenance (Acting)

7. ACKNOWLEDGEMENTS

None

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8. DEVELOPMENT TEAM

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

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- Lehlohonolo Setlaelo

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