Eskom	Instructions	Hendrina Power Station

Title: **Scope of Work for the Supply and Delivery of Sodium Chloride, Sodium Hydroxide, Sodium Hypochlorite and Ammonia Solution chemical as and when required for 5 Years at Hendrina Power Station.**

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1. Introduction

Chemicals are used at Hendrina Power Station for a wide range of reasons including but not limited to treating of water throughout the energy generation process. The availability of such chemicals is of significant importance in energy generation.

2. Supporting Clauses

2.1 Scope

This document describes the technical requirements for the supply and delivery of sodium chloride, sodium hydroxide, sodium hypochlorite and ammonia solution chemical as and when required for 5 years at Hendrina Power Station.

2.1.1 Purpose

The purpose of the document is to provide guidance and specify the requirement for the sourcing of the chemicals for Hendrina Power Station.

2.1.2 Applicability

This document is applicable to Hendrina Power Station.

2.2 Normative and Informative References

2.2.1 Normative

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

2.2.2 Informative

[1] 240-150642762, Generation Plant Safety Regulations

[2] ISO 9001 Quality Management Systems.

[3] Handling of hazardous substances

[4] Occupational Health & Safety Act

2.3 Definitions

Definition	Description
System	An integrated set of constituent pieces that are combined in an operational or support environment to accomplish a defined objective. These pieces include people, hardware, software, firmware, information, procedures, facilities, services and other support facets

2.3.1 Classification

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

Abbreviation	Description
HPS	Hendrina Power Station
QCP/QIP	Quality Control Plan / Quality Inspection Plan
PS	Power Station
SOW	Scope of Work
ISO	International Standards Organization
QCP	Quality Control Plan
OHSA	Occupational Health and Safety Act
BMH	Bulk Materials Handling
L	Litres
Kg	Kilograms
WTP	Water Treatment Plant

2.5 Roles and Responsibilities

System Engineer – Responsible for defining the technical specifications and scope to be executed by the contractor, as well as ensuring that sound engineering practice is followed, and quality work is delivered.

Contract Manager – Responsible for the procurement document(s) required to establish a contract with the contractor deemed capable of executing the scope.

Contractor – Responsible for providing all the services required for the execution of the full scope of work.

2.6 Process for Monitoring

N/A

2.7 Related/Supporting Documents

None

3. Scope of Work

The scope for this work coverers the following:

- This document covers the supply and delivery of the following treatment chemicals (detailed specifications and quantities are given in the following section):
    - Supply and deliver **Sodium Chloride Chemical** – for Demin water treatment, (called Alkaline Brine wash) for the removal of Total Organic Carbon (TOC) on the Anion Vessel Resin. TOC is measured across the various ion exchange vessels to give an indication of the removal efficiency of these vessels and to serve as a guide to establishing the optimum alkaline brine wash frequency of the anion resins.

- Supply and deliver **Sodium Hydroxide chemical** - for the potable water stabilization process: to maintain, adjust and control drinking water pH. (For human consumption)
- Supply and Deliver disinfectant- **Sodium Hypochlorite chemical** for the sewage final effluent treatment chemicals (which is a disinfectant for controlling bacteria growth) at Hendrina Power Station. Technical performance of the chemical treatment to maintain the Chemical Oxygen Demand (COD) <75% removal.
- Supply and deliver- feed water treatment chemical **Ammonia Solution chemical 10%-35%** to Hendrina Power Station. Technical performance of the chemical treatment must maintain the pH control of (9.2 – 9.3) in the feed water system**.**

- Provision of technical support to adjust chemical dosing (when necessary) and monitoring of chemical performance once every month.

4. Chemical specifications

The table below is the list of the chemicals to be supplied and their specifications as well as the estimated quantities for the duration of the contract.

Material No.	Short Description	Long Description	Quantity
0157489	CHEMICAL: AMMONIA; LIQD;25 L; DRUM PLASTIC	CHEMICAL: TYPE: AMMONIA; FORM: LIQUID; CONTAINER CAPACITY: 25 L; CONTAINER: DRUM PLASTIC;	70 000L
0720818	CHEMICAL: HTH; LIQD;25; DR	CHEMICAL: TYPE: SODIUM HYPOCHLORITE; FORM: LIQUID; CONTAINER: 25L DRUM; FOR USE FOR SEWAGE WATER DISINFECTION	50 000L
0157126	CHEMICAL: SODIUM CHLORIDE; CRYSTAL;50 KG	CHEMICAL: TYPE: SODIUM CHLORIDE; FORM: CRYSTAL; CONTAINER CAPACITY: 50 KG; CONTAINER: BAG PLASTIC; COARSE SALT; PAN SALT; FIRST GRADE; FOR WATER TREATMENT	900 000Kg
0157291	SOLUTION: CAUSTIC SODA;98 PCT; BAG 25 KG	SOLUTION: TYPE: CAUSTIC SODA; CONCENTRATION: 98 PCT; CONTAINER: BAG 25 KG; TO BE SUPPLIED IN BAGS AND NOT METAL CANS AND TO BE STACKED 40X25KG BAGS PER PALLET; LOOSE BAGS WILL NOT BE ACCEPTED REQUIRED THE NEW STD FOR RELIABILITY	100 000Kg

4.1 Effective Date

This document will be effective from the date that the contract is authorized.

5. Requirements

5.1 Handling and Transportation

The *contractor* is expected to practice safe handling techniques during the onloading, offloading, and throughout the transportation of the chemicals, if necessary. The *Employer's* representative will not accept any damaged items upon delivery.

Should the delivered chemicals be found to be defective or out of spec, the contractor remains responsible for the handling and transportation in the replacement process of the item(s).

5.2 Additional requirements/ Information

5.2.1 Employer's requirements for the service of Supply and deliver Sodium Chloride Chemical

- Sodium Chloride Chemicals for Demin water treatment is used for the removal of Total Organic Carbon (TOC) on the Anion Vessel Resin.
- Sodium Chloride (as GRADE 1-COARSE SALT), Sodium Chloride (known as Coarse Salt)
- Technically the salts must be pure crystal white, coarse size.
- It serves as a guide to establishing the optimum alkaline brine wash frequency of the anion resins.

5.1.2 Employer's requirements for the service of Supply and deliver Sodium Hydroxide chemical.

- Sodium Hydroxide chemicals - for the potable water treatment ((known as Caustic Soda)
- It is used to maintain, adjust and control drinking water pH. (For human consumption)
- Sodium Hydroxide of min 99% as Caustic Soda Flakes
  Technical performance of the chemical treatment must maintain the pH control of (8.5 – 9.0) in drinking water system.

5.1.3 Employer's requirements for the service of Supply and deliver Sodium Hypochlorite chemical. (Disinfectant)

- Sodium Hypochlorite chemical dosing to be continuous.
- Provide Certificate of analysis and Material Safety Data Sheets (MSDS) with every delivery
- Display product name and summarized safety precautions on the equipment station.
- FSodium Hypochlorite (Liquid) is for Final effluent treatment chemical.
- Sodium Hypochlorite disinfectant for controlling bacteria growth and microbiological organisms.
- Technical performance of the chemical treatment to maintain the Chemical Oxygen Demand (COD) <75% removal.

5.1.4 Employer's requirements for the service of the supply and deliver Ammonia Solution chemical.

- Boiler Feed water treatment chemicals Ammonia Solution (35%)
- Maintain the pH control of (9.2 – 9.3) in the feed water system.
- Provide Certificate of analysis and Material Safety Data Sheets (MSDS) with every delivery

5.3 Safety Requirements

The Contractor is to comply with the latest revision of the Eskom Generation Plant Safety Regulations, site specific procedures, and stipulations of the OHS Act.

5.4 Documentation to be Submitted by the Contractor

The following documents must be submitted with every delivery:

- Material data sheet as per OHSA requirements.
- Certificate of analysis.
- Weigh bridge certificate confirming the quantity delivered (Payment will be based on the results from the Eskom weighbridge unless not available).
- The delivered chemical should be labelled with the name and chemical spec as per the MSDS.

5.5 Quality Assurance Requirements

The Contractor is to be responsible to record and archive all off-site, factory tests and on-site tests.

6. Revisions

Date	Rev.	Compiler	Remarks
January 2025	0	Lwazi Kubheka	New Document

7. Acknowledgements

N/A