

PART 4: SITE INFORMATION

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PART 4: SITE INFORMATION

1. General description

Kendal Power Station is situated approximately 40km Southwest of Witbank in the Mpumalanga province. Construction started in 1982 and took 11 years to complete.

Kendal Power Station comprises six generating sets (Units) of 686 MW each, the station capacity is 4116 MW, which is indirectly dry-cooled. The generators produce electricity at a voltage of 22KV, the generator transformers steps up the transmission voltage to 400kV.

Kendal Power Station receives its coal supply of over a million tons per month from a neighbouring mine Khutala as well as other sources with varying characteristics. The ash that remains after the combustion of coal has two grading i.e., coarse ash (5% of total ash) and fly ash (95% of total ash). The fly ash together with waste gasses passes through the electrostatic precipitators where 99.9% of the ash is collected. The coarse ash is removed by a submerged scraper conveyor to the apron conveyor. The fly ash is moistened and mixed in the ash conditioners. Both gradings of ash are transported via the overland conveyors to the ash dump, where it is spread by an ash spreader, levelled, and covered with topsoil and finally regressed.

The maximum continuous rating of each boiler at the turbine stop valves is 577kg/s with superheated steam temperature and pressure of 540 degrees Celsius and 17,24MPa respectively.

The water usage at Kendal Power Station is minimal (0.1 litre per kilowatt-hour). The water comes from the Vaal and Usutu Water Schemes alternatively. The WTP produces potable and demineralised water, conducts water balancing and effluent management, chemistry control and monitoring of all process water. The CP plants, one at each unit, are used for the polishing of condensate water on the units while the CP Regeneration plant does the transfers and regeneration of the Unit CP resin and is located in the Water Treatment Plant. .

The power station is a Zero Liquid Effluent Discharge Station and ISO 14001 compliant.

1.1 Contractor's yard

- a) Should the Contractor qualify for a site, the Employer will provide a site within the premises of the Power Station for the Contractor to establish himself for the execution of the works. The Project Manager together with the Site Manager will allocate a site to the Contractor. A site close to the connection points of water, electricity and toilet facilities cannot be guaranteed.
- b) A Contractor qualifies for a site if the answer to at least one of the following questions is affirmative:
 - Is the contractor needed on site daily to carryout his/her contractual duties?
 - Does the nature of contract activities demand that the contractor be involved continuously, with his/her contractual duties for the whole day for four (4) or more days in a week?
 - In a case of a break down, is the contractor required to respond to the call out within 15 minutes?
 - Is there any statutory regulation/s that warrants that the contractor must operate within the premises of Kendal Power Station for the delivery of contractual obligations?
 - The Contractor is responsible for keeping the site in good state of maintenance and is responsible to ensure that at the end of the Contract period, he informs the Site Manager to inspect the site at least thirty days (30) before the Contract end date. The Contractor shall vacate the site allocated to him at the end of the Contract or on termination of the Contract
- c) A written request, indicating the *Contractor's* requirements in locality and area of storage, office and workshop sites is submitted to the *Supervisor* as soon as possible after the Contract Date.

1.2 Roads

- a) The *Employer* makes every effort to maintain the roads on the Site in a fair condition and all construction traffic is limited to using these roads. Kendal traffic regulations are always adhered to. Speed limit is 40km/h.

1.3 Security

- a) The *Contractor* is informed of the access procedures through Site regulations and should expect that such procedures may change depending on the prevailing security situation
- b) Personnel may not be transported on the back of pick-ups or trucks. All persons entering the Kendal site pass through the control points at the main access gate and are required to have temporary entrance permits that are issued to contractors' staff on request. All persons submit ID documents and SAPS police clearance with the completed application form for temporary permits. This must be arranged with the Project Manager. Lost permits will be paid for by the Contractor to Protective Services. All permits need to be returned to Security or the Project Manager upon completion of the contract. If it is necessary to bring tools and equipment onto site a list of tools is submitted which is verified by security staff prior to tools entering the security area.
- c) Should any Contractor staff be transferred from Kendal or leave site, the person's permit is handed over to the supervisor. The Contractor ensures that personnel leaving site are transported out of the security area and that the permit is returned.
- d) Only work vehicles with an approved permit will be allowed on site. These vehicles are to be in a serviceable condition and road worthy. Company vehicles must have the name of the company displayed on the vehicle. Magnetic signage may be used. Temporary vehicle permits are issued to contractors who are on site for less than 3 months. This must be arranged with the Project Manager. Speed limit is 40km/h.
- e) No private vehicles will be allowed on site without a temporary permit.
- f) Arrangements must be made with the Project Manager well in advance to allow sub-contractors and visitors onto site.
- g) No firearms, weapons, alcohol, illegal substances, and cameras are permitted on site.
- h) No "Private Work" is carried out for or on behalf of any Employer Employee. Any person suspected of being under the influence of alcohol is tested and if proved positive, is refused entry to the security area. Only authorised persons are permitted to enter at the Security gate.
- i) The transport of any equipment onto the site must be declared and documented at Protective Services in order to facilitate the future removal thereof. Pro-active comprehensive listing of all tools and equipment brought to Kendal will considerably speed up entrance to the power station
- j) Only authorised persons are permitted to enter Red Zone areas

1.4 Supply of electricity

- a) Electric power for construction, both 220V AC and 380V 3-phase supply, is supplied at Site free of charge, but connection fees are for the Contractor's account. All installations comply with the details set out in Kendal Maintenance Procedure- Contractor's Temporary Electrical Equipment Supply, and Construction Power Supplies (Occupational Health and Safety Act - Act 85 of 1993) and the Kendal Safety, Health and Environmental Specification for Contractors.
- b) The *Employer* does not guarantee continuity of supply and no claims for standing time as a result of power failures will be considered. The *Employer* connects distribution boards to a 380V three-phase AC power supply, only after the *Contractor* has submitted the valid Certificate of Compliance
- c) A written request, indicating the *Contractor's* requirements is submitted to the *Project Manager* as soon as possible after the Contract Date.

1.5 Water

- a) Potable and raw water for construction purposes are also available free of charge at the nearest point of supply installed.
- b) A written request, indicating the *Contractor's* requirements is submitted to the *Project Manager* as soon as possible after the Contract Date.

1.6 Sanitary facilities

- a) Permanent toilets to serve the Power Station and urinals at the boundary area have been constructed by the Employer and all the Contractor's personnel may make use of these facilities if within the allocated site for execution of the Works.

1.7 Permits

- a) No work commences without the acceptance of the isolations by the Contractor's responsible person and the workman's register signed by all workers. The Contractor arranges for Two-(2) person to be appointed as the responsible person for permit requirements. Permit applications must be done at least the day before scheduled work need to commence to allow enough opportunity for the operator to issue the plant.
- b) The contractor must provide a Responsible Person (RP) to request the permit to work and submit the authorisation to the PM for approval.

1.8 Weather Data

Altitude	1624.0m above MSL
Terrace Level	1619.0m above MSL
Outside ambient air temperature	+40 degrees Celsius
Minimum dry bulb	-6 degrees Celsius
Maximum dry bulb	+30 degrees Celsius
Atmosphere	Dry/ Dusty
Rainfall:	
Mean annual rainfall	750mm
Maximum rainfall for 24 hour period	125mm
Relative humidity:	
Maximum	90%
Minimum	30%

Weighted average Mean annual barometric pressure	61% 83.8kpa
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2. SITE SERVICES PROVIDED BY THE CONTRACTOR

2.1 Offices, workshops, and stores

- a) If the Contractor is required to provide Offices, Workshops and Stores, then the Contractor complies with the environmental policy given in Kendal Safety, Health and Environmental Specification for Contractors.

2.2 Electricity

- a) The *Contractor* provides at his own expense all temporary wiring and cabling to lead power from the *Employer's* supply points, to where it is required, maintain same and remove on completion.
- b) The points of supply are transformers designated by the *Supervisor*. The *Contractor's* distribution boxes conform to the *Employer's* requirements and are approved by the *Project Manager* prior to use. All installations comply with the details set out in Kendal Maintenance Procedure- Contractor's Temporary Electrical Equipment Supply
- c) Any electrical equipment or appliance used by the *Contractor* conforms to the applicable South African safety standards and maintained in safe and proper working condition. The *Employer* has the right to stop the *Contractor's* use of any electrical equipment or appliance which in the *Employer's* opinion does not conform to the foregoing

2.3 Conditions of supply for erection

- a) In order to comply with the Electrical Installation Regulations under the Occupational Health and Safety Act, no 85 of 1993 the following requirements must be met:
- - Before electricity is supplied the Contractor is in possession of a valid certificate of compliance. Arrangements for the temporary energising of the installation to perform the required tests must be arranged with the Project Manager.
 - The Contractor's electrical installation is inspected and tested by an accredited person to ensure that it complies with the requirements of the Occupational Health and Safety Act, 1993 and the code of Practice for wiring of premises, SABS 0142.
 - After certificate of compliance is obtained, the Employer inspects the electrical installation and if satisfied, it is connected and supplied from the construction power supply.

2.4 WARNING

- a) Phase rotation may change during a power supply break. The *Contractor* checks rotation of their equipment before recommencing of work.

2.5 Sanitary Facilities

- a) If sanitary facilities are required at the Contractor's work area apart from the ones provided by the Employer, the Contractor provides, services, maintains and removes on completion, temporary sanitary facilities, at his own cost, to the acceptance of the Project Manager.

2.6 Telecommunications

- a) The *Contractor* is responsible for installation cost and his own telephone bill.
- b) The contractor must provide their own communication radio.

3. SITE PROCEDURES AND INSTRUCTIONS

3.1 General

- a) The *Contractor* complies with all Site procedures and instructions, copies of which if not included in this contract specification, are made available by the *Project Manager* at Kendal Power Station.
- b) The onus is on the *Contractor* to ensure his familiarity with the *Employer's* Site procedures, regulations, and inspections. *Contractor* to work safe and have good housekeeping.

3.2 Site Regulations

- a) The *Contractor* complies with *Employer's* site regulations as stipulated in Procedure, covering the following:
 - Cleanliness
 - Storage of material
 - Safety precautions and fire prevention
 - Permits to work
 - Other *Contractor's* work
 - Maintenance staff to witness erection
 - Supervision
 - Handing over of *works*
 - *Contractor's* allocated Work area.

3.3 Permits

- a) All Contractors will ensure that they are trained and informed of all the requirements of Eskom's Plant Safety Regulations and ORHVS and that they always comply to the requirements of these Regulations.
- b) All Supervisors of contracting companies, who are directly involved with Eskom's Permit to Work System, shall be trained and successful completion of Kendal's authorization / evaluation process, and must be authorized as Responsible Persons.
- c) The Responsible Person shall ensure that:
 - The conditions of permits and cautionary notices are strictly adhered to.
 - The lockout procedures, mechanical as well as electrical, are strictly adhered to and any deviations shall be corrected immediately.
 - The safe work procedures as laid down by Kendal Power Station and as determined by the Risk Assessment, shall be followed.
 - The workers register and cautionary notices are discussed daily with workers