



TITLE

PROJECT INFORMATION
AMARKATAK - UNIT 5

REV NO. 00 DATE:
SHEET 1 OF 3

- 1.0 **OWNER :** MADHYA PRADESH STATE ELECTRICITY BOARD
- 2.0 **PROJECT TITLE:** 1X210 MW AMARKANTAK THERMAL POWER STATION EXTN. UNIT#5

3.0 **INTROCUCTION**

The Amarkantak Thermal Power Station has been set up at Chachai village, situated at a distance of 40 kms from , District Hd. Qr. Shahdol, Madhya Pradesh. The existing station is having 2 units each of 30 MW and 2 units each of 120MW .Now the plant is being extended by adding one unit of 210 MW capacity in the same premises.

APPROACH TO SITE

The power station site is connected to Distt. H.Q. Shadol (MP) by metalled road. Nearest railway station is Amlai, on the Katni-Bilaspur section of South Eastern Railway at a distance of 8 km. The power station is having its own broad gauge siding for bringing coal and support fuel and can be utilized for extension project. Nearest airport is Jabalpur, approximately 250 km away by road.

4.0 **LAND**

The total land available for the 210 MW unit station (excluding ash dump area) and plant auxiliaries will be generally as per the Plot Plan and flexibility will remain to make the final equipment layout based on equipment sizes.


Except where stated otherwise, the plinth levels of all buildings shall be 500 mm above the corresponding developed grade level and the road level shall be 250 mm above the developed grade.

5.0 **METEOROLOGICAL DATA**

6.1 **Ambient temperatures:**

- a). Maximum temperature of the air in the sun : 48.0°C
b). Maximum temperature of the air in the shade : 45.6°C
c). Minimum temperature of the air in the shade : 1.6°C

- 6.2 Maximum Relative Humidity : 85%
- 6.3 Minimum Relative Humidity : 19%
- 6.4 Average Annual rainfall : 1100 mm
- 6.5 Seismic Zone : Zone III as per IS 1893 - 2002 .
- 6.6 Height above MSL : 477 M (Average)
- 6.7 The basic wind speed Vb(as per IS:875 Latest Revision) at 10 m above the mean ground level : 39m/sec.

TITLE		SPECIFICATION	
 PROJECT INFORMATION AMARKANTAK UNITS		SPECIFICATION	
		SECTION 3	
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7.0	ELECTRICAL DATA		
7.1	Ambient temperature for Design of electrical equipment	:	50 ^o C
7.2	Ambient temperature for Design of electrical equipment in air-conditioned area if 2x100% air conditioning system is provided.	:	35 ^o C
7.3	Relative humidity for design of electrical equipment	:	85%
7.4	Rated frequency	:	50Hz
7.5	Frequency variation	:	All equipment shall be suitable for rated frequency of 50 Hz with variation of (+) 5% to (-) 5% and 10% combined variation (sum of absolute values) of voltage and frequency.
7.6	The voltage level for motor shall be as follows:		
	- > 160 KW	:	6.6 KV \pm 10 % ,3 ph , 50 Hz
	- < & = 160 KW	:	415 V \pm 10 % ,3ph , 50 Hz
7.7	AC control voltage	:	240 V ,1ph, 50 HZ (To be derived through Control Transformer)
7.8	UPS Voltage	:	240 V ,1ph , 50 Hz
7.9	DC Voltage for motor, protection, control and emergency lighting	:	220 V
7.10	DC Voltage for control & instrumentation	:	24 V
7.11	AC Voltage for lighting, Space heating	:	240 V , 1ph , 50 Hz
7.12	AC emergency supply	:	415V; 3 Ph; 3 wire
7.13	DC Voltage variation	:	187 V - 242 V for 220 V DC 21.75 V - 28 V for 24 V DC
7.14	<u>Fault levels:</u>		
	220 KV System	:	40 kA
	6.6KV System	:	40 kA
	415V System	:	50 kA
	220V DC System	:	15 kA
7.15	<u>Grounding:</u>		



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|-----|------------------|---|--|
| a). | 220KV System | : | Solidly grounded |
| b). | Generator | : | High resistance grounded through distribution Transformer with resistor loaded secondary |
| c). | 6.6KV System | : | Low Resistance Grounded with Earth-Fault Current limited to 300A |
| d). | 415V System | : | Solidly grounded |
| e). | 220V DC System | : | Ungrounded |
| f). | Diesel Generator | : | Ungrounded |

Technical specification for the Sewage Treatment Plant

1.0 Project

Sewage Treatment plant of 25KLD to be installed for Amarkantak Thermal Power station for both Plant buildings toilets and canteen outlet.

2.0 Scope of Work

- Concept development and detailed engineering.
- Fulfillment of Statutory Obligations of State/Central, Approval of the concept, Design, Drawings & Documents by Customer.
- Total Civil Works for system requirement like Inlet Collection Sump (Raw Sewage), Pavement for Packaged STP (Pre-fabricated), Treated Water outlet from STP, Sludge drying System, MCC Rooms, Cable trenches etc.
- Fabrication of all equipments.
- Supply of Equipments, Pumps, Motors etc, Mandatory Spares and erection of all equipments.
- Testing, pre commissioning & commissioning and handing over of the plant to the Customer.

3.0 Flow rate logistics

Total flow	: 25 m ³ /day avg. (approx 500 inhabitants operated in three shifts)
Operating hours	: 24 hrs
Flow rate	: 1.5 m ³ /hr
Mode	: Manual
Space required	: To be specified by the successful Bidder

4.0 Quality Logistics

S.No	Description	Unit	Inlet	Outlet	Standards
1	PH	-	7.2 – 7.8	7 – 8.5	5.5 – 9
2	Total dissolved solids	Mg/l	600 – 800	600 – 800	<2100
3	Total suspended solids	Mg/l	150 – 250	20 – 30	<20
4	BOD	Mg/l	200 – 300	<20	<20
5	COD	Mg/l	400 – 600	<250	<250
6	Chlorides	Mg/l	200 – 400	200 – 400	<1000
7	Sulphides	Mg/l	5 – 15	<5	<5
8	Oil & grease	Mg/l	5 - 10	5 -10	<10

5.0 Codes & Standards

All design, fabrication, inspection, and testing of the plant will be done with respect to the latest Indian Standards. In case of non-availability of standards, good engineering practice will be adopted.

Standards to be followed:

Pressure vessels	– ASME SEC VIII
Pumps	– IS 5120
Piping	- IS 1239
Others	– Available IS standards.

6.0 Concept

- The sewage generated from various sources will be collected in the Inlet collection Sump.
- The sewage is pumped to other unit through bar screen.
- The sewage is let to Aeration tank with SAFF media where biological treatment takes place. The aerated Sewage water is led to Clarisettler, the clarified water is sent to Chlorine contact tank where hypochlorite dosing is done. The settled sludge is pumped to sludge drying beds.

- The chlorinated water is pumped to Multi Grade filter using Filter feed pump.
- The treated water will be discharged to Outlet Sump from there it is used for Plantation/gardening & flushing purpose.

7.0 Equipments list

Bar screens, Sewage transfer pump, Aeration tank, Air blower, SAFF media, Diffusers, Clarisettler, Clarisettler internals, Sludge pump, Sludge drying beds, Chlorine contact tank, Chlorine dosing system, Filter feed pump, Multi Grade filter, Interconnecting pipes, Electrical system & Mandatory Spares.

8.0 Painting

Internal	: 3 Coats of Epoxy Paint
External	: 2 Coats of Epoxy & Enamel Finish

Amarkantak - STP
Payment Terms

The total contract will be split in to three (3) contracts.

- a) Supply portion
- b) Civil & Structural works
- c) Erection & Commissioning.

The quoted contract value of (b) civil & Structural works should be between 20 to 25 % of the total contract value.

The quoted contract value of (c) Erection & Commissioning should not be less than 10% of the contract value of supply portion (a).

PAYMENT TERMS: -

Contract-A: Supply of Materials	
10%	<u>Engineering</u> On design documents/drawing completion & approval (pro-rata)
80%	<u>Supply</u> supply price payable on pro-rata basis on production of a) Material Despatch Clearance Certificate from BHEL & proof of dispatch (MDCC-55%) b) Material Receipt Certificate from KPCL / MPSEB (25%)
5%	Completion of trial operation
5%	Completion of PG test
Contract –B : Civil & Structural works	
Civil works	
90%	On completion - prorata against agreed billing schedule (BOQ is to be furnished by vendor for approval)
10%	On Handing over of the plant to the owner.
Contract C : E & C	
75%	prorata mechanical erection completion (placement 40% & alignment 35%)
15%	prorata commissioning –sub system wise
5%	Completion of trial operation
5%	PG test & Handing over of STP to KPCL / MPSEB