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BALANCE OF PLANT (BOP)

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BALANCE OF PLANT (BOP) CONCEPT

- Balance of Plant comprises all requirements to complete a power plant except main equipment viz. Boiler, Steam Turbine, Generator & Accessories.
- Following aspects are to be considered while planning, designing and laying-out various equipment & components of power plant and their installation:
 - Ratings to safely cope with load demand conditions, the prevailing site conditions, avoiding any over-stressing of material and equipment.
 - Equipment to be of standard design, providing highest degree of safety, reliability, availability, redundancy and ease in operation
 - Equipment arrangements to consider adequate space and access for transportation, storage, installation, operation and maintenance.
 - The layout, design and manufacturing of all mechanical equipment shall comply with the latest edition of the relevant international standards



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BALANCE OF PLANT (BOP) SYSTEMS



HP Cogen-Pak

- Fuel Handling and Storage System
- Condenser Cooling Water System (Closed Cycle)
- Auxiliary Cooling Water System (Closed Cycle)
- Lube Oil and Control Oil System
- Glands Sealing System
- Compressed Air System for Service Air
- Compressed Air System for Instrument Air
- Demineralized Water System
- Make-up Water System
- Feed Water System
- Chemicals Dosing System
- Feed Water Heating System
- Condensate Collection System
- Safety Valves Blow-off System
- Vent and Drains Collection System
- Waste Water & Sewer Drainage and Treatment System
- Fire Detection and Fire Protection
- Ventilation System
- Elevators, Turbine Hall Crane and Mono-rail Hoists



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BALANCE OF PLANT (BOP) CONCEPT EQUIPMENT



- Cooling Tower complete in all respect and Main & Auxiliary Cooling Water Pumps & accessories.
- Main cooling water supply and return piping & valves between the Condenser and the Main cooling water supply and return headers, located outside the power house.
- Auxiliary cooling water supply and return piping & valves between the TG auxiliaries and the Auxiliary cooling water supply and return headers, located Just outside the power house.
- Insulation for boiler, turbine, piping & valves and all other relevant equipment.
- Pipe racks, supports, hangers and other accessories for piping & valves of various systems.
- Metallic expansion bellows, steam traps, condensate traps and strainers for various systems.
- All safety valve exhaust piping to atmosphere with drip pan assembly.
- Atmospheric flash tank for receiving drains from various piping and its vent to atmosphere.
- Flash tank for receiving turbine integral steam and condensate drains connected to hot well.
- Flash tank for receiving HP heater I & II drains and steam / condensate lines to hot well.



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BALANCE OF PLANT (BOP) CONCEPT EQUIPMENT



- All drains from take off point up to flash tank or trench, along with all valves and specialties.
- All vent piping with valves, wherever required.
- Condensate piping from condenser and its min. recirculation piping up to terminal point,
- The makeup water piping from terminal point to condenser.
- Motorized Isolation valves for isolating various equipment.
- Piping, valves & fittings and supports associated with lube and control oil system of turbine.
- Counter flanges for all inlet and outlet connections including gaskets, bolts and nuts.
- Adequate system of drainage from all steam spaces with in the unit.
- A well integrated Fire Detection & Protection Equipment to be monitored from Control room.
- Electric & Diesel Engine driven fire water pumps, piping & valves, fire mains, fire hydrants etc.
- A.C. driven lube oil main & auxiliary pumps, D.C. driven emergency oil pump, jacking oil pump



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BALANCE OF PLANT (BOP) CONCEPT EQUIPMENT



- Electric driven, 3 x 50% Service Air Compressors, Piping, valves, 2 x 50% compressed air tanks with safety valve, condensate trap with drain etc.
- Electric driven, 3 x 50% Instrument Air Compressors, dryers, stainless steel piping, valves,
 - 2 x 50% compressed air stainless steel tanks with safety valve, condensate trap with drain etc.
- Gland steam Condenser with insulation, piping & valves, vent & drain and safety valve etc.
- Lube Oil tank with vent & drain, electric heater, nozzles for various piping connections etc.
- Demineralization Water Plant with pump, piping & valves, Demi. water storage stainless tanks
- De-aerator and feed water tank with vent & drains, electric heater, nozzles for pipe connections
- Chemical dosing pumps, piping & valves, dilution stainless tanks etc.
- Waste water & Sewer treatment equipment, storage pond and disposal pumps etc.
- Roof ventilation fans for TG hall and A. C. plant with ducts & AHU for control room & offices
- T-G Hall crane with main & aux. hoists for turbine and mono-rail hoist for aux. equipment maint.



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