

Dungeness Technical Data

Performance

Net electrical output 550 MW
 Heat output per reactor 835 MW
 Efficiency 32.9%

Reactor gas bulk outlet temperature 410°C
 Reactor gas inlet temperature 250°C
 Nominal max can surface temperature 442°C
 Nominal max uranium temperature 563°C

HP steam pressure at blower TSV 1410 lbf/in²
 HP steam temperature at blower TSV 392°C
 LP steam pressure at main TSV 550 lbf/in²
 LP steam temperature at main TSV 391°C
 Feedwater temperature 180°C

Fuel

Number of fuel channels per reactor 3876
 Number of elements per channel 7
 Dimensions of uranium rod 38.3 in x 1.10 in dia
 Total weight of uranium per reactor 300 tonne

Core dimensions

Diameter of active core 45 ft 4½ in
 Height of active core 24 ft 4½ in
 Diameter of reflector 50 ft
 Height over reflectors 28 ft
 Lattice (square) pitch 7.75 in
 Channel diameter 3.875 in

Gas circuit

Mean diameter of reactor vessel 62 ft 6 in
 Reactor vessel general thickness 4 in
 Gas working pressure 283 lbf/in²
 Number of gas circuits per reactor 4
 Diameter of gas ducts 6 ft 6 in
 Power input per blower 7 MW
 Overall height of boilers 75 ft
 Internal diameter of boilers 23 ft 6 in
 Shell thickness (graded) ¾ in to 2½ in

Turbo-alternators

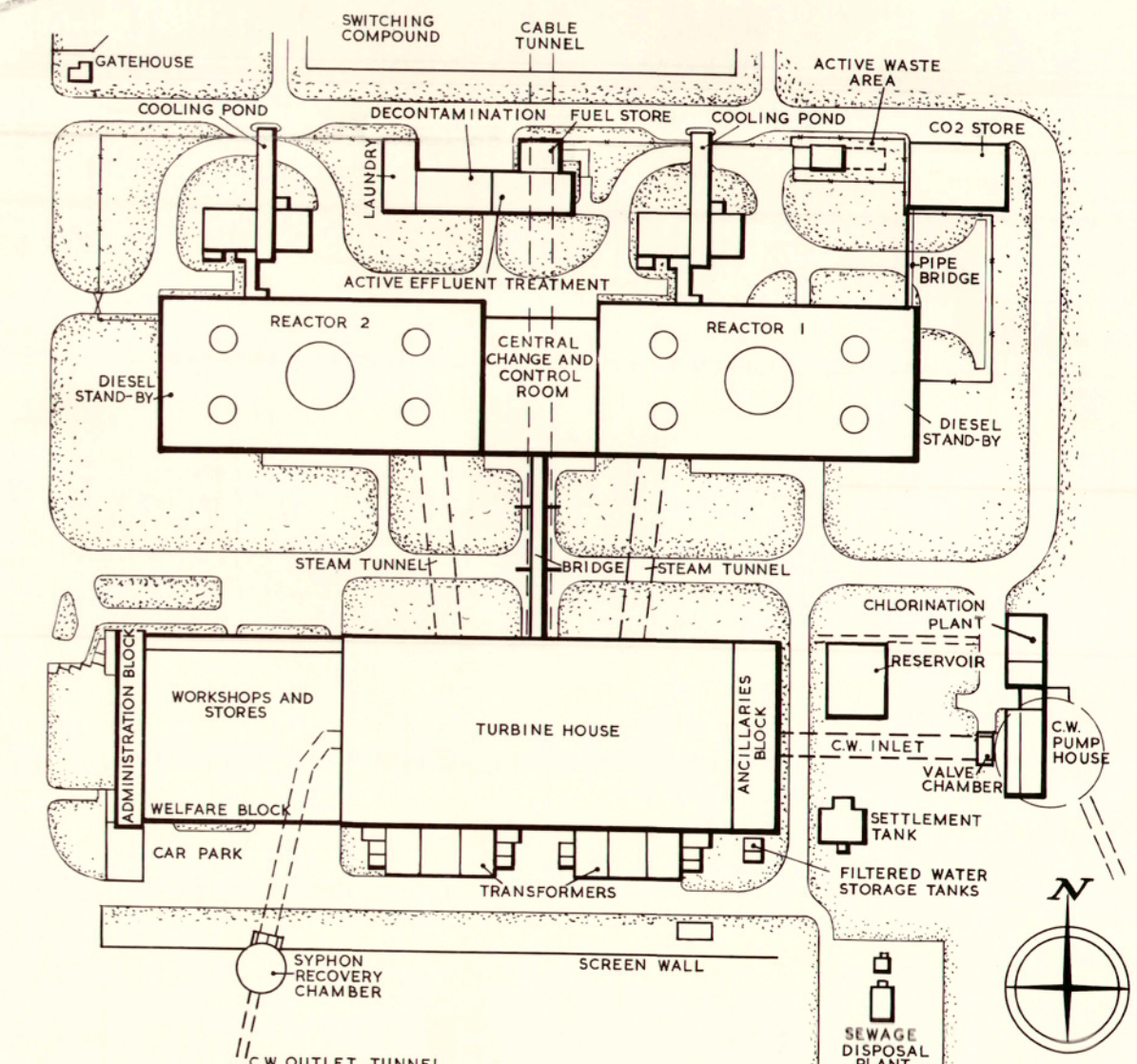
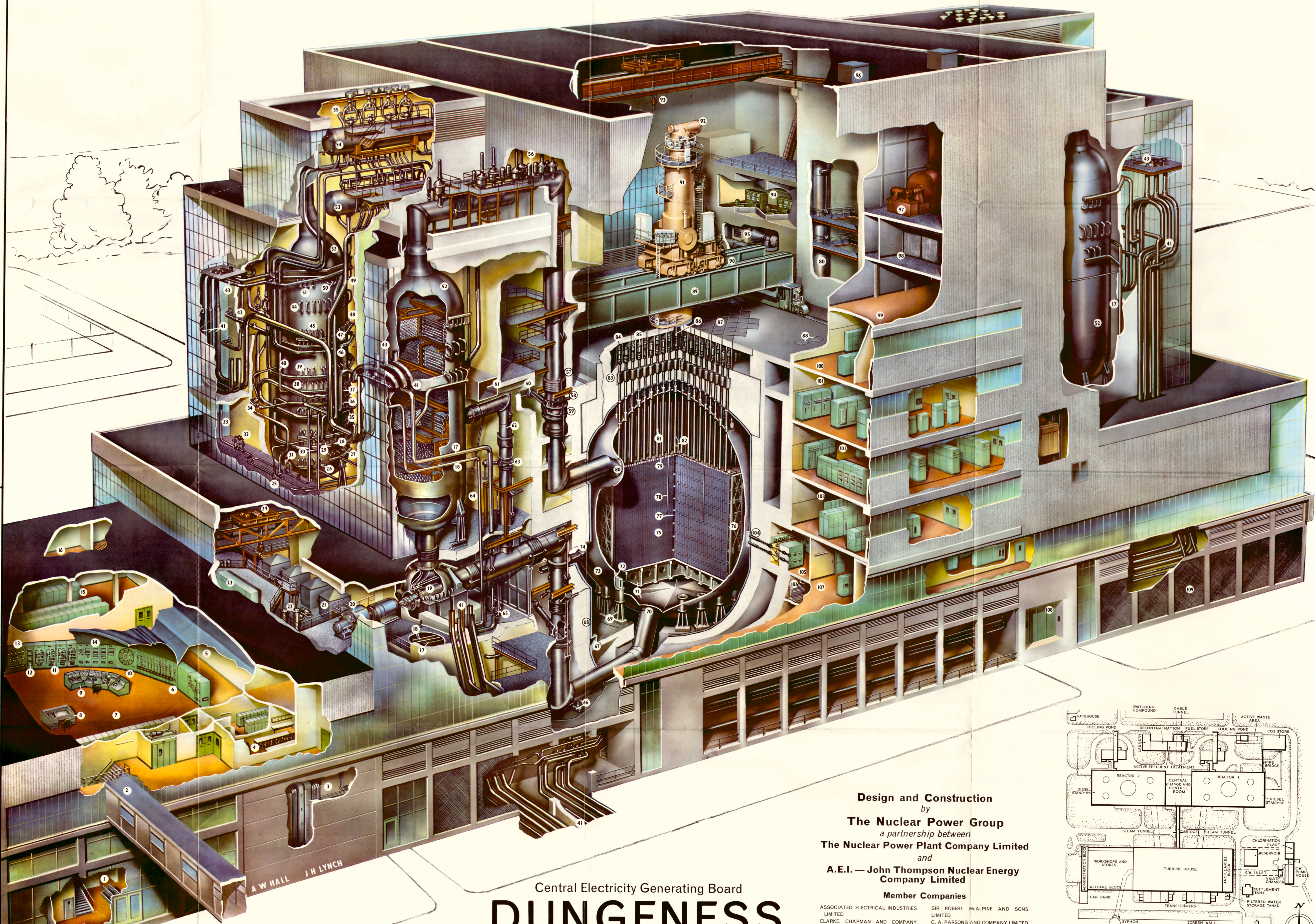
Number of main turbo-alternators 4
 Continuous maximum rating/set 142.5 MW
 Speed 1500 rev/min
 Generator voltage 13.8 kV
 Vacuum 28.9 in Hg
 Exhaust wetness 14.3%
 Total circulating water quantity 353,000 gal/min

Layout

Distance between reactor building centres 426 ft
 Length of reactor building 316 ft
 Length of turbine house, only 358 ft

Legend

- Control Area**
- Entrance to change room
 - Personnel bridge
 - Cable flume
 - Mess room
 - Battery room
 - Control rod panels
 - Main control
 - Supervisors desk
 - Control desk
 - Control rod position panel
 - Boiler panels
 - Safety panel
 - Essential supplies panel
 - Reactor panels
 - Instrument room
 - Control room ventilation plant room
- Blower House Area**
- Reheat to boilers
 - H.P. steam to blower turbines
 - Blower
 - Blower turbine
 - Blower main oil tanks
 - Oil coolers
 - Blower & boiler gauging boards
 - 20 ton blower house crane
- Boiler House Area**
- L.T. economizer by-pass valve
 - H.P. economizer inlet
 - LP economizer inlet
 - LP economizer outlet
 - H.P., L.T. economizer outlet
 - H.P. feed mains
 - H.P. feed regulating valve
 - LP feed
 - H.T. economizer by-pass valve
 - LP evaporator inlet
 - LP evaporator outlet
 - H.T. economizer inlet
 - H.T. economizer outlet
 - H.P. evaporator inlet
 - H.P. evaporator outlet
 - LP superheater inlet
 - LP superheater outlet
 - Reheater inlet
 - Reheater outlet
 - LP superheater inlet
 - LP superheater outlet
 - Boilers
 - LP steam drum
 - H.P. steam drum
 - Boiler steam drum relief valves
 - Boiler CO₂ relief valves & filters
- CO₂ Duct Areas**
- Expansion bellows
 - CO₂ duct supports
 - Reactor CO₂ isolating valves
 - Isolating valve drives
 - Shield cooling fan suction ducts
 - CO₂ by-pass ducts
 - CO₂ by-pass isolating valve
 - Duct valve remote operating room
 - Inlet duct isolating valve drive
 - Debris removal duct
 - Shield cooling air inlet ring main
 - Shield cooling air inlet annular duct
 - Pressure vessel supports
 - Reactor CO₂ inlet ducts
 - Diagrid & debris collector
 - Gas seal
 - Pressure vessel
 - Thermocouple branch pipe
 - Graphite core
 - Core restraining structure
 - Fuel elements
 - Control rods
 - Charge pans
 - Reactor CO₂ outlet ducts
 - b.s.d. tube nest
 - Charge chute
 - Pile cap
 - Reactor control standpipes
 - Reactor charge standpipes
 - Charge machine chute headbox
 - Charge machine gantry
 - Charge machine power supply
 - Charge machine
 - Reactor television camera
 - 20 ton charge machine crane
 - Charge machine control room
 - Domestic ventilation plants
 - Shield cooling exhaust stack
 - Shield cooling fan
 - Shield cooling filter room
 - Shield cooling suction chamber
 - Sub-change entry to pile-cap
 - Burst cartridge detection room
 - Control rod control room
 - Essential supplies switch-gear room
 - Thermal column
 - Ion chamber room
 - Cable flat
 - Switchgear
 - Lift loading bay
 - Transformer bays



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Central Electricity Generating Board DUNGENESS Nuclear Power Station

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