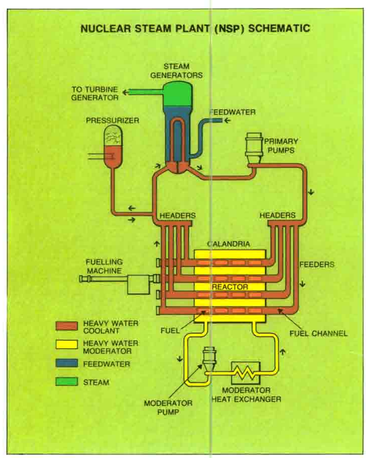
Technical data

The data listed below refer to a typical single unit station.

REACTOR TYPE	Heavy water cooled and moderated horizontal pressure tube reactor. On-load refuelling.
POWER AND EFFICIENCY	
Total heat transferred to steam generators	1032 MWt
Net power output	320 MWe
Typical thermal efficiency	30 per cent
REACTOR CORE	
Effective radius	2330 mm
Length	5940 mm
Cell arrangement	Square array of 208
Lattice pitch	286 mm
Reflector thickness	740 mm, average at mid-point
Fuel channels	
Number	208
Material	Zirconium (2.5% wt) Niobium
Min. inside diameter	104 mm
Shield and closure plugs	Stainless steel
CALANDRIA	
Length	7800 mm overall
Shell	All-welded stainless steel
Tubes	Annealed Zircaloy-2
SHIELD TANK	
Construction	Rectangular, double-wall
Material	Carbon steel
Shielding	Demineralized water, deoxygenated carbon steel plate, and carbon steel balls
Axial length	7824 mm
Width	10836 mm
Overall height	14085 mm
FUEL ASSEMBLIES	
Fuel material	Natural UO_2
Cladding	Zircaloy 4, graphite-coated i.d.
Fuel pellet diameter	12.16 mm (nominal)
No. in element	30 (nominal)
Elements	37 per bundle
Nominal bundle size	Length 495.3 mm; dia. 102.4 mm
No. in core	2496
Nominal mass of U in reactor	46 Mg
Average burnup (design centre value)	157 MWh/kg U
REACTOR CONTROL	
Adjuster rods	12 stainless steel
Mechanical control absorbers	2 cadmium/stainless steel
Mechanical zone controllers	4 vertical, stainless steel
REACTOR SHUTDOWN	
Shut-off rods	20 cadmium/stainless steel
Drive mechanism	Electro-magnetic, clutch-coupled
Liquid injection	3 horizontal nozzle tubes
Poison	Gadolinium nitrate
MODERATOR SYSTEM	
Moderator	D_2O
Moderator volume	160 Mg
Design temperature	93°C
PRIMARY COOLANT SYSTEM	
Number of loops	One
Primary coolant	D_2O
Fuel channel flow (maximum)	26.4 kg/s
Inlet header	266°C, 11.5 MPa (abs)
Outlet header	310°C, 10 MPa (abs)
STEAM GENERATORS	
Number	2
Total steam output (2 steam generators)	516 kg/s
Feedwater inlet	187°C
Steam pressure	4.7 MPa (abs)
Steam temperature	260°C (nominal)
Quality	99.75% (min)
PRIMARY COOLANT PUMPS	
Number	2
Type	Single-stage centrifugal
Rating	6700 kW
Flow rate	2400 kg/s
TURBINE GENERATOR	
Type	1 double-flow h.p., 2 double-flow l.p. cylinders
REACTOR BUILDING	
Containment structure	Cylindrical; pre-stressed concrete
Internal structure	Reinforced concrete
Inside diameter	38 m
Height (top of base slab to underside of upper dome)	40 m



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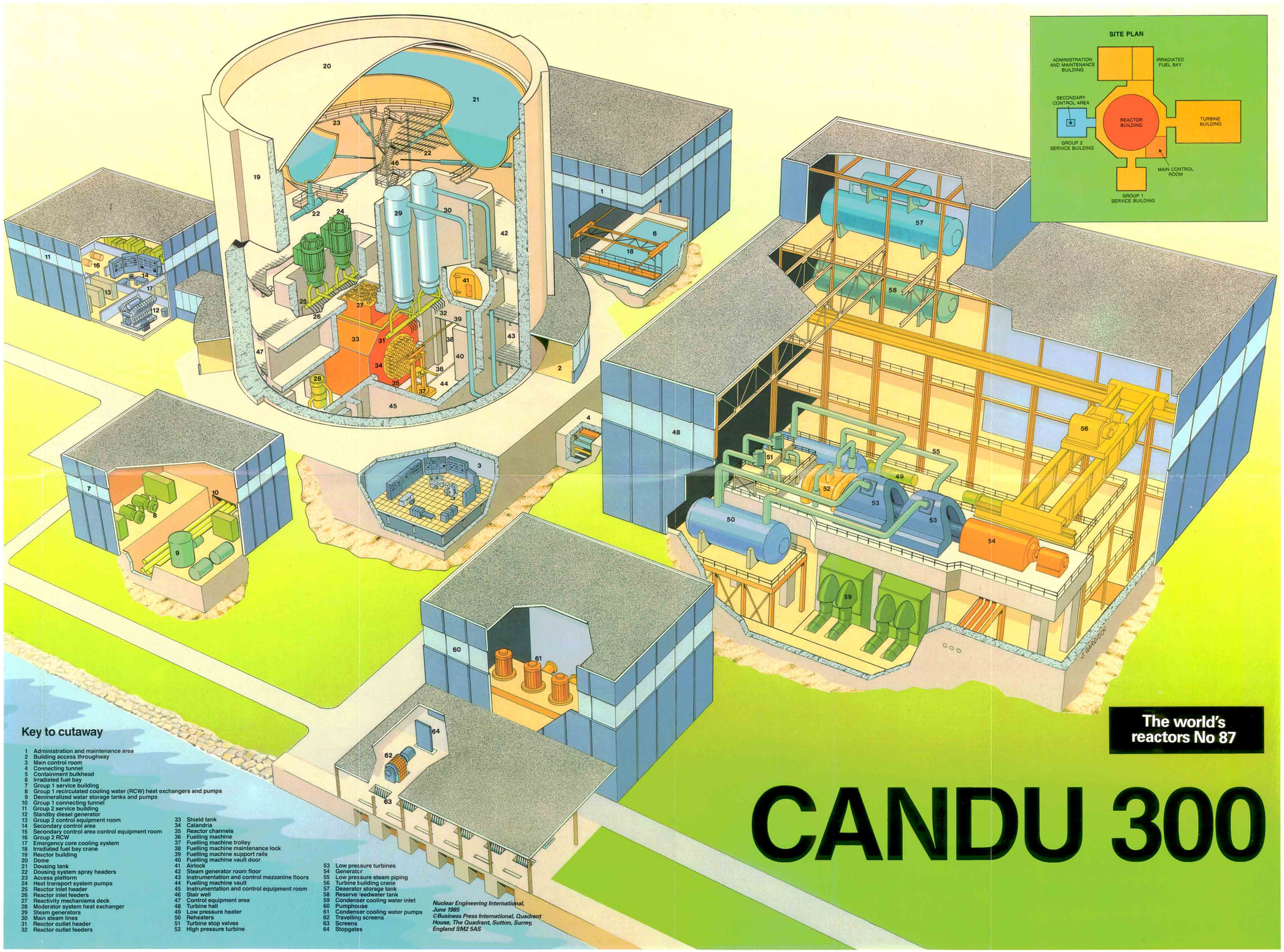

Key to cutaway

1 Administration and maintenance area
2 Building access throughway
3 Main control room
4 Connecting tunnel
5 Containment bulkhead
6 Irradiated fuel bay
7 Group 1 service building
8 Group 1 recirculated cooling water (RCW) heat exchangers and pumps
9 Demineralized water storage tanks and pumps
10 Group 1 connecting tunnel
11 Group 2 service building
12 Standby diesel generator
13 Group 2 control equipment room
14 Secondary control area
15 Secondary control area control equipment room
16 Group 2 RCW
17 Emergency core cooling system
18 Irradiated fuel bay crane
19 Reactor building
20 Dome
21 Dousing tank
22 Dousing system spray headers
23 Access platform
24 Heat transport system pumps
25 Reactor inlet header
26 Reactor inlet feeders
27 Reactivity mechanisms deck
28 Moderator system heat exchanger
29 Steam generators
30 Main steam lines
31 Reactor outlet header
32 Reactor outlet feeders
33 Shield tank
34 Calandria
35 Reactor channels
36 Fuelling machine
37 Fuelling machine trolley
38 Fuelling machine maintenance lock
39 Fuelling machine support rails
40 Fuelling machine vault door
41 Airlock
42 Steam generator room floor
43 Instrumentation and control mezzanine floors
44 Fuelling machine vault
45 Instrumentation and control equipment room
46 Stair well
47 Control equipment area
48 Turbine hall
49 Low pressure heater
50 Reheaters
51 Turbine stop valves
52 High pressure turbine
53 Low pressure turbines
54 Generator
55 Low pressure steam piping
56 Turbine building crane
57 Deserator storage tank
58 Reserve feedwater tank
59 Condenser cooling water inlet
60 Pumphouse
61 Condenser cooling water pumps
62 Travelling screens
63 Screens
64 Stopgates

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