THE WORLD'S REACTORS

No. 52 OSKARSHAMN

a. Turbine hall I
b. Turbine hall II
c. Pump bay I
d. Control room
e. Reactor hall I
f. Reactor hall II
g. Cooling water screen house I
h. Cooling water screen house II
j. Workshop
k. Administration block
l. Transformers I
m. Transformers II
n. Water treatment building
o. Waste disposal building
p. Sewage treatment building
q. Cooling water inlet

OSKARSHAMN NUCLEAR POWER STATION

OWNER AND OPERATOR
Oskarshamnsverkets Kraftgrupp AB, OKG

DESIGNER AND CONTRACTOR

		Unit 1	Unit 2
Project management		ASEA-ATOM (Turn-key contract) and OKG	OKG
Nuclear steam supply system		ASEA-ATOM	ASEA-ATOM
Turbine plant		STAL-LAVAL	Brown-Boveri Stal-Laval Konsortium

LOCATION
Simpevarp, 30 km NE Oskarshamn, Sweden

TYPE
BWR, direct cycle boiling light water reactor

CONSTRUCTION SCHEDULE

		Unit 1	Unit 2
Construction start		1966	1970
Reactor critical		1970	1974
Commercial operation		1971	1974

CAPACITY

Gross generation	MW	460	600
Net electrical output	MW	440	580

REACTOR CORE

Thermal output	MW	1365	1700
Core diameter (equivalent)	mm	3672	3672
Core height (active)	mm	3650	3375
Number of fuel assemblies		448	444
Fuel rod lattice pitch	mm	16.3	16.3
Average thermal output	W/cm^2	33	42
Maximum thermal output	W/cm^2	100	118
Weight of fuel as UO_2	tons	91	89

FUEL ASSEMBLIES

Fuel material		UO_2	UO_2
Pellet diameter	mm	10.5	10.6
Clad material		Zr2	Zr2
Clad thickness		0.8	0.74
Rod diameter		12.25	12.25
Number of rods per assembly		64	64
Maximum fuel central temp.	°C	1900	2300
Maximum clad surface temp.	°C	292	295
Feed enrichment (equ.)	%	2.0 (2.5)	2.2 (2.6)
Fuel discharge burn-up (equ.)	MWd/ton	15000 (22000)	18500 (27000)

CONTROL RODS

Neutron absorber		B_4C	B_4C
Cladding material		ASTM 304 L	ASTM 304 L
Number		112	109
Shape		Cruciform	Cruciform
Length of poison section	mm	3650	3650

PRIMARY COOLANT SYSTEM

Type		Forced circulation	Forced circulation
Operating pressure	bar	70	70
Reactor inlet temperature	°C	274	273
Reactor outlet temperature	°C	286	286
Coolant pumps		4	4
Total reactor flow	kg/s	6700	6700

REACTOR PRESSURE VESSEL

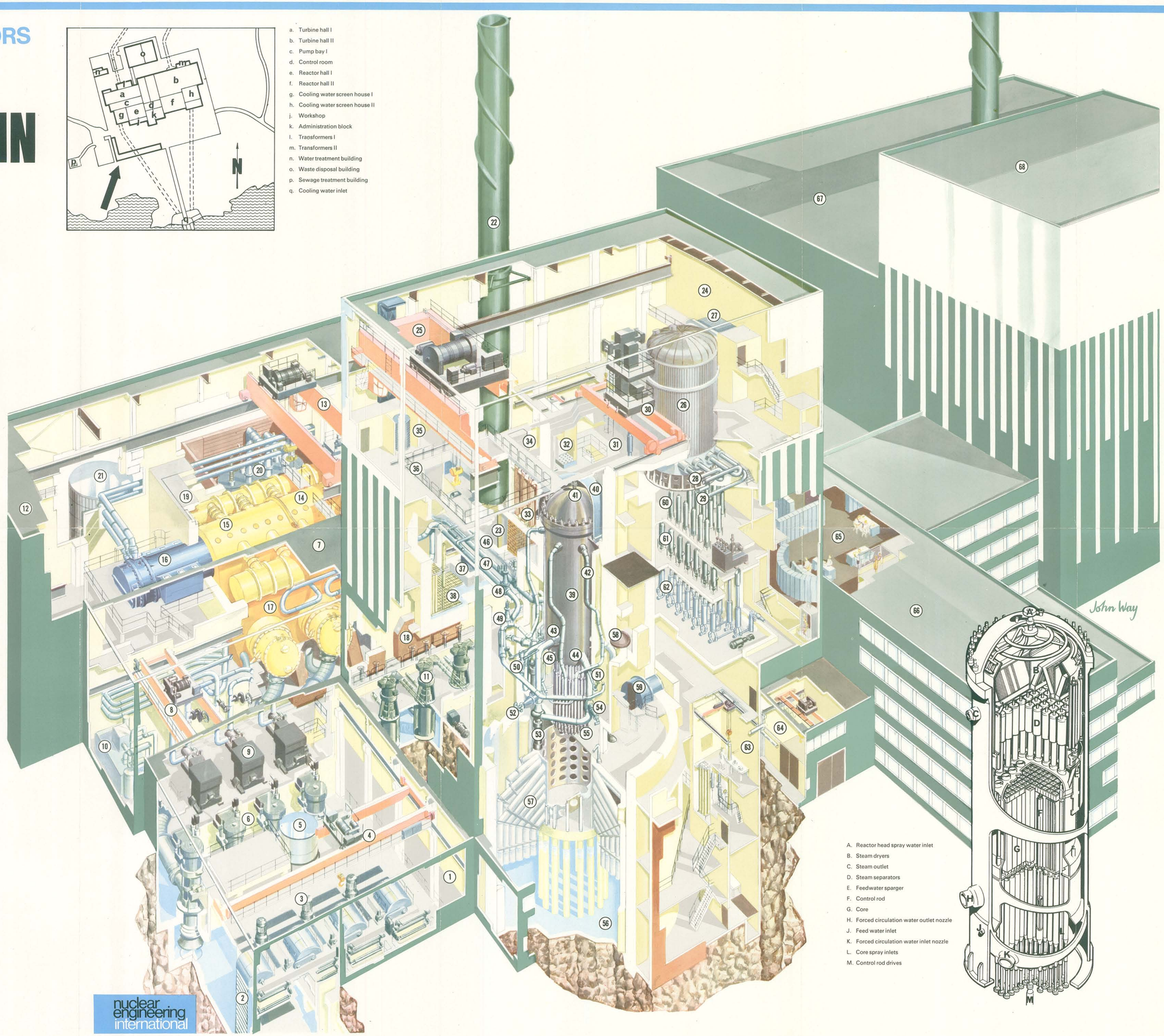
Inside diameter	m	5.0	5.2
Inside height	m	17.6	20
Average wall thickness	mm	125	130
Material		ASTM 302 B Clad with SS	ASTM 533 B Clad with SS
Design pressure	bar	85	85
Design temperature	°C	300	300

TURBINE

Number		1	
Type		Radial-axial	Axial
Speed	rpm	3000	3000
Turbine stop valve pressure	bar	68	68
Turbine stop valve temperature	°C	284	284

CONTAINMENT

Type		Pressure suppression	Pressure suppression
Inside diameter	m	18.4	20.6
Inside height	m	45	50
Wall thickness	m	1.25	1.0
Design pressure	bar	4.5	5



1. Cooling water pumphouse
2. Travelling screens
3. Service water pumps
4. Cooling water pumphouse crane
5. Temporary waste bucket
6. 4 condenser cooling water pumps
7. Pump bay
8. Pump bay crane
9. 3 feedwater pumps
10. Turbine lubrication system
11. 3 condensate pumps
12. Turbine hall
13. Turbine hall crane
14. H.P. turbine
15. L.P. turbine
16. 2 generators
17. Condenser
18. Shield blocks for access to condenser
19. Turbine roof shield blocks
20. Station main transformers
21. Condenser gas hold-up tank
22. Ventilation stack
23. Ventilation stack pressure flap valve
24. Reactor hall
25. Reactor hall crane
26. Isolation condenser
27. Isolation condenser vent
28. Isolation condenser intake pipes
29. Isolation condenser return pipes
30. Refueling bridge
31. New fuel store
32. New fuel de-freezer
33. New fuel
34. Reactor blocks
35. Cask washdown area
36. Fuel pond, fuel storage pool
37. Cask loading bay
38. Fuel storage rack
39. Reactor
40. Containment head
41. Reactor head spray water inlet
42. Steam outlets
43. Forced circulation outlets
44. Forced circulation inlets
45. Feed water inlets
46. Feedwater lines
47. Main steam pipes to turbine
48. Main steam isolation valves outside containment
49. Main steam isolation valves inside containment
50. Automatic relief valve
51. Access pipe for nozzle inspection
52. Forced circulation stop valves
53. Forced circulation pumps
54. Forced circulation stop valves
55. Control rod drives
56. Pressure suppression pool
57. Pressure suppression pipes
58. Containment access hatch
59. Containment entry air lock
60. Scram system nitrogen storage
61. Scram system nitrogen accumulator
62. Scram system water accumulator
63. Control rod drive service bay
64. Workshop
65. Control room reactor I
66. Administration building
67. Turbine hall II
68. Reactor hall II

A. Reactor head spray water inlet
B. Steam dryers
C. Steam outlet
D. Steam separators
E. Feedwater sparger
F. Control rod
G. Core
H. Forced circulation water outlet nozzle
J. Feed water inlet
K. Forced circulation water inlet nozzle
L. Core spray inlets
M. Control rod drives

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Nuclear Engineering International,
Dorset House, Stamford Street,
London, S.E.1, England

NUCLEAR ENGINEERING INTERNATIONAL