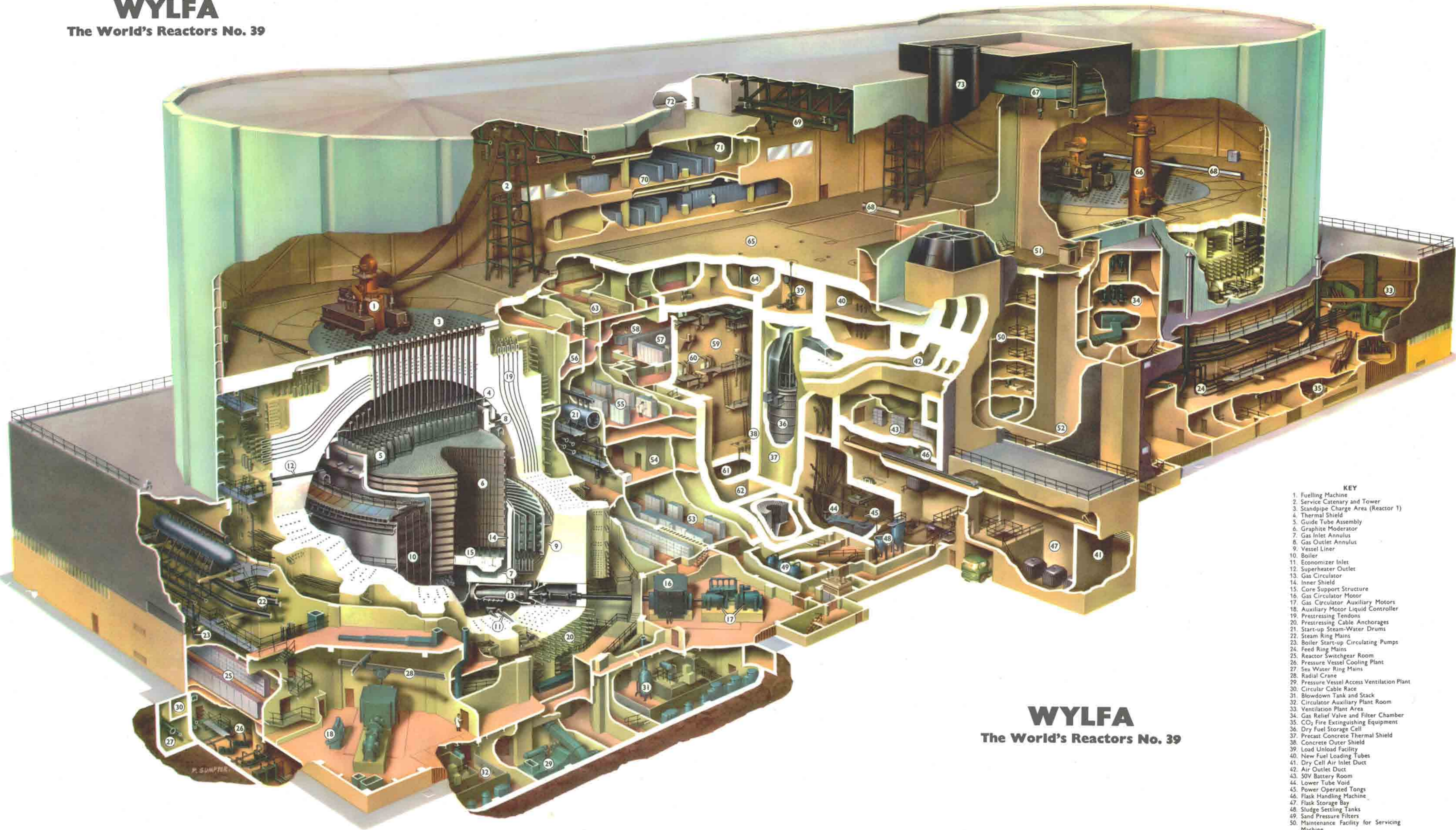


WYLFA

The World's Reactors No. 39



WYLFA

The World's Reactors No. 39

LOCATION Wylfa, Anglesey, U.K.
OWNER Central Electricity Generating Board
CONTRACTOR English Electric, Babcock and Wilcox, Taylor Woodrow Atomic Power Constructors Company Ltd.
TYPE Magnox, twin reactor
OUTPUT 1180 MW(e)
EFFICIENCY 3751 MW(th)
COMPLETION DATE 31.44% net
CORE 1969
 Overall size: 57 ft dia. x 30 ft
 Lattice: square, 7.75 in pitch
 *No. of channels: 6150
 Channel diameter: 3.85 in

FUEL Natural uranium metal rods
 *Core loading: 595.4 t
 Mean rating: 3.15 MW t
 Max. rating: 4.94 MW t
 Max. can surface temp.: 451°C
 Fuel rod size: 42 in. x 1-10 in dia.
 Canning: Al 80 magnox, herringbone finned
 No. per channel: 8
MODERATOR Graphite, grade A in core grade B in reflector
 *Core mass: 3740 t
 Boron steel or mild steel
 *No.: 167
 *No. of sectors: 16

FLATTENING PRESSURE VESSEL Absorbers in fuel element end fittings
 Bars in interstitial holes in core
 Spherical, prestressed concrete
 Size: 96 ft i.d.
 Prestressing cables: 36 x 0.6 in dia. stabilized prestressing strands
 Prestressing tension: 550 ton in² per tendon
COOLANT CO₂
 Gas pressure: 400 psia
 Reactor circuit pressure drop: 12.78 psi
 *Gas mass flow: 22,606 lb s
 Inlet temp.: 247°C
 Outlet temp.: 414°C

CIRCULATORS *4 single stage axial blowers
 Drives: 1500 rev/min constant speed squirrel cage induction motors
 Power consumption: 19,000 hp each
BOILER Type: Once through
 Steam outlet pressure: 718 psia
 Steam outlet temp.: 404°C
 *Steam mass flow: 5,731,000 lb h
 Steam conditions at TSV: 665 psia 401°C
GENERATORS
 *Per reactor
 No. of turbines: 4
 *Gross output: 654.9 MW

- KEY**
1. Fuelling Machine
 2. Service Catenary and Tower
 3. Standpipe Charge Area (Reactor 1)
 4. Thermal Shield
 5. Guide Tube Assembly
 6. Graphite Moderator
 7. Gas Inlet Annulus
 8. Gas Outlet Annulus
 9. Vessel Liner
 10. Boiler
 11. Economizer Inlet
 12. Superheater Outlet
 13. Gas Circulator
 14. Inner Shield
 15. Core Support Structure
 16. Gas Circulator Motor
 17. Gas Circulator Auxiliary Motors
 18. Auxiliary Motor Liquid Controller
 19. Prestressing Tendons
 20. Prestressing Cable Anchorages
 21. Start-up Steam-Water Drums
 22. Steam Ring Mains
 23. Boiler Start-up Circulating Pumps
 24. Feed Ring Mains
 25. Reactor Switchgear Room
 26. Pressure Vessel Cooling Plant
 27. Sea Water Ring Mains
 28. Radial Crane
 29. Pressure Vessel Access Ventilation Plant
 30. Circular Cable Race
 31. Blowdown Tank and Stack
 32. Circulator Auxiliary Plant Room
 33. Ventilation Plant Area
 34. Gas Relief Valve and Filter Chamber
 35. CO₂ Fire Extinguishing Equipment
 36. Dry Fuel Storage Cell
 37. Precast Concrete Thermal Shield
 38. Concrete Outer Shield
 39. Load In/Load Facility
 40. New Fuel Loading Tubes
 41. Dry Cell Air Inlet Duct
 42. Air Outlet Duct
 43. SOV Battery Room
 44. Lower Tube Void
 45. Power-Operated Tongs
 46. Flask Handling Machine
 47. Flask Storage Bay
 48. Sludge Settling Tanks
 49. Sand Pressure Filters
 50. Maintenance Facility for Servicing Machine
 51. Pile Cap Maintenance Shop
 52. Decontamination Shop and Loading Bay
 53. Switchgear Room
 54. Non-Active Laundry
 55. Ancillary Electrical Equipment
 56. Burst Cartridge Detection Equipment
 57. Fuelling Machinery Control Room
 58. Central Control Room
 59. Remote Handling Facility
 60. Master Slave Manipulators
 61. Control Rod Disposal Void
 62. Radio Active Waste Disposal Void
 63. Fuel Store
 64. Control Rod Facility Workroom
 65. Pile Cap Service Area
 66. Servicing Machine
 67. 6-ton Maintenance Crane
 68. Transporter Navigation Mirrors
 69. 6-ton Pile Cap Crane
 70. Control Rod Equipment Rooms
 71. Water Tank Room
 72. Demineralized Water Tank Room
 73. Air Outlet Stack