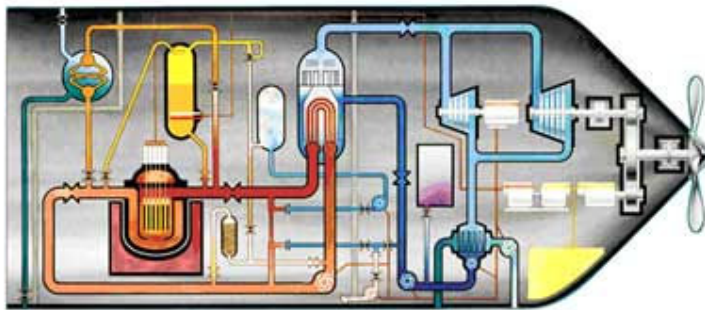


PWR1 - was the first reactor plant designed and manufactured for the British nuclear submarine programme. Through its life it was regularly updated in the quest for improved performance with quieter operation. The design evolution spanned three core designs, all designed and manufactured in Derby. The first core based on the American design was for Britain's Valiant and Resolution classes of nuclear submarines. It produced power for the first time in January 1965 at the Vulcan test establishment at Dounreay.

The final core designed for the PWR1 reactor was first manufactured during 1973 and commenced testing the following year. It is now fitted in the current Swiftsure and Trafalgar class submarines, delivering improved operational availability and increased time between refits for refuelling.



PWR2 - The first PWR2 core was manufactured in 1985 with testing at Dounreay commencing in August 1987. It is fitted to the current Vanguard class submarines. The steady improvement in reactor design has culminated in a long-life core. The first was manufactured in 1997/8 and began testing at Vulcan in 2002. So successful have the improvements been that it has over six times the energy output and over four times the service life of the original PWR1 core. Long-life cores will be standard fit in the latest Astute class submarines, and backfitted to the Vanguard class. When they enter service around 2008 Astute class submarines will operate throughout their service lives without any need to refuel.

Vulcan is the name given to the naval test reactor site at Dounreay, Scotland, owned by the MOD and operated by Rolls-Royce. At Vulcan reactor systems and performance are proved long before the reactor goes to sea. The testing of the first long-life core is expected to last 13 years.

Source rolls Royce website