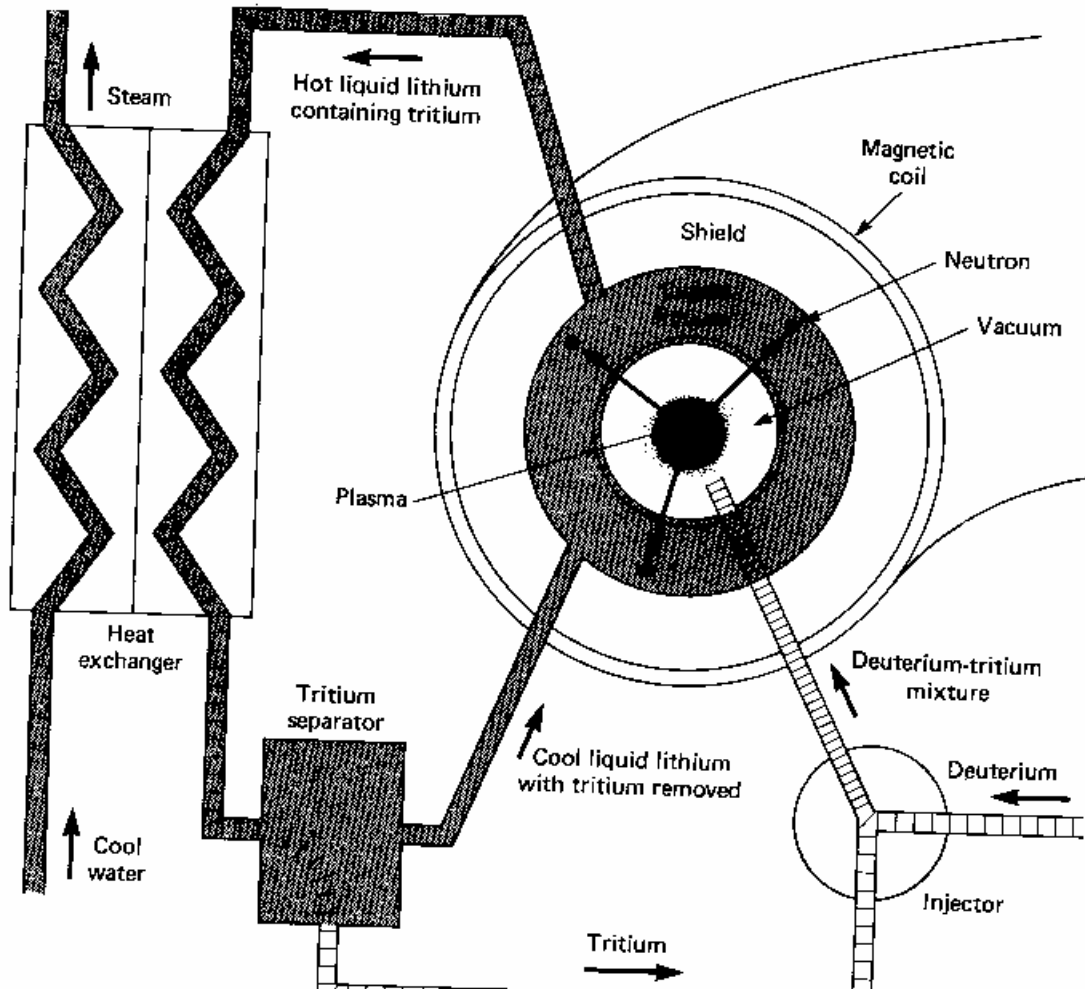


## How Heat is Extracted from a Nuclear Fusion Reactor

A nuclear fusion scheme using the tokamak concept described by Tara. The view is a cross section of the doughnut-shaped vacuum chamber with the hot plasma in which the fusion reactions occur at the center. The plasma is contained by the magnetic field produced by an electric current in coils wrapped around the doughnut. Energy is carried out of the core by the neutrons produced in the fusion reactions  ${}^3_1\text{H} + {}^2_1\text{H} \rightarrow {}^4_2\text{He} + \text{n}$ . These neutrons spew out from the central core and produce nuclear reactions with the lithium nuclei, producing helium and tritium as reaction products. These products are easily stopped, and warm the

14.6



lithium blanket. The thermal energy generated in the blanket is transferred to a heat exchanger that vaporizes water for a steam turbine, which turns an electric generator. Tritium formed from the neutron-induced reactions in the lithium blanket is recirculated back into the reactor for fuel for fusion reactions.

Ref: *Energy: Principles, Problems, Alternatives* by Joseph Priest, p. 267