

Tritium is a vital ingredient in thermonuclear weapons. Each Trident warhead contains a small stainless steel gas reservoir. This reservoir contains a mixture of tritium and deuterium under pressure. Because tritium can affect the steel, the manufacture of these reservoirs is a specialised process. The reservoirs for US Trident warheads are made at the Kansas City Plant. With the exception of the High Explosive, most non-nuclear components in British Trident warheads are procured from the US. It is almost certain that the gas reservoirs for British Trident warheads are manufactured at the Kansas City Plant.

For US Trident warheads, and all other US nuclear weapons, the task of filling the reservoirs with tritium and deuterium is carried out at the Savannah River Site (SRS). When the US Department of Energy (DOE) declassified a range of information about nuclear weapons they stated that tritium was “contained in components known as reservoirs or cartridges which are shipped between the Savannah River Plant and the AEC weapon facilities, the military and the United Kingdom”. This means that the task of inserting tritium into gas reservoirs for British nuclear weapons has in the past been carried out at SRS in the US.

It is known that Special Nuclear Materials (SNM) are transported by air several times each year from RAF Brize Norton to the US. On 25 November 1997 Lord Jenkins asked a question in the House of Lords about these flights. He expressed concern about plutonium and highly enriched uranium. In his reply Lord Gilbert said that the term Special Nuclear Materials (SNM) also covered tritium. This would suggest that these flights are transporting tritium to and from the US. The reservoirs for British warheads continue to be filled with tritium, not in Britain, but at SRS in America.

In the US, the DOE stores and transports tritium in the form of Uranium Tritide (UT). UT is formed by combining tritium and uranium at room temperature. The tritium can be later extracted from by heating the UT. Tritium and its decay product He3 are extracted at different temperature. This practice will be followed in Britain.

DOE regulations show that UT is stored in Hydride Transport Vessels (HTVs). These can store up to 10g of tritium. They are cylinders with a diameter of 4.5” and a height of 10”. Each HTV has 2 valves. For transportation HTVs are placed inside UC-609 Type B containers. The UC-609 containers can hold up to 150g of tritium.