CND BRIEFING

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Trident: Britain's weapon of mass destruction

Introduction

Trident is Britain's nuclear weapon system. It consists of 4 nuclear-armed submarines, one of which is on operational patrol at all times. Each Trident submarine carries 48 nuclear warheads, each of which can be sent to a different target. Each warhead has an explosive power of up to 100 kilotons, the equivalent of 100,000 tons of conventional high explosive and 8 times the power of the atomic bomb that was dropped on Hiroshima in 1945, killing an estimated 140,000 people.

CND believes that Trident is illegal, immoral and a waste of resources. It does nothing to increase world security and undermines international efforts to stop the spread of weapons of mass destruction.

CND believes that to fulfil its international legal obligations, the Government should comply with its unequivocal commitment under the Nuclear Non-Proliferation Treaty by immediately decommisioning Trident and ruling out plans for future nuclear weapon systems.

Background and capabilities

In 1980, the Thatcher government announced that it was going to purchase from the US the Trident nuclear-armed submarine system as a replacement for Britain's ageing Polaris submarines.

Submarines and missiles

The Trident system entered service in 1994. It consists of four nuclear-powered submarines – *HMS Vanguard, Victorious, Vigilant* and *Vengeance*. The submarines are based at the Clyde Submarine Base at Faslane, near Glasgow.

Each submarine is equipped with up to 16 US Trident II D5 missiles, designed and produced by the US Lockheed Martin Corporation. Each Trident missile carries up to 48 nuclear warheads, each of which can be sent to a different target.

Trident: Britain's unilateral nuclear arms race

Trident is a major escalation in Britain's nuclear war fighting capability. Trident is technologically much more advanced than Polaris. Its missiles are faster, have a longer range, are more accurate and can hit more targets than Polaris.

The Government claims that it has reduced the total 'explosive power' of its nuclear weapons since the end of the Cold War, but this has been largely achieved by replacing older, higher yield warheads such as Polaris with the lower yield, but more flexible Trident warheads which can hit more targets. The technology required to launch Trident is totally dependent upon the US.

For further information on Trident's capability see *Secrecy and Dependence: the UK Trident System in the 21st Century,* published by the British American Security Information Council (BASIC) www.basicint.org.

Trident related bases

Development and maintenance of a nuclear weapon system like Trident requires massive infrastructure. There are Trident-related bases all over Britain and in addition the UK Trident uses facilities in the United States. These are just some of the British bases involved:

Aldermaston

The Atomic Weapons Establishment (AWE) at Aldermaston, near Reading is at the centre of British

Submarine Capabilities	Polaris, 1970s	Polaris Chevaline, 1980-90s	Trident, 1995 onwards
Number of Submarines	4	4	4
Warheads per Submarine	48	32	48
Targetting capability	16	16	48
Range	2500 miles	2500 miles	4600 miles

nuclear weapons design and production. It is responsible for design, production, maintenance and the decommissioning of Britain's nuclear warheads. Aldermaston cooperates extensively with nuclear weapons laboratories in the United States on research and development, and maintaining the UK's current Trident warheads.

Aldermaston is owned by the Ministry of Defence (MoD), but since the early 1990s AWE has a GOCO status – Government Owned-Contractor Operated. Thus, although the Ministry owns the site, private companies run the day to day operations. Since April 2000, AWE has been run by British Nuclear Fuels Limited (BNFL), Lockheed Martin and Serco.

Burghfield

Atomic Weapons Establishment Burghfield, 7 miles from Aldermaston, is responsible for assembling the UK's nuclear warheads. Nuclear components are transported from Aldermaston to Burghfield, where they are assembled and then transported by road to Coulport for deployment on Trident submarines.

The UK's Trident submarines are based at the Clyde Submarine Base in Faslane near Glasgow. In the 1980s and 1990s, major construction work was carried out at the base to build facilities to accommodate Trident. Faslane also hosts visits from US Trident submarines.

Faslane also hosts a number of nuclear-powered attack submarines, known as 'hunter killers'. These submarines carry conventional weapons, and are used to escort Trident submarine on their patrols.

Coulport

Trident warheads are stored at the Royal Naval Arms Depot Coulport, adjacent to Faslane. There are normally 144 nuclear warheads on submarines and a further 30-50 at Coulport, where basic maintenance work and inspections are carried out on them. From time to time small numbers of warheads are removed from each submarines and replaced. Rocket fuel, high explosives and plutonium are kept in close proximity here.

Devonport

Devonport Royal Dockyard in Plymouth has the contract for refitting Trident submarines. The first Trident submarine, *HMS Vanguard* went into refit there in August 2002. The other Trident submarines will be refitted in the next 8-10 years. For more information on Trident refitting, see Trident Refit and Refuelling. http://www.cnduk.org/pages/binfo/ttrefit.html

Devonport is likely to be an above ground storage site for decommissioned submarines – where nuclear fuel (from reactor core) is extracted as part of a refit or decommission. The cores are then transported to BNFL Sellafield where they are stored in a cooling pond until a safe means of disposal is found.

Rolls Royce

Nuclear reactors that power the Trident submarines are built by Rolls Royce in Derby. The nuclear fuel that powers Trident nuclear reactors and fuel plates that are put into the modules of the reactors is also manufactured there.

Vickers Shipbuilding & Engineering Ltd (VSEL)

The Trident submarines were built by Vickers Shipbuilding & Engineering Ltd in Barrow in Furness, Cumbria, which also builds nuclear-powered attack submarines, based at Faslane and Devonport.

Chapelcross

The Chapelcross nuclear reactor in the south west of Scotland produces tritium, an essential ingredient to enhance the performance of nuclear warheads by increasing its explosive power. As tritium has a relatively short radioactive half-life, the tritium in warheads must be replaced regularly. Chapelcross is due for decommissioning within the next two years.

Sellafield

Sellafield is a major nuclear facility on the west coast of Cumbria, it is owned by the government and run by BNFL. Historically, the key material for nuclear weapons, plutonium, was produced by reprocessing spent fuel from the UK's older Magnox nuclear reactors. Sellafield now reprocesses nuclear materials for a range of international customers including a number of Western European countries and Japan. Reprocessing nuclear materials increases the risk of nuclear weapons proliferation by increasing the amount of plutonium available.

Trident refit and refuelling

Trident is a nuclear powered submarine. The propulsion unit (that powers the submarine) is a marine Pressurised Water Reactor (PWR). The fuel is highly enriched natural uranium fuel plates built into modules and inserted into the reactor. This revolutionary design allows the reactor to last for ten years without servicing; this US technology puts it well ahead of the competition.

After ten years, after which the submarines will go for a total refit. Of the Trident series, *HMS Vanguard* is currently undergoing the completion stages of its refit and *HMS Vengeance, Victorious* and *Vigilant* are due to undergo refit in the next 8-10 years.

What happens during a refit?

The submarines are docked at Devonport for a 2 year refit, where the entire ship is stripped out and refurbished, including the reactor. Refuelling takes place after a six month cooling down delay.

About half way through the entire process, a hole is cut in the hull of the submarine, and highly irradiated (highly radioactive) fuel is removed and taken by rail to the BNFL plant in Sellafield, Cumbria. This is followed by the removal of the reactor itself which is also transported to Sellafield, where it is left in a cooling pond.

What's the damage?

Environmental

Tritium is a radioactive element created in the core and coolant system of the submarines whilst on operational service.

Once docked at Devonport, tritium is discharged from the reactor into the River Tamar. Tritium contamination of the River Tamar and the surrounding marine environment is one of the most damaging results of the submarine refits.

There are also gaseous discharges from the dockside treatment plant which will eventually drift across the city of Plymouth, contaminating the city. Science is now only slowly beginning to realise how harmful tritium is.

Financial

A report from the National Audit office released on 29 November 2002 highlighted increases in costs relating to the rebuilding of docks for the refitting of the vessels. The initial estimate of £576 million rose to £933 million. The report also pointed out that key facilities crucial to the *Vanguard* refit were not completed in time which will result in an incomplete refit for the first submarine.

Who's involved in the process?

Devonport Management Ltd (DML) are the operators of Devonport Dockyards in Plymouth, a city with a population of over 270,000.

In 1959, the US transferred basic reactor technology and manufacturing expertise from Westinghouse (a US company who are now owned by BNFL) to Rolls Royce. Rolls Royce Associates (RRA) was subsequently formed in 1959, with the associates being Vickers, Foster Wheeler & Babcock and Wilcox. RRA are the owners and operators of Marine Power Operations Ltd at Derby, where reactors cores and fuels for nuclear powered submarines are designed and manufactured.

Local protest

A large local protest movement has started in the Plymouth and South West, comprising of environmentalists, peace groups and other concerned individuals all opposed to the refit taking place in their community.

Locals are gearing themselves up to opposing the expected announcement from the MOD that Plymouth will be the site chosen for the on land storage site for decommissioned nuclear submarines.

Up to twenty seven reactor compartments from the redundant subs will end up in land storage for up to sixty years. The navy is due to make the announcement within the next two years.

The US connection

Trident is a US nuclear system. The US provides assistance to Britain with its nuclear programme under the 1958 US-UK Mutual Defence Agreement.

- The UK Trident uses US Trident II D5 missiles, which are maintained and tested in the United States.
- The UK Trident warhead is closely based on the US Trident W76 warhead and was tested at the US Nevada Test Site.
- The UK maintains close links with the US nuclear weapons laboratories, on 'stockpile stewardship', ie maintaining and developing nuclear warheads.
- The UK relies on US satellite navigation, intelligence and targeting information.
- UK nuclear policy is closely synchronised with the US and NATO.

Although the Government claims that Trident is 'independent', it is clear that the UK depends heavily on the US for nuclear assistance and that the US therefore has leverage over British foreign and defence policy.

Trident missiles

The UK has access to 58 missiles from the US pool of Trident II D5 missiles. British Trident submarines collect the missiles from the US Trident base at Kings Bay, Georgia in the South-East of the United States. While the submarines are in the United States, they will usually test fire one or two missiles at the US Eastern Test Range, off the coast of Florida, where the US test fires its Trident missiles. The Trident missiles are maintained and serviced in the United States.

Trident warheads

The UK Trident warhead is closely based on the US Trident W76 warhead and was tested underground at the US nuclear test site in Nevada.

The UK works closely on design and maintenance of its nuclear warheads with the 3 main US nuclear weapons laboratories, Lawrence Livermore in California and Los Alamos and Sandia in New Mexico. Components for British nuclear weapons are transported by air and road between AWE Aldermaston and RAF Brize Norton in the UK and the US weapons laboratories for ongoing tests.

The UK participates in numerous exchange visits with staff from the US nuclear weapons laboratories. It also participates with the US in 'sub-critical' nuclear tests (tests which fall just short of releasing a nuclear explosion) at the Test Site.

Cooperation on Nuclear Posture

Under the terms of the agreement under which the US provided assistance with Trident to the UK, UK Trident submarines are assigned to NATO to be used for the "defence of the Alliance" except where the UK government "may decide that supreme national interests are at stake".

UK nuclear strategy and targeting is closely coordinated with the US through the NATO Nuclear Planning Group. NATO's nuclear posture, which is heavily influenced by the United States includes the option of using nuclear weapons first and the option to use nuclear weapons against non-nuclear countries.

As the Bush administration has moved towards a more aggressive nuclear posture, the UK and NATO are expected to fall into line. British Secretary of State for Defence Geoff Hoon MP has already indicated that like the US, the UK reserves "the right to use appropriate proportionate responses which might… in extreme circumstances include the use of nuclear weapons". (Defence Select Committee 20 March 2002, Question 234.

Trident and International Law

Nuclear Non-Proliferation Treaty (NPT)

Britain is committed to eliminate its nuclear arsenal under Article VI of the 1968 Nuclear Non-Proliferation Treaty, which states that:
"Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control".

At the 2000 NPT Review Conference, Britain agreed to make an "unequivocal commitment" to "accomplish the elimination" of its nuclear weapons, and signed up to a programme of action for nuclear disarmament. Britain agreed to make "further efforts" to reduce nuclear weapons unilaterally, to increase transparency, to reduce the operational status of its nuclear weapons, to reduce the role of nuclear weapons in its military strategy, and to engage in the process leading to the elimination of all nuclear weapons.

The Government is yet to do anything to implement the 2000 NPT agreement or to fully implement Article VI. Instead it appears determined to maintain Trident indefinitely. This is viewed as hypocrisy by most non nuclear weapon states – why should they abide by the NPT when the UK (and the four other nuclear weapon states) have no intentions of abiding by their obligations?

For further information see CND's briefing for the NPT Preparatory Committee in 2003.

International Court of Justice ICJ

On 8th July 1996 the International Court of Justice gave an advisory opinion on the legality of nuclear weapons. The Court concluded that:

> "the threat or use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law". (para 2E)
>
> "states must never make civilians the object of attack and must consequently never use weapons that are incapable of distinguishing between civilian and military targets". (para 78)

The basis of humanitarian law is that parties to any conflict should seek to distinguish between civilian and military targets. This is repeated in the basic rules of the 1949 Geneva Convention.

The Geneva Convention Protocol 1977

Prohibits attacks on civilians and methods of warfare which are intended, or may be anticipated, to cause widespread, long-term and severe damage to the natural environment. (Article 35)

The inherent impossibility of distinguishing between civilian and military targets and the obvious fact that the use of Trident would result in a massive number of casualties in a wide area, clearly renders the use or threat of Trident illegal. It is clear that the use of Trident would result in a massive number of casualties across a wide area.

The use of nuclear weapons would generally breach all of the following declarations and conventions:

- Declaration of St. Petersburg, 1868, because unnecessary suffering would be caused and there would be no avoidance or minimising of incidental loss of civilian life; Hague Convention, 1907,

because unnecessary suffering would be caused and there would be no guarantee of the inviolability of neutral nations;
- Universal Declaration of Human Rights, 1948, because long-lasting radioactive contamination would interfere with innocent people's right to life and health;
- Geneva Conventions, 1949, because protection of the wounded, sick, the infirm, expectant mothers, civilian hospitals and health workers would not be ensured;
- The Protocols Additional to the Geneva Conventions, 1977, because there would be massive incidental losses of civilian lives and widespread, long-term and severe damage to the environment.

For further information on the legality of nuclear weapons, see *Putting Nuclear Weapons on Trial,* Angie Zelter, http://www.acronym.org.uk/42trial.htm

The operational lifetime of the Trident nuclear weapon system is 30 years. The four Trident submarines entered into service between 1994-2001 and therefore it can be expected that they will begin to be decommissioned soon after 2024.

Preliminary thinking on a replacement system is probably already underway and development would certainly have to start by around 2010 in order for a system to be ready by 2024. The Ministry of Defence (MoD) continues to deny that there are any plans to replace Trident. That may well be the case but the fact remains that the Atomic Weapons Establishment (AWE) Aldermaston can support Trident nuclear warheads indefinitely and has the potential to develop new warheads if required. There have been strong indications towards either further expansion plans or a successor system for Trident.

With the closure due soon of both Chapelcross (where tritium is produced for Trident) and Rolls Royce Derby (where the nuclear reactors for Trident are manufactured) it could well be that the whole manufacturing process will be moved to Aldermaston and Burghfield. Or it could be that Trident will simply be kept in service after its projected lifespan.

Government secrecy

There is currently little public scrutiny and debate on the Trident system and British nuclear weapons as a whole. Access to information and parliamentary scrutiny of nuclear policy issues has become more difficult under the Blair government than the previous Tory governments.

Until 1995, the UK Trident programme was subjected to detailed scrutiny by the Defence Select Committee's annual inquiries on the 'Progress of the Trident Programme' http://www.bopcris.ac.uk/bop1984/ref1361.html).

These inquiries were introduced following the misleading of parliament over the upgrade of the Polaris submarine programme to the Chevaline system. Since Labour came into power in 1997, the British government has abandoned the publication of such annual statements, which during the 1980s and 1990s provided regular information on UK nuclear policy.

Given Trident's close ties with the US, one of the key factors in shaping UK nuclear policy in the coming years will be the major changes taking place in US defence policy. Together with significant developments in Aldermaston concerning UK's nuclear force, it is imperative that regular and detailed government reporting to parliament, together with parliamentary scrutiny, are restored.

This is necessary both in terms of UK strategic policy and the government's policy to eliminate nuclear weapons in line with international commitments made under the NPT.

Why CND opposed Trident

CND believes that all nuclear weapons are illegal, immoral and a waste of resources. They do nothing to increase security in the world and make difficult situations even worse.

CND is opposed to the UK Trident nuclear weapon system for the following reasons:

- Even a single Trident warhead would, if used, devastate a huge area. Each warhead has seven times the destructive killing power of the bomb dropped on the Japanese city of Hiroshima in 1945. That bomb killed 140,000 people. Nuclear weapons cannot distinguish between military and civilian targets.
- In 1996, the International Court of Justice ruled that "the threat or use of nuclear weapons would be generally contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law".
- Britain, along with 186 other countries, has signed the Nuclear Non-Proliferation Treaty which states that all countries must get rid of their nuclear weapons.
- Britain says that it needs nuclear weapons in order to defend itself. The logical conclusion of that argument is that all countries should have nuclear weapons. That is something that very few people would agree to. The way some see that is that it is acceptable for the so-called 'civilised' countries to

have them but not everyone.

- The Trident system costs the UK up to £1.5 billion every year. CND believes that this money would be better spent on more useful things like education, health and housing.
- Possession of nuclear weapons also makes Britain more of a target, in particular the bases connected with Trident.

Britain claims that Trident is a 'deterrent'. That means that by having nuclear weapons, other countries will not use such weapons against you. This was highlighted throughout the Cold War and was known as 'Mutually Assured Destruction', or perhaps appropriately – MAD. The theory was that the West, led by the US and the East, led by the Soviet Union, would not fight a nuclear war as each side knew that the other could destroy the world several times over.

But Britain has threatened to actually use Trident if necessary. The government maintains that a 'sub-strategic' use of Trident, generally thought to mean a single warhead, could be launched if British interests abroad were threatened. Defence Secretary Geoff Hoon also indicated that Britain would consider using nuclear weapons in the war on Iraq in 2003 either in response to an attack with chemical or biological weapons, or even to pre-empt such an attack. These options would be against international agreements. (See BBC Breakfast with Frost interview 2 February, 2003 http://news.bbc.co.uk/1/hi/programmes/breakfast_with_frost/2718629.stm)

CND calls on the British Government to implement the unequivocal commitment to accomplish the elimination of Britain's nuclear weapons it gave in 2000 and to demonstrate this commitment by immediately taking steps to decommission the UK Trident programme and rule out plans for future nuclear weapon systems.

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