

Trident missiles to be made more accurate

President Bush's Quadrennial Defense Review, published on 6 February, calls for the rapid development of conventionally-armed Trident missiles –

*"Within two years, deploy an initial capability to deliver precision-guided conventional warheads using long-range Trident Submarine Launched Ballistic Missiles"*¹

Expenditure on this was included in the new Whitehouse budget for Financial Year 2007 -

*"The Pentagon also would spend \$387 to begin work on a conventional version of the Trident submarine-launched ballistic nuclear missile"*²

The plan may involve deploying 96 conventional warheads on 24 missiles.³ This is part of the US plan to build a Global Strike force, capable of launching a devastating attack, with nuclear or conventional weapons, on any target in the world at a few hours notice.

Background

The current accuracy of Trident is approximately 120 m (Circular Error of Probability).⁴ A conventionally-armed variant of Trident would only be feasible if there is a substantial improvement in accuracy. For decades Lockheed Martin has been trying to develop more accurate RVs for submarine-launched missiles.

A report produced by Lockheed Martin in 1997 describes how a Trident RV could be modified so that it could be used as a conventionally-armed earth penetrator.⁵ For this role the RV would have to descend at an angle close to perpendicular to the earth's surface. This would be steeper than any ballistic trajectory. The solution proposed was to add flaps to alter the trajectory of the RV. These flaps would also have to reduce the velocity of the RV. A GPS receiver would monitor the RV's position.⁶

In January 2003 Lockheed Martin lodged a patent for a Manoeuvrable Re-entry Vehicle (MARV).⁷ This used flaps and had an initial flight-test in October 2002. The project was adopted in the US Defence Budget for Financial Year (FY) 2004 as Enhanced Effectiveness (E2).⁸ Funding was allocated to develop and test this MARV over three years.⁹ In May 2003 a contract was going to be placed with Charles Stark Draper Laboratory for evaluating GPS and inertial guidance units for the MARV.¹⁰ The FY 2005 budget shows that Congress withdrew all funding for E2.¹¹ Despite this a flight test was carried out in March 2005. A navy Admiral said "I had GPS signal all the way down and could steer it".¹² This test was carried out at a range of 2,200 km, which is considerably shorter than normal Trident test flights.

¹ Quadrennial Defense Review, 6 Feb 06, p 50

² <http://www.navytimes.com/story.php?f=1-292925-1516857.php>

³ <http://www.bloomberg.com/apps/news?pid=10000103&sid=aZeqovAI9zgY&refer=us>

⁴ www.naval-technology.com/projects/vanguard/ -

⁵ NF Swinford & DA Kudlick, A Hard and Deeply Buried Target Defeat Concept, Lockheed Martin, 1997

⁶ *ibid*

⁷ Lockheed Martin press release 3 June 2003

⁸ Research and Development, Strategic Sub and Wpns Sys Spt, PE 0101221N, FY2004 budget, Feb 2003, p3-6; Modifications to the Fire Control System for the E2 programme were also proposed – Trident D5 Fire Control solicitation 2 April 2003.

⁹ This project is also referred to as Enhanced Effectiveness (E2), Statement of Rear Admiral CB Young, Director SSP, before the Strategic Subcommittee of the Senate Armed Services Committee, 8 April 2003

¹⁰ N00030-04-C-0007 pre-solicitation from SSP 13 May 2003, FBO

¹¹ Research and Development, Strategic Sub and Wpns Sys Spt, PE 0101221N, FY2005 budget, Feb 2004, p2

¹² Bulletin of Atomic Scientists: US Nuclear Forces 2006, <http://www.thebulletin.org>

Implications for Britain

In 1995 the Government of the day said that they had carried out no research into conventionally-armed Trident:

"Mr. Foulkes: *To ask the Secretary of State for Defence what research is being undertaken into the feasibility of adapting the Trident system to carry conventionally armed missiles; and what has been the expenditure on this research in the last three years. [1291]*

Mr. Arbuthnot: *The UK has conducted no such research"*¹³

Since then the UK has contributed to at least one US project to increase the accuracy of Trident. The Reentry Inertial Measurement Unit (RIMU) project is measuring the velocity increment when a Reentry Vehicle leaves the Post-Boost Vehicle. It is partly funded by the UK and is claimed to increase missile accuracy.

If the US has, or is about to, make substantial progress in increasing the accuracy of Trident, this has significant implications for the British Trident force:

- The ability of existing nuclear weapons to destroy targets will be greater
- A lower yield nuclear warhead is more likely to be developed and deployed
- A conventional warhead could be developed.

Both a low-yield and conventional warhead raise concerns about blurring the threshold between nuclear and conventional weapons.

¹³ Hansard 22 Nov 1995 : Column: 177