John Ainslie

From: Kristensen, Hans [hkristensen@fas.org]
Sent: 11 March 2007 14:00
To: richard.norton-taylor@guardian.co.uk
Cc: John Ainslie
Subject: Trident upgrades

Dear Richard Norton Taylor,

John Ainslie asked me to send you a comment about the accuracy upgrade underway on the Trident system.

The new Arming, Fuzing and Firing (AF&F) system for the W76-1/Mk4A is part of an effort to increase the effectiveness of the weapon system. This is a multi-tiered endeavor.

1. In the early 1990s, the US Navy began developing a new targeting system to improve strike planning against relocatable (mobile) targets. This effort built on new guidance from the 1980s for ballistic missile submarines to begin routinely to hold relocatable targets at risk. The result was the SLBM Retargeting System (SRS), completed in October 2003, which "provide the increased flexibility and capability required by the Nuclear Posture Review for our offensive strike platform." SRS enables SSBNs "to quickly, accurately, and reliably retarget missiles to targets,"..."allow timely and reliable processing of an increased number of targets,"..."reduce overall SIOP processing" time and "support adaptive planning."

2. Since the W76 was the main warhead to be used with this new capability, a program began to increase the accuracy of the W76 reentry reentry vehicle. This had two components: develop a new AF&F to "enable [the] W76 to take advantage of [the] higher accuracy of the D5 missile;" and equip the W76 RV with an "accuracy adjunct" to give the system "GPS-like accuracy." Development of the "accuracy adjunct" was known as the Effectiveness Enhancement (E2) program and involved a three-axis flap system for the new W76-l/Mk4A that make the RV maneuverable. E2 "expands the potential targets that are threatened by Trident." The first flight test of the maneuverable W76 was in October 2002 from the USS Wyoming in the Atlantic, which launched a D5 with "a prototype three-axis flap control system integrated into a full-scale, fully instrumented Mk4 RV."

Congress soon became concerned that E2 would lead to more usable nuclear weapons and refused to fund the program. Yet the Navy continued development with Lockheed Martin money and again flew the flap system in March 2005 from the USS Tennessee. This was the a compressed trajectory experiment with a range of only 1,200 nautical miles - the shortest D5 flight ever flow by the US Navy. An admiral told me: "I had GPS signal all the way down and could steer it."

The flap-system is also an important requirement if the Navy is to be successful in developing a conventional warhead option on the D5, but Congress has so far not been willing to fund this. But is important to note that the flap-system was developed for the W76-1/Mk4A, not the conventional option. As for now the operational status of the flap system is unknown.

3. Most recently, the US Navy has begun development of what is known as the SSBN Planning and Operational Flexibility (SPOF) program, which the follow-on program to the SRS. Details of the new SPOF are few, but it will further improve the effectiveness of the Trident D5 system, including: 1) improved flexibility and responsiveness, 2) enhanced accuracy and effectiveness.

The bottom line is that the new Mk4A, which we now know is also being added to the British system, is part of a broad effort to increase the warfighting effectiveness of the D5 system. This is clearly not just about maintenance but to take advantage of the D5's accuracy in a way that has not been done before. It appears to be intended to give the warfighters greater flexibility in setting the optimum height of burst in a wider range of attack options. This will broaden the range of targets that can be held at risk with the weapon.

I hope this is helpful. If you have any questions, my direct line is 202-454-4695 and cell is 301-512-9782.

Sincerely,
Hans M. Kristensen