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TRIDENT SSGN CONVERSIONS:
ARGUMENTS AGAINST DEPLOYING TOMAHAWKS ON TRIDENT SUBMARINES

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This paper is intended to support resistance to the conversion of America's four oldest Trident submarines to be underwater launch platforms for Tomahawk cruise missiles, and other missiles capable of being launched from the same system. This conversion is not necessary for national security reasons. What it does do is destabilize international relations and disarmament negotiations while absorbing critically-needed resources and aggravating a rapidly-spreading culture of violence.

In its Nuclear Posture Review released in September 1994, the Pentagon announced that it may cut the Trident fleet from 18 to14 submarines. The four oldest are the ones that will be retired from strategic service in 2002 to comply with the START-2 Treaty. They are the *USS Ohio* (SSBN-726), the *USS Michigan* (SSBN-727), the *USS Florida* (SSBN-728), and the *USS Georgia* (SSBN-729). Trident submarines are designated by the letters SSBN, followed by the serial number -- the "SS" indicates a submarine, the "B" tells that it carries ballistic missiles, and the "N" means it is nuclear powered.

Now the government and the Navy plan to convert those four submarines to carry conventional missiles -- initially Tomahawk cruise missiles. In July 2001 Congressman Norm Dicks of Washington state announced that all four of the Trident subs that are to be retired from strategic service will be converted to carry cruise missiles. He announced this after conferring with newly appointed Navy Secretary Gordon England. England is former executive vice president of General Dynamics, parent company of Electric boat which built all the Trident submarines. Congressional Representatives and US Senators from Connecticut -- home of General Dynamics' Electric Boat Division which built all 18 of the Trident submarines -- have been pushing hard for the SSGN conversion of four ships. The fiscal year 2003 Pentagon budget contains $1 million for this purpose.

Conversion will take two years and will take place during the 20-year refueling overhaul. About half way through refueling, the conversion will commence. Total time in the shipyard for each ship will be three years. Then there will be a period of recertification and crew training. The *USS Ohio* -- the first to be converted -- will deploy as a SSGN in 2007.[1] Electric Boat Division of General Dynamics will bid on that conversion contract, as will Northrop Grumman. Electric Boat has already been awarded the design work for the SSGN conversion and will build the missile launch canisters.[2]

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[1]Hamilton, 14 September 2002.

[2]Hamilton, 30 January 2002.

The schedule to start work on the SSGN refueling and conversion is as follows:[3]

- *USS Ohio*: Begin refueling on 15 November 2002 at Puget Sound Naval Shipyard in Washington state..
  Conversion scheduled to begin in October 2003.
- *USS Florida:* Refueling scheduled to begin in October 2003 at Norfolk Naval Shipyard at Portsmouth, Virginia.
  Conversion scheduled to begin about October 2004.
- *USS Michigan:* Refueling to begin *i*n October 2003 at Puget Sound Naval Shipyard in Washington state.
  Conversion scheduled to begin about October 2004.
- *USS Georgia*: Refueling to begin in October 2004 at Newport News Shipyard (owned by Northrop Grumman).
  Conversion scheduled to begin about October 2005.

After the conversions are completed, the *USS Ohio* and *USS Michigan* will be assigned to Washington's west coast Subase Bangor. The *USS Florida* and *USS Georgia* will operate out of Subase King's Bay in Georgia on the east coast.[4]

The *USS Florida* underwent an interim, temporary conversion to have a 3-missile Tomahawk launcher installed for testing purposes. Launch of the first Tomahawk (using a Tactical Tomahawk engine) took place on 14 January 2003in the Gulf of Mexico. It flew a preprogrammed course to Eglin Air Force Range in Florida. The second Tomahawk (using a Block-III Tomahawk engine) was launched two days later, on 16 January 2003, and flew a similar course. The launches took place in conjunction with a naval exercise dubbed "Giant Shadow."

From the third launch tube was a launched a 4-foot long, 10-foot wingspan unmanned aerial vehicle called Scan Eagle. It can fly 500 miles for reconnaissance and surveillance. The SSGN conversion will install equipment to recover these vehicles.

In this exercise the *USS Florida* also deployed a battery powered Seahorse unmanned underwater vehicle to, map a route through mine fields, plant sensors on enemy soil, and send supplies to commandos already on the beachhead. This vehicle, which is 38 inches wide and almost 30 feet long, can be recovered and then redeployed after the batteries are recharged.

The US Navy is conjuring up many more tricks for these converted Trident subs to do.

BACKGROUND ON SSGN CONVERSION

Sometime during the mid-1990s the Pentagon conceived the idea of an arsenal ship. With Tomahawk cruise missiles becoming the military's weapon of choice for strikes against other countries, a ship dedicated to carrying hundreds of these weapons seemed desirable.[5] But an arsenal ship would travel on the surface where it is easily detected and tracked. It would also require a fleet of warships to protect it, and tankers for refueling. The idea was scrapped in 1997.

A Navy report entitled *Analysis of Converting Trident-Class Ballistic Missile Submarines (SSBNs) to Nuclear-Powered Guided Missile Submarines (SSGNs)* -- the Final Report, issued 14 June 1999 -- examines the conversion of the four to-be-retired Trident subs to carry cruise missiles. These converted submarines would be redesignated from SSBNs to SSGNs -- the "G" signifying that

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[3]Sherman.

[4]Lamphere.

[5]See PLRC-960301 for a discussion of Tomahawk missiles.

it carries guided missiles. The conversion cost was estimated at $500 million to convert each SSBN to a SSGN.[6] Underwater warfare officials tout converted Tridents as the submarine force's answer to the Navy's proposed arsenal ship -- its stealth, invulnerability, and nuclear power obviates all the disadvantages of an arsenal ship. They boast that Trident can disappear for months at a time and then bring significant firepower to enemy shores without detection. Quoting the Defense Science Board: "Although no US surface ships might be in a given area, an adversary could not discount the fact that there could be a Trident SSGN within striking range."[7] Trident SSGNs could ripple fire 154 Tomahawks in six minutes.[8] At $750,000 per missile that is spitting out over a quarter-million dollars a second for a six-minute total of $115.5 million.

The plan is to put seven Tomahawks each in 22 of the submarine's missile tubes -- 154 missiles total per sub. There would also be dedicated accommodations for 66 special operations troops such as Navy Seals. Twenty feet of unused space below the Tomahawks in each of the 88-inch diameter tubes could be used for special operations gear and other purposes. Trident SSGNs would use the Tactical Tomahawk Weapons Control System developed for surface ships, with a software modification that will allow it to fire 154 missiles (rather than128 as presently designed for surface ships).

The two remaining tubes would be used as air locks for the special operations troops to leave the sub with rubber rafts, or to enter a miniature submarines -- either a 4-person Advanced SEAL Delivery System which helps the troops swim faster to shore, or an 8-10 person Dry Deck Shelter with its own propulsion and environmental system.. One of each or two of either would be carried piggy back outside the Trident hull above the air-lock tubes.

Electric Boat won the engineering and design contract. It was awarded $14 million for fiscal year 2000 to start design work on the SSGN conversion. $38 million was approved for fiscal year 2001 to continue studies on the SSGN conversion. Then the figure jumped to $116 million in fiscal year 2002 ($30 million for research & development and $86 million for advanced procurement).

ECONOMIC SAVINGS FROM CANCELING THE SSGN CONVERSION

Billions of dollars can be saved to use on more beneficial projects if the SSGN conversions were canceled and the four submarines decommissioned. The total would be more like the following (In millions of fiscal year 2002 dollars).

-- Subs not converted to carry Tomahawk missiles[9]	$3,340
-- Not removing missile tubes to comply with START-1[10]	1,680
-- Two bases not updated to handle Tomahawk missiles.	210 (estimated)
-- Eliminating shipyard costs for four 2-year overhauls.[11]	210 (estimated)

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[6]Recent articles place the conversion cost at $950 million each if only two submarines are converted, and $700 million each if all four are converted. (See *The Sun*, 3 July 2001) What these figures include and do not include is not currently known.

[7]Cited in Fritz, 15 April 1996.

[8]Final Report, p. ES-3.

[9]Latest estimate for converting four submarines. Cited in Barron, 5 February 2002..

[10]Offley, 2 August 1999.

[11]This involves work other than the D-5 upgrade.

-- No Department of Energy costs for four reactor fuelings.[12]	485
-- Not buying 678 Tomahawk missiles (includes spares)[13]	509
-- Eliminating 80 submarine years of operation, maintenance and support costs (includes 2 crews/submarine but not maintenance & support costs for missiles) [14]	6,292
	$12,726

The savings totals almost $13 billion. Again, some proponents for the conversion may say that the real cost is less because money would not have to be spent to deactivate the submarines. That is fallacious reasoning because deactivation must eventually be done anyway. Also, some estimates may be conservative.

ENVIRONMENTAL SAVINGS FROM CANCELING THE SSGN CONVERSION

Not much can be written about the environmental effects of the SSGN conversion other than there are no public documents to indicate those effects have been considered. Modifying the bases to handle Tomahawk missiles would certainly have some ecological and safety impact, yet there has been no process started to arrive at an Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act. The American people should be demanding that an EIS be prepared.

WORLD TENSION REDUCTION FROM CANCELING THE SSGN CONVERSION.

Renovating a strategic weapon platform for tactical use will have political ramifications around the globe. International relations will also be aggravated by having more Tomahawk missiles available. Long-range cruise missiles have given the US and its allies itchy trigger fingers. Without looking for more fruitful and longer lasting solutions the US and Britain, in particular, have charged into Iraq, Serbia, and Afghanistan to force ruthless regimes to their knees. They have bombed sovereign nations with Tomahawks in response to terrorism. Myopic military vision fails to recognize, or completely ignores, the fact that these acts of aggression are stimulating the nationalism in underdeveloped countries that supports those ruthless dictators. And as industrial nations continue to trample smaller countries, the incidents of terrorism continue to rise. Even in many neutral countries the sentiment is getting anti-American and anti-Western. Stopping the deployment of Tomahawks on Trident submarines will help to stabilize international relations by at least keeping them from getting worse.

NUCLEAR TOMAHAWKS

Nuclear-tipped Tomahawks were removed from surface ships and attack submarines. And placed in storage, as a unilateral initiative during the 1990s. Nevertheless, nuclear Tomahawks are still considered a military option by the Pentagon. This was illustrated in the fiscal year 2000 *Annual Report To The President And The Congress*, submitted by then Defense Secretary William C. Cohen,

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[12]CAIG Report, Table A-1, converted to fiscal year 2000 dollars.

[13]Based on a unit price of $750,000 per Tomahawk missile.

[14]My estimate based on GAO/NSIAD-89-40, p. 31, converted to year 2002 dollars and calculated for 80 submarine years.

which stated: "Nuclear weapons capability on surface ships has been eliminated, but the capability to deploy Tomahawk Land Attack Missiles armed with a nuclear warhead on submarines has been maintained."[15] It must be recognized that nuclear-armed Tomahawks are still operational.

In light of leaked information from the latest Nuclear Posture Review, transmitted to Congress on 8 January 2002, recommending development of low-yield nuclear weapons,[16] it is almost certain that the George W. Bush administration will arm Trident SSGNs with nuclear Tomahawks. The Nuclear Posture Review outlines three situations in which tactical nuclear warheads could be used: 1) against targets able to withstand conventional warheads; 2) in retaliation to a nuclear, chemical, or biological weapons attack; or 3) in the event of surprising military developments. Nuclear Tomahawks wouldn't likely be used against hardened targets although a rocket motor could be installed to drive them into the ground for deep penetration. A more likely use for nuclear Tomahawks would be to retaliate against countries using weapons of mass destruction, or in the case of "surprising military developments" such as a huge Arab invasion of Israel or a Chinese invasion of Taiwan.

Ground-launched cruise missiles -- essentially the same as Tomahawk except for the warhead -- were destroyed under the Intermediate Nuclear Forces Treaty. However, only the missiles were required to be destroyed. The W-84 warheads were put into storage. It was planned that 565 W-84s would be built and at least 500 of that number were actually produced. These warheads have a selectable yield of between 10 and 50 kilotons. They would fit into the Tomahawks very easily. It is conceivable that further tweaking, which may already be underway, could further reduce the yield.

Similarly, the W-85 warheads, from the Pershing-2 missiles also destroyed in compliance with the Intermediate Nuclear Forces Treaty , are in storage. They have a selectable yield of 5-50 kilotons. These could possibly be fitted to the Tomahawks.

With all these ready-made tactical nuclear weapons available, it is reasonable to assume that nuclear-armed Tomahawks will be carried by Trident SSGNs.

THE BALLISTIC MISSILE DEFENSE CONNECTION

Tomahawk cruise missiles are not the only armament that could be carried on a Trident submarine converted to a stealth battleship. The Navy's Standard Missiles, various versions of which are the interceptor for Navy's Sea-Based Midcourse Missile Defense program, can be launched from the same tubes as Tomahawks. This would give Trident SSGNs a role in the Ballistic Missile Defense picture -- a role which would lead to even greater international outrage and diplomatic instability. This concept has already being tested in the public waters.[17] The role may be expanded into other areas -- the Pentagon's Defense Advanced Research Projects Agency is investigating a "universal encapsulation" for submarine launch that will accommodate various existing cruise and ballistic missile designs as well as those in the future.

CONCLUSION

The major obstacle to stopping the SSGN conversions is vested monetary interests in the areas that will get the work. The people living in those areas, and their representatives in the

[15]Cohen-2000, p. 72.

[16]Arkin.

[17]See Newman.

Legislature, will pressure unrelentingly to convert Trident subs. One example has already surfaced in Camden County, Georgia, where Submarine Base Kings Bay is located. The Camden County Board of Commissioners unanimously passed a resolution proclaiming that it "endorses the efforts of the various local groups in support of US Submarine Base Kings Bay and encourages the United States Congress and the United States Navy to base at least two of the refitted SSGNs at Kings Bay."[18] Another example is the remark of General Dynamics chairman Nicholas D. Chabraja in September 2002, that the future looks bright for its shipbuilding subsidiaries including Electric Boat.[19] This motivation for keeping Tridents submarines in operation is local jobs, which in turn provide increased markets for local businesses. This is a formidable obstacle for Trident resisters to overcome.

Another serious monetary obstacle to overcome in resisting the continuation of Trident is the lobbying efforts and other activity of the weapons makers, to protect their profits. They have the ability to pressure legislators and influence the public through the entire spectrum of media. Resisters will have to be well informed on the issues and work diligently to counter corporate propaganda.

There is also the functional obstacle. Long-range cruise missiles such as Tomahawks are popular with military planners. They provide for air strikes without pilot risk or the loss of expensive airplanes. They allow strikes over almost all the earth's land mass without having to obtain host country approval for air bases and overflight. They allow strikes in a particular region before an aircraft carrier task force can be brought in. All of these features have made Tomahawk cruise missiles the Pentagon's "weapon of choice" in regional wars.

Tridents converted to launch Tomahawks will enhance this "weapon of choice" for regional wars. But these weapons are having a much more subtle and extremely devastating effect on America's culture. People tacitly, and now even more openly, accept that it is OK to bully weaker nations if that protects our lifestyle. It is considered acceptable to wage a war as long as there are no, or very few, American casualties. In effect, especially since 11 September 2001, the American people tolerate a permanent state of war. The culture of violence is brewing in our country with a particularly devastating effect on our younger generation. Helping restore feeling to America's conscience, now seemingly numbed by the expediency of a military solution, and propagandized by the terrorist threat, will perhaps be the greatest advantage of all from simply retiring those four Trident submarines.

It is probably through contact with the public, and by motivating people to make their desires known, that Trident resisters will reap the most success. People have been and will continue to be bombarded with propaganda advocating bigger and better weapons. They have been intimidated on everything from jobs and the economy to homeland security, from protecting our vital interests to saving the huge investment in Trident by spending more money. It will take resourcefulness, ingenuity, perseverence, knowledge, integrity and many more positive traits to sway the American public away from false delusions and back to hope for the future. There will be rewards reaped, however. The greatest of these is the reward of reducing and someday eliminating the culture of violence that has infested our society and alienated oppressed peoples all over the globe -- and thus achieving a wholesome atmosphere in which our future generations can grow.

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[18]Neleski.

[19]Hamilton, 20 September 2002.

REFERENCES

Arkin, William M.; "Secret Plan Outlines The Unthinkable," *Los Angeles Times*, 10 March 2002.

Barron, Chris; "Defense Budget Aims Big Money At Kitsap," *The Sun* (Bremerton, Washington), 5 February 2002.

Barron, Chris; "Preparing For A New Type Of Battle," *The Sun* (Bremerton, Washington), 21 February 2002.

Burgess, Lisa; "Subs To Have Big War Role," *Stars and Stripes*, 20 November 2002.

CAIG Report -- *Life-Cycle Cost Estimate for Trident Ballistic Missile Submarine Tactical Conversion*, report of the Cost Analysis Improvement Group (CAIG) of the Office of the Secretary of Defense in response to a requirement of the fiscal year 1999 Defense Authorization Act, dated January 1999. (Published as Annex-A of the Final report.)

Cohen-2000 -- Cohen, William S., Secretary of Defense, *Annual Report To The President and The Congress*, 2000,

Final Report -- *Analysis of Converting Trident-Class Ballistic Missile Submarines (SSBNs) to Nuclear-Powered Guided-Missile Submarines (SSGNs)*, report by US Navy mandated by the fiscal year 1999 Defense Authorization Act, transmitted to Congress on 14 June 1999.

Fritz, John; "Conventional Idea For Trident," *The Times-Union* (Jacksonville, FL), 8 November 1996, pp. A-1 & A-5.

Fritz, John; "Nuclear Subs Restudied," *The Times-Union* (Jacksonville, FL), 23 February 1999.

Fritz, John; "Kings Bay Could Lose 2 Subs," *The Times-Union* (Jacksonville, FL), 2 March 1999.

GAO/NSIAD-89-40, *Navy Strategic Forces: Trident-2 Proceeding Toward Deployment*, US General Accounting Office report, November 1988.

Greenhouse, Steven, "US Arsenal To Take More Cuts," *New York Times*. Published in *Mercury News* (San Jose, CA), 23 September 1994, p. 18A.

Hamilton, Robert A.; "Missile Submarines Certified For 42 Years," *The Day* (New London, CT), 21 March 1998, pp. C1 & C3.

Hamilton, Robert A.; "Electric Boat Wins Trident Engineering Work," *The Day* (New London, CT), 19 February 1999, pp. B7 & B9..

Hamilton, Robert A.; "Senate Panel OKs Bill To Convert Trident Subs," *The Day* (New London, CT), 14 May 1999.

Hamilton, Robert A.; "Navy Gets serious About Trident Conversions," *The Day* (New London, CT), 3 June 1999, pp. E1 & E3.

Hamilton, Robert A.; "EB In Position To Bid On Missile Conversion," *The Day* (New London, CT), 30 January 2002, pp. C5 & C7.

Hamilton, Robert A.; "EB In Position To Bid On Missile Conversion," *The Day* (New London, CT), 14 September 2002.

Hamilton, Robert A.; "GD Chair Describes A Bright Future," *The Day* (New London, CT), 20 September 2002.

Hamilton, Robert A.; "Undersea Warfare Takes Another Step," *The Day* (New London, CT), 15 January 2003.

Hamilton, Robert A.; "*USS Florida*, Testing Navy Plans for Trident Subs, Fires Second Cruise Missile," *The Day* (New London, CT), 18 January 2003.

Hamilton, Robert A.; "Navy Finding New Use For Subs Designed For A Bygone Era," *The Day* (New London, CT), 27 January 2003.

Hart, Amelia; "Navy Plans To Remove Two Kings Bay Tridents," *Tribune & Georgian* (Camden County, GA), 26 February 1999.

Hart, Amelia; "Bill Has Funds To Study Trident Conversion," *Tribune & Georgian* (Camden County, GA), 26 May 1999, pp. 1A & 12A.

Hitchens, Theresa and Holzer, Robert; "US Navy Ponders New Role For Surplus Subs.," *Defense News* (6883 Commercial Drive, Springfield VA), 12 December 1994, p. 3.

Lamphere, Sean; "USS Kentucky Scheduled To Arrive At Bangor May 1st," *Central Kitsap Reporter*, 1 March 2002.

Neleski, Patricia; "Commissioners Support Resolution," Camden County, Georgia *Tribune & Georgian*, 14 April 1999.

New London Day, The (New London, CT), various issues.

Newman, Richard J.; "Shooting From The Ship," *U.S. News*, 3 July 2000.

Offley, Ed; "4 Trident Subs May Get New Mission: Cruise Missiles Would Replace Nuclear Arms," *Post Intelligencer* (Seattle, WA), 2 August 1999.

PLRC-960301 -- *Land Attack Tomahawks: A Background Paper on Conventionally-Armed, Long-Range, Sea-Launched Cruise Missiles* (Pacific Life Research Center).

Pritchett, Lloyd; "3 Subs To Be Moved To Bangor, 4 To Be Stripped Of Missiles," *The Sun* (Bremerton, WA), 17 April 1997, pp. A1 & A8.

Program Acquisition Cost By Weapons System, Department of Defense Budget for fiscal years 2000/2001, February 1999.

Sherman, Jason; "US Navy Prepares for Sub Conversion," *Defense News*, 7 October 2002, p. 24.

Sun, The (Bremerton, Washington), various issues.

Weiner, Tim; "Senate Passes Defense Appropriations Package," *New York Times*; posted on San Jose, CA *Mercury News* web site on 9 June 1999.

GLOSSARY

CAIG	Cost Analysis Improvement Group of the Office of the Secretary of Defense.
DOD	Department of Defense.
EB	Electric Boat, a division of General Dynamics.
EIS	Environmental Impact Statement.
SSBN	Nuclear-powered ballistic missile submarine.
SSGN	Nuclear-powered guided missile submarine.
UAV	Unmanned Aerial Vehicle.