SSGN *Ohio* Class Conversion

Executive Summary
- The Navy completed FOT&E in November 2008 to demonstrate Special Operations capability using the SSGN Lockout Chambers (LOC).
- Due to a battery fire which extensively damaged the Advanced SEAL Delivery System (ASDS) vehicle in November 2008, planned future testing of a Dry Deck Shelter (DDS) and ASDS configuration is postponed indefinitely.

System
- The Navy converted four *Ohio* class ballistic missile submarines into strike and Special Operations platforms.
- In a full strike configuration, an SSGN can carry up to 154 Tomahawk cruise missiles for land attack strike, with 22 missile tubes carrying seven missiles per tube. In the standard configuration planned for normal operations, an SSGN carries one DDS or ASDS, embarked SEAL teams, and up to 105 Tomahawk cruise missiles in 15 tubes.
- The SSGN is designed to carry up to two ASDS and/or DDS, allowing submerged lockout and delivery of large numbers of Special Operations Forces (SOF) personnel. Additionally, the Navy converted two SSGN missile tubes into LOCs to allow submerged delivery of SOF without use of ASDS or DDS.
- The conversion includes extensive modernizations to electronics, radio, navigation, sonar, and fire control systems. It also includes an extensive payload capability for future off-board systems and weapons.

Mission

The Maritime Force Commander will employ the *Ohio* class SSGN for:
- Land attack strike missions, capable of launching Tomahawk cruise missiles

- Special Operations missions including all support and planning for two SEAL submersible vehicles
- Traditional attack submarine missions of Anti-Submarine Warfare, Intelligence, Surveillance, and Reconnaissance; Indications and Warnings; Electronic Warfare; Anti-Surface Ship Warfare; and Mine Warfare

Prime Contractor
- General Dynamics Electric Boat, Groton, Connecticut

Activity
- After an extensive redesign of the LOC opening mechanism, the Navy conducted LOC FOT&E in November 2008 aboard USS *Georgia*. The Navy issued their FOT&E report in April 2009.
- The last incomplete OT&E event consists of ASDS/DDS operations and will not be conducted due to a battery fire that extensively damaged the ASDS. The Navy and U.S. Special Operations Command have decided not to repair the ASDS. Instead they are pursuing a replacement program called the Joint Multi-Mission Submersible.
- The Navy agreed to conduct Information Assurance (IA) network penetration testing of SSGN systems, but intends to evaluate the results from testing on *Virginia* class attack SSNs prior to scheduling the SSGN test.

Assessment
- FOT&E demonstrated that once the LOC is certified, the SSGN will be effective and suitable for SOF missions using the organic lockout capability. The Navy demonstrated the LOC operations during a test event where diver emergency oxygen recompression capability was provided by another asset.
- SSGNs are currently limited in their ability to utilize the LOC because they lack an oxygen recompression capability in case of a diver accident. The Navy is in the process of installing this capability on two of the SSGNs.
- The redesign of the LOC opening mechanism successfully addressed the reliability issues with the previous design.
- The SSGN provides a significantly improved onboard environment for SOF operations, including better command,

control, and communications as well as better equipment storage, berthing, and exercise facilities than an SSN. When configured with two DDSs, the SSGN can provide greater SOF delivery capability. Once configured with an oxygen recompression capability, the SSGN LOCs will provide SOF delivery capability without use of a DDS or ASDS.

- The SSGN's shorter High Data Rate (HDR) antenna, in comparison to the HDR on *Ohio* class SSBNs, requires the SSGN to operate at a shallower depth while communicating. This makes control of the SSGN more difficult and results in greater periscope exposure, increasing the submarine's susceptibility to detection. The Navy is working on a design modification, but has not yet identified funding for procurement and installation.
- Previous IA test results on submarines indicate that the SSGN may have IA vulnerabilities.

Recommendations

- Status of Previous Recommendations. No action has been completed on the FY08 recommendations.
- FY09 Recommendations. The Navy should:
  1. Conduct IA testing on an SSGN as soon as possible.
  2. Evaluate effect of HDR mast modification on SSGN detectability.