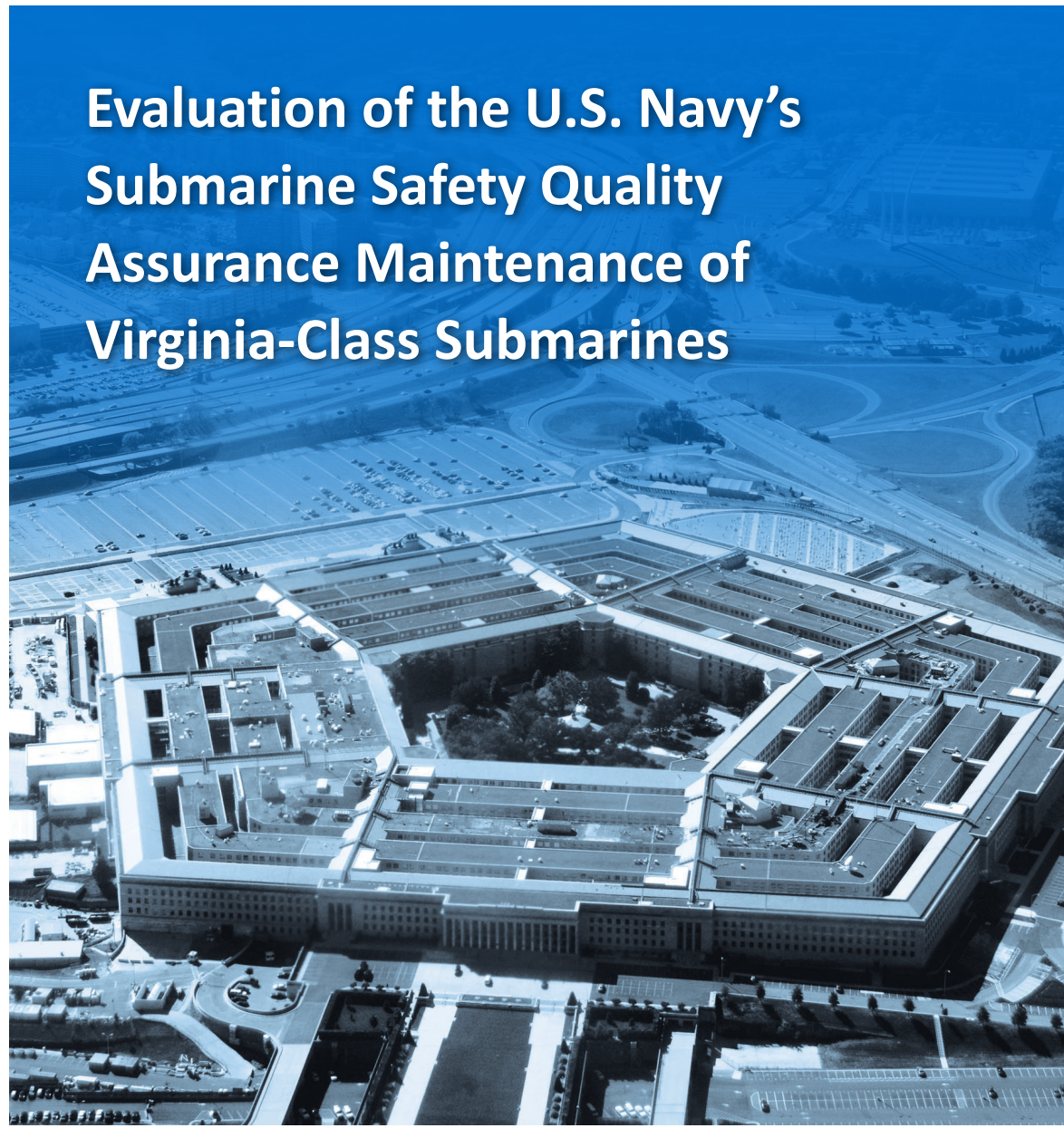




INSPECTOR GENERAL

U.S. Department of War

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Evaluation of the U.S. Navy's Submarine Safety Quality Assurance Maintenance of Virginia-Class Submarines



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Executive Summary

Why We Did This Evaluation

Our evaluation focused on the safety of Virginia-class submarines, specifically three—USS *New Hampshire*, USS *John Warner*, and USS *Oregon*. To assess the submarines' safety, we evaluated the quality of their Submarine Safety (SUBSAFE) maintenance oversight. The SUBSAFE Program is a Navy quality assurance (QA) program designed to maintain the safety of its submarine fleet. We determined whether Navy officials ensured qualified personnel followed applicable standards and specifications for SUBSAFE on Virginia-class submarines operated by Submarine Force Atlantic.

What We Found and Impact

From April 2023 through January 2026, for the three Virginia-class submarines we reviewed, officials from Naval Sea Systems Command and Submarine Force Atlantic effectively conducted multiple levels of QA oversight on the SUBSAFE maintenance in accordance with the SUBSAFE Requirements Manual and the Joint Fleet Maintenance Manual (JFMM). As required by the JFMM:

- Ship's Force QA personnel inspected and verified all SUBSAFE maintenance;
- Squadrons 6 and 8 officials conducted discretionary audits of Virginia-class submarine QA programs; and
- Submarine Force Atlantic QA officials conducted annual audits of Submarine Squadron 6 and 8 QA programs.

Lastly, Naval Sea Systems Command SUBSAFE QA officials conducted annual functional audits of the SUBSAFE program in accordance with the JFMM and SUBSAFE Manual.

As a result, the Navy has a reasonable level of confidence that the equipment and systems on the submarines operated reliably and safely. Specifically, SUBSAFE QA ensured that the Navy has reasonable assurance that its submarines have the structural integrity to prevent flooding and that their critical systems can effectively control and recover from such an event.

We did not make any recommendations in this report.

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Background

For this evaluation, we assessed the quality assurance (QA) oversight of three Virginia-class submarines—USS *New Hampshire*, USS *John Warner*, and USS *Oregon*—by evaluating the quality assurance of the ships' Submarine Safety (SUBSAFE) maintenance.¹

Maintaining the Navy's Virginia-Class Submarines

Virginia-class vessels are advanced attack submarines. The Naval Sea Systems Command (NAVSEA) is responsible for engineering, building, and maintaining these submarines. Submarine Force Atlantic Command (SUBLANT) is responsible for operating, maintaining, training, and equipping these Virginia-class submarines.² SUBLANT's Submarine Squadrons 6 and 8 are the Immediate Superiors in Command (ISIC) and have operational control of the submarines.³

To address deficiencies in design, shipbuilding, and maintenance after a submarine was lost in 1963, the Navy created the SUBSAFE Program. The program was designed to maintain the safety of the submarine fleet by providing QA and requiring a certification verifying that the submarine adheres to SUBSAFE Program requirements before commissioning. The SUBSAFE Program requirements are outlined in the SUBSAFE manual, which identifies the administrative and technical submarine safety certification criteria that must be satisfied for initial SUBSAFE certification of a submarine's material condition. The SUBSAFE manual also outlines the technical and administrative requirements that must be met during the ship's operational life to maintain that certification. This certification provides maximum reasonable assurance of hull integrity to preclude flooding and ensure the operability and integrity of critical systems and components to control and recover from a flooding casualty. The NAVSEA Commander is responsible for the SUBSAFE Program.

¹ This evaluation did not include the commissioned Virginia-class submarines under the responsibility of the Submarine Force, U.S. Pacific Fleet. The Submarine Force, U.S. Pacific Fleet and its subordinate commands on the West Coast of the United States have the same responsibilities as the Submarine Force Atlantic Command and its subordinate commands on the U.S. East Coast.

² We reviewed the QA performance assessments for the USS *New Hampshire* (SSN 778), USS *John Warner* (SSN 785), and USS *Oregon* (SSN 793) under the Commander, Submarine Force Atlantic (COMSUBLANT).

³ As of March 2026, Squadrons 6 had operational control of the USS *Oregon*, and Squadron 8 had operational control of the USS *New Hampshire* and USS *John Warner*. In 2023, Squadron 8 had operational control of the USS *Oregon*.

Submarine Maintenance Quality Assurance

In accordance with the Joint Fleet Maintenance Manual (JFMM) and SUBSAFE Manual, the Navy ensures QA on Virginia-Class Submarines through audits conducted by NAVSEA, SUBLANT, the Submarine Squadron, and the Ship's Force QA personnel.

Evaluation Results

The Navy and SUBLANT Effectively Implemented the SUBSAFE QA Requirements for Virginia-Class Maintenance

NAVSEA and SUBLANT officials effectively conducted multi-layered QA on the SUBSAFE maintenance conducted from June 2023 through January 2026 for the three Virginia-class submarines we reviewed in accordance with the SUBSAFE Manual and JFMM. Specifically, officials from the following organizations conducted oversight of SUBSAFE maintenance:

- Ship's Force QA personnel
- Submarine Squadron
- SUBLANT QA Office
- NAVSEA's SUBSAFE and QA Office

The Ship's Force QA Personnel Verified the Completion of SUBSAFE Maintenance

The Ship's Force QA personnel verified that maintenance personnel completed preventative maintenance in accordance with the controlled work package, as required by the JFMM. According to the JFMM, the Ship's QA Officer is responsible for administering the ship's QA program which includes verifying completed controlled work packages and maintenance, and maintaining proper QA records. The Ship's QA Inspectors are responsible for coordinating and administering the QA Program within their respective divisions. The QA Inspectors are also responsible for verifying and signing off on completed maintenance work.

We reviewed four controlled work package forms completed between 2022-2024 from the USS *New Hampshire* and USS *John Warner*.⁴ The forms contained items such as descriptions of the work and testing performed, reference documents, materials used, corrective actions, and the required signatures from the QA Inspector and QA Officer (QAO). For example, we reviewed a 2024 control work package for a torpedo tube repair on the USS *New Hampshire*. According to the controlled work package, the QA Inspector and QA Officer signed off on the completed maintenance after maintenance personnel properly repaired the torpedo tube.

⁴ The USS *Oregon* went out to sea shortly after our site visit and we were unable to obtain the controlled work packages which are located aboard the ship.

Submarine Squadrons 6 and 8 Immediate Superiors in Command Conducted Audits

The ISICs for Squadrons 6 and 8 conducted QA performance assessments on the three Virginia-class submarines we reviewed, in accordance with the JFMM. According to the JFMM, ISICs must schedule and conduct a QA performance assessment either in conjunction with the Fleet Readiness Training Plan or as determined by the Type Command, SUBLANT. According to the JFMM, the assessment includes the following:

- audits of controlled work packages,
- qualification and training of QA personnel,
- audit and surveillance programs,
- QA records and retention,
- effectiveness of corrective actions for previous audit findings, and
- SUBSAFE program compliance.⁵

According to the JFMM, ISICs provides the deficiencies to the Ship's Force. In addition, according to the JFMM, the Ship's Force is responsible for performing root cause analysis of the deficiencies, addressing deficiencies, and reporting actions taken to the ISICs within 15-days for immediate corrective actions.⁶ For other corrective actions, the JFMM states the Ship's Force is responsible for reporting actions taken to the ISICs within 60-days. The JFMM requires that the ISIC verify completed immediate corrective actions within 15-days of receipt of the assessment or before the ship's next underway for submerged operations, whichever is sooner.

The ISICs for Squadron 6 and 8 stated that they use the JFMM Submarine QA Pre-Underway Checklist to document outstanding immediate corrective actions. According to the JFMM, prior to submerged underway operations, the ship's QAO must complete a QA Pre-Underway Checklist with the ISIC's QAO. Completing the checklist ensures there are no outstanding immediate corrective actions required.

⁵ A controlled work package is a technical work document required when a higher authority requires a record (objective quality evidence) of repairs, maintenance for fabrication, repair, installation, inspection and testing process for specific systems or components, such as SUBSAFE.

⁶ According to the JFMM, immediate corrective actions are deficiencies that affect SUBSAFE certification. Immediate corrective action must be completed and verified before the ship's next underway for surfaced or submerged operations.

We reviewed QA performance assessments conducted from June 2023 through January 2026 for the three Virginia-class submarines we reviewed.⁷ Table 1 shows the QA performance assessments we reviewed, the squadron that conducted the assessment, and the report date.

Table 1. Immediate Superior in Command Quality Assurance Assessments (By Submarine and Squadron)

Submarine	Squadron	Report Date
USS <i>New Hampshire</i> (SSN 778)	6	June 23, 2023
		April 7, 2025
USS <i>John Warner</i> (SSN 785)	8	April 24, 2023
USS <i>Oregon</i> (SSN 793)	6	January 24, 2026

Source: The DoW OIG compiled data from the ISIC's QA assessments between April 2023 through January 2026.

According to the four QA assessments we reviewed, the ISICs reported deficiencies to the three submarines. According to the QA assessments, the Ships' Force performed root cause analysis, addressed the deficiencies, and reported actions taken to the ISICs. According to the Submarine QA Pre-Underway Checklists, the ISICs for Squadron 6 and 8 verified whether the Ships' Force completed immediate corrective actions before the ship went underway.

For example, according to the June 2023 QA performance assessment for the USS *New Hampshire*, the ISIC for Squadron 6 concluded that the SUBSAFE program was below standards and reported six SUBSAFE program deficiencies. Two of the six deficiencies required immediate corrective action reports and the remaining four deficiencies required standard corrective action reports. According to the assessment report, USS *New Hampshire* officials performed root cause analysis of the six deficiencies, addressed the deficiencies, and reported actions taken to the ISICs within the 15-day and 60-day requirement. According to the USS *New Hampshire* QA Pre-Underway Checklist, after the maintenance was conducted there were no outstanding immediate further corrective actions required.

SUBLANT Conducted Annual Quality Assurance Audits

Officials from SUBLANT's QA Office conducted annual audits of the QA programs from Squadrons 6 and 8 in accordance with the JFMM, which included the three Virginia-class submarines we reviewed. According to the JFMM, the

⁷ QA performance assessments are not required annually. The table provide the specifics regarding the QA assessment reviewed in conjunction with the fleet readiness training plan or as determined by the Type Command.

Type Command, SUBLANT, is responsible for maintaining SUBSAFE certification. According to the JFMM, officials from SUBLANT conduct annual QA assessments that assess the ISIC QA program with the stipulation that the period between the assessments shall not exceed 18 months. Specifically, according to the JFMM, the QA assessments review and grade the following relevant areas:

- qualification and training of QA personnel;
- audit and surveillance program;
- QA records and record retention;
- effectiveness of corrective actions for previous audit findings; and
- SUBSAFE compliance.

Program Executive Office officials stated SUBLANT authorizes the final SUBSAFE certification for commissioned submarines.

We reviewed each of the SUBLANT QA audits of the ISICs for 2023, 2024, and 2025. According to the six QA audits we reviewed, SUBLANT officials issued satisfactory ratings across all reviewed categories. SUBLANT also found the effectiveness of corrective actions for previous audit findings to be satisfactory for both Squadron 6 and 8. Additionally, SUBLANT QA officials stated that they found no SUBSAFE certification or ISIC performance issues.

NAVSEA Conducted Annual Audits

Officials from NAVSEA's SUBSAFE and QA Office conducted periodic functional audits of the SUBSAFE program effectively, as required by the SUBSAFE Manual. The manual assigns the SUBSAFE Program responsibility to the Deputy Commander for Undersea Warfare.⁸ The SUBSAFE Manual also assigns the SUBSAFE and QA Division Director the responsibility for implementing and managing the SUBSAFE Program, under the Direction of the Deputy Commander for Undersea Warfare. According to the SUBSAFE Manual, officials from the NAVSEA SUBSAFE and QA Division are responsible for performing periodic functional audits of the Program Manager's internal processes, procedures, and controls in the performance of SUBSAFE work, and to ensure compliance with SUBSAFE requirements.

We reviewed the NAVSEA internal functional audit of the Attack Submarine Program Office for 2024 and 2025. NAVSEA conducted informal interviews of personnel and reviewed documentation to assess the management, QA, and technical functional areas exercised in the performance of SUBSAFE and other programs.

⁸ Deputy Commander for Undersea Warfare is a position within NAVSEA.

The 2024 and 2025 audits concluded that the Program Offices' adherence to SUBSAFE program requirements were satisfactory, confirming their processes and controls were effective for continued operations. However, these audits identified instances of noncompliance and issued recommendations applicable to SUBSAFE and required the Program Office officials to submit corrective action reports for each recommendation. According to the reports, if the Program Office officials did not submit the recommendation for closure, they were required to submit a plan of action to address the recommendation with an estimated completion date. The SUBSAFE and QA Office then required NAVSEA officials to evaluate the corrective action reports or action plans and provide responses.

We reviewed NAVSEA's responses to the 2024 and 2025 corrective action reports and action plans. Table 2 shows the recommendations for which NAVSEA reviewed corrective actions and their status. We determined that NAVSEA's oversight process was effective because NAVSEA identified deficiencies, determined root causes, and followed up on corrective actions.

Table 2. NAVSEA Corrective Action Report Recommendations and Their Status (by Fiscal Year and Recommendation Type)

Year	Recommendation Type	Number of Recommendations	Number of Recommendations Closed	Number of Recommendations Open
2024	Management Noncompliance	4	4	0
	Quality Assurance Noncompliance	1	1	0
2025	Management Noncompliance	8	7	1 ¹
	Quality Assurance Noncompliance	2	2	0
Total		15	14	1

¹ NAVSEA officials recommended that the Attack Submarine Program Office determine the root cause and take corrective actions for not properly retaining serialized records. The Attack Submarine Program Office determined the root cause and reported that corrective actions were 75 percent complete, stating that additional time was needed to fully resolve the recommendation. NAVSEA officials approved an extension until May 31, 2026. According to NAVSEA officials, as of April 2026, the recommendation is open, but they will continue to follow up with the Program Office until the recommendation is closed.

Source: The DoW OIG, using compiled data from the 2024 and 2025 NAVSEA functional audits.

Effective Oversight of the SUBSAFE Program Ensured the Safety of Sailors and Operational Submarines

As a result of the Navy's multi-layered QA on SUBSAFE maintenance, the Navy has a reasonable level of confidence that the equipment and systems on the submarines operate reliably and safely. Specifically, SUBSAFE QA ensures that the Navy has reasonable assurance that its submarines have the structural integrity to prevent flooding and that their critical systems can effectively control and recover from such an event. The Navy and SUBLANT implemented an effective oversight process, which ensured there were no SUBSAFE issues preventing submarines from starting their missions.

Appendix

Scope and Methodology

We conducted this evaluation from July 2025 through March 2026 in accordance with the “Quality Standards for Inspection and Evaluation,” published in December 2020 by the Council of the Inspectors General on Integrity and Efficiency. Those standards require that we adequately plan the evaluation to ensure that objectives are met and that we perform the evaluation to obtain sufficient, competent, and relevant evidence to support the findings, conclusions, and recommendations. We believe that the evidence obtained was sufficient, competent, and relevant to lead a reasonable person to sustain the findings, conclusions, and recommendations.

The objective of this evaluation was to determine how effectively the U.S. Navy implemented the SUBSAFE Program QA requirements for Virginia-class submarine maintenance. To answer the objective of this evaluation, we reviewed audit reports, QA forms, and testing and inspection reports. In addition, we identified and reviewed military publication websites, laws, regulations, and other source documents that could be suitable criteria applicable to SUBSAFE maintenance. Specifically, we reviewed the following DoW and Navy criteria.

- Naval Sea Systems Command (NAVSEA) 0924-062-0010, “Submarine Safety (SUBSAFE) Requirements Manual,” August 2023 (D ACN 1-1)
- Commander, U.S. Fleet Forces Command Instruction 4790.3, “Joint Fleet Maintenance Manual (JFMM),” Volume V, “Quality Maintenance,” March 31, 2022

We interviewed officials to discuss their roles and responsibilities with QA on SUBSAFE maintenance. Specifically, we interviewed officials from the following organizations.

- Naval Sea Systems Command
- Submarine Force Atlantic
- Submarine Squadrons 6 and 8
- USS *New Hampshire* (SSN 778)
- USS *John Warner* (SSN 785)
- USS *Oregon* (SSN 793)

We conducted site visits to Naval Support Activity Hampton Roads, Naval Station Norfolk, and Norfolk Naval Shipyard. The USS *New Hampshire*, USS *John Warner*, and USS *Oregon* were in port and available for evaluation at the selected site visit

locations. Of the four different Virginia-class submarine construction blocks, each of the three available submarines represented three different blocks. The purpose of the site visits was to obtain leaderships' perspectives on the oversight of the Navy's Virginia-class submarines regarding SUBSAFE QA requirements. We requested and reviewed documentation from our stakeholders for 2023, 2024, 2025, and January 2026, where available and provided.

To assess how effectively the Navy implemented the SUBSAFE QA requirements for Virginia-class submarine maintenance, we reviewed:

- Ship's Force controlled work packages for the USS *New Hampshire* and USS *John Warner* completed maintenance;
- Squadron 6 and 8 ISICs' QA performance assessments for the USS *New Hampshire* and USS *John Warner* for 2023, and the USS *New Hampshire* and USS *Oregon* for 2025;
- SUBLANT QA audits of the Squadron 6 and 8 ISICs for 2023, 2024, and 2025; and
- NAVSEA's functional audit of the SUBSAFE program of In-Service Attack Submarine Program Office for 2024 and 2025.

Use of Computer-Processed Data

We did not use computer-processed data to perform this evaluation.

Use of Technical Assistance

Engineers at the DoW OIG supported our evaluation. The engineers accompanied the evaluation team to Norfolk, Virginia, and assisted with site visit interviews of Navy officials.

Prior Coverage

No prior coverage has been conducted on the Navy's implementation of quality maintenance on submarine classes in accordance with DoW requirements during the last 5 years.

Acronyms and Abbreviations

ISIC	Immediate Superior in Command
JFMM	Joint Fleet Maintenance Manual
NAVSEA	Naval Sea Systems Command
QA	Quality Assurance
SUBLANT	Submarine Force Atlantic
SUBSAFE	Submarine Safety



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