Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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January 29, 2016

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Coast Guard and Maritime Transportation
FROM: Staff, Subcommittee on Coast Guard and Maritime Transportation
RE: Subcommittee Hearing on the "Status of Coast Guard Cutter Acquisition Programs"

PURPOSE

On February 3, 2016, at 10:00 a.m., in 2167 Rayburn House Office Building, the Subcommittee on Coast Guard and Maritime Transportation will hold a hearing on the Status of Coast Guard Cutter Acquisition Programs. The Subcommittee will hear from the U.S. Coast Guard, the Congressional Research Service, and the U.S. Government Accountability Office.

BACKGROUND

Coast Guard Recapitalization

The Coast Guard began a process of recapitalizing its aging vessels and aircraft in the late 1990's. The program's focus was to replace those assets that carry out missions farther than fifty miles from shore and to modernize information technology systems that the Service relies upon to coordinate its operations. The program was known as the Integrated Deepwater Systems (Deepwater) and managed by a Lockheed Martin/Northrop Grumman team called the Integrated Coast Guard System (ICGS). However, Deepwater encountered significant quality and cost issues and was the subject of several hearings and an investigation by the Committee. The Coast Guard terminated the contract with the ICGS in 2007 and is now performing the acquisition functions in-house. The assets scheduled for recapitalization remain the same. Though some changes have been made in regards to what new assets will be acquired, the volume of total units to be purchased, and the cessation of some segments in approved programs of record.

The recapitalization program, a decades-long, multi-billion-dollar effort, would procure eight National Security Cutters, twenty-five Offshore Patrol Cutters, and fifty-eight Fast

Response Cutters. These cutters will replace ninety ageing cutters and patrol craft: twelve high-endurance cutters; twenty-nine medium-endurance cutters; and forty-nine 110-foot patrol boats. According to the Coast Guard, the ageing ships are man-power intensive, becoming less reliable, more costly to repair and maintain, and most are nearing or beyond their estimated service life. The National Security Cutters, Offshore Patrol Cutters, and Fast Response Cutters are multi-mission ships that would routinely perform, either close to shore or in the deepwater environment (more than fifty miles from shore), seven of the Coast Guard's missions: search and rescue; drug interdiction; ports, waterways, and coastal security; protection of living marine resources; other/general law enforcement; and defense readiness.

National Security Cutter

The National Security Cutter (NSC) is a Legend Class Cutter, 418 feet in length, replacing the legacy High Endurance Cutters (HECs), 378 feet in length, which were built in the late 1960's and early 1970s. The NSC is intended to be capable of extended deployments, increased endurance, and contain enhanced communication and surveillance systems compared to the HEC.

The Coast Guard began operating the first NSC in 2010. The Coast Guard has accepted five NSCs (three are operational and two are in post-delivery testing), three NSCs are in various stages of construction at Huntington Ingalls Shipbuilding in Pascagoula, Mississippi, and a ninth NSC was funded in P.L. 114-113, (H.R. 2029) the Consolidated Appropriations Act, 2016. The Coast Guard expects completion of the NSC project to improve the long-term capacity and capability it has in executing long-range and extended Coast Guard mission assignments and offshore and integrate operations with the Department of Defense.

The Service estimates the total acquisition cost of the eight ships at $5.559 billion, an average of about $695 million per ship. Fiscal year 2016 appropriations included a total of $743,400,000 for the NSC program. The total includes $640,000,000 for award and production costs associated with a ninth NSC, notwithstanding future costs for post-delivery activities. In addition, $12,000,000 was included for the necessary top-side engineering design work to support the deployment of small UAS equipment on NSCs.

Offshore Patrol Cutter

The Coast Guard's fiscal year 2015 Capital Improvement Plan indicates the first Offshore Patrol Cutter (OPC) would be procured in 2018, a year later than originally planned due to procurement delays. The Service will build twenty-five OPCs to replace the twenty-nine existing 210-foot and 270-foot Medium Endurance Cutters.

The Service plans to use a two-phase acquisition strategy for the OPC. Phase I involves issuing three contracts to competing contractors for preliminary and contract design in fiscal year 2014. The goal of awarding the competing design contracts is to maintain competition through the process to the down-select for detail design and construction in Phase II. The Service indicates a Phase II selection occurring late in fiscal year 2016. The selected contractor will issue a detailed design for construction, with a contract to build at least nine, potentially up to eleven vessels.

The Service noted in its award statement that multiple design contracts establish a fixed-price environment. The two-phase acquisition strategy was developed by analyzing lessons learned from other major government shipbuilding programs and through collaboration with industry on how to best design and produce the most affordable OPC. However, efforts to conduct such a phased contract approach did not result in increased competition or reduced costs for Phase II contract award for the Fast Response Cutters to be discussed below.

The service estimates the total acquisition cost of the 25 ships at $10.523 billion, averaging about $421 million per ship. Fiscal year 2016 appropriations included a total of $89,000,000 for the OPC program, with $70,500,000 to be used to exercise the option for Detail Design and commence Phase II of the OPC acquisition.

Fast Response Cutter

The Fast Response Cutter (FRC), a Sentinel-class patrol boat, is 154 feet in length, considerably smaller than OPCs, but larger than the 110-foot patrol boats it will replace.

The Service estimates the total acquisition cost of the 58 cutters at $3.764 billion, averaging about $65 million per cutter. A total of 38 FRCs have been funded through fiscal year 2016. The 14th FRC was commissioned into service on October 16, 2015, and the 15th was accepted by the Coast Guard on October 20, 2015, and is scheduled for commissioning in early 2016. Fiscal year 2016 appropriations included a total of $340,000,000 for the FRC program for the acquisition of six cutters.

FRCs are currently being built by Bollinger Shipyards of Lockport, LA. Bollinger Shipyards has a final contract to build 32 ships all of which were under contract in 2015. On February 27, 2015, the Service issued a Request for Proposal for a contract that will produce the remaining 26 ships. Bids were due by June 5, 2015. Bollinger Shipyards was the only bid and the price of the bid was higher than the first phase bid, said to be due to design changes, but confirming concerns that a second bidding process could lead to added costs to the program.

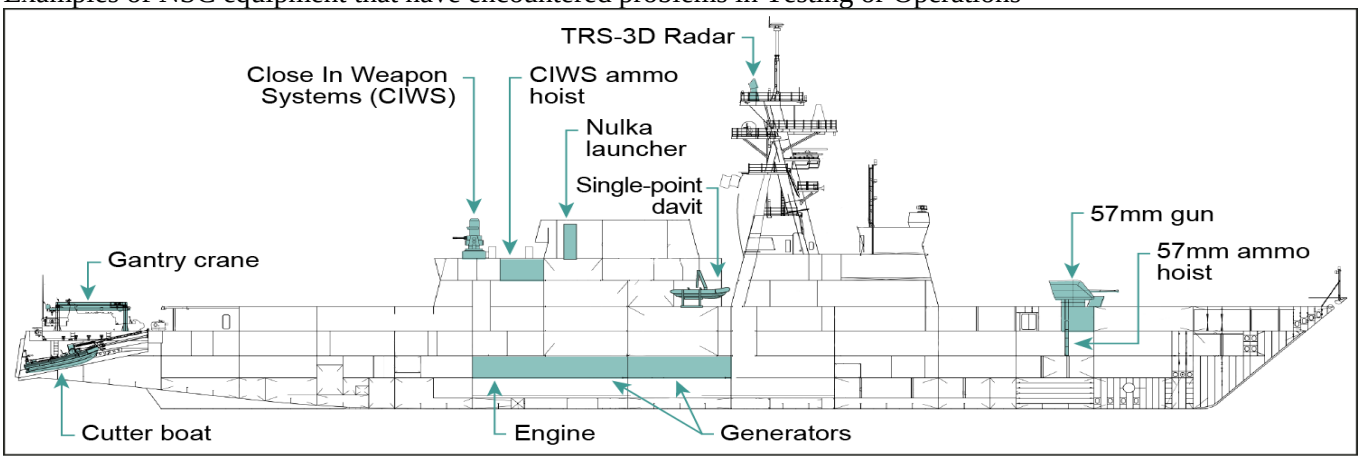
Phase 1 of the FRC acquisition program experienced challenges in the initial testing phase. In September 2013, the Department of Homeland Security (DHS) approved the FRC for full-rate production despite the FRC not meeting all key requirements during initial operation testing. At the time, the FRC partially met one of six key requirements and was found operationally effective (with the exception of its cutter boat) though not operationally suitable. DHS officials stated they approved the FRC for full-rate production because the Service has plans in place to address most major issues identified during testing including supplying the FRC with a small boat.

Government Accountability Office

The Government Accountability Office (GAO) issued a report entitled *National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered during Testing and Operations Are Addressed* on January 12, 2016. The GOA reviewed the operation of the NSCs between 2010 and 2014 and the Initial Operational Test and Evaluation (IOT&E) conducted by

the U.S. Navy's Commander, Operational Test and Evaluation Force (COTF). The GAO reported that testing and operations revealed numerous issues with the NSCs, some are shown in the following figure.

Examples of NSC equipment that have encountered problems in Testing or Operations



Source: GAO presentation and analysis of U.S. Coast Guard data. | GAO-16-148

The GAO found the IOT&E, a key acquisition event to ensure the asset is capable of meeting its mission requirements before being approved for full-rate production, was conducted on the NSCs in 2014. The IOT&E occurred after the first three NSCs were operational and four others were under contract. IOT&E reviews critical operational issues (COI), an assessment of an asset's operational effectiveness and suitability, and key performance parameters (KPP), capabilities considered essential for mission accomplishment. The GAO notes KPPs differ from COIs in that KPPs focus on specific performance metrics, while COIs focus on certain types of missions that an asset should be able to conduct or its ability to be ready to perform those missions.

Deficiencies found during testing had critical, serious or moderate impact on the NSC mission accomplishment. Close-in weapon system failure was a critical impact. Serious impacts included NULKA launcher (one of two inoperable) and TRS-3D Air Search Radar equipment failure. Moderate impact included: access to electronic racks required disabling communication equipment; cutter boat is not designed to operate in all of Sea State 5 (Sea State 5 includes waves from 8 feet to 13.1 feet); Common Operation Picture display equipment failure; remote operated valve failure; 57mm gun weapon system misfire disrupting test event; Command and Control (C2) did not have available an embedded training module (preventing realistic tactical drills and exercises); and rubber electric matting had large gaps exposing crew to electric shock hazards.

The Service deferred some items from IOT&E including: unmanned aerial systems (UAS); Link-11 (capability to send/receive information with Navy ships); Cybersecurity COI; additional testing of cutter boats; NSC intelligence systems; and Subsonic anti-ship cruise missile (KPP 5.4), the Navy had a mishap with a drone during testing and implemented a moratorium, this capability will be tested in the follow-on operational test and evaluation (FOT&E).

The FOT&E, an event conducted after IOT&E and full rate production, is scheduled for the NSC for fall 2016 through 2017. The GAO raises concerns with FOT&E, specifically whether any found deficiencies will be subject to appropriate oversight to ensure that they are corrected. The GAO notes that by not having definitive guidance on what occurs at the end date for FOT&E and what oversight is needed for any remaining issues, DHS and the Service are accepting some risk that NSC deficiencies or KPPs may not be resolved for years.

The 2014 Acquisition Decision Memo (ADM) requires FOT&E to conduct 3 items: cybersecurity COI testing; verifying all major deficiencies (including unmet KPPs) are corrected; and assessing the NSC cybersecurity capabilities. The ADM does not require an acquisition review board after FOT&E. The GAO recommends DHS use such review if FOT&E raises any outstanding issues.

The Service has taken corrective actions to resolve certain deficiencies but has not submitted corrective actions plans to COTF, which is required as part of COTF guidance to formally close deficiencies. The Service states four of ten major deficiencies have been corrected and it's working on four more. The Service states it may not correct all deficiencies due to costs involved with fleet-wide changes. This may mean the Service's assets are not as capable as intended. DHS and Coast Guard guidance required the Coast Guard to determine if the capability meets the established minimum performance standards, but do not specify when this determination should be made.

The Service viewed the test results as proving the NSC's value. The GAO notes that by not meeting all of the KPPs, the Service cannot demonstrate that the NSC is operating as originally envisioned. The GAO states the Service should determine if the capability meets the established minimum performance standards, but again the DHS and Service guidance do not specify when this determination should be made. By comparison, the Department of Defense acquisition guidance requires that specific minimum performance standards, which are defined at the time assets are approved for system development, be met prior to entering full-rate production.

According to the GAO added costs to the NSC program as of June 2015 is approximately $202 million, as shown in the following table.

Retrofits and Design Changes for the National Security Cutter Class with Costs over $1 Million as of June 2015 Retrofits and design changes	**Estimated Cost (in millions)**
C4ISR upgrade	$88.5
Structural enhancements (National Security Cutters 1 and 2)	$38
Gantry crane that aids in launching cutter boats from stern ramp	$31
Single-point davit for cutter boat operations	$12.5
Upgrade communications system	$12.3
Update cutter monitoring system	$6.3
Upgrade two ammunition hoists	$6.3
Remove Aircraft Ship Integrated Secure and Traverse tracks in flight deck	$5.6
Breathing apparatus replacement	$1.6
Total cost	$202.1

Source: GAO presentation of Coast Guard data. | GAO-16-148

Note: The Coast Guard reported these numbers for all eight hulls. However, not all retrofit designs are currently being implemented because they have not all been finalized.
C4ISR stands for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

Performance issues discovered during operations and ongoing operational problems

Item	Problem	Fix and Cost
Cutter's Stern Gantry Crane	Not made for maritime environment. Frequent casualties due to lack of waterproofing.	Prototype of new crane successful on Stratton, change approved fleet-wide. (Cost $31 million)
Single Point Davit	Unreliable in lifting cutter boat in high seas, single-point davit risky method of launching cutter boats.	Stratton has a prototype dual-point davit, but not cleared for whole fleet. (Cost $12.5 million)
Two Ammunition Hoists	Difficult to use in current form.	Modification expected. (Cost $6.3 million)
Stern and Side doors	Stern doors open and close too slowly. Side door has potential for water intrusion and capsizing of boat.	Stern door redesign has not reached prototype stage. Side door has new design. (Cost N/A)
Propulsion Systems	July 2012- February 2105, 14 major casualties reported for diesel engines and at least 5 major casualties reported for generators over 3 operational NSCs. Leading to potential costly, mission limiting problems.	Root cause and potential fix unknown. (Cost N/A)
High Engine Temperatures	Warm waters forcing reduced speeds by 2 to 4 knots. 2014 operation reports showed *Waesche* and *Bertholf* had problems in water temps above 74 and 77 degrees F. *Stratton*, in 2013, had full speed in water temps up to 68 degrees, now has issues in water temps of 50-60 degrees F.	Coast Guard found root cause, but GAO did not see documentation. Unclear if design change or retrofit is necessary. (Cost N/A)
Cracked Cylinder Heads	NSCs averages 4 cracked cylinder head per year, not expected to fail at this rate. Issue unclear.	Added to study on propulsion optimization with engine manufacturer. Manufacturer has redesigned to prevent cracking. (Coast Guard pays for replacement at $50,000/each totaling $1.6M/year)
Generator Bearings	Class-wide problem, overheating generator bearings. Prevents use of generator. Two of three must be working to be safe to sail.	Prototype on *Stratton*, year to evaluate changes. Until fixed reduced availability for operations and costly repairs. (Each failed bearing costs about $100,000. Coast Guard pays, expired warranty)

Source: GAO presentation of Coast Guard data. | GAO-16-148

Conclusion

The GAO report indicates that DHS and the Service continue to have acquisition issues. Without more precise guidance on when testing should occur and what performance standards the testing should demonstrate before full scale production occurs, the issues with NSC and FRC acquisition programs could resurface during the OPC acquisition program. Without updated

guidance, the Service risks encountering the same scenario with the OPC (i.e. continuing to buy assets without testing that demonstrates the asset meets its full capabilities).

WITNESSES

Rear Admiral Joseph Vojvodich
Assistant Commandant for Acquisition and Chief Acquisition Officer
U.S. Coast Guard

Ms. Michele Mackin
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