

January 25, 2007

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Coast Guard and Maritime Transportation
FROM: Staff, Subcommittee on Coast Guard and Maritime Transportation
SUBJECT: Oversight hearing on the Deepwater Implementation Program

PURPOSE OF HEARING

The Subcommittee will meet on Wednesday, January 30th, 2007, at 11:00 a.m. in room 2167 Rayburn House Office Building to receive testimony regarding the Coast Guard's Integrated Deepwater System program (Deepwater).

BACKGROUND

Background on the Deepwater Project:

In the Mid-1990's the Coast Guard recognized that many of their offshore operational assets (aircraft and cutters) were reaching the end of their operational life. Some of their cutters dated to the 1940's.

The Coast Guard developed a program to replace all of these assets in a single procurement program. This includes everything from patrol boats and high endurance cutters to helicopters and C-130 aircraft. The Coast Guard's concept was to give a contractor the mission requirements of the Coast Guard – and have the contractor provide the assets necessary to carry out those missions. It could result in a change in the mix of cutters and aircraft. It was not envisioned as a 1:1 replacement.

To begin the project, the Coast Guard paid \$15 million per year for 3 years to each of 3 different and competing teams to develop proposals to replace all Coast Guard cutters and aircraft that operate more than 50 miles offshore.

After 3 years, only one consortia, headed by Lockheed Martin and Northrup Grumman, were considered responsive to the contract proposal. This team is called "Integrated Coast Guard System" (ICGS). In June 2002 the Coast Guard signed the Deepwater contract with ICGS.

Integrated Deepwater System

The Coast Guard's Integrated Deepwater System program (Deepwater) is intended to replace or modernize approximately 90 ships and 200 aircraft used in the Coast Guard's deepwater missions; these missions generally occur more than 50 miles offshore and typically require long transits to operating areas, forward deployment of forces, and extended on-scene presence. The Coast Guard's major missions are carried out in the deepwater zone, including drug and migrant interdiction operations, search and rescue, homeland security, and fisheries law enforcement. Importantly, the Coast Guard's existing ("legacy") fleet of vessels and aircraft are nearing or have already reached the end of their service lives, are technologically limited, and are expensive to operate because of relatively high crew requirements. The Deepwater program includes the cost of maintaining the assets, as well as replacing or modernizing them, and with each year that passes, the category of maintenance of legacy assets consumes a larger share of the money allocated for Deepwater. Consequently, finishing the replacement part of the program sooner rather than later would be more cost effective over time.

The contract provided for a fleet of new ships, aircraft and improved command and control systems that will enhance the Coast Guard's capability to perform their varied traditional and homeland security missions. Also, it included an amount for operating and maintaining this new system of assets. The original Deepwater procurement schedule anticipated the delivery of all assets within 20 years; however, the contract with ICGS was authorized to be extended up to 30 years to allow the contractor to continue implementing the program. The contract has a five-year base period with five additional options of up to 60 months each. On May 19, 2006, the first option was exercised for an additional 43-months. As a result, ICGS will continue to operate the Deepwater program at least until January 2011.

In addition, the original Deepwater plan was based on a 20-year projected funding stream of \$500 million (in 1998 dollars) per year beginning in fiscal year 2003. In addition to the annual \$500 million acquisition cost, there is approximately \$25 million (in 1998 dollars) in government program fees required to administer a project of this magnitude on an annual recurring basis. The program has not received, nor in some years has the Administration requested, the funds originally estimated to be necessary to complete the program in 20 years and therefore, the project could not be completed on the original 20-year schedule. Also, Administration budget requests have not factored in inflation and program management fees. In addition, the Coast Guard has greater maritime homeland security operational requirements than when the original program was designed, and as discussed above, maintenance and repair costs are also increasing because of rapidly deteriorating legacy assets.

Revised Deepwater Implementation Plan

The original Deepwater build out plan was developed before September 11, 2001. Since that time, the Coast Guard was transferred to the Department of Homeland Security (DHS) and has assumed the lead federal responsibility for maritime homeland security, in addition to the Service's traditional missions. The Coast Guard determined that modifications to the design and production of key assets were necessary to meet evolving homeland security demands and the requirements of carrying out the Service's many missions in a post 9/11 environment.

On May 31, 2005, the Coast Guard submitted a revised Deepwater Implementation Plan to the House Appropriations Subcommittee on Homeland Security which included both a 20-year and a 25-year plan. The House Appropriations Committee directed DHS and the Coast Guard to select a single revised implementation plan in accordance with the fiscal year 2006 budget request.

On July 21, 2005, the Coast Guard submitted a 25-year Revised Deepwater Implementation Plan. Further, in February 2006, the Coast Guard submitted an updated plan to align with its fiscal year 2007 budget submission. The new plan changes the balance of upgraded legacy assets versus new assets, alters the delivery schedules, and increases the costs to \$24 billion, \$7 billion more than earlier estimates. The increase in costs reflect the expanded homeland security responsibilities and cover such items as greater weaponry, improved communications systems, and greater operating capabilities. However, this 25-year program is again dependent on receiving a projected amount of funding each year.

The revised plan calls for major changes to the assets that will be part of the Deepwater program. Under the revised plan, the Coast Guard will retain and upgrade the Service's fleet of HH-60J helicopters. The Coast Guard will also retain 22 upgraded and renovated HC-130H long range aircraft (for surveillance, search, and airlift needs) instead of decreasing the current 27 aircraft to 6 under the original plan. The original plan called for a replacement of all cutters and patrol boats. The revised plan generally spreads out delivery of each class of vessels over a longer number of years. Also, the revised plan includes 9 additional 25-foot short-range boats and 9 fewer 35-foot long-range boats.

A summary of additional changes to the Deepwater program under the revised baseline follows. The Plan:

- provides for interoperable command, control, communications, computer, intelligence, surveillance and reconnaissance (C4ISR) systems across all Deepwater assets and interoperable with other DHS entities, DOD assets, and local firm responders.
- provides for the deployment of enhanced maritime security capabilities on Deepwater vessels including:
 - chemical, biological and radiological detection and defense systems on all cutters greater than 147 feet in length;

- larger flight decks on the National Security Cutter (NSC) and Offshore Patrol Cutter (OSC) to accommodate all variations of USCG, DHS and DOD HH-60 helicopters onboard the vessels;
 - enhanced remote-operated weapon systems aboard Deepwater vessels; and
 - enhanced capability to remain on scene and operate in weapons-of-mass-destruction scenarios.
- provides enhanced airborne use of force and vertical insertion capabilities for Deepwater helicopters.

The revised Deepwater plan suggests that the Coast Guard may procure a fewer number of each individual asset due to the enhanced capabilities that would be added to each platform.

Declining Legacy Assets

As part of the original Deepwater program, the Coast Guard included funding to sustain legacy assets until the time when those assets were scheduled to be replaced with assets that were acquired under the program. However, the Coast Guard has suffered a rapid deterioration of legacy assets in recent years. As a result, funding for the Deepwater program has been diverted from the already slowed asset replacement schedule to maintain these increasing numbers of failing legacy assets. This, coupled with shortfalls in appropriated funding levels and increasing maritime homeland security operations, has accelerated the impacts of this downward spiral, increased costs to sustain the old assets, and reduced funds available for new assets.

The aging inventory of patrol boats, aircraft, helicopters, cutters, and systems has generated growing concerns over the Coast Guard's ability to effectively and safely perform all of its assigned missions. The Coast Guard's fleet of 110-foot Patrol Boats has suffered numerous hull breaches that have required the vessels to undergo emergency repairs while in dry dock. The Service's fleet of High and Medium Endurance Cutters routinely miss operations due to failing sub-systems, and instances of in-flight engine power failures aboard HH-65 helicopters are alarming and dangerous. The HH-65's are now being reengined – an additional unanticipated program expense. The Coast Guard has described a declining spiral phenomenon that has resulted in deferred modernization of aging assets, reduced readiness, rising maintenance needs, and increased total ownership costs. Recapitalization funds are spent keeping old assets' operating, which only defers modernization starting the cycle all over again.

110/123 foot Patrol Boat problem:

Part of the Deepwater plan proposed by ICGS was to lengthen the existing 110 foot patrol boats by 13 feet, which they thought would improve the sea-keeping properties of the vessel; allow a deployable boat to be launched over the stern rather than over the side, and provide for updated electronic and communications systems to be installed. The patrol boats are 15 years old – and they had a planned useful life of 15 years.

ICGS hired Bollinger Shipyard in Louisiana to do the work. Bollinger built the patrol boats originally. Shortly after the first patrol boat was delivered, they discovered cracks in the hull. Other patrol boats were in the process of being extended. In 2005 the Coast Guard ordered ICGS to stop the extension and modernization program on the 110 foot patrol boats -- at that point 8 patrol boats had been extended. ICGS and the Coast Guard tried to fix some of the engineering problems with the 8 boats so they could be used. After the repairs were made, the Coast Guard put them in restricted service -- limiting the area and sea-state in which they could operate. On November 30, 2006, the Commandant ordered the 8 patrol boats to be tied up -- they were too dangerous to operate for their normal duties. To date, the Coast Guard and ICGS have not identified the cause of the problem or why their computer models did not predict the problems that are occurring. Basically, the stern of the boat is flexing. This drives the propeller shaft down at the point where it meets the engine. They have lowered the engine and transmission as low as possible -- but it is no longer possible to keep it in alignment as the boat flexes. The Coast Guard is not going to have ICGS do any more work on these 8 boats. However, they may have Coast Guard engineers try to develop a proposal for alterations that would address the problems.

When the Coast Guard stopped the conversion of additional patrol boats in 2006, they charged ICGS with designing a new patrol boat -- on an accelerated basis. They chose to use "composite materials" -- which are more expensive to build -- but which they hoped would decrease long-term maintenance costs and drydocking and increase the useful life of the cutter. After it was designed, a ship model was built, and the model was tested at the Navy's testing center at Carderock. The new patrol boat design had all types of problems -- such as when it made a sharp turn -- the propellers came out of the water. The Coast Guard told the contractor to terminate any further design work on a new design for a patrol boat.

To date the Coast Guard has spent approximately \$94 million dollars to:

- Lengthen the original 110 foot patrol boats
- Repair the 8 patrol boats that were altered
- Design a composite patrol boat -- that failed tank tests at the and model testing.

The current 110 foot patrol boats are having an increasing rate of problems that are decreasing patrol hours. Therefore, the Coast Guard published a solicitation to buy a design for a new patrol boat -- they hope to buy an existing, proven, design. They are currently evaluating the responses to this solicitation.

The Coast Guard's present plan is to:

- Build approximately 12 patrol boats (now called the Fast Response Cutters (FRC-B)) using an international design that they buy. They hope to have these vessels operational in 2010.
- Have ICGS restart designing a new patrol boat (FRC-A) using composite materials. They would purchase approximately 46 of the composite patrol boats.

National Security Cutter:

In December 2006, the *New York Times* published an article on the Deepwater program that stated that the new National Security Cutter (NSC) (formerly called High Endurance Cutters) has “structural weaknesses that some Coast Guard engineers believe may threaten its safety and limits its life span, unless costly repairs are made.” The contract with ICGS states that a cutter should have a 30 year life-span.

The Coast Guard believes that these engineering concerns are based on different assumptions regarding structural weaknesses in the welding and cutting techniques as well as assumptions about the amount of time the NSC will operate in the rough marine environment of the North Pacific Ocean. It is not that the vessels won’t be able to operate for 30 years – but that they may require more maintenance if structural cracks appear during that period.

Operating in the North Pacific adds additional strain to a ship due to the rough weather. The more a vessel operates in that environment, the more structural fatigue the ship must endure. The Coast Guard believes that some of these cutters will operate much of the year the North Pacific – and therefore have a greater rate of structural fatigue than the rate assumed by ICGS.

Regarding the construction techniques used by ICGS, and their subsidiary Northrup Grumman Shipyard in Pascagoula, MS, the Coast Guard uses 2 examples.

- Welding techniques – Coast Guard engineers prefer a welding technique in which an individual follows up after a welder and hits the weld with a ball-penne hammer. They said that this strengthens the weld. Ingalls Shipyard does not use this welding technique when building ships for the Navy at that shipyard and did not do it when building the first 2 NSCs. The Coast Guard is concerned that this could increase chance of having cracking in the weld over the 30-year lifespan of the cutter.
- Holes in structural members of ship – When Ingalls cuts a hole in a structural support member of a ship (i.e. to run plumbing or electrical systems) they cut a square hole. Coast Guard engineers believe that a square hole increases the risk of having a stress fracture at one of the 4 corners of that square hole over the 30 year life of the cutter. The Coast Guard believes that the hold should have rounded corners. Again, Ingalls shipyard has made square holes when building Navy ships.

ICGS has agreed to make these changes in NSC hull #3 which hasn’t been built yet (at an added cost of approximately \$15 million). The Coast Guard is evaluating the cost of having NSC hulls # 1 and 2 modified – and depending upon the cost of the modification – may make some of these changes now. If the weld or square hole is in a fairly inaccessible place – they may choose to just pay more attention to the location during maintenance inspections over the life of the vessel.

National Security Cutter Cost:

The cost of the National Security Cutter (NSC) (the largest of the Coast Guard cutters being built under the Deepwater program) has grown significantly since the contract was signed in 2002. In June of 2002, the contracted cost for the first 2 NSCs was \$516.8 million. The current projected cost for these 2 cutters is \$960 million.

The Coast Guard states that the cost increases are as follows:

- \$261 million in increased costs due to post-9-11 changes and other government requirements not in the June 2002 contract price (such as a new Aircraft handling system, flight deck changes, intelligence collection systems, increased spare parts, and combat management systems).
- \$49.2 million for inflation from 2002 to 2006.
- \$123 million for increased costs due to Hurricane Katrina (the ships are being built at Northrop Grumman Shipyards in Pascagoula, MS).

WITNESS

PANEL I: Admiral Thad W. Allen
Commandant
United States Coast Guard

PANEL II: Dr. Leo S. Mackay, Jr.
President
Integrated Coast Guard Systems

Mr. Phillip Teel
President
Northrup Grumman Ship Systems