



## Testimony

Before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

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For Release on Delivery  
Expected at 10:00 a.m. EST  
Thursday  
May 3, 2001

# COAST GUARD

## Actions Needed to Mitigate Deepwater Project Risks

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G A O

Accountability \* Integrity \* Reliability

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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Deepwater Capability Replacement Project, which was initiated by the Coast Guard to replace and modernize its aging fleet of over 90 cutters and 200 aircraft used beyond 50 miles from shore. This project, the largest acquisition ever attempted by the Coast Guard, will likely cost over \$10 billion or more and will not be completed for 2 to 3 decades. Already, the Coast Guard has spent about \$116 million on the project's design, and this year is asking for \$338 million to begin the acquisition phase.

The Congress and the Coast Guard are now at a major crossroads with the Deepwater Project, in that the planning is essentially complete, and the Congress is now being asked to commit to a multibillion dollar project that will define the way the Coast Guard performs many of its missions for decades to come. The acquisition strategy the Coast Guard has chosen for the Deepwater Project is unique and untried for a project of this magnitude. It carries many risks that could potentially cause significant schedule delays and cost increases.

Since 1998, we have reviewed numerous aspects of this project at the request of this Subcommittee and others. Most recently, we evaluated the major risks associated with the project, and our testimony today is based on a report<sup>1</sup> released earlier this week. We will discuss risks the project faces in four major areas: (1) planning the project around annual funding levels far above what the administration has told the Coast Guard it can expect to receive, (2) keeping costs under control in the contract's later years, (3) ensuring that procedures and personnel are in place for managing and overseeing the contractor once the contract is awarded, and (4) minimizing potential problems with developing unproven technology.

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<sup>1</sup> *Coast Guard: Progress Being Made on Deepwater Project, but Risks Remain* (GAO-01-564, May 2, 2001).

In summary:

Affordability is a major risk for the Deepwater Project. The Coast Guard has chosen a contracting approach that depends on a sustained funding stream of over \$500 million each year (in 1998 dollars) for the next 20 years or more. Contractors now competing for the right to acquire the entire deepwater system have been told to plan their entire proposals around this level of funding. According to budget projections from the Office of Management and Budget (OMB), the Coast Guard faces the real possibility that \$500 million annually will not be available for the project and that the cumulative budget shortfall may be as much as half a billion dollars for the project's first 5 years. The Coast Guard knows that any significant shortfall could lead to dire consequences, including cost increases, schedule stretch-outs, and degradation of system performance once the contract is awarded. In addition, "best practices" for capital planning strongly suggest that agencies should plan capital projects within available funding levels. Despite these factors, the Coast Guard plans to enter the acquisition phase, basing the deepwater procurement around the \$500 million funding stream.

The Coast Guard has selected a novel contracting approach—one never tried on a contract this large. It calls for procuring ships, aircraft, and equipment through a single, prime contractor. Before it was adopted, there was little evidence that the Coast Guard had analyzed whether the approach had any inherent difficulties for ensuring best value for the government and, if so, what to do about them. We and others who are involved in reviewing this approach, such as OMB, have expressed concerns with it, particularly about the potential lack of competition during the project's later years and the reliance on a single contractor for procuring so much of the deepwater equipment. In part, at our suggestion, the Coast Guard has taken a number of steps to mitigate these concerns. Still, as the project moves ever closer the acquisition phase, the

Coast Guard is conducting an analysis of its approach and has delayed some of its key milestones to consider these concerns more fully.

In most respects, the Coast Guard has managed the planning phase very well. In fact, the Coast Guard's procedures and management structure thus far have been among the best of federal agencies we have evaluated. It faces tougher challenges during the acquisition phase, however, and much is left to do before it is ready to move to the next phase. It still must recruit and train enough staff to manage and oversee the contract, determine how to best manage its relationship with its subcontractors, ensure that useful segments are fully funded in advance of buying equipment, implement an effective means to accurately measure the effects on operations and total system costs as new equipment replaces existing ships and aircraft, and develop contingency plans in the event that problems develop with the performance of the prime contractor or subcontractors.

Our reviews of other acquisitions governmentwide show that reliance on unproven technology is a frequent contributor to cost escalation, schedule delays, and compromised performance standards. As with contract management, the Coast Guard's initial steps in countering this risk have been very good. The Coast Guard has encouraged contractors to include off-the-shelf technology in their proposals. Our review of key technologies that contractors are proposing for the first few years of the project showed that almost all should be sufficiently mature by the time the contract is awarded. However, there is less certainty in later years. The Coast Guard needs a structured process for assessing and monitoring this risk. So far, it has none.

Our overall assessment of the risk levels is shown in table 1. In the report, we make several recommendations to help the Coast Guard and the Congress improve the long-term success of the Deepwater Project.

**Table 1: Areas of Risk and Overall Risk Levels for the Deepwater Project**

Area of risk	Risk level	Reasons for assigning this level of risk
Attaining a stable, sustained funding level	High	Several years of funding substantially below planned funding levels can have adverse consequences for the acquisition strategy. Budget constraints and other budget priorities threaten the Coast Guard's ability to achieve large, sustained increases in its budget for capital spending.
Controlling costs in the contract's later years	Moderate to High	The risks center on the potential lack of future competition and reliance on a single contractor to procure the entire system. The level of risk depends on the effectiveness of provisions the Coast Guard designs and includes in the contract to encourage or require subcontract competition and increase its leverage in negotiating future contracts with the prime contractor.
Overseeing the acquisition	Moderate	Although there are many uncertainties about contract management as the Coast Guard increases the size of the administrative effort, the commendable start and the ability to make specific changes lessen the degree of risk in this area.
Using unproven technology	Low to Moderate	The steps needed to mitigate this risk are relatively few and straightforward. The lack of an assessment tool to measure technology maturity poses short-term (low) and long-term (moderate) risk.

Source: GAO analysis of risk areas.

As the Coast Guard has attempted to mitigate these risks during the project's planning phase, we have assisted agency officials and brought our concerns to their attention as soon as possible to increase the opportunity for useful exchange of information and, where necessary, timely corrective action. To its credit, the Coast Guard has listened to us and made many changes to improve the project and mitigate major areas of risk. Nonetheless, the Coast Guard still has much left to do in this regard before it proceeds into the acquisition phase.

## **Background**

Many of the Coast Guard's cutters were built in the 1960s, and many of the aircraft in the 1970s and 1980s. Although these assets have been upgraded since being acquired, they are aging and have serious performance and support problems. Because of these problems, the Coast Guard began planning for the modernization of its deepwater fleet in 1995.

The acquisition approach the Coast Guard chose for the Deepwater Project is innovative. Rather than using the traditional approach of replacing an individual class of ships or aircraft, the Coast Guard has adopted a "system-of-systems"

approach intended to integrate ships, aircraft, sensors, and communication links together as a system to accomplish mission objectives more effectively. The Coast Guard expects this approach will both improve the effectiveness of deepwater operations and reduce operating costs.

In 1998, the Coast Guard contracted with three competing teams of contractors to conceive and begin designing a proposed deepwater system. Each team is made up of aircraft manufacturers, shipbuilders, and manufacturers of electronic, communication, and other equipment needed for the deepwater system. Later this year, the Coast Guard will ask each team to submit a final proposal, which the Coast Guard will evaluate as a basis for selecting one team to build the entire system. The Coast Guard plans to award the deepwater contract in early 2002, based largely on which team proposes a system that provides the best value in terms of improvements in operational effectiveness and minimizing total ownership costs.<sup>2</sup>

When the deepwater contract is awarded in 2002, the contract will actually be between the Coast Guard and a prime contractor, known as the “systems integrator,” of the winning team. The systems integrator will be responsible for ensuring that each ship, aircraft, or other equipment is delivered on time, in accordance with agreed to prices, and in compliance with the Coast Guard’s performance specifications. Because each of the three system integrators now competing for the contract is developing its proposal in conjunction with its own team of companies, it is likely that the companies in each team will supply most of the equipment. The deepwater contracting approach could thus result in a long-term contractual arrangement and working relationship with a single contractor and its team of contractors.

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<sup>2</sup>Operational effectiveness involves the Coast Guard’s ability to carry out its deepwater missions. For example, it involves the number of lives saved, the amount of drugs interdicted, and the number of illegal immigrants interdicted. Total ownership costs include acquisition, operating, maintenance, and support costs for the deepwater system over a 40-year period.

Initially, the Coast Guard plans to have a 5-year contract with the systems integrator. The systems integrator would receive a base award for management and system integration services. Task and delivery orders for deepwater equipment would be issued by the Coast Guard in accordance with the systems integrator's implementation schedule. If the performance of the systems integrator is satisfactory for each award-term contract, the Coast Guard plans to award follow-on, award-term contracts (as many as five for successive 5-year award-term contracts) with the same systems integrator.

### **Viability of Contracting Approach Depends On a Sustained High Level of Funding**

Securing sustained funding for any major acquisition is difficult, especially in the constrained budget environment that currently exists. In the case of the Deepwater Project, two factors—locked in a collision course—exacerbate the funding difficulties and jeopardize the viability of the project. First, the Coast Guard has planned the entire project around an expectation that it will get funding of about \$350 million during the first year and \$525 million (in 1998 dollars) each year thereafter for the life of the project. (This would include \$500 million for the contractor and \$25 million for the Coast Guard.) Adding inflation factors would increase this amount substantially throughout the life of the project. Second, the administration has told the Coast Guard to plan for considerably less—perhaps half a billion dollars less for the first 5 years of the project. Congress will make the final decision on this issue.

### **Success of Contracting Approach Relies on Sustained High Funding**

The contracting approach chosen by the Coast Guard depends on a sustained level of funding at planned levels over the life of the project. Any significant, sustained deviation from the planned funding levels would cause the Coast Guard to alter the system integrator's schedule for producing and delivering agreed to quantities and types of deepwater assets. Altering the schedule after the contract

is awarded would require renegotiating prices in a sole source environment and negotiating new cost and performance guidelines. This would be costly for the Coast Guard in the short-term and would set off ripples affecting the acquisition of deepwater equipment for years to come. Significant shortfalls would likely result in increased costs, late delivery of equipment, and even degradation of the performance of deepwater assets.

#### Projections of Available Funding for the Project Fall Short of Expectations

OMB's budget targets for the Coast Guard's capital projects have sent a strong signal that planned deepwater funding levels for fiscal years 2002 through 2006 may be unattainable. Given the OMB budget targets, the Coast Guard estimates that funds available for the Deepwater Project will be about \$2.2 billion (in 1998 dollars) through fiscal year 2006. Funding required under current plans is about \$2.5 billion, or a shortfall of about \$300 million. However, adding inflation—which is what the Coast Guard has instructed the contractors to do in their final proposals—would result in a shortfall for the 5-year period of \$496 million.

#### Administration's Budget Projections Suggest the Need for a Lower Planning Estimate

OMB guidelines for planning capital projects say that agencies should plan new projects within available funding levels. If the Coast Guard were to follow these guidelines for the Deepwater Project, it would align the planned funding stream to OMB's budget targets and tell the contracting teams to develop their proposals accordingly. This would reduce the risk later that deviations would have to be made from the system integrator's implementation plan due to funding shortfalls. However, the Coast Guard is reluctant to lower the planned funding stream because it believes that (1) the \$525 million planning figure represents the level needed to optimize operating effectiveness and efficiencies and (2) the administration will provide more money for the project in future years. However, according to OMB officials, future funding levels cannot be guaranteed; and it



would be inappropriate for the Coast Guard to tell the contractors to use higher funding levels for the project that were not consistent with the administration's budget targets.

In our report, we recommended that the Department of Transportation (DOT) align the planned funding levels for the Deepwater Project with the administration's budget targets. However, in commenting on our report, DOT disagreed, saying that they plan to proceed with the hope that future funding will materialize. In our opinion, this is unwise and fiscally irresponsible unless the Congress sends a strong signal to the Coast Guard that ample funding will be available for the project.

### **Ability to Control Cost's in Project's Later Years Remains Uncertain**

When we initially reviewed the proposed contracting approach for the Deepwater Project, we expressed concerns to the Coast Guard about whether it could keep costs from rising and ensure good performance once the contract is awarded. We were particularly concerned about the potential absence of competition for subcontracts in the project's later years and the heavy reliance on a single systems integrator to procure the entire system. Several other factors heightened our concerns. First, the contracting approach had never been tried on a contract this large, extending over 20 years or more. There were no models to help guide the Coast Guard in developing its approach. Second, when the Coast Guard selected the contract in May 2000, it had little documented evidence to support the depth of its analysis of risks with the approach, the factors considered, or the degree to which this approach provided better value than other approaches. Finally, we discussed the Coast Guard's approach with contracting experts from the public and private sector who echoed our concerns with the approach. Based on these discussions, we asked the Coast Guard to undertake a more rigorous analysis and seek outside expertise in validating its contracting strategy.

## Potential Absence of Competition in the Project's Later Years

OMB guidance<sup>3</sup> on capital planning recognizes the value of competition as a lever to keep contract costs down. Given that contract teams are competing for the initial deepwater contract, the benefits of competition are present in the project's early years. Prices for deepwater equipment for this 5-year contract will be pretty much fixed when the contract is awarded in 2002. Beyond the first 5-year contract, however, the benefits of competition are less certain. In a practical sense, the opportunity for competition in the project's out years is diminished because the systems integrator will likely contract with those suppliers that were part of the team putting together the proposal rather than opening the contract to a wider set of offerors. We believe that this potential lack of competition reduces the normal marketplace control on price and subjects the Coast Guard to situations in which the supplier could potentially drive up project costs.

The Coast Guard is attempting to develop strategies for encouraging competition among suppliers. For example, the Coast Guard has included an evaluation factor—for how well the integrator fosters competition—in its criteria for evaluating the systems integrator's performance and awarding follow-on contracts. By doing so, the Coast Guard hopes that this will encourage the systems integrator to have competition. At this point, it is not clear what effect this evaluation would have.

## Reliance on Single Contractor

The dependence on a systems integrator to acquire and integrate the deepwater systems is both one of the contracting approach's biggest strengths and one of its main weaknesses. On the positive side, if all aspects of the approach work well, the systems integrator will form a long-term partnership with the Coast Guard and provide technical expertise to assemble an integrated system and the continuity

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<sup>3</sup> OMB's Capital Planning Guide (Supplement to OMB Circular No. A-11).

needed to bring the project to a successful conclusion. However, the approach could establish the integrator as a monopoly supplier, substantially constraining the Coast Guard's options or leverage. The Coast Guard could be in a weak position to negotiate aggressively on price because of its reluctance to take on the risks of increased costs and other problems associated with switching systems integrators. For example, if the systems integrator's performance is marginal or unsatisfactory and the Coast Guard is considering replacing the integrator, a new systems integrator will have to step in to implement someone else's partially completed design. The learning curve and other complications involved in such a midcourse adjustment could be dramatic and would probably be very costly.

### Steps to Mitigate the Contracting Risks

As our work progressed, we expressed concerns to the Coast Guard immediately, rather than waiting until the end of our review. As we raised concerns, the Coast Guard took additional steps to study them. In September 2000, we urged the Coast Guard to take a number of steps to deal with the risks of the contracting strategy, the most substantive being to convene an independent panel of contracting experts from the government and the private sector to review the contracting approach. The Coast Guard agreed and formed such a panel, which met in April 2001. The panel identified additional items the Coast Guard needs to do before it asks the contracting teams to submit a final proposal for the deepwater system. At this point, we do not know what actions the Coast Guard plans to take as a result of the panel discussions. However, we still believe that outstanding issues remain to deal with competition and the contracting approach before the agency proceeds much further.

### **Overseeing the Acquisition Phase of the Project Poses New Challenges**

Another area of potential risk involves the overall management and day-to-day administration of the contract. In this regard, the Coast Guard's performance

during the planning phase has been generally excellent. The acquisition phase is a much tougher challenge, and the Coast Guard has much to do before it is ready to award the deepwater contract.

### Project Management During the Planning Phase Was Generally Excellent

In the planning phase of the project, the Coast Guard applied a number of “best practice” techniques recommended by OMB and others.<sup>4</sup> For example, the Coast Guard gave contracting teams mission-based performance specifications, such as the ability to identify small objects in the ocean, rather than asset-based specifications, such as how large a cutter should be. Along with this, the Coast Guard highlighted the use of “open-system architecture” and emphasized the use of commercially supported products in the equipment to be acquired. In addition, the Coast Guard established a management structure of Coast Guard and contractor teams for rapidly communicating technical information.

The Coast Guard also had effective procedures and a management structure in place for this phase of the project. Using a widely recognized management model, we assessed procedures and structure in several key areas and found no significant weaknesses. In fact, the Coast Guard’s procedures and management structure for these areas were among the best of all the federal agencies we have evaluated using this model.

### Coast Guard Faces Difficult Challenges During the Procurement Phase

As the project moves from the planning phase to the procurement phase, the Coast Guard must ensure that it can perform project management and contract administration activities at a high level, given the complexity and scope of the contract and its uniqueness. Under the Coast Guard’s planned approach, the

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<sup>4</sup> Best practices are those that have been found to work well and that are generally recommended by OMB and others.

systems integrator will be responsible for program management required to implement the deepwater system, and the Coast Guard will continuously monitor the integrator's performance. The Coast Guard plans to implement, or require the systems integrator to implement, many management processes and procedures based on best practices; but these practices are not yet in place. Because much work remains to be accomplished in this area, the full effectiveness of the Coast Guard's approach cannot be assessed in the short term. The following are the key areas that will need to be addressed.

**Effective human capital practices.** A critical element to the ultimate success of the project is having enough trained and knowledgeable Coast Guard staff to conduct management and oversight responsibilities. Project officials view this as a high-risk area and one of the most important aspects of the project. The Coast Guard needs additional capabilities in several critical areas and hopes to have its full complement of staff needed for fiscal year 2002 by the time the contract is awarded.

**Key management and oversight processes and procedures.** Under its deepwater acquisition approach, the Coast Guard will rely heavily on the systems integrator to establish a management organization and systems necessary to manage the major subcontracts for deepwater equipment. The systems integrator will be responsible for developing key systems and processes, such as risk management, quality assurance, and test and evaluation. In addition, the Coast Guard is developing a program management plan to oversee the systems integrator.

**Close relationships with subcontractors.** Because the use of major subcontractors to provide high-value equipment will be such an intricate part of the Deepwater Project, good relations and communications between the Coast Guard, the systems integrator, and the major subcontractors will be very important. Our past review of best practices on this issue suggests that leading organizations establish effective communications and feedback systems with their subcontractors to continually assess and improve both their

own and supplier performance.<sup>5</sup> The Coast Guard has developed no general policy on subcontractor relationships. The program management and quality assurance plans have not been completed, and it is not clear, at this time, what the quality and nature of the Coast Guard's relationship with subcontractors will be.

**Full funding in advance of buying equipment.** OMB Circular A-11, Part 3, emphasizes that each useful segment (e.g., an entire ship) of a capital project should be fully funded in advance of incurring obligations. We found in a review of earlier Coast Guard budget justifications that the Coast Guard had proceeded with some capital projects before the amount of full funding was identified.<sup>6</sup> As the Coast Guard proceeds with the Deepwater Project, it needs to ensure that its budget requests are consistent with OMB guidelines on full funding of useful segments.

**Accurate and complete data to measure contractor performance.** Coast Guard officials told us that they plan to use a subjective rating system to assess the contractor's performance rather than use database benchmarks for improvements in operational effectiveness and total ownership costs. According to Coast Guard officials, setting such benchmarks may be difficult because performance data may reflect factors that did not result from actions of the contractor. For example, improved intelligence on drug smugglers could result in improvements in operational effectiveness. Also, changes in fuel costs could cause operational costs to increase. Because a host of factors could cause changes in these data, it will be important for the Coast Guard to carefully track these measures and accurately identify and segregate reasons for the changes that occur. Doing so would better show the results of significant federal investments in ships and aircraft.

**Contingency planning and exit strategies.** Given the Coast Guard's heavy reliance on a single systems integrator for so many facets of the Deepwater

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<sup>5</sup>*Best Practices: DOD Can Help Suppliers Contribute More to Weapon System Programs* (GAO/NSIAD-98-87, Mar. 17, 1998).

<sup>6</sup>*Budget Issues: Incremental Funding of Capital Asset Acquisitions* (GAO-01-432R, Feb. 26, 2001).

Project, the agency is at serious risk if—for whatever reason—the systems integrator does not perform as expected or decides to walk away from the project on its own. Faced with these options, having a carefully thought-out contingency plan, which identifies and analyzes the implication of potential actions, would solidify the Coast Guard’s ability to respond effectively. In the extreme case—where the contractual relationship with the systems integrator is terminated—an exit strategy identifying possible alternatives, consequences, and transition issues would be important.

### **Use of Off-the-Shelf Technology Minimizes Risks, but Effective Means to Assess Unproven Technology Is Lacking**

The risks associated with incorporating new unproven technology<sup>7</sup> into the first part of the Deepwater Project are minimal, in part, because of the Coast Guard’s emphasis that industry teams use technology that has already been proven in similar applications. Our main concern is the absence of criteria to measure the risk of the new technology that does need to be developed, both now and in the project’s later years.

### Coast Guard’s Approach Conforms With Best Practices

Too little assessment of the risks associated with developing new technology has caused problems on many acquisition projects, both in government and the private sector. Minimizing a technology’s unknowns and demonstrating that it can function as expected significantly reduce such risk. We have found that leading commercial companies use disciplined processes to demonstrate—before fully committing to product engineering and development—that technological capability matches project requirements. Waiting to resolve these problems can greatly increase project costs—at least 10-fold if the problems are not resolved

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<sup>7</sup>We are using the term technology to denote assets, systems, equipment, and components proposed for the Deepwater Project.

until product development, and as much as 100-fold if they are not resolved until after production begins.<sup>8</sup>

The Coast Guard has taken steps to minimize these risks. One major step was to emphasize in contracting documents to industry teams that—to the maximum extent possible—proposed assets, systems, equipment and components are to be nondevelopmental or commercially available (off-the-shelf) items. Our review showed that the teams' preliminary proposals included many commercial off-the-shelf and nondevelopmental items currently operating in the commercial or military environment. However, some proposed equipment included developing technology that has not yet been proven. Generally, these developing technologies are at the prototype level and are undergoing performance testing and evaluation prior to contract award to commercial and military customers.

The Coast Guard's steps are helping to keep the risk of unproven near-term technology at a low level. We measured the maturity level for the project's most critical near-term technologies (those introduced in the first 7 years of the project), using an approach developed by the National Aeronautical and Space Administration (NASA). We applied this process, referred to as technology readiness levels (TRL), to 18 technologies identified as critical by the three contractor teams and the Coast Guard. We determined—and the Coast Guard concurred—that by the time the contract is awarded, 16 of the 18 are expected to be at a level of acceptable risk.<sup>9</sup> The remaining two technologies will be slightly higher in risk; but in one case, an early prototype is being tested; and in the other, a proven backup system has been identified that, if needed, could replace the

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<sup>8</sup>*Defense Acquisition: Employing Best Practices Can Shape Better Weapon System Decisions* (GAO/T-NSIAD-00-137, Apr. 26, 2000).

<sup>9</sup>TRL readiness levels are measured on a scale of one to nine. Examples of the ratings are as follows: a rating of one signifies that studies of the basic concept have been done; a rating between three and six means that success has been demonstrated to a degree in laboratory situations; and a rating of nine means that the technology has been proven in operational mission conditions and is in final form. To be considered acceptable for committing to a contract award, a new technology or adopted system should be rated at seven or higher. A rating of seven means that a system prototype has been demonstrated in the operational environment.



technology with no effect to the project's cost, schedule, or performance. Entering phase 2 of the project with critical technologies at a high level of maturity or with proven backup systems significantly lowers risk and the likelihood of delays, which in turn helps to control program costs.

### Coast Guard Lacks Criteria to Assess Technology Maturity

Although technological risks appear minimal in the near term, the Coast Guard lacks criteria for assessing the maturity of technology in the longer term. The Coast Guard has a risk-management plan in place, as well as a process to identify, continuously monitor, and assess technology risks; and the resources the Coast Guard expects to commit to the task during phase 2 appear to be adequate. What the process lacks, however, is uniform and systematic criteria for judging the level of technology maturity and risk, such as the TRL ratings in the approach we adopted from NASA. In contrast, since January 2001, DOD has required the use of TRL criteria as a tool for measuring the technology readiness of its procurement projects.

Such criteria are important for monitoring both continued development of the technologies we examined and the development of other technologies that will not be used until later in the project. As of July 2000 when we completed our TRL assessment, half of the 18 deepwater key technologies we reviewed were still below the maturity level considered an acceptable risk for entering production. Before the contract is awarded, the Coast Guard must assess the readiness of these technologies. In addition, the industry team proposals include numerous technologies that are planned for deepwater system introduction from 2009 to 2020—well after contract award. Many of these future technologies will not be proven at contract award and will need to be assessed for technology risk before acceptance. The Coast Guard plans to have a test and evaluation master plan in place by June 2001, but it is not planning to include a requirement for using TRL criteria to measure technology readiness in that plan.

## **Conclusions**

Many critical issues must be addressed and resolved before the Coast Guard is ready to procure deepwater equipment. Two issues, however, loom large as needing more attention in the near term. Affordability is perhaps the biggest issue and one on which the Congress will ultimately have to decide. The question is, “Should the Coast Guard plan the Deepwater Project around a much higher funding stream than the administration estimates will be available for the project?” Continuing down the funding path it is currently on is risky for the Coast Guard and could lead to adverse consequences if significant funding shortfalls for the project occur. The Coast Guard is reluctant to back away from its \$500 million funding mark because it believes that this funding level is needed to provide the optimum deepwater system. So, the Congress has an opportunity now to help the Coast Guard answer this question by sending a clear message about its preferences on this matter.

The other critical issue centers around whether the Coast Guard can control project costs effectively. The actions the agency has taken to date to mitigate risks in this area are noteworthy, and it is still pondering other means to keep costs in check. Much will depend on how well the Coast Guard oversees and manages the contract as well. But, again, the Congress has an opportunity to weigh in on the progress of the project as it proceeds. If the Congress chooses to fund the project at levels that the Coast Guard wants, we think that the Coast Guard should be accountable—through annual report to the Congress—not only for managing the program well, but also for documenting improvements in the operating efficiency and effectiveness of its deepwater assets.

This concludes my statement. I would be pleased to answer any questions you or other Members of the Subcommittee might have.

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