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

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COAST GUARD

Update on Marine Information for Safety and Law Enforcement System



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Abstract Over the last decade, the U Marine Information for Sa marine safety and law-enfo Coast Guard terminated a instead developing the syss provide an update on MISI	United States Coast Guard (U fety and Law Enforcement (preement activities involving contract to acquire MISLE, tem at its Operations System LEs status, plans, and techni	(SCG) has experienced difficulties in acquiring the MISLE) systeman information system to track g commercial and recreational vessels. In 1999, the after spending about 4 years and \$26 million, and is as Center. As you requested, our objective was to cal and programmatic risks.		
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COAST GUARD Update on Marine Information for Safety and Law Enforcement System

Highlights of GAO-02-11, a report to the Subcommittee on Coast Guard and Maritime Transportation, House Committee on Transportation and Infrastructure

Why GAO Did This Study

The Coast Guard is developing a Web-based information system to replace an aging computer system that it uses to track safety and law-enforcement actionssuch as inspections, drug interdiction, and oil spill assistance-involving commercial and recreational vessels. In 1995, the Coast Guard awarded a contract to develop the new system, called MISLE. After the project encountered cost and schedule problems, development responsibility was transferred to the Coast Guard's systems development center in 1999, and the contract terminated after about \$26 million had been spent.

The Coast Guard's history of systems development problems and information technology weaknesses prompted the Subcommittee to ask GAO to review MISLE's current status and risks.

What GAO Recommends

GAO is making several recommendations in the four key areas of system requirements, software testing, transition planning, and risk mitigation.

In comments on a draft of our report, Coast Guard officials generally agreed with GAO's recommendations, but noted that some of the risks were "tradeoff decisions," necessary to deliver an initial version of MISLE.

What GAO Found

The Coast Guard has made progress since taking over its Marine Information for Safety and Law Enforcement (MISLE) system development; it is now poised to deploy the system with limited capabilities. But much remains to be accomplished in order to deliver the complete system, with only about \$11 million of its \$61 million estimate remaining.

MISLE is facing risks in four key areas:

- Changing system requirements. MISLE requirements have repeatedly changed; several have been dropped, and others postponed to later development phases due to problems found during testing and the Coast Guard's emphasis on replacing its current system as soon as possible. Other requirements are being added or accelerated. Such a continually changing scenario increases the risk that MISLE will fall short of user needs.
- **Software testing.** The Coast Guard undertook risky software testing practices in that it deferred testing some functions and did not resolve all critical problems uncovered before moving on to the next testing stage. This approach increases the likelihood that the system will not perform as expected and/or may take longer to develop than anticipated.
- **Transition planning.** Deployment of MISLE involves planning for accurately moving data from the older system and training system users. However, critical transition plans are not yet complete. Beyond adding to possible delays, the absence of transition plans and insufficient training increase the chance of user discomfort with the new system.
- **Risk management.** Finally, the Coast Guard's risk management approach has been ineffective: risks were not assigned severity ratings, and not all have been prioritized. Further, the Coast Guard has not developed detailed mitigation plans for all significant risks.

Unless these challenges are successfully addressed, performance shortcomings, cost escalation, and schedule delay are likely.

This is a test for developing Highlights for a GAO report. For additional information about the report, call Linda Koontz at (202) 512-6240. To provide comments on this test *Highlights* page, call Keith Fultz at (202) 512-3200 or send an email to HighlightsTest@gao.gov.



United States General Accounting Office Washington, D.C. 20548

October 17, 2001

The Honorable Frank LoBiondo Chairman The Honorable Corrine Brown Ranking Minority Member Subcommittee on Coast Guard and Maritime Transportation Committee on Transportation and Infrastructure House of Representatives

Over the last decade, the United States Coast Guard (USCG) has experienced difficulties in acquiring the Marine Information for Safety and Law Enforcement (MISLE) system—an information system to track marine safety and law-enforcement activities involving commercial and recreational vessels. In 1999, the Coast Guard terminated a contract to acquire MISLE, after spending about 4 years and \$26 million, and is instead developing the system at its Operations Systems Center. As you requested, our objective was to provide an update on MISLE's status, plans, and technical and programmatic risks.

To fulfill this objective, we evaluated MISLE project plans, costs, and schedules by comparing original and current job management documents. We also assessed technical and programmatic risks facing the MISLE acquisition and USCG's plans for addressing those risks. We performed our work from May through September 2001, in accordance with generally accepted government auditing standards. USCG officials provided us with comments on a draft of this report; they are discussed in the "Agency Comments" section.

On September 18, 2001, we provided a detailed briefing to your office on the results of this work. The briefing slides are included in appendix I. The purpose of this letter is to provide the published briefing slides to you and to officially transmit our recommendations to the Secretary of Transportation.

In brief, we reported that USCG has made progress in developing MISLE and was poised to deploy a minimum level of functionality in November 2001. However, the system was several months behind schedule, and USCG had already spent most of the \$61 million acquisition cost estimate most of it on the original contract. With only about \$11 million remaining, much remains to be done to deliver the complete system. In its efforts to develop and deploy a complete MISLE system, USCG faces significant challenges and risks in several areas, including managing system requirements and user expectations, testing the system, transitioning to an operational system, and managing program risks. We made specific recommendations to address these risks.

Recommendations	To mitigate USCG's MISLE risks, we recommend that the Secretary of Transportation direct the USCG Commandant to ensure that the appropriate officials complete the following actions.				
	In the system requirements area,				
	 define and prioritize, in conjunction with system users, all needed system functions, corrections, and enhancements that must occur to meet valid user needs; and develop cost and schedule estimates for providing these functions, corrections, and enhancements. 				
	In the software testing area,				
	• close all critical problems before initiating the next state of testing.				
	In the area of transition planning,				
	 finalize and implement Vessel Documentation System (VDS) transition plans, and develop and implement VDS training materials. 				
	In the risk mitigation area,				
	 develop a single list of system risks, evaluate system risks to determine their severity and prioritize these risks, develop and implement comprehensive mitigation strategies for each of the risks, and regularly oversee the status of risks and risk mitigation efforts to determine whether additional mitigation activities are warranted. 				

Agency Comments

We provided drafts of our briefing and this report to Department of Transportation and USCG officials, including representatives of the Office of the Secretary of Transportation and the USCG Acquisition Management Office. We met with USCG officials to obtain their comments on our drafts. These officials generally agreed with our recommendations, but characterized the changing requirements and testing issues we raised as "tradeoff decisions," necessary to deliver an initial version of MISLE. USCG officials also noted that, given the recent terrorist attacks, MISLE deployment will likely be delayed until at least December 2001.

We are sending copies of this report to the Secretary of Transportation, the USCG Commandant, the Director of the Office of Management and Budget, and other interested parties. Copies will also be made available to others upon request.

Should you or your staffs have any questions concerning this report, please contact me at (202) 512-6240 or by e-mail at <u>koontzl@gao.gov</u>. Nabajyoti Barkakati, Barbara Collier, Michael Fruitman, Colleen Phillips, Margaret Sullivan, and Glenda Wright were major contributors to this report.

Lenida & Koontz

Linda D. Koontz Director, Information Management Issues

GAO's September 18, 2001, Briefing















Le Gardon MISLE Background Accountability * Integrity * Reliability History	
In 1986, USCG began developing requirements for replacing its legacy Marine Safety Information System (MSIS) by 1995.	
In the early 1990s, USCG delayed plans to replace MSIS in order to integrate requirements for multiple systems into one system development effort—called MISLE.	
In 1995, USCG awarded a contract to Computer Sciences Corporation (CSC) to develop and deliver a complete MISLE system by 2002. At that time, USCG officials estimated that this contract could cost up to \$35 million.	
 A March 1999 change required the developer to replace MSIS functions by June 2001. 	
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Accountability * Integrity * Reliability	Sche	dule			
MISLE Phase 1 has	fallen beh	ind sched	lule.		
MISLE Phase 1 milestones	Dec. 1999 baseline	June and Dec. 2000	May 2001 estimate	Aug. 1, 2001 estimate	Sept. 5, 2001 estimate
System testing complete	N/I°	N/I	7/20/01	MSN 8/15/01 VDS 9/15/01	MSN 8/27/01 VDS 8/27/01
Operational Test and Evaluation complete	6/01	2/01	8/15/01	MSN 8/30/01 VDS 9/30/01	MSN 9/21/01 VDS 9/21/01
MISLE month complete	N/I	N/I	9/15/01	9/30/01	10/19/01
Data migration complete	N/I	N/I	9/30/01	10/10/01	11/2/01
MISLE Phase 1 deployed	N/I	4/01	10/01	10/15/01	11/5/01
^a In commenting on a draft of th an OT&E completion range fro range. However, USCG intern show MISLE in breach of its so ^b These estimates are identified MISLE Acquisition and Project characterized these documents ^c Not identified.	is briefing, the m January to S al managemen hedule. I in the June 20 Management I s as internal, o	MISLE project September 200 It reports reflect 000 MISLE Imp Plans. In comp ptimistic project	manager note 1, and that OT t the June 200 lementation P nenting on a c t plansnot fir	ed this baseline docu &E would be completed of completion date. lan, as well as the D lraft of this briefing, I m schedule estimate	iment also includes eted within this In fact, these repor December 2000 USCG officials es.













Accountability * Integrity * Beliability	Key Risk Areas System Requirements (cont'd)
USCG has delayed	some MISLE functions:
Significant Phase 1 c Examples include VE • provide Abst • provide Certi • automate NV	deliverables are now planned for later releases. OS' ability to racts of Titles ficates of Ownership /DC's paper-intensive work processes
Key Phase 2 delivera Two high priority exa • VDS' ability t involves non- organizations • MSN's ability of the constru-	ables are now planned to be Phase 3 deliverables. mples include o handle requests for nonvessel information (this -U.S. corporations and oil spill response s) to capture information on the approval and oversight uction of portable quarters on vessels



GAO	Key Risk Areas
Accountability * Integrity * Reliability	System Requirements (cont'd)
USCG has added ar	nd accelerated MISLE functions:
In response to user n	eeds, USCG has decided to
 replace LEIS-II ir accelerate a critic Phase 3 to Phase 	n Phase 2, rather than integrate it with MISLE cal function, incident response planning, from e 2
In commenting on a c agency has also mov of Phase 1 in respons However, in prior disc have not yet schedule Phase 1 releases ma	draft of this briefing, USCG officials noted that the red multiple functions from Phase 2 to later releases se to user requests to get these functions sooner. cussions, USCG officials acknowledged that they red these later releases and, in fact, some of the later y not be delivered until after Phase 2 is delivered.







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Accountability	* Integrity * Reliability	Softw	vare Testin	s g (cont'd)		
USCG	's current te	sting scheo	dule for MIS	SLE compo	nents:	
MSN Integration Testing	(4/1/01)		(6/26/01)			
MSN System Testing			(6/30/01)	(8/27/0	1)
MSN OT&E					(9/10/ <u>01) (9/2</u> 1/01)
VDS Integration Testing		(5/21/01)			<u>(8/</u> 10/01)	
VDS System Testing					(8/16/01) (8/2	27/01)
VDS OT&E						(9/10 <u>/01) (9/</u> 21/01)
	April	Мау	June	July	Aug	Sept
			2001			



GAO Accountability * Integrity * Beliability	Key Risk Areas Software Testing (cont'd)
Risky testing practice	es (cont'd):
 Significant problematical began. For example, and the second secon	ems were not closed before the next stage of testing nple:
 9 critical prob not closed be 	plems identified during MSN integration testing were afore system testing began
USCG's testing pract expected, or may tak	tices increase the risk that MISLE will not perform as the longer to develop than expected.



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