



February 4, 2002

Reply to Attn of: **W**

TO: A/Administrator

FROM: W/Inspector General

SUBJECT: Inspector General Assessment of NASA's Most Serious Management and Performance Challenges

Pursuant to the Reports Consolidation Act of 2000, this report includes a statement that "summarizes what the Inspector General considers to be the most serious management and performance challenges facing the Agency and briefly assesses the Agency's progress in addressing those challenges." Based on the activities of my office, I have identified eleven management and performance challenges, detailed below. The Agency has recognized many of these issues as part of the Federal Managers' Financial Integrity Act process as warranting special management attention in order to better ensure mission success.

Information Technology Security

The security of NASA's information technology (IT) systems, while improving, requires more effective implementation, monitoring, and enforcement. We continue to encounter serious IT security policy and procedure deficiencies that led us to report NASA's IT security program as a material weakness for the purposes of the Federal Managers' Financial Integrity Act (FMFIA) and the Government Information Security Reform Act.

Leadership is the key to an effective IT program at NASA. Audits and inspections performed by our office have shown that data security and integrity, sharing of risk information between classified and unclassified programs, application controls, training, effective implementation of a common architecture, and communication have been negatively affected by fragmented programs and the lack of centralized leadership.

We also continue to be concerned about inadequate IT security training, inconsistent Agency programs to ensure the security of sensitive systems, and the absence of enforcement mechanisms to ensure that host and network level security policies and procedures are implemented appropriately. We find that resource requirements have not been fully identified, funding shortfalls exist, priorities are unclear, and corrective actions have been slow and incomplete. Repeat findings indicate that the Agency does not consistently communicate our recommendations to minimize security vulnerabilities to the NASA

community and that NASA management is often slow to implement corrective actions with which it has concurred.

E-Government Initiatives

As E-Government initiatives are further developed and implemented Government-wide, NASA will be challenged to increasingly use electronic means to improve its own processes and to interact with citizens, businesses, and other government entities. We will evaluate whether the Agency is allocating sufficient resources and management attention to these efforts.

Our experience has shown that expansion of the Agency's IT systems will create new security and/or privacy vulnerabilities. IT systems that support E-Government initiatives may be particularly vulnerable since they must be accessible from outside of the Agency. The OIG will audit and inspect NASA's implementation of the E-Government initiatives to ensure the Agency is implementing sufficient security, privacy, and other internal controls to ensure the availability, accessibility, integrity, legal sufficiency, and reliability of its electronic communications.

International Space Station Program Management

The International Space Station (ISS) is a technological marvel but has consistently experienced cost overruns. Our reviews have found significant concerns related to ISS cost and contingency planning, contract restructuring, spare parts costs, and procurement. Until these problems are fully resolved, the ISS will remain a management and performance challenge. We agreed with NASA management that ISS program management is a material weakness for the purposes of FMFIA.

One of our largest concerns is that ISS program management has not taken the necessary steps to contain cost growth on some of its major contracts. For example, ISS management settled requests from Boeing (the ISS prime contractor) for additional costs allegedly caused by the Government, and other potential claims without performing a sufficient analysis to show that Boeing's proposed costs were fair and reasonable. Also, ISS management did not adequately justify waiving the Federal Acquisition Regulation requirement that Boeing submit certified cost or pricing data. In addition, NASA's Office of Procurement did not exercise adequate oversight of the restructured contract, even though it was one of the most significant noncompetitive awards in fiscal year 2000.

The ISS Program management's planning for major projects within the program is another major concern. For example, one of our recent audits showed NASA attempted to implement the ISS Propulsion Module before completing acquisition planning and project documentation. The module eventually turned out to be unaffordable and was canceled. For future projects, management agreed with our recommendations to complete acquisition

planning and documentation, validate requirements, synchronize milestones, and obtain an approved justification for sole-source selections.

NASA's Integrated Financial Management System

Office of Management and Budget (OMB) Circular A-127, "Financial Management Systems," requires federal agencies to establish and maintain a single, integrated financial management (IFM) system that complies with applicable accounting principles, standards, and related requirements as defined by OMB, the Department of the Treasury, and the Agency. Currently, NASA does not have a single integrated financial system as required by A-127, but instead has nine separate systems producing information that must be consolidated at a top level through cumbersome techniques. As a result, the Agency relies on outdated systems that do not efficiently and effectively provide complete, timely, reliable and consistent financial information for NASA decision makers and the public.

NASA has been trying to implement an integrated financial system for over 10 years but has not yet been successful. Our past audits provided NASA with timely warnings of significant problems with the Agency's previous attempts to create such a system. NASA is continuing in its efforts to develop an integrated financial management system and we are continuing audit coverage in this area. Until project completion, NASA managers will not have financial visibility and insight into major programs such as the ISS and Space Shuttle. In addition, until IFM is fully implemented, NASA will have to use cumbersome alternative procedures to fully account for major programs. Finally, without an IFM, NASA will incur substantial costs to maintain legacy systems that an IFM would replace.

Safety and Mission Assurance

Completed and ongoing audits, inspections, and investigations, as well as the Agency's continued emphasis on safety, lead us to consider safety and mission assurance to be a significant management/performance challenge for NASA.

- Our audits of Shuttle safety found safety concerns that continue to require management's attention. Management concurred with most of our recommendations, but we remain concerned about United Space Alliance's controls over the use in and around the Space Shuttle orbiter of plastic films, foams, and adhesive tapes for which the characteristics of flammability resistance, electrostatic discharge rate and compatibility with rocket fuel were not known.
- Another audit found that Stennis Space Center and its three major contractors did not properly manage lifting devices and equipment. Because similar problems may exist at other Centers, the NASA Office of Inspector General (OIG) issued a safety alert to the Office of Safety and Mission Assurance for distribution to all Centers.
- Our criminal investigations continue to encounter cases, particularly those involving fraud in the testing of aerospace parts, that could potentially imperil the safety of NASA equipment and personnel.

- In our most recent evaluation of NASA's communications security, we found that NASA's early plans to command spacecraft via the Internet showed only low levels of coordination, policy development, and awareness of security vulnerabilities. NASA management's response to the evaluation was generally unsatisfactory and the Agency may yet expose its future spacecraft and payloads to unnecessary risks.

Launch Vehicles

The Space Shuttles, which are operated on a day-to-day basis by the United Space Alliance, are the world's most capable—and among the world's most expensive—launch vehicles. We continue to be concerned about NASA's plans to use Space Shuttles to launch payloads that do not require the Shuttle's unique capabilities, in possible violation of the Commercial Space Act of 1998. In addition, we believe the agency must develop consistent pricing policy for the launch of commercial or other non-NASA payloads on the Shuttle, but NASA management contends that a pricing policy is not required.

NASA also buys commercial expendable launch vehicles (ELV's) to launch spacecraft that do not require the Shuttle's unique capabilities. NASA policy is to allow non mission-critical and low-cost payloads to fly on unproven launch vehicles, but to require more expensive and critical payloads to fly only on launch vehicles with successful track records. Since launch failures can cause major disruptions in NASA programs, we will continue to monitor NASA's implementation of this policy as well as the ELV Program's performance measurement system and compliance with the Agency's risk mitigation policy for launch services.

Since the mid-1990s, NASA has funded technologies and prototypes intended to reduce the cost of access to space and eventually replace the Shuttle. NASA's current effort to develop such systems and technologies is the Space Launch Initiative (SLI). In May 2001, NASA awarded more than 25 SLI contracts totaling almost \$800 million. More awards are planned for 2002. We are currently auditing planning and management of the SLI program. NASA must take care not to make the same mistakes in the new SLI that were made in the canceled X-33 and X-34 technology demonstration programs.

Security of NASA Facilities and Technology

NASA maintains highly sensitive and classified information, possesses significant world-class and unique facilities, and houses a valuable national work force that includes NASA civil servants, contractors, other partners, and numerous official visitors. In light of the September 11, 2001, attack on America, the security of NASA facilities and technologies is of greater concern than before.

Previous OIG audits and other reviews have found weaknesses related to the control and supervision of foreign national visitors at NASA facilities, the export of NASA technology, and the conduct of background checks for NASA employees. We found that controls over access to NASA Centers by foreign national visitors need to be strengthened and uniformly

applied on an Agency-wide basis. We also found that NASA needs to exercise greater diligence in the transfer or exchange of commodities, software, or technologies with foreign partners. NASA has accepted the majority of our recommendations concerning foreign visitors and exports, and we await the completion of the agency's corrective actions. Similarly, NASA management concurred with another report's recommendations to improve the efficiency and effectiveness of the background investigation process at the facility we reviewed, but we remain concerned about the Agency's overall background investigation policies and guidelines.

NASA has taken significant steps to improve security. One of NASA's major security improvements was the establishment of the Office of Security Management and Safeguards as a separate organization directly reporting to the NASA Administrator. Another positive step for NASA security was that the Agency sought and received over \$100 million in supplemental funding to respond to the attacks of September 11, 2001. However, even with the new funding, the Agency's decentralized, fragmented structure will continue to impede a coordinated approach to security. For example, the Office of Security Management and Safeguards' evolving counterintelligence effort needs to establish stronger relationships with the NASA programs that conduct oversight of foreign visits and export controls, as well as with the OIG, which has wide-ranging law-enforcement authority.

Procurement

Procurement continues to be a significant management challenge for NASA. Procurement obligations typically account for about 86 percent of the Agency's total obligations. With such a large percentage of the Agency's budget expended through contracts and other procurement vehicles, effective and efficient procurement practices are critical to NASA's success in achieving its overall mission.

NASA continues to be challenged by the need to promote competition in contracting:

- In the past few years, the amount of NASA dollars available for competitive procurements has steadily decreased. Between FY 1993 and 2000, the percentage of annual obligation dollars available for competition decreased from 81 percent to less than 56 percent of the total obligations available. This situation is compounded by the fact that four NASA contractors account for nearly 60 percent of its contract dollars.
- OIG audit and inspection activities have identified multiple sole-source procurements that were not adequately justified in accordance with Federal Acquisition Regulations. A recent audit of multiple-award contracts indicated that about half of the 104 sole-source orders reviewed at two NASA centers did not provide for adequate competition as required by Federal and Agency procurement regulations.
- A series of OIG audit reports found that sole-source subcontracting by prime contractors under NASA contracts is commonplace. Improper sole-source subcontracting by prime contractors increases the cost to NASA and is not in the Government's best interest.

Contract administration also continues to be a management challenge for NASA. The U.S. General Accounting Office (GAO) consistently cites NASA for its lack of adequate systems and processes to oversee procurement activities and its inability to produce accurate and reliable management information in a timely manner. In addition to the risks cited by the GAO, NASA faces increased contract oversight and accountability issues due primarily to the emphasis on contract consolidation and bundling, and human capital issues. Human capital is a significant concern because NASA experienced a 30 percent reduction in its procurement personnel between FY 1993 and February 2001.

Cost Estimating

NASA's willingness and ability to provide accurate and credible cost and risk assessments analyses for its projects has been a concern for many years. In 1996, we reported that NASA had not fully established an independent program assessment function in accordance with the recommendations of the Report of the Advisory Committee on the Future of the U.S. Space Program (the Augustine Report). Management did not follow our recommendation that the Agency's independent cost analysis group, the Independent Program Assessment Office (IPAO), be assigned organizationally to NASA Headquarters. Our September 2001 follow-up review again found that the IPAO's effectiveness could be improved by increasing the organization's independence and enhancing its capabilities. Management agreed with some of our recommendations, but disagreed with our recommendations to assign administrative and organizational responsibility for the IPAO to Headquarters and to make improvements in the process by which the IPAO reviews programs and projects. Management also was not responsive to our recommendation to establish clearly defined criteria for conducting independent reviews throughout the various phases of programs and projects.

Particularly in light of current discussions of further contract consolidation and privatization, we are also concerned that the Agency has historically not performed cost-benefit analyses to determine cost savings from consolidating contracts. NASA did not perform a cost-benefit analysis as part of the decision-making process prior to awarding the Consolidated Space Operations Contract (CSOC) to ensure that the consolidation was the best approach for fulfilling space operations. Similarly, NASA did not perform a cost-benefit analysis prior to consolidation of Space Shuttle contracts under the Space Flight Operations Contract (SFOC). In response to our recommendations, management agreed to perform a cost-benefit analysis before further consolidation of contracts into the SFOC.

National Environmental Policy Act Implementation

The National Environmental Policy Act (NEPA) mandates that all Federal agencies consider the effects of their actions on the environment as early as possible and requires Federal agencies gather information about the environmental consequences of proposed actions, consider the environmental impacts of those actions to assist in making environmental decisions, consider alternatives that avoid or reduce adverse environmental impact, and keep the public informed. In March 2000, we reported that although NASA had established

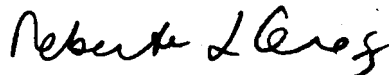
procedures for implementing NEPA, 11 (85 percent) of 13 mission-related programs/projects reviewed did not comply with NEPA requirements or NASA guidance. In addition, 2 of 9 construction-of-facilities projects we reviewed did not fully comply with NASA guidance for implementing NEPA.

NASA has initiated corrective actions in response to our audit recommendations. While we commend NASA's efforts to correct environmental management deficiencies related to NEPA, NEPA compliance will remain a significant management challenge until all of the planned actions are fully implemented and assessed as effective.

Plum Brook Reactor Decommissioning

In 1997, we recommended that NASA begin the process of decommissioning the Plum Brook reactor to save millions of dollars in future maintenance and disposal costs. Since FY 1999, NASA has reported the decommissioning of the facility as a significant area of management concern for the Agency. NASA has submitted a decommissioning plan to the Nuclear Regulatory Commission and is waiting for approval. The total estimated cost for decommissioning the reactor is \$161 million.

The process of decommissioning is a NASA-wide concern that will require a coordinated effort involving several Agency components. Future decommissioning activities are particularly vulnerable to any attempts to reduce the Agency's overall budget. Because of the significant costs involved and the need to take timely action, this issue continues to warrant treatment as a significant management challenge.



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