NASA OFFICE OF INSPECTOR GENERAL

SEMIANNUAL REPORT

OCTOBER 1, 2014–MARCH 31, 2015


INSPECTOR G
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NASA

FROM THE INSPECTOR GENERAL

NASA's ability to sustain its ambitious exploration, science, and aeronautics programs will be driven in large measure by whether the Agency is able to adequately fund such high-profile initiatives as its commercial cargo and crew programs, the Space Launch System rocket and Orion capsule, the International Space Station, the James Webb Space Telescope, the Mars 2020 Rover, and the personnel and infrastructure associated with these and other missions.

Over the past year, the Office of Inspector General has raised concerns about the sustainability of NASA's varied missions given that the Agency's "top-line" funding level is likely to remain relatively flat for at least the next several years. Accordingly, we believe the principal challenge facing NASA leaders is to effectively manage the Agency's varied programs in an uncertain budget environment.

In addition to this overarching challenge, NASA managers must address a myriad of project- and facility-specific issues. During this reporting period, we issued our annual report identifying seven top management and performance challenges facing NASA:

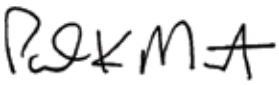
- Managing NASA's Human Space Exploration Programs: the International Space Station, Commercial Crew Transportation, and the Space Launch System
- Managing NASA's Science Portfolio
- Ensuring Continued Efficacy of the Space Communications Networks
- Overhauling NASA's Information Technology Governance Structure
- Ensuring the Security of NASA's Information Technology Systems
- Managing NASA's Infrastructure and Facilities
- Ensuring the Integrity of the Contracting and Grants Processes and the Proper Use of Space Act Agreements

Moving forward, we intend to examine NASA's continuing efforts to meet these and related challenges through our audit and investigative work. For example, our Office of Audits recently issued a report identifying shortcomings in NASA's Deep Space Network, which provides vital communications with robotic explorers in deep space. We also issued a report on the status of launch support and infrastructure modernization efforts at the Kennedy Space Center critical for launch of the Space Launch System and Orion, and a companion review examining NASA's efforts to transition the Center from a Government-only launch site to a multiuser spaceport hosting commercial launches.

At the same time, our Office of Investigations actively pursued allegations involving misuse of NASA funds and misconduct by NASA employees, contractors, and grant recipients. During the past 6 months, we investigated matters involving bribery, contract and grant fraud, false statements, ethical violations, falsification of inspection records, and export control regulations.

Finally, we note with deep appreciation the significant contributions of Kevin Winters, former Assistant Inspector General for Investigations, who retired in February after directing our Office of Investigations for 9 years. We thank him for his legacy of integrity, leadership, and effectiveness.

This semiannual report summarizes the NASA Office of Inspector General's activities and accomplishments between October 1, 2014, and March 31, 2015. We hope you find it informative.



Paul K. Martin
Inspector General
April 30, 2015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NASA'S TOP MANAGEMENT AND PERFORMANCE CHALLENGES

The International Space Station

As required by the Reports Consolidation Act of 2000, the NASA Office of Inspector General (OIG) annually develops a report identifying the most serious management and performance challenges facing the Agency. In deciding whether to identify an issue as a top challenge, we considered the significance of the challenge in relation to NASA's mission; whether its underlying causes are systemic in nature; the challenge's susceptibility to fraud, waste, and abuse; and the Agency's progress in addressing the challenge. In our November 2014 report, we identified seven issues as the top management and performance challenges facing NASA.

MANAGING NASA'S HUMAN SPACE EXPLORATION PROGRAMS

NASA is simultaneously managing multiple large-scale, long-term human exploration programs: the International Space Station (ISS or Station); the Commercial Crew Program; and the Space Launch System (SLS), Orion Multi-Purpose Crew Vehicle (Orion), and Ground Systems Development and Operations (GSDO) Programs. Looming over the daunting technical and schedule challenges associated with these Programs is a constrained budget and evolving political environment.

Extending the International Space Station

In November 2013, the ISS completed 15 years of continuous operation in low Earth orbit, marking a significant achievement in the history of human spaceflight. Two months later, the Administration announced its intent to extend Station operations from the current target of 2020 to 2024. As a result, a spacecraft originally designed and tested for a 15-year life span may now operate for more than 25 years. Since 1994, the United States has invested almost $75 billion in the ISS for construction, operating costs, and transportation, and NASA will continue to spend between $3 and $4 billion per year to maintain and operate the Station. Historically, the Agency's international partners – the European Space Agency, Canada, Japan, and Russia – have contributed to ISS operations and helped share associated expenses by providing astronauts, ground facilities, launch vehicles, and other items and services, but the level of international participation beyond 2020 is uncertain.

In the meantime, NASA continues to utilize the ISS as a research platform to study and mitigate a variety of human health risks that must be addressed to enable long-term human exploration missions. However, in addition to NASA-directed efforts, a major portion of the Station's success as a research platform hinges on the ability of the Agency's partner – the Center for the Advancement of Science in Space – to attract sufficient interest and funding from outside private users and investors.

Another key facet to maximizing research on the Station is providing a U.S. capability to transport cargo and crew. NASA's challenge will be procuring enough flights to the Station at an affordable price to support ISS research.

In October 2014, Orbital Sciences Corporation's (Orbital) third resupply mission failed shortly after launch from NASA's Wallops Flight Facility in Virginia, destroying 4,800 pounds of science and research, crew supplies, and vehicle hardware bound for the ISS. As a result, NASA will need to reexamine its cargo manifest and make adjustments to upcoming resupply missions, work with commercial and state entities to repair the Wallops Flight Facility, and identify the root cause of the mishap to ensure a safe return-to-flight for the company's vehicles.

Flight engineer Terry Virts working outside the ISS

Securing Commercial Transportation for Astronauts to Low Earth Orbit

Since the end of the Space Shuttle Program in 2011, the United States has lacked a domestic capability to transport crew to the ISS. Between 2012 and 2017, NASA will pay Russia $1.7 billion to ferry 30 NASA astronauts and international partners to and from the Station at prices ranging from $47 million to more than $70 million per round trip. To address this lack of U.S. capacity, NASA has provided approximately $1.6 billion in funding since 2010 to U.S. commercial spaceflight companies to spur development of a crew transportation capability. NASA originally hoped commercial flights would be operating by 2016, but due to funding constraints the Agency adjusted this goal to late 2017.

NASA is closing out the third phase of the Commercial Crew Program's development in which the Agency worked with three companies – The Boeing Company (Boeing), Space Exploration Technologies Corporation (SpaceX), and Sierra Nevada Corporation (Sierra Nevada) – using a combination of funded Space Act Agreements and more traditional contracts to develop commercial crew transportation capabilities. The fourth and final phase of NASA's Commercial Crew Program began in September 2014 with the award of $6.8 billion in firm-fixed-price contracts to Boeing ($4.2 billion) and SpaceX ($2.6 billion) to complete development of and certification for operation of their spaceflight systems and for up to six flights to the Station. In these contracts, NASA will provide Boeing and SpaceX with specific requirements for launch systems, spacecraft, and related ground support.

NASA's use of funded Space Act Agreements rather than Federal Acquisition Regulation based contracts to develop new crew and cargo transportation capabilities has had several benefits, including a lower price tag for the Agency. For example, in the cargo development program, NASA estimated it saved between $1.4 and $4 billion in connection with SpaceX's efforts. However, NASA's decision not to impose specific design and safety requirements on the companies during the development process also poses risks and makes it harder to ensure the companies will ultimately produce spaceflight systems that can safely carry humans to and from the ISS.

In a November 2013 audit report, we identified four challenges to NASA's Commercial Crew Program: (1) unstable funding, (2) integration of cost estimates with the Program schedule, (3) providing timely requirement and certification guidance, and (4) spaceflight coordination issues with other Federal agencies.

Developing the Space Launch System, Orion Multi-Purpose Crew Vehicle, and Ground System Development and Operations Programs

Successful development of the GSDO, SLS, and Orion Programs is critical to achieving NASA's human exploration goals. NASA is using the Space Shuttle's main engine, the RS-25, on the SLS and designing the vehicle with an evolvable architecture that can be tailored to accommodate longer and more ambitious missions. Orion will be mounted atop the SLS and serve as the crew vehicle for up to six astronauts. The GSDO Program is modifying launch infrastructure at Kennedy Space Center (Kennedy) formerly used for the Space Shuttle to support the SLS and Orion. NASA's current schedule calls for an initial test launch of a combined SLS and Orion no later than November 2018.

NASA's challenge in this area continues to be managing the concurrent development of a launch system and crew vehicle and modifying the necessary supporting ground systems while also meeting the Administrator's mandate that exploration systems be affordable, sustainable, and realistic. The GSDO, SLS, and Orion Programs continue to face challenging budget scenarios. For example, the Orion Program anticipates receiving a flat budget of approximately $1 billion per year into the 2020s. This budget profile has caused NASA to use an incremental development approach under which it allocates funding to the most critical systems necessary to achieve the next development milestone, rather than developing multiple systems simultaneously as is common in major spacecraft programs. By delaying critical development tasks, NASA increases the risk of future cost and schedule problems. NASA Program officials admit that this incremental development approach is not ideal but contend that it is the only feasible option given current funding levels.

As we reported in August 2013, even after the SLS and Orion are fully developed and ready to transport crew, NASA will continue to face significant challenges concerning the long-term sustainability of its human exploration program. For example, unless the Agency begins a program to develop landers and surface systems, NASA astronauts will be limited to orbital missions.

MANAGING NASA'S SCIENCE PORTFOLIO

With an annual budget of approximately $5 billion that supports more than 100 projects and programs, managing the Science Mission Directorate's extensive portfolio in the current budget and political environment poses significant challenges. With the prospect of static budgets for the foreseeable future, it is imperative that NASA work to keep projects on cost and schedule and, when necessary, make difficult choices between competing priorities.

James Webb Space Telescope

The James Webb Space Telescope (JWST) – successor to the Hubble Space Telescope and largest science project in NASA's portfolio – is expected to be the premier space-based observatory of the next decade. Like many NASA projects, the JWST has faced significant challenges meeting cost, schedule, and performance goals. Program cost estimates in the late 1990s and early 2000s ranged from $1 billion to $3.5 billion, with an expected launch date between 2007 and 2011. Today, the JWST's revised baseline life-cycle cost estimate is $8.84 billion and its expected launch date is October 2018. Although Program managers have made significant progress in the past 3 years, challenges remain that could affect the JWST's costs and schedule. Given NASA's history of taking funds from other programs when highly visible flagship missions experience significant cost growth, any future budgetary and programmatic challenges the JWST faces could negatively affect other projects in the Agency's science portfolio.

SOFIA – Stratospheric Observatory for Infrared Astronomy

The Stratospheric Observatory for Infrared Astronomy (SOFIA) Program – the second most expensive operating mission in NASA's science portfolio – uses a heavily modified Boeing 747SP fitted with a 2.7-meter telescope to study the universe. In 2014, the SOFIA Program reached full operational capability after 23 years of formulation and development at a cost of nearly $1.1 billion, more than 300 percent over original estimates and 13 years behind schedule. Although the Administration's fiscal year (FY) 2015 budget request proposed placing SOFIA in storage unless NASA could identify partners to subsidize its $80 million annual operating costs, Congress has continued to fund the Program.

In a July 2014 report, we examined the long-term demand and viability of SOFIA over its planned 20-year operational life. We found the Program faced immediate challenges as a result of the Administration's proposal to cease funding, including a possible delay of planned aircraft maintenance and loss of key personnel, while Congress debated whether to continue the Program. In addition, we identified several challenges NASA managers need to address to ensure the best possible return on NASA's investment in the Program. For example, NASA's plan to introduce new technology on SOFIA every 4 years may be too infrequent, and grants provided to researchers are often insufficient for them to complete projects and publish research results. Failure by NASA to address these issues could reduce demand for SOFIA and affect the quality of its science.

Ice, Cloud, and Land Elevation Satellite-2

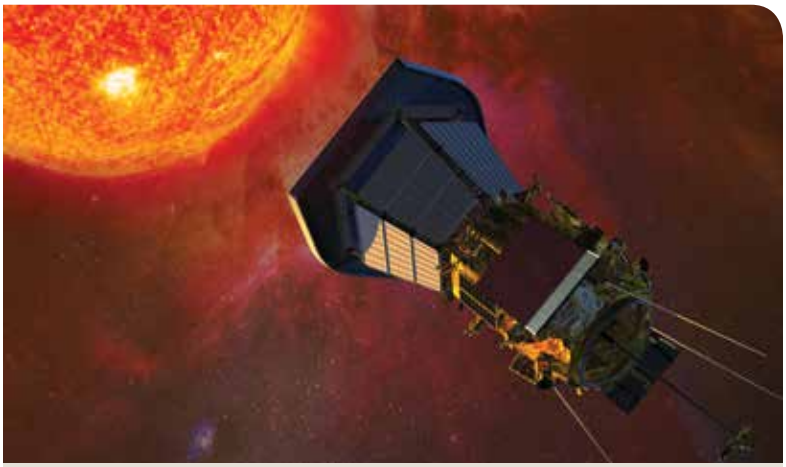
Using space-based lasers, the Ice, Cloud, and land Elevation Satellite-2 (ICESat-2) is designed to measure mass changes in the polar ice sheet in an effort to understand the mechanism driving the changes and the impact those changes will have on global sea levels. In December 2012, NASA established an $860.2 million life-cycle cost baseline for ICESat-2 and a May 2017 launch date. However, in January 2014, NASA reported to Congress that challenges in developing the laser instrument would cause ICESat-2 to exceed its budget and face launch delays. In May 2014, NASA approved a revised plan under which life-cycle costs rose to $1.06 billion and the launch date was delayed until June 2018. Implications of these delays reverberate across other NASA science platforms – specifically, NASA aircraft that will need to continue flying missions to observe the polar ice sheet until ICESat-2 is operational. Although the Earth Science Division Director stated that additional funding for ICESat-2 would be found within the Earth Science Division, he could not rule out delays to future projects as a result of the Project's increased cost.

Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer

The $1.1 billion Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer (OSIRIS-REx) mission is a sample return mission that will study a near-Earth asteroid. In November 2013, we concluded a preliminary review of OSIRIS-REx after finding that Project management has been controlling costs, meeting milestones, and achieving technical objectives. While OSIRIS-REx appears to be positioned to meet its October 2016 launch window – an opportunity that may not be available again for approximately 6 years given alignment issues between Earth and the target asteroid – a July 2014 fire at a contractor facility destroyed a component designed to house the mission's Visible-Infrared Spectrometer instrument and its associated hardware. Project managers are evaluating using a flight-ready spare while also constructing an additional spare unit. Although managers believe there is sufficient time in the schedule to accomplish the extra work, the schedule margin for the instrument has been reduced and the instrument likely will cost at least $400,000 more than estimated.

Solar Probe Plus

The Solar Probe Plus mission is designed to be the first to fly within the Sun's atmosphere (corona) to investigate coronal heating and the origin and evolution of solar wind. In 2009, while the Mission was still in early formulation, NASA recognized that higher budget priorities did not leave sufficient funding to support a launch in 2015 and determined that the next feasible launch window would be 2018. In March 2014, the Agency established a baseline life-cycle cost for the Mission of $1.55 billion and a launch date of July 2018. In addition, while NASA had already spent approximately $16 million designing and developing a high-performance upper stage for use on a modified Atlas V launch vehicle, Project management decided that utilizing a heavy-class vehicle would reduce risks and allow NASA to end development of the custom stage without increasing the launch budget. Unfortunately, by using a heavy-class launch vehicle, NASA could end up paying as much as $200 million more than originally budgeted.



Artist concept of NASA's Solar Probe Plus

Near-Earth Objects Observation Program

In 2005, Congress tasked NASA with implementing a program to find and track comets and asteroids, known as near-Earth objects (NEO), greater than 140 meters (460 feet) in diameter to assess their threat to Earth and set a goal for NASA to catalogue 90 percent of these NEOs by 2020. Although NASA's NEO Program budget has increased tenfold between FYs 2009 and 2014 (from $4 million to $40 million), the Agency will not be able to meet this goal. Despite the large funding increase and expanded responsibilities, the NEO Program's management structure remained organized under a single Program Executive who managed a loosely structured conglomerate of research activities that are not well integrated. In addition, the Program lacked an oversight framework, objectives, and established milestones to track progress. We concluded that the Program would be more efficient, effective, and transparent were it managed in accordance with standard NASA research program requirements.

ENSURING THE CONTINUED EFFICACY OF THE SPACE COMMUNICATIONS NETWORK

In 2006, NASA initiated the Space Communications and Navigation (SCaN) Program to create an integrated, Agency-wide space communications and navigation architecture. SCaN is composed of three networks: (1) the Near Earth Network, which covers low Earth orbit and portions of geosynchronous and lunar orbit; (2) the Space Network, which controls the Tracking and Data Relay Satellites through a network of geographically diverse ground systems; and (3) the Deep Space Network, which covers NASA communications beyond low Earth orbit, including planetary exploration missions to Mars and beyond. Without SCaN services, NASA could not receive data transmissions from its satellites and robotic missions or control these missions from Earth, and space hardware worth tens of billions of dollars would be little more than orbital debris. The OIG is examining the SCaN Program through a series of audits.

Our first audit focused on the Space Network and found that key components of the Network are not meeting planned cost, schedule, and performance goals. NASA plans to upgrade the Space Network through the Space Network Ground Segment Sustainment Project. The Project may cost $329 million more than NASA's baseline commitment agreement of $862 million, and the schedule for completion will likely be delayed more than 1.5 years. Further, because of budget reductions and the loss of other expected revenue, in FY 2016 the Space Network will not have sufficient funding to meet all planned service commitments. Taken together, the delays and cost growth increase the risk the Space Network will be unable to continue to provide adequate communication services to NASA missions and its customers.

Our second audit focused on the Deep Space Network, which NASA operates from three ground-based sites (Goldstone, California; Madrid, Spain; and Canberra, Australia), with one 70-meter antenna and multiple 34-meter antennas at each location for around-the-clock coverage. As part of an upgrade of the Deep Space Network, NASA is adding new 34-meter antennas at a cost of $393 million. The upgrades will support more missions and their increasingly complex data transfer requirements. For more information on this audit, see the Space Operations and Human Exploration section of this report.

OVERHAULING NASA'S INFORMATION TECHNOLOGY GOVERNANCE

For more than 2 decades, NASA has struggled to implement an effective information technology (IT) governance approach that aligns authority and responsibility commensurate with the Agency's overall mission. Because IT is intrinsic and pervasive throughout the Agency – NASA spends more than $1.5 billion annually on IT assets – NASA's IT governance structure directly affects its ability to attain its strategic goals. For this reason, effective IT governance must balance compliance, cost, risk, security, and mission success in order to meet the needs of internal and external stakeholders.

The decentralized nature of NASA's operations and its longstanding culture of autonomy hinder the Agency's ability to implement effective IT governance. NASA's Chief Information Officer (CIO) has limited visibility and control over a majority of the Agency's IT investments, operates in an organizational structure that marginalizes the authority of the position, and cannot enforce security measures across the Agency's computer networks. Moreover, the current IT governance structure is overly complex and does not function effectively, resulting in managers relying on informal relationships rather than formalized business processes when making IT-related decisions. By continuing to operate under a decentralized model that relegates decision making about critical IT issues to numerous individuals across the Agency, NASA's current IT governance model weakens accountability and does not ensure that IT assets across the Agency are cost effective and secure.

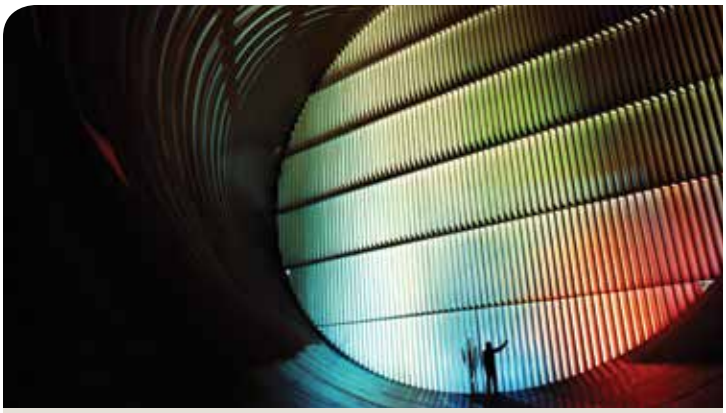
With mission-critical assets at stake and in an era of shrinking budgets, NASA must take a holistic approach to managing its portfolio of IT systems and make significant changes to its IT management decision-making structure, including realigning authority and responsibilities. In response to prior OIG recommendations, NASA has made the Agency CIO a direct report to the NASA Administrator and has completed an organizational assessment to determine if the CIO's Office has the appropriate number of personnel with the proper capabilities. Additionally, NASA is implementing phase two of a three-part overhaul of its IT governance model that entails reviewing and revising existing board charters, increasing CIO authority and visibility over Center IT assets including review and approval of IT purchases, and assessing the titles and roles of Center and mission CIOs to more clearly delineate their responsibilities.

ENSURING THE SECURITY OF NASA'S INFORMATION TECHNOLOGY SYSTEMS

NASA's large number of IT networks, coupled with its statutory mission to share scientific information, presents unique security challenges. For FYs 2013 and 2014, NASA reported 3,649 computer security incidents resulting in the installation of malicious software on or unauthorized access to Agency computers. Moreover, NASA's vast connectivity with outside organizations – most notably nongovernmental entities such as educational institutions and research facilities – offers cybercriminals a large target. NASA manages approximately 1,200 publicly accessible web applications, and in FY 2013 the Agency reported that exploitation of vulnerable web applications accounted for one-third (61 of 183) of the Agency's total IT security breaches.

Over the past 5 years, the OIG has issued more than 20 audit reports containing 65 recommendations designed to improve NASA's IT security. In July 2014, we examined NASA's efforts to identify and assess vulnerabilities on its publicly accessible web applications and mitigate the most severe vulnerabilities before hackers exploit them. While ongoing efforts to reduce its web presence and to identify and scan for vulnerabilities on its publicly accessible web applications have improved NASA's IT security, the Agency needs to close remaining security gaps, strengthen program oversight, and further reduce the number of publicly accessible web applications.

In addition, OIG investigators have conducted more than 110 investigations of breaches of NASA IT networks over the past 5 years, with several resulting in the arrests or convictions of foreign nationals. For example, the OIG helped secure indictments of six Estonian nationals involved in a cybercrime scheme that infected millions of computer systems worldwide, including NASA systems, with malicious software. The investigation resulted in more than $22 million in restitution and forfeiture orders and two guilty pleas, while legal proceedings for the other defendants continue.



16-Foot Transonic Wind Tunnel at NASA Langley Research Center

MANAGING NASA'S INFRASTRUCTURE AND FACILITIES

NASA is the ninth largest Federal Government property holder, controlling approximately 4,900 buildings and structures. More than 80 percent of the Agency's facilities are 40 or more years old and beyond their design life. Under its current policy, NASA is required to maintain these facilities either in an operational status or, if they are not being used, in sufficient condition not to pose a safety hazard. However, NASA has not been able to fully fund required maintenance for its facilities and in 2014 estimated its deferred maintenance costs at $2.4 billion.

Over the past 5 years, the OIG has conducted more than 12 audits examining NASA's efforts to manage its aging infrastructure. In one audit, we identified 33 facilities – including wind tunnels, test stands, thermal vacuum chambers, airfields, and launch infrastructure – at Centers across the country that NASA was not utilizing or for which the Agency could not identify a future mission use. These facilities cost the Agency more than $43 million to maintain in FY 2011 alone. We recommended NASA complete its ongoing comprehensive technical capabilities assessment and ensure that the process is established into policy; develop a mechanism for communicating its decisions regarding facilities to outside

stakeholders and ensure that the process is updated, documented, and established into policy; and implement changes to the NASA Technical Capabilities Database to improve data accuracy. According to Agency officials, responsive action is contingent upon completion of the work of NASA's Technical Capabilities Assessment Team, which NASA established in 2012 to assist in making informed decisions regarding investment and divestment strategies.

As an example of the difficulty NASA faces "right-sizing" its footprint, in a July 2014 audit, we examined NASA's Independent Verification and Validation (IV&V) Program, which assesses whether software associated with Agency science and spaceflight activities will meet program, cost, schedule, and safety requirements. The IV&V Program operates out of a facility in West Virginia owned and operated by the West Virginia University Research Corporation. We found that by continuing to occupy and maintain the West Virginia facility, NASA is paying more than necessary in operations and maintenance expenses, which leaves the Agency with less funding to perform actual IV&V services on NASA software projects. We estimated the Agency could save as much as $9.7 million between FYs 2015 and 2018 if the IV&V Program took steps to reduce costs associated with the facility and recommended NASA analyze alternatives for reducing occupancy costs associated with the facility.

In order to reduce its footprint, the Agency will need to move away from its longstanding "keep it in case you need it" mindset and overcome historical incentives for the Centers to build up and maintain unneeded capabilities. In addition, NASA officials need to manage the concerns of political leaders about the impacts eliminating or consolidating facilities will have on Centers' missions, workforces, and local communities. Ultimately, NASA's best efforts to address these challenges may be insufficient to overcome the cultural and political obstacles that have impeded past efforts to reduce Agency infrastructure. Accordingly, an outside process similar to the Department of Defense's Base Realignment and Closure Commission may be necessary to make these difficult but necessary decisions.

ENSURING THE INTEGRITY OF THE CONTRACTING AND GRANTS PROCESSES AND PROPER USE OF SPACE ACT AGREEMENTS

NASA spent approximately 80 percent of its $16.8 billion FY 2013 budget on contracts to procure goods and services and provide funding to grant and award recipients. In addition to these more conventional types of instruments, each year NASA enters into hundreds of Space Act Agreements to advance science and technology, stimulate new industries such as commercial spaceflight, and encourage companies to work with NASA that traditionally have not pursued more conventional agreements because of the complexity of regulatory requirements and associated costs.

Given the amount of taxpayer money NASA spends on contracts, managers face an ongoing challenge to ensure the Agency pays contractors in accordance with contract terms and receives fair value for its money. For its part, the OIG seeks to assist NASA by examining Agency-wide procurement processes; auditing individual contracts, grants, and cooperative agreements; and investigating potential misuse of contract and grant funds.

The OIG's work during the past year illustrated that NASA has significant work to do to improve its multibillion-dollar contracting and procurement operations. For example, in one audit we found NASA needs to significantly improve its "strategic sourcing" efforts. Strategic sourcing involves centralizing contracting decisions or using Government-wide contracts in an effort to lower prices and reduce administrative duplication. Although NASA procurement officials established a Strategic Sourcing Program in 2006, the Program has missed opportunities to maximize savings because it failed to develop a robust, Agency-wide

effort. In another audit, we examined NASA's process for closing out expired award instruments, including deobligating unused funds. While NASA has slowed the growth of its backlog of instruments awaiting closeout, it needs to make further improvements to its closeout process.

In addition, OIG investigators continue to uncover fraud and other problems related to NASA contracts. For example, a former executive pleaded guilty to fraud charges for misrepresenting his firm as a disadvantaged small business in order to secure more than $2.4 million in NASA security contracts. The executive was sentenced to 5 years in prison and ordered to forfeit $2.9 million in ill-gotten gains.

With respect to grant management, NASA faces the ongoing challenge of ensuring that the approximately $850 million in grants and cooperative agreements the Agency distributes each year are administered appropriately and that recipients are accomplishing stated goals. Over the past 5 years, the OIG has conducted 38 grant fraud investigations resulting in five prosecutions, $13.5 million in restitution and recoveries, and $15 million in civil settlements.

Finally, the OIG identified a number of issues related to NASA's use of Space Act Agreements, including that the Agency is unable to identify the costs incurred or effectively measure the benefits derived from some Agreements because it lacks a closeout process or similar mechanism to document results. In addition, we found that NASA could better ensure equal access to its facilities and capabilities and increase interest in Space Act Agreement opportunities by expanding its efforts to solicit a broader number of potentially interested parties.

2014 Report on NASA's Top Management and Performance Challenges (November 2014)

http://oig.nasa.gov/NASA2014ManagementChallenges.pdf (report); *http://oig.nasa.gov/Video/GRobinson_111414.html* (video)

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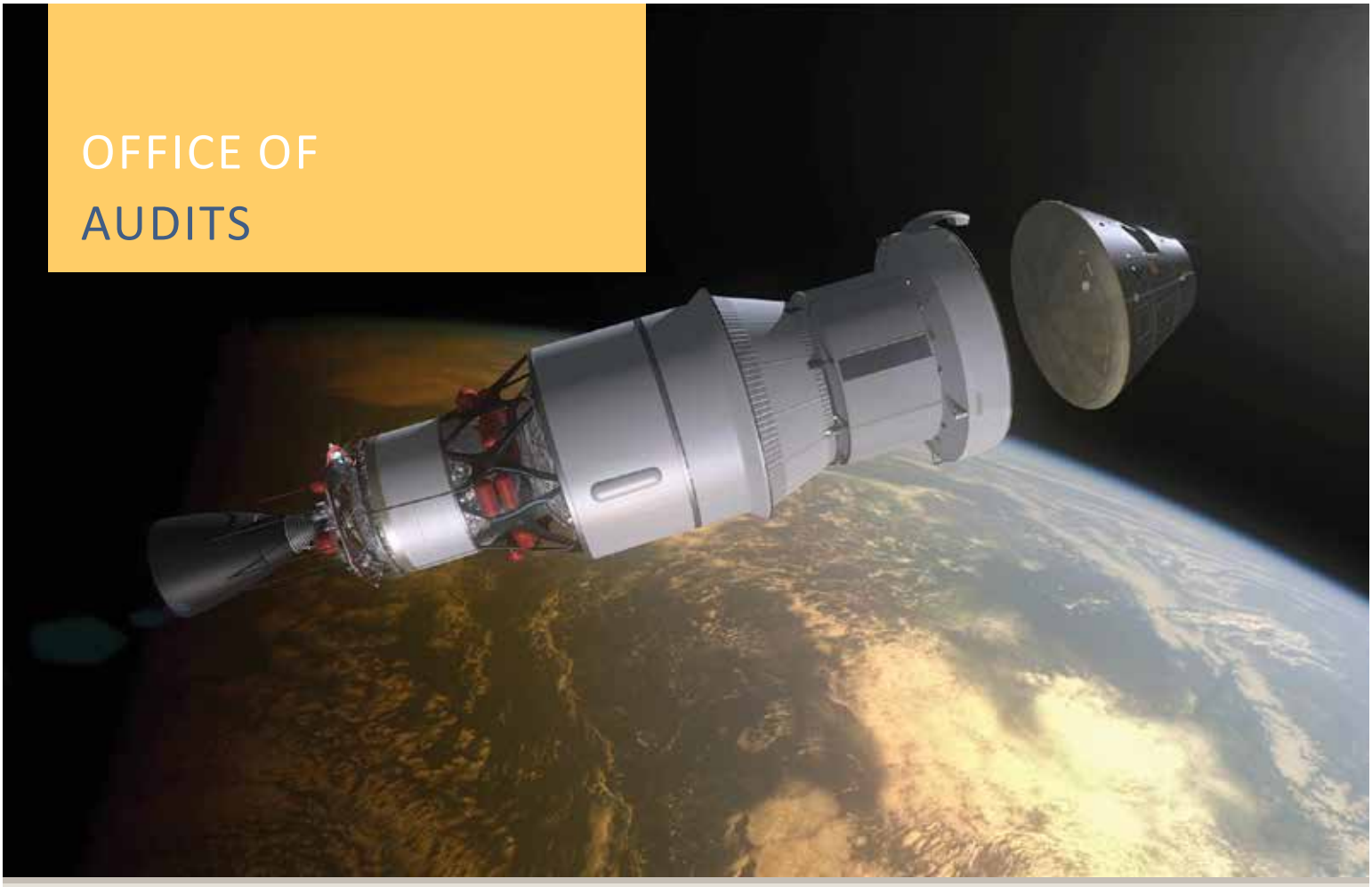


Artist concept of NASA's Exploration Flight Test-1

ACQUISITION AND PROJECT MANAGEMENT

Effective contract, grant, and project management continues to be a top challenge for NASA. Through our audits, the OIG helps ensure NASA engages in sound procurement and acquisition practices that provide the Agency and the taxpayer with the best value.

COSTS INCURRED ON NASA'S COST-TYPE CONTRACTS

NASA spends over 75 percent of its appropriated funding – $15.6 billion in FY 2013 – acquiring goods and services. More than half of the FY 2013 funds were associated with cost-type contracts in which NASA reimburses contractors for all allowable costs they incur producing or delivering the contracted good or service. Cost-type contracts pose a financial risk to NASA because they do not promise delivery of a good or service at a set price.

To mitigate the risk involved with the use of cost-type contracts, Federal regulation requires contractors to submit annual cost data, commonly referred to as an incurred cost proposal, for review and audit. Audits of incurred cost proposals assess whether the costs contractors charge the Government are properly applied to the contracts, sufficiently supported, and allowable. NASA generally has 6 years to recover any unallowable costs from the date an adequate incurred cost proposal is submitted. The Defense Contract Audit Agency (DCAA) performs incurred cost audits for NASA under a reimbursable agreement and estimates it has a 6-year backlog of more than 19,000 proposals awaiting review, including 1,153 proposals related to NASA contracts, about 39 percent of which predate 2009. In an effort to reduce this backlog, in 2012 DCAA changed its methodology for determining which proposals are selected for audit.

The OIG conducted this audit to examine whether NASA has established adequate procedures to ensure that the costs contractors pass on to the Agency in cost-type contracts are supportable, allowable, reasonable, and allocable. Specifically, we reviewed NASA's internal controls designed to prevent payment of excessive costs in these contracts.

NASA is at increased risk of paying unallowable, unreasonable, and unallocable incurred costs and of losing the opportunity to recoup improper costs because Agency contracting officers rely too heavily on DCAA's incurred cost audit process. Under its new risk-based methodology, DCAA has significantly decreased the number of contractor proposals it audits in an effort to reduce its 6-year backlog. However, NASA contracting officers generally wait for a DCAA audit and do not perform additional oversight to ensure the appropriateness of contractor costs. NASA also has not strengthened its internal controls to account for the significant reduction in DCAA oversight of Agency cost-type contracts. In addition, NASA's reliance on DCAA is inhibiting the Agency's efforts to close out awards in a timely manner, which further delays the identification of questionable costs and limits availability of excess funds for other uses.

To assist NASA in strengthening Agency internal controls, we recommended the Assistant Administrator for Procurement (1) revise the NASA Federal Acquisition Regulation Supplement to allow independent public accounting firms to provide supplemental audit coverage for NASA contracts where DCAA cannot be responsive to NASA's need for an audit; (2) enhance NASA's existing review of NASA forms 533M, 533Q, and/or vouchers to require periodic sampling and obtain detailed supporting documentation to validate the accuracy and completeness of information reported; (3) strengthen controls to ensure NASA contracting officers are performing and documenting periodic compensation reviews for cost-reimbursement service contracts with a potential value in excess of $500,000 at least every 3 years; (4) require contracting officers to communicate with DCAA and obtain and document in the contract file the status of any incurred cost audits, and if an incurred cost audit has not been performed, require the contracting officer to document the reasons and obtain information on if or when it will be completed; and (5) in concert with our other recommendations, develop a methodology (statistical sample or risk-based approach) for increasing audit oversight of incurred cost proposals that do not meet DCAA's parameters for review. NASA agreed to take actions to address each of our recommendations.

Costs Incurred on NASA's Cost-Type Contracts (IG-15-010, December 17, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-010.pdf (report)

NASA'S USE OF BLANKET PURCHASE AGREEMENTS

Vigorous competition between vendors is the cornerstone of an effective Federal acquisition system because it saves the taxpayer money, improves contractor performance, and promotes confidence in the system's fairness. Executive orders, statutes, and regulations direct Federal contracting officials to seek competition to the fullest extent possible in procurements, including when purchasing goods and services using blanket purchase agreements (BPA or agreement). A simplified method of acquiring goods and services, BPAs establish terms and conditions, including prices, between a Federal agency and vendors for commonly used goods and services.

NASA uses two types of BPAs – General Services Administration (GSA) schedule agreements, which incorporate the terms and conditions of an underlying GSA contract, and NASA-specific agreements – to purchase items such as copier paper and services such as engineering research support. In FYs 2011 and 2012, NASA obligated more than $248 million through 5,529 BPA orders.

The OIG initiated this audit to determine whether NASA was maximizing opportunities for savings by establishing GSA schedule agreements with multiple vendors rather than a single vendor, requesting price discounts on GSA schedule agreements, and obtaining sufficient competition on delivery orders issued under NASA-specific agreements. We reviewed a sample of BPA orders consisting of 23 orders obtained using 14 different GSA schedule agreements and 34 NASA-specific BPA orders. NASA-specific BPAs were awarded by the Goddard Space Flight Center's Advanced Manufacturing Branch, which operates an in-house fabrication shop to manufacture parts for Center science and engineering programs and projects.

NASA contracting officials have not maximized competition when awarding BPAs. Specifically, for nine of the GSA schedule agreements, contracting officials established single- rather than multiple-award agreements without preparing written justifications or failed to request price discounts from vendors when establishing the agreements. Moreover, for 12 of the GSA agreements, contracting officials failed to conduct required annual reviews. These deficiencies occurred because contracting officials

were unaware of requirements or wanted to avoid the additional effort required to compete orders. For NASA-specific agreements, 27 of the 34 orders (79 percent) had no more than 2 bids that met both the technical and schedule requirements of the solicitation (conforming bids) and 20 (59 percent) were awarded with a single conforming bid. In our judgment, the Advanced Manufacturing Branch missed opportunities to obtain lower costs by not seeking greater competition.

To comply with Federal requirements and maximize NASA's savings opportunities when using BPAs, we recommended NASA's Assistant Administrator for Procurement (1) establish guidance or procedures to ensure contracting officials prepare written justifications for single-awards, (2) request vendor discounts more frequently, and (3) conduct required annual reviews. We also recommended the Advanced Manufacturing Branch make process improvements to increase the likelihood it will receive more conforming bids on BPA solicitations. NASA concurred with each of the recommendations and proposed corrective actions.

NASA's Use of Blanket Purchase Agreements (IG-15-009, December 16, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-009.pdf (report)

THE SCIENCE MISSION DIRECTORATE'S MISSION EXTENSION PROCESS

NASA's Science Mission Directorate (SMD) spends approximately $5 billion annually on a broad portfolio of more than 90 missions and related research, including Earth- and Sun-observing satellites, Mars rovers, planetary orbiters, sounding rockets, and balloons. NASA designs these missions to operate for a set period of time – generally from 1 to several years. However, the Agency often extends missions beyond their initial operations phase when it determines the scientific return will be worth the continued investment. In FY 2013, NASA budgeted $501.6 million for 41 SMD missions in extended operations.

The NASA Authorization Act of 2005 requires the NASA Administrator to conduct biennial reviews in each of SMD's four science divisions – Astrophysics, Earth Science, Heliophysics, and Planetary Science – to assess the cost and benefits of extending missions that have exceeded their planned operational lives. SMD uses a process known as the Senior Review to conduct these assessments. The purpose of the Senior Review is to determine the value of extending mission operations and to maximize the scientific returns of projects given the Agency's constrained budget. The OIG examined SMD's expenditures for mission operations services, including the process used to decide whether to extend missions beyond the primary operations phase.

The Astrophysics, Earth Science, and Heliophysics Divisions conducted Senior Reviews that included all eligible projects and provided budgetary and programmatic guidance for these missions for up to 5 fiscal years. In contrast, the Planetary Science Division's Senior Review process focused too narrowly on the short term and unnecessarily excluded some projects. For example, the Division's January 2014 call letter only asked project managers to propose science operations for FYs 2015 and 2016. In addition, the Division had no documented rationale for extended mission budget guidelines. These shortcomings impair the Planetary Science Division's ability to inform its budget formulation process and ensure the effectiveness and transparency of its Senior Review process.

In addition, while the four SMD Divisions provided project teams with guidance suggesting which projects in extended operations should function at reduced costs – the Astrophysics and Heliophysics Divisions specified a budget of approximately one-third less than when in prime operations – actual costs for most missions were well above this "mission extension paradigm." Specifically,

only 1 of 22 projects that transitioned to extended operations between FYs 2005 and 2013 received a funding reduction at or greater than the stated target of 33 percent in their first year of extended operations. Moreover, 10 of the 22 projects (45 percent) actually received more funding after moving into extended operations.

To improve the effectiveness of the Planetary Science Division's Senior Review process and ensure consistency with NASA mission priorities and budget requirements, we made four recommendations, including that the Senior Review provide budgetary and program guidance for 4 fiscal years and SMD develop a standardized approach to mission extension funding that clearly articulates and consistently implements expectations. NASA concurred with each of the recommendations and proposed corrective actions.

The Science Mission Directorate's Mission Extension Process (IG-15-001, October 9, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-001.pdf (report)

ONGOING AUDIT WORK

Audit of NASA's Joint Cost and Schedule Confidence Level Process

To improve the accuracy of its cost and schedule estimates, in 2009 NASA implemented a policy requiring programs and projects to be funded at a level that ensures a 70 percent probability they will be completed at or lower than the estimated budget and on or before schedule. We are reviewing NASA's implementation of this Joint Cost and Schedule Confidence Level process.

Audit of NASA's Engineering Services Contract at Kennedy Space Center

Kennedy's $1.9 billion engineering services contract – one of NASA's largest – provides the Center with engineering and technology development, spaceflight systems engineering support, and laboratory operational services. We are examining whether NASA is appropriately managing the contract to accomplish mission goals in a timely and cost-effective manner.

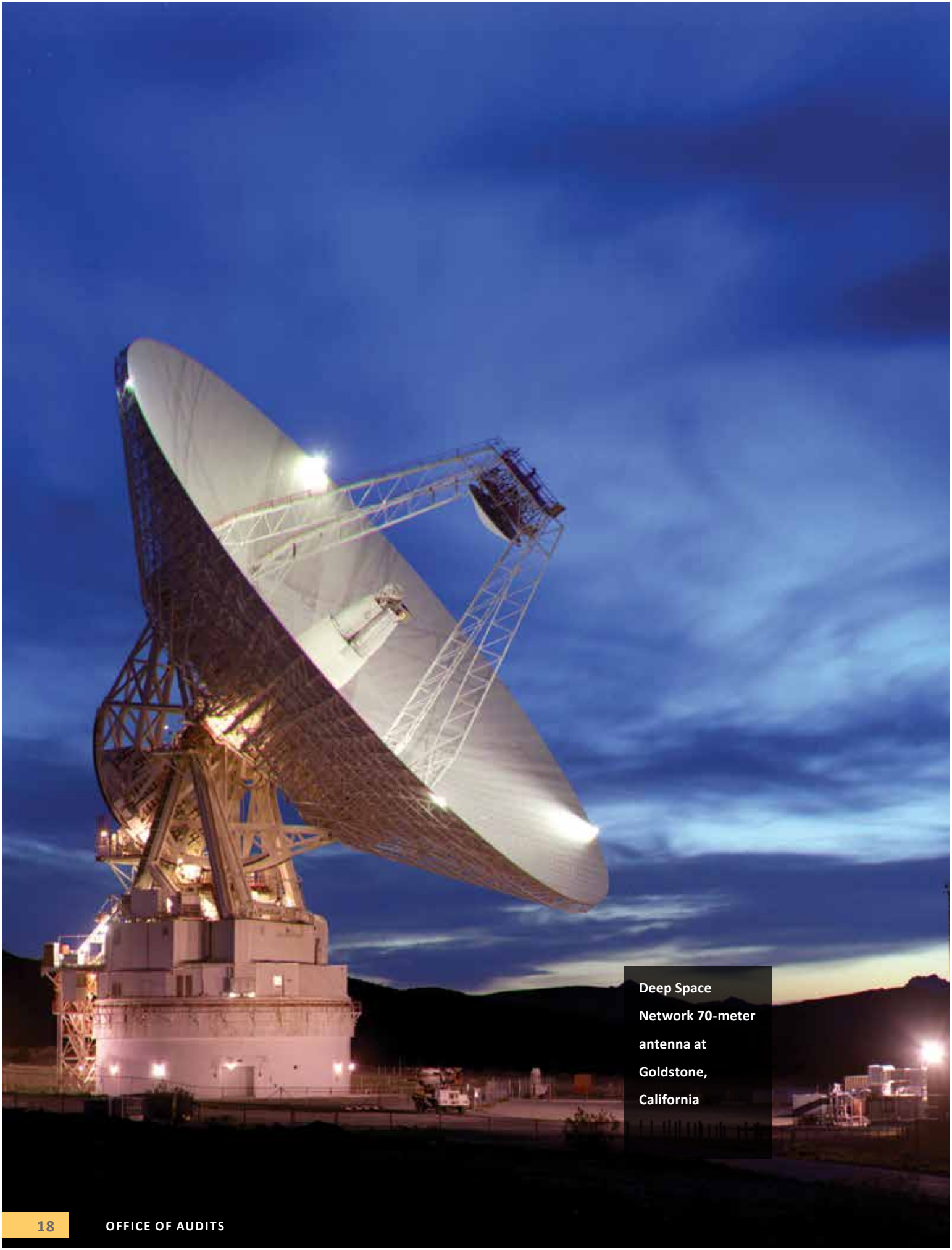
Audit of NASA's Cooperative Agreement Awarded to the City of New Orleans

NASA awarded a $2.1 million cooperative agreement to the City of New Orleans for fire protection services supporting the Michoud Assembly Facility in 2011. We initiated this audit to determine whether the City of New Orleans used NASA's cooperative agreement funds for their intended purpose and whether costs associated are allowable, reasonable, and in accordance with applicable laws, regulations and guidelines, and terms of the award. We are also reviewing NASA's administration of the agreement.

Audit of NASA's Cooperative Agreements Awarded to Wise County Circuit Court

Using cooperative agreements, NASA works with state and local government agencies and other organizations to support its DEVELOP National Program, a national initiative that addresses environmental and public policy issues through research projects that utilize NASA's Earth observations. We are examining two DEVELOP agreements NASA awarded to the Wise County Circuit Court in Virginia totaling approximately $8.1 million (the Circuit Court is responsible for managing program activities for the county).

NASA's Orion spacecraft is positioned inside the Launch Abort System Facility at NASA's Kennedy Space Center.



Deep Space Network 70-meter antenna at Goldstone, California

SPACE OPERATIONS AND HUMAN EXPLORATION

Space operations and human exploration are among NASA's highest visibility missions. Key challenges facing the Agency include supporting ISS operations until 2024, bringing to fruition efforts to develop commercial crew transportation to the ISS, and developing the SLS and Orion and the advanced technologies and supporting infrastructure needed for human exploration beyond low Earth orbit.

NASA'S MANAGEMENT OF THE DEEP SPACE NETWORK

NASA established the Deep Space Network (DSN or Network) as a central component of its space communications and navigation capability to provide deep space missions with the tracking, telemetry, and command services needed to control spacecraft and transmit data. The Network operates antennas and transmitters at communications complexes in Goldstone, California; Madrid, Spain; and Canberra, Australia. NASA contracts with the Jet Propulsion Laboratory (JPL) for the Goldstone Complex and with the Spanish and Australian governments to manage day-to-day operations at the foreign sites. During FY 2014, DSN supported more than 30 missions, including the launch and orbit insertions of NASA's Mars Atmosphere and Volatile EvolutioN Mission and the Indian Space Agency's Mars Orbiter Mission.

The OIG examined whether DSN is positioned to meet its current and future commitments and is appropriately managing IT and physical security risks. We also considered whether NASA is effectively administering the contracts relating to the foreign sites.

Although DSN is currently meeting its operational commitments, budget reductions have challenged the Network's ability to maintain these performance levels and threaten future reliability. In FY 2009, DSN implemented a plan to achieve $226.9 million in savings over 10 years and use most of that savings to build new antennas and transmitters. However, in FY 2013, the SCaN Program cut the Network's budget by $101.3 million, causing DSN to delay upgrades, close antennas, and cancel or replan tasks. In addition, SCaN officials are considering additional cuts for DSN in FY 2016 that would further delay maintenance and upgrade tasks. Finally, despite these reductions, DSN has not updated life-cycle costs for the upgrade project or performed a detailed funding profile for the SCaN Program beyond FY 2018, making it difficult to effectively plan and justify funding for the project and DSN's future commitments. If budget reductions continue, DSN faces an increased risk that it will be unable to meet future operational commitments or complete the upgrade project on schedule.

NASA, JPL, and DSN have significantly deviated from Federal and Agency policies, standards, and governance methodologies for securing the Network's IT and physical infrastructure. Specifically, JPL's system security categorization process did not consider all DSN mission functions, its IT security database inventory was inaccurate, vulnerability identification and mitigation practices were not in accordance with Agency policy, security configuration baseline application did not comply with Federal and Agency policy, and NASA's Security Operations Center was not adequately integrated into JPL's computer network operations. Further, required physical security controls were missing or inconsistently implemented at the three Complexes, procedures to assign security level designations did not comply with NASA policy, required facility security assessments had not been completed, and security waivers or other risk acceptance documentation were not consistently in place for the missing controls. As a result, DSN's IT and physical infrastructure may be unnecessarily vulnerable to compromise.

Finally, NASA has not required that the Madrid contractor provide detailed cost support for contract expenses on a timely basis or ensured that the DCAA performed incurred cost audits of the Madrid and Canberra contracts on a routine basis. Consequently, NASA cannot ensure that approximately $37 million in annual payments made to the Madrid and Canberra contractors are allocable, allowable, and reasonable.

We made 12 recommendations, including that NASA (1) obtain a realistic, accurate, and transparent budget that supports the Network's ability to provide communication services; (2) ensure DSN follows established IT security policies, standards, and governance methodologies; (3) develop a strategy for implementing evolving IT and physical security policies at JPL through means that minimize time-consuming negotiation of formal contract modifications; (4) ensure physical security requirements are implemented consistently across the DSN Complexes; and (5) improve oversight of DSN's foreign contracts. NASA concurred with the recommendations and proposed corrective actions.

NASA's Management of the Deep Space Network (IG-15-013, March 26, 2015)

http://oig.nasa.gov/audits/reports/FY15/IG-15-013.pdf (report); *http://oig.nasa.gov/Video/RBowman_03262015.html* (video)

NASA'S LAUNCH SUPPORT AND INFRASTRUCTURE MODERNIZATION: ASSESSMENT OF THE GROUND SYSTEMS NEEDED TO LAUNCH SLS AND ORION

Kennedy is working to revamp decades-old infrastructure and transform itself into a multiuser spaceport able to accommodate both commercial spaceflight companies and the SLS and Orion. NASA has spent more than $975 million on modernization efforts at Kennedy over the last 5 years and anticipates spending an additional $2.4 billion over the next 5 years to upgrade infrastructure, including Launch Pad 39B, the Mobile Launcher, a crawler-transporter, and the Vehicle Assembly Building, as well as develop the software necessary to integrate and launch the SLS and Orion. The Agency's GSDO Program is leading this effort. The OIG evaluated whether the GSDO Program is meeting cost, schedule, and technical performance goals as it prepares Kennedy to launch the SLS and Orion on Exploration Mission 1 by the current target date of no later than November 2018.

GSDO has made steady progress on the major equipment and facilities modernization initiatives needed to launch SLS and Orion, but significant technical and programmatic challenges remain in order to meet a November 2018 launch date. For the most part, these challenges originate from interdependencies between the GSDO, SLS, and Orion Programs. In short, the GSDO Program cannot finalize and complete its requirements

without substantial input from the other two Programs, and NASA is still finalizing the requirements for those Programs. Specifically, GSDO must overcome (1) a short timeframe for performing verification and validation testing between the Mobile Launcher, Vehicle Assembly Building, and Launch Pad 39B; (2) receipt of data and hardware regarding Orion later than planned; (3) the potential that integrated operations for Exploration Mission 1 may take longer than expected; and (4) most significantly, delays associated with development of command and control software.

GSDO was scheduled to complete a significant development milestone known as the Critical Design Review in March 2015, several months before the SLS and Orion. The purpose of the Critical Design Review is to demonstrate that a project's design is sufficiently mature to proceed to full-scale fabrication, assembly, integration, and testing and that technical aspects are on track to meet performance requirements within identified cost and schedule constraints. Given the many interdependencies between the Programs, a schedule that has GSDO completing Critical Design Review prior to the other two Programs increases the risk GSDO may experience schedule delays or be required to perform costly redesign work.

Coordinating and integrating development of three individual programs to meet a common milestone date presents a unique challenge, particularly since NASA historically has used a single program structure to manage similar efforts such as the Apollo and Space Shuttle Programs. In lieu of a central management structure for the GSDO, SLS, and Orion Programs, NASA established a Cross-Program System Integration structure that designates leaders from each Program to coordinate and align the Programs' development schedules. It is too early to say whether these substantial coordination challenges will result in cost or schedule issues for the Exploration Mission 1 launch, and new issues are likely to be uncovered during integration – the point at which, historically, most projects encounter technical problems that impact cost and schedule. Given these challenges, NASA's coordination efforts among the GSDO, SLS, and Orion Programs are essential to successfully meeting the Agency's human exploration goals.

In order to decrease the risk that the GSDO Program will experience cost increases or schedule delays, we recommended the Associate Administrator for Human Exploration and Operations reevaluate allowing GSDO to complete the Critical Design Review before the SLS and Orion. NASA concurred with the recommendation and proposed to hold the flight systems reviews after the GSDO review. However, management noted a risk the SLS and Orion dates could slip, allowing the GSDO review to occur first.

NASA's Launch Support and Infrastructure Modernization: Assessment of the Ground Systems Needed to Launch SLS and Orion (IG-15-012, March 18, 2015)

http://oig.nasa.gov/audits/reports/FY15/IG-15-012.pdf (report);
http://oig.nasa.gov/Video/JMorrison_03172015.html (video)

NASA'S LAUNCH SUPPORT AND INFRASTRUCTURE MODERNIZATION: COMMERCIAL SPACE LAUNCH ACTIVITIES AT KENNEDY SPACE CENTER

As part of the transition from a complex used solely for Government launches to a multiuser spaceport hosting both Government and commercial launches, Kennedy officials identified 23 underutilized assets suitable for lease to commercial partners ranging from launch pads to runways to Space Shuttle support buildings. In April 2014, Kennedy agreed to lease Launch Pad 39A to SpaceX, one of two companies recently awarded a contract to develop commercial crew transportation services to the ISS and with whom NASA has a $1.6 billion contract for cargo deliveries to the Station. In this audit, the OIG examined Kennedy's efforts to become a multiuser

spaceport. Specifically, we assessed whether NASA has controls in place to enable full and open competition for underutilized Kennedy property leased to outside entities and whether the Agency effectively mitigated barriers that can inhibit private companies from operating at the site.

Kennedy has made progress in its effort to become a multiuser spaceport, having leased or in the process of negotiating leases for approximately half of the 23 underutilized assets. However, because NASA lacks clear guidance regarding soliciting and awarding lease agreements, Kennedy has not consistently provided interested parties with information regarding how Center officials would choose among prospective tenants. Though NASA clearly stated its evaluation criteria and provided reasonable justification for leasing Launch Pad 39A to SpaceX, Kennedy's initial approach when soliciting interest in the facility and inconsistent communication with potential tenants engendered confusion. Improved guidance on how and when to use competition for leasing, coupled with improved communication with prospective tenants, would help the process run more smoothly and lessen any perception of favoritism.

In addition, Kennedy faces growing competition from commercial spaceports operated by non-Federal entities. In September 2012, Space Florida submitted to NASA a proposal on behalf of the State of Florida requesting transfer of approximately 150–200 acres of Kennedy property in the area generally known as Shiloh with the goal of creating a commercial spaceport at the Center's doorstep. Kennedy officials contend the land serves as a buffer zone between NASA operations and local communities and is a potential site for future mission requirements; however, officials were unable to provide any details as to the need for the buffer zone or information about specific future missions involving the property.

Commercial companies identified four main constraints to operating at Kennedy: (1) possible conflicts between their operations and Federal missions, (2) the time-consuming and bureaucratic nature of the Center's safety review process, (3) issues with getting personnel timely access to facilities, and (4) difficulty obtaining services such as specialized launch support equipment or technical consulting. Although Kennedy has taken steps to address these issues, company officials continue to express concern, noting that although these constraints have not yet deterred them from conducting business with Kennedy, this may change as the commercial space industry grows and additional non-Federal launch sites become available. Accordingly, the better Kennedy can position itself now as a commercial-friendly launch site, the more competitive it will be in the future.

In order to ensure competition in the leasing process and address issues that may discourage commercial companies from leasing Kennedy property, we recommended the Associate Administrator for Mission Support clarify Agency guidance regarding the leasing process and take steps to reduce the cost and burdens associated with conducting commercial business at the Center.

NASA's Launch Support and Infrastructure Modernization: Commercial Space Launch Activities at Kennedy Space Center
(IG-15-003, October 23, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-003.pdf (report);
http://oig.nasa.gov/Video/JMorrison_102314.html (video)

ONGOING AUDIT WORK

Audit of NASA's Efforts to Manage Health and Human Performance Risks for Long-Duration Space Exploration

Human spaceflight involves a high degree of risk. Accordingly, NASA must make decisions that balance human health and safety, technological feasibility, and financial costs. We are examining NASA's efforts to balance these issues while planning for human exploration beyond low Earth orbit.

Audit of the Orion Multi-Purpose Crew Vehicle

NASA is developing Orion to take astronauts beyond low Earth orbit with a first crewed flight expected in 2021. This follow-up audit is evaluating NASA's management of the Orion Program relative to achieving technical objectives, meeting milestones, and controlling costs.

Review of NASA's Efforts to Partner with International Space Agencies

NASA leverages partnerships with international space agencies as a way to share the costs, risks, and rewards of its various programs. However, NASA faces financial, political, and legal constraints that may impede international cooperation. We are examining NASA's efforts to partner with international space agencies on science and space exploration projects.

NASA's Plans to Resupply the International Space Station in Light of Orbital's Launch Failure

In late October 2014, Orbital's third resupply mission failed shortly after launch from NASA's Wallops Flight Facility in Virginia, destroying 4,800 pounds of science and research, crew supplies, and vehicle hardware bound for the ISS. As a follow-up to our work on NASA's management of its commercial cargo program, we are examining NASA's efforts to ensure the ISS is adequately supplied in light of the failure and to ensure a safe return-to-flight for Orbital's vehicles.

NASA's Management of Space Technology Projects

To enable crewed missions to reach destinations beyond the Moon beginning in 2025 and crewed missions to orbit Mars by the mid-2030s, NASA has invested in a large number of exploration technology projects. We are examining NASA's management of these projects.

NASA's Management of International Space Station Contracts

NASA spent almost $3 billion to operate the ISS in 2014, and costs are expected to increase to nearly $4 billion by 2020. The ISS Program is supported by at least 33 major contracts valued at approximately $34 billion. We are assessing NASA's administration and oversight of the operations and maintenance contracts to identify potential cost savings.

Mini supernova – picture taken by NASA's Chandra X-ray Observatory

INFORMATION TECHNOLOGY SECURITY AND GOVERNANCE

NASA's portfolio of IT assets includes more than 550 information systems that control spacecraft, collect and process scientific data, and enable NASA personnel to collaborate with colleagues around the world. Achieving the Agency's IT security goals will require sustained improvements in NASA's overarching IT management practices and governance.

FEDERAL INFORMATION SECURITY MANAGEMENT ACT: FISCAL YEAR 2014 EVALUATION

This annual report, submitted as a memorandum from the Inspector General to the NASA Administrator, provides the OIG's independent assessment of NASA's IT security posture. For FY 2014, we adopted a risk-based approach and reviewed a sample of 24 Agency and contractor IT systems.

Overall, NASA has established a program to address the challenges in each of the areas the Office of Management and Budget identified for the 2014 Federal Information Security Management Act (FISMA) review. However, the Agency needs to make additional progress in three areas: configuration management, risk management, and contractor system issues.

This report addressed the 11 required areas of review for FY 2014 FISMA reporting:

- Continuous Monitoring Management
- Configuration Management
- Identity and Access Management
- Incident Response and Reporting
- Risk Management
- Security Training
- Plan of Action and Milestones
- Remote Access Management
- Contingency Planning
- Contractor Systems
- Security Capital Planning

The OIG concluded that NASA, by implementing previous recommendations and taking other actions, is steadily working to improve its overall IT security posture. Nevertheless, as NASA works to develop more effective IT governance and risk management practices, IT security remains a significant challenge for the Agency. We will continue to assess NASA's IT security program through focused audits of discrete issues as well as through annual FISMA reviews.

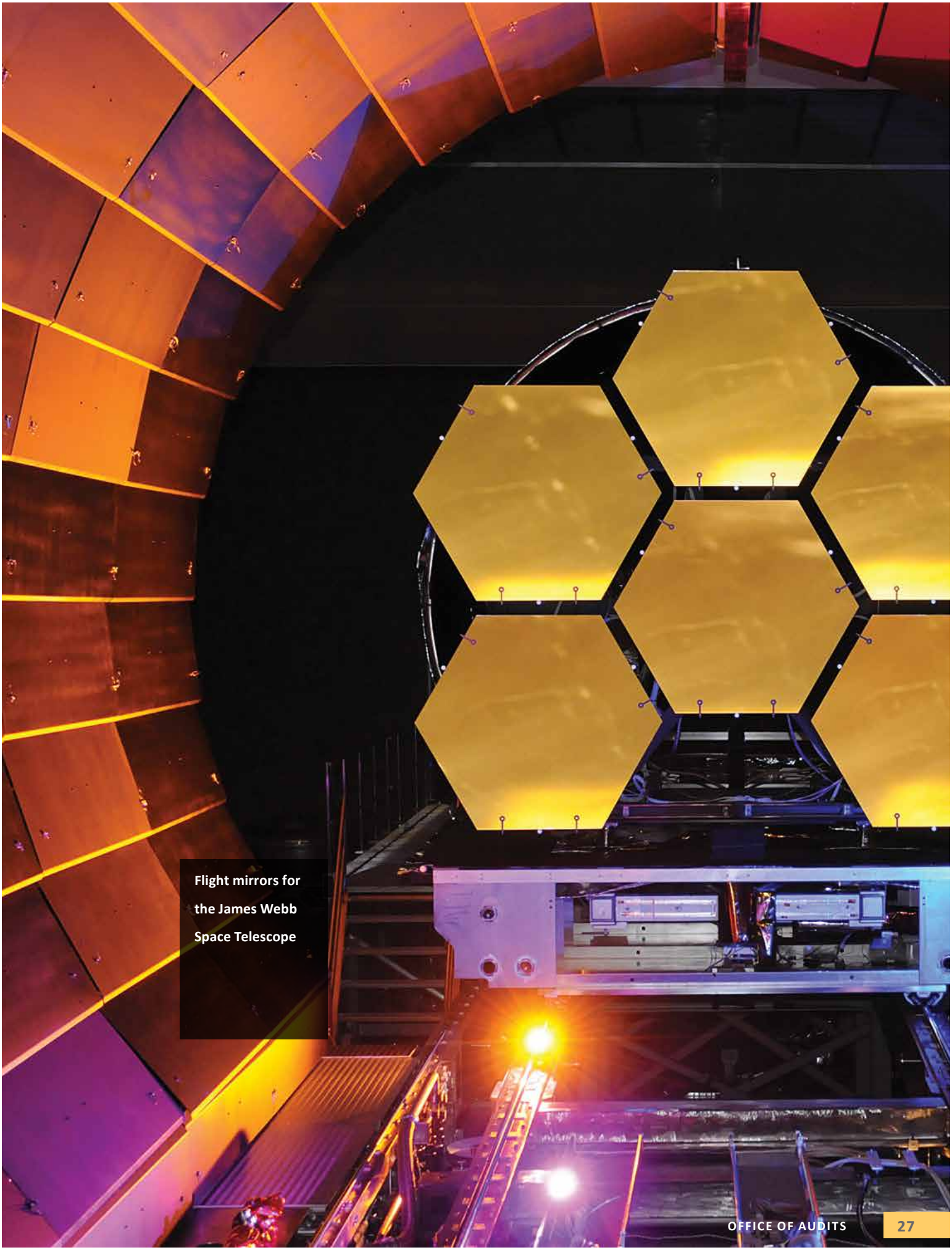
Federal Information Security Management Act: Fiscal Year 2014 Evaluation (IG-15-004, November 13, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-004.pdf (summary)

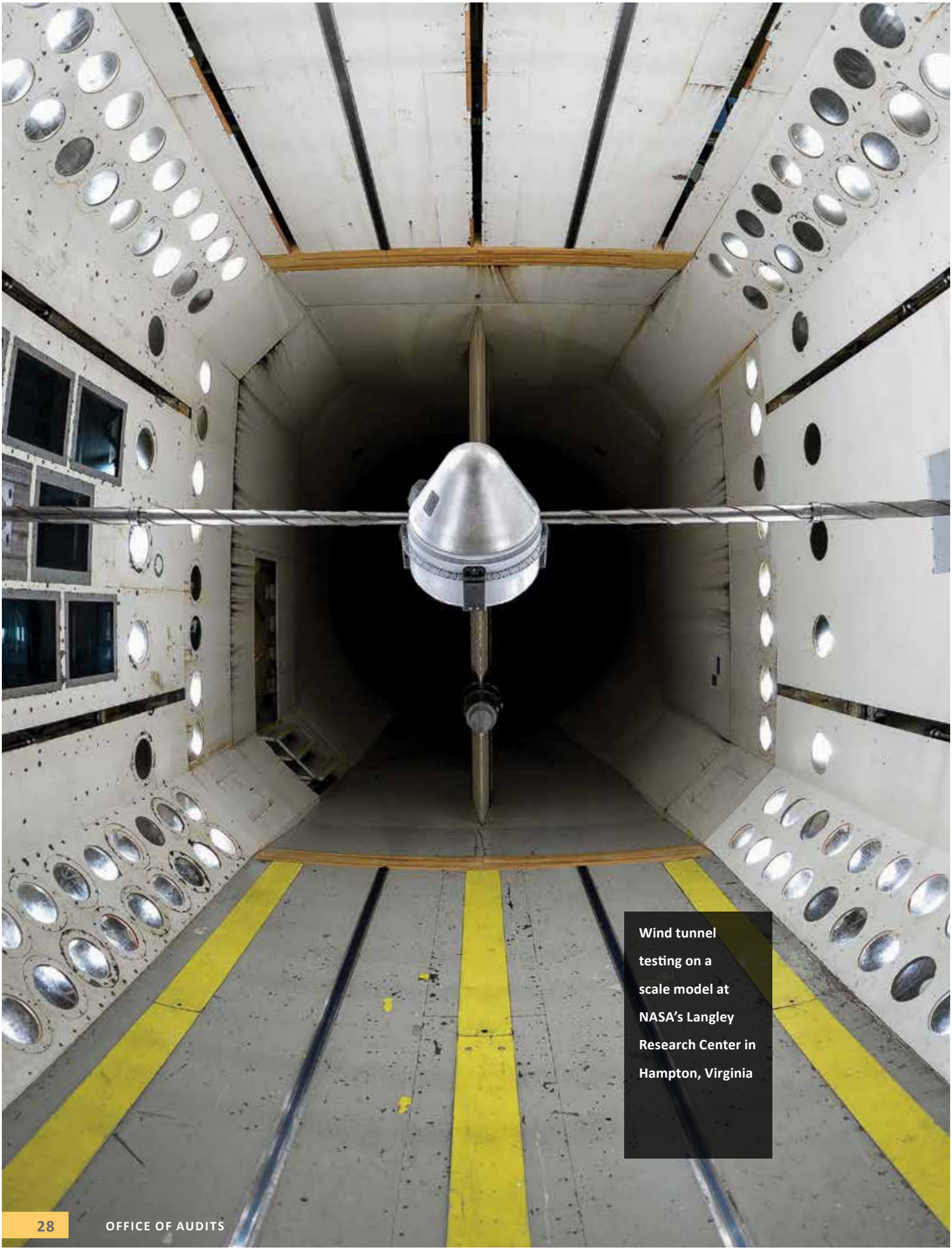
ONGOING AUDIT WORK

NASA's Compliance with the Federal Information Security Management Act for Fiscal Year 2015

In this required annual audit, the OIG is evaluating NASA's IT security program against the 2015 FISMA metrics. We are reviewing a sample of NASA- and contractor-owned information systems to assess the effectiveness of the information security policies, procedures, standards, and guidelines. Additionally, we are determining whether deficiencies identified in the 2014 FISMA review have been addressed.



Flight mirrors for the James Webb Space Telescope



Wind tunnel testing on a scale model at NASA's Langley Research Center in Hampton, Virginia

INSTITUTIONAL AND FACILITY MANAGEMENT

NASA's real property includes more than 4,900 buildings and other structures such as wind tunnels, laboratories, launch pads, and test stands occupying 44 million square feet and valued at more than $30 billion. Over 80 percent of these facilities are more than 40 years old and reaching the end of their design lifespans. The OIG continues to monitor the challenge NASA faces managing this extensive and aging portfolio.

ONGOING AUDIT WORK

Audit of NASA's Plum Brook Station

NASA's Plum Brook Station is a 6,400-acre test installation in Sandusky, Ohio, 50 miles west of the Glenn Research Center. We are assessing the cost of operating and maintaining Plum Brook relative to utilization and future requirements for the site.

Audit of NASA's Pressure Vessels and Systems Program

A pressure vessel is a storage tank or cylinder designed to deliver compressed gases or liquids. NASA uses a wide variety of these systems, and the Agency's associated investment is estimated to exceed $10 billion. Because of the large amounts of energy they store, pressure vessels and systems can be extremely hazardous, and NASA has experienced a number of failures over the years. We are assessing whether NASA is effectively managing its pressure vessel program to protect lives and assets and ensure reliable operation.

Moon over Earth's horizon viewed from the ISS

FINANCIAL MANAGEMENT

The OIG and NASA's independent external audit firm continue to assess the Agency's efforts to improve its financial management practices and make recommendations to address identified weaknesses.

AUDIT OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S FISCAL YEAR 2014 FINANCIAL STATEMENTS

The OIG contracted with the independent public accounting firm PricewaterhouseCoopers LLP (PwC) to audit NASA's FY 2014 financial statements. PwC performed the audit in accordance with the Government Accountability Office's Government Auditing Standards and the Office of Management and Budget's Bulletin No. 14-02, "Audit Requirements for Federal Financial Statements."

The audit resulted in an unmodified opinion on NASA's FY 2014 financial statements. An unmodified or "clean" audit opinion means that the financial statements present fairly, in all material respects, the financial position and the results of NASA's operations in conformity with U.S. generally accepted accounting principles (IG-15-006).

PwC also issued reports on NASA's internal control and compliance with laws and regulations. PwC reported no material weaknesses or significant deficiencies in internal control and identified no instances of significant noncompliance with applicable laws and regulations. However, PwC identified deficiencies of a lesser magnitude and reported them to the Chief Financial Officer and the Chief Information Officer (IG-15-008). Finally, PwC provided an unmodified opinion on NASA's closing package financial statements (IG-15-007).

Audit of the National Aeronautics and Space Administration's Fiscal Year 2014 Financial Statements (IG-15-006, November 14, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-006.pdf (summary)

AUDIT OF NASA'S PREMIUM AIR TRAVEL

With limited exceptions, GSA's Federal Travel Regulation requires Federal travelers to use coach-class accommodations when flying on commercial carriers. Among the exceptions allowing for premium-class (first- or business-class) air travel are when a traveler has a documented medical disability that requires accommodation; when the employee is traveling outside the continental United States and scheduled flight times, including stopovers and plane changes, exceed 14 hours; or when an upgrade is required by "agency mission." For example, managers at the Johnson Space Center (Johnson) have defined agency mission to include ensuring that astronauts with demanding training schedules avoid excessive fatigue when traveling overseas.

Over the past 3 years, NASA has decreased its overall travel expenses by approximately 31 percent, from $99.2 million in FY 2011 to $68.2 million in FY 2013. Similarly, the amount NASA reported spending on premium-class travel decreased approximately 41 percent over this 3-year period, from $1.1 million in FY 2011 to $639,000 in FY 2013. Approximately 1 percent of the Agency's total annual travel expenses in each fiscal year was associated with premium-class travel.

The OIG examined NASA's policies and procedures for approving and ensuring accurate reporting of its premium-class air travel by reviewing travel reported by NASA for FYs 2011 and 2013. Generally, the 2 years of NASA premium-class travel we reviewed were properly authorized and complied with Federal and Agency travel policy. However, four instances of premium-class travel did not fall within any Federal Travel Regulation or Agency exceptions. For three of the instances, the flight times did not exceed the required 14 hours, and for the fourth instance the traveler's medical condition letter on file had not been updated annually as required by NASA policy.

Moreover, 11 travel authorizations were not routed through the designated premium-class travel approver and NASA could not provide documentation of verbal approval, 12 travel authorizations did not include a justification for premium-class travel, and the justifications for 2 authorizations were incorrect. However, with the exception of one of the four instances referenced above, premium-class travel in each of these cases fell within the recognized exceptions and therefore was appropriate.

NASA's process for preparing and submitting its annual premium-class travel report needs improvement. Testing disclosed that the reports NASA submitted to GSA for FYs 2011 and 2013 failed to include some premium-class travel, incorrectly reported some coach-class travel as premium-class, and inaccurately reported the details of other premium-class travel. Additionally, the exception codes (i.e., justification for using premium-class) NASA provided were incorrect 17 percent of the time. These inaccuracies occurred because NASA (1) took minimal steps to validate information provided by GSA, including the reported cost of premium- and coach-class airfare when preparing its reports, and (2) did not provide clear guidance to the Centers regarding the need to validate information in the report. These shortcomings resulted in reports that provided an inaccurate view of NASA's use of premium-class air travel.

Finally, NASA's travel policy does not include guidance on several premium-class travel topics required by the Federal Travel Regulation and GSA, such as the definition of specific mission criteria that justify premium-class travel. Even though Johnson issued its own Center-specific guidance, NASA still needs to issue Agency-wide guidance on the specific mission criteria that justify approval of premium-class travel for employees. NASA also does not require travelers who change an approved coach-class fare to premium-class fare to file an amended travel authorization. Without an amended authorization, no approver sees the cost of the premium-class airfare until the expense report is submitted after the trip.

We made seven recommendations to improve NASA's controls relating to premium-class travel, ensure the accuracy of NASA's premium-class travel reports to GSA, and improve NASA's current premium-class travel policy. NASA agreed with each of the recommendations and promised to undertake corrective actions.

Audit of NASA's Premium Air Travel (IG-15-002, October 21, 2014)

http://oig.nasa.gov/audits/reports/FY15/IG-15-002.pdf (report)

ONGOING AUDIT WORK

Audit of NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2014

The Improper Payments Information Act of 2002 (IPIA), as amended by the Improper Payments Elimination and Recovery Act of 2010 (IPERA), seeks to enhance the accuracy and integrity of Federal payments. As mandated, the OIG is assessing NASA's compliance with the requirements of IPIA and IPERA.

Audit of NASA's Fiscal Year 2015 Financial Statements

The Chief Financial Officers Act of 1990, as modified by the Government Management Reform Act of 1994, requires an annual audit of NASA's consolidated financial statements. The OIG is overseeing the FY 2015 audit conducted by the independent public accounting firm CliftonLarsonAllen LLP.

Orion Exploration Flight Test-1 splashdown

OTHER AUDIT MATTERS

NASA'S COMPLIANCE WITH FEDERAL EXPORT CONTROLS

In a January 28, 2015, letter to Congress, the OIG summarized its work over the previous year relating to NASA's compliance with Federal export-control laws. Among the products discussed was a special review of International Traffic in Arms Regulations and foreign national access issues at Ames Research Center. In addition, we described several audits examining NASA's security controls for Agency IT systems, many of which contain data subject to export-control laws, and investigations involving violations of export-control laws.

Review of NASA's Compliance with Federal Export Control Laws (January 28, 2015)

http://oig.nasa.gov/readingRoom/Memorandum-ReviewofNASA%27sCompliancewithFederalExportControlLaws.pdf (report)

ONGOING AUDIT WORK

Audit of NASA's Education Program and Activities

NASA supports efforts to improve the quality and depth of teaching and education in science, technology, engineering, and mathematics (STEM). NASA's Office of Education coordinates with the Department of Education, the National Science Foundation, and the Smithsonian Institution on STEM issues to maximize NASA's unique educational and research resources. We are assessing NASA's implementation of its strategic education objective and STEM education programs.

Review of NASA-Funded Institutes

NASA provides funds to institutes to obtain research and spur economic development. We are identifying and examining the various institutes that receive NASA funding to advance the Agency's mission and goals.

SOFIA preparing for a mission to study Southern Hemisphere celestial objects

STATISTICAL DATA

TABLE 1: AUDIT PRODUCTS AND IMPACTS

Report No. and Date Issued	Title	Impact
Acquisition and Project Management		
IG-15-010, 12/17/2014	Costs Incurred on NASA's Cost-Type Contracts	Identified internal control weakness NASA should address to effectively utilize its limited acquisition resources
IG-15-009, 12/16/2014	NASA's Use of Blanket Purchase Agreements	Identified issues NASA should address to improve effectiveness and economy of NASA's use of BPAs
IG-15-001, 10/9/2014	The Science Mission Directorate's Mission Extension Process	Identified issues NASA should address to improve efficiency, effectiveness, and transparency of the Senior Review process
Space Operations and Human Exploration		
IG-15-013, 3/26/2015	NASA's Management of the Deep Space Network	Identified issues NASA should address to improve DSN's ability to provide communication services and lessen its vulnerability to IT and physical compromise and to improve the Agency's administration of DSN foreign contracts
IG-15-012, 3/18/2015	NASA's Launch Support and Infrastructure Modernization: Assessment of the Ground Systems Needed to Launch SLS and Orion	Identified added risk to cost and schedule of allowing GSDO Program to complete Critical Design Review before the SLS and Orion
IG-15-003, 10/23/2014	NASA's Launch Support and Infrastructure Modernization: Commercial Space Launch Activities at Kennedy Space Center	Made recommendations to clarify NASA guidance regarding the leasing process and to reduce the cost and burdens associated with conducting commercial business at Kennedy so the Center can maintain its competitiveness with the growing market for commercial launch sites
Information Technology Security		
IG-15-004, 11/13/2014	Federal Information Security Management Act: Fiscal Year 2014 Evaluation	Improvements in internal controls for IT security through the enhancement of management programs and processes

Report No. and Date Issued	Title	Impact
Financial Management		
IG-15-008, 11/24/2014	FY 2014 Financial Statement Audit Management Letter	Improvements in the effectiveness of controls over financial reporting and the IT control environment
IG-15-007, 11/14/2014	FY 2014 NASA Closing Package Financial Statement Audit	Improvements in NASA's ability to provide auditable closing package financial statements and sufficient evidence to support the financial statements throughout the fiscal year and at year end
IG-15-006, 11/14/2014	Audit of the National Aeronautics and Space Administration's Fiscal Year 2014 Financial Statements	Improvements in NASA's ability to provide auditable financial statements and sufficient evidence to support the financial statements throughout the fiscal year and at year end
IG-15-002, 10/21/2014	Audit of NASA's Premium Air Travel	Identified opportunities to improve the Agency's internal controls around processing and reporting premium air travel
Other Audit Matters		
N/A, 1/28/2015	Review of NASA's Compliance with Federal Export Control Laws	Notified Congress of security weaknesses that may affect NASA's compliance with export control laws

TABLE 2: AUDIT RECOMMENDATIONS YET TO BE IMPLEMENTED, CURRENT SEMIANNUAL REPORT

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
Acquisition and Project Management					
IG-15-010, 12/17/2014	Costs Incurred on NASA's Cost-Type Contracts	12/17/2014	5	0	6/15/2015
IG-15-009, 12/16/2014	NASA's Use of Blanket Purchase Agreements	12/16/2014	8	0	6/30/2015
Space Operations and Human Exploration					
IG-15-013, 3/26/2015	NASA's Management of the Deep Space Network	3/26/2015	12	0	7/31/2016
IG-15-012, 3/18/2015	NASA's Launch Support and Infrastructure Modernization: Assessment of the Ground Systems Needed to Launch SLS and Orion	3/18/2015	1	0	3/31/2015[b]
IG-15-003, 10/23/2014	NASA's Launch Support and Infrastructure Modernization: Commercial Space Launch Activities at Kennedy Space Center	10/23/2014	2	1	9/30/2015

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
Financial Management					
IG-15-008, 11/24/2014	FY 2014 Financial Statement Audit Management Letter	--	85	0	12/31/2015
IG-15-002, 10/21/2014	Audit of NASA's Premium Air Travel	10/21/2014	2	5	6/30/2015

[a] Management's current estimate of the date it will complete the agreed-upon corrective actions necessary to close the audit recommendations.

[b] Working to determine revised estimate of target closure date.

TABLE 3: AUDIT RECOMMENDATIONS YET TO BE IMPLEMENTED, PREVIOUS SEMIANNUAL REPORTS

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
Acquisition and Project Management					
IG-14-030, 9/15/2014	NASA's Efforts to Identify Near-Earth Objects and Mitigate Hazards	9/15/2014	5	0	9/1/2015
IG-14-028, 8/4/2014	Audit of NASA's Cooperative Agreement with BioServe Space Technologies – University of Colorado at Boulder	8/4/2014	2	1	8/31/2015
IG-14-024, 7/16/2014	NASA's Independent Verification and Validation Program	7/16/2014	3	0	6/30/2015
IG-14-022, 7/9/2014	SOFIA: NASA's Stratospheric Observatory for Infrared Astronomy	7/9/2014	4	6	6/30/2015
IG-14-020, 6/05/2014	NASA's Use of Space Act Agreements	6/5/2014	7	0	9/30/2015
IG-14-010, 1/15/2014	NASA's Strategic Sourcing Program	7/15/2014	1	5	--[b]
IG-14-003, 11/19/2013	NASA's Use of Award-fee Contracts	--[c]	7	5	9/30/2015
IG-12-019, 8/3/2012	Audit of NASA Grant Awarded to HudsonAlpha Institute for Biotechnology	9/20/2012	1	7	5/31/2015
IG-12-018, 7/26/2012	Audit of NASA Grants Awarded to the Philadelphia College Opportunity Resources for Education	7/26/2012	4	4	5/31/2015
IG-12-016, 6/22/2012	Audit of NASA Grants Awarded to the Alabama Space Science Exhibit Commission's U.S. Space and Rocket Center	6/22/2012	1	0	5/31/2015

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
Space Operations and Human Exploration					
IG-14-031, 9/18/2014	Audit of NASA's Efforts to Extend the Operational Life of the International Space Station Until 2024	9/29/2014	3	0	1/30/2015[b]
IG-14-026, 7/22/2014	Audit of the Space Network's Physical and Information Technology Security Risks	7/22/2014	4	0	11/2/2015
IG-14-018, 4/29/2014	Space Communications and Navigation: NASA's Management of the Space Network	10/23/2014	4	1	7/31/2015
IG-14-009, 1/8/2014	NASA's Decision Process for Conducting Space Launch System Core Stage Testing	1/8/2014	3	1	7/31/2015
IG-14-001, 11/13/2013	NASA's Management of its Commercial Crew Program	11/13/2013	2	2	6/30/2015
Information Technology Security and Governance					
IG-14-023, 7/10/2014	Security of NASA's Publicly Accessible Web Applications	7/10/2014	3	2	7/31/2015
IG-14-015, 2/27/2014	NASA's Management of its Smartphones, Tablets, and Other Mobile Devices	2/27/2014	2	0	4/30/2015
IG-13-021, 7/29/2013	NASA's Progress in Adopting Cloud-Computing Technologies	7/29/2013	2	4	9/30/2015
IG-13-015, 6/5/2013	Audit of NASA's Information Technology Governance	6/5/2013	7	1	11/20/2015
IG-13-006, 3/18/2013	NASA's Process for Acquiring Information Technology Security Assessment and Monitoring Tools	3/18/2013	2	2	9/30/2015
IG-12-017, 8/7/2012	Review of NASA's Computer Security Incident Detection and Handling Capability	8/7/2012	2	1	10/14/2015
IG-11-017, 3/28/2011	Inadequate Security Practices Expose Key NASA Network to Cyber Attack	3/28/2011	1	2	9/16/2015

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
IG-10-013, 5/13/2010	Review of the Information Technology Security of [a NASA Computer Network]	5/13/2010	1	1	9/30/2015
Institutional and Facility Management					
IG-14-021 7/2/2014	Audit of NASA's Environmental Restoration Efforts	7/2/2014	4	0	6/30/2015
IG-13-008 2/12/2013	NASA's Efforts to Reduce Unneeded Infrastructure and Facilities	2/12/2013	5	0	3/31/2015[b]
IG-12-020, 8/9/2012	NASA's Infrastructure and Facilities: An Assessment of the Agency's Real Property Leasing Practices	8/9/2012	1	7	4/30/2015
Financial Management					
IG-14-016, 4/15/2014	NASA's Compliance with the Improper Payments Information Act for 2013	4/15/2014	10	0	5/30/2015
IG-13-020, 7/18/2013	Audit of Selected NASA Conferences	7/18/2013	1	4	3/31/2015[b]

[a] Management's current estimate of the date it will complete the agreed-upon corrective actions necessary to close the audit recommendations.

[b] Working to determine revised estimate of target closure date.

[c] Management in the OIG has not agreed to corrective actions on all recommendations.

TABLE 4: AUDITS WITH QUESTIONED COSTS

	Number of Audit Reports	Total Questioned Costs[a]
No management decision made by beginning of period	N/A	$0
Needing management decision during period	N/A	$0
Management decision made during period[b]		
Amounts agreed to by management	N/A	$0
Amounts not agreed to by management	N/A	$0
No management decision at end of period[b]		
Less than 6 months old	N/A	$0
More than 6 months old	N/A	$0

[a] "Questioned Costs" (the Inspector General Act of 1978 definition) is a cost that is questioned by the OIG because of (1) alleged violation of a provision of a law, regulation, contract, grant, cooperative agreement, or other agreement or document governing the expenditure of funds; (2) a finding that, at the time of the audit, such cost is not supported by adequate documentation; or (3) a finding that the expenditure of funds for the intended purpose is unnecessary or unreasonable.

[b] "Management Decision" (the Inspector General Act of 1978 definition) is the evaluation by management of the findings and recommendations included in an audit report and the issuance of a final decision by management concerning its response to such findings and recommendations, including actions that management concludes are necessary.

TABLE 5: AUDITS WITH RECOMMENDATIONS THAT FUNDS BE PUT TO BETTER USE

	Number of Audit Reports	Total Questioned Costs
No management decision made by beginning of period	1	$9,653,020
Issued during period	0	$0
Needing management decision during period	1	$9,653,020
Management decision made during period		
Amounts agreed to by management	0	N/A
Amounts not agreed to by management	0	N/A
No management decision at end of period		
Less than 6 months old	1	N/A
More than 6 months old	1	$9,653,020

TABLE 6: STATUS OF SINGLE AUDIT FINDINGS AND QUESTIONED COSTS RELATED TO NASA AWARDS

Audits reviewed	11
Audits with findings	7

Findings and Questioned Costs		
	Number of Findings	**Questioned Costs**
Management decisions pending, beginning of reporting period	96	$6,015,945
Findings added during the reporting period	18	$235,039
Management decision made during reporting period	(64)	
Agreed to by management		($1,800)
Not agreed to by management		($5,122,449)
Management decisions pending, end of reporting period	50	$1,126,735

Note: The Single Audit Act, as amended, requires Federal award recipients to obtain audits of their Federal awards.

DEFENSE CONTRACT AUDIT AGENCY (DCAA) AUDITS OF NASA CONTRACTORS

DCAA provides audit services to NASA on a reimbursable basis. DCAA provided the following information during this period on reports involving NASA contract activities.

DCAA AUDIT REPORTS ISSUED

During this period, DCAA issued 47 audit reports on contractors who do business with NASA. Corrective actions taken in response to DCAA audit report recommendations usually result from negotiations between the contractors doing business with NASA and the Government contracting officer with cognizant responsibility (e.g., the Defense Contract Management Agency and NASA). The cognizant agency responsible for administering the contract negotiates recoveries with the contractor after deciding whether to accept or reject the questioned costs and recommendations for funds to be put to better use. The following table shows the amounts of questioned costs and funds to be put to better use included in DCAA reports issued during this semiannual reporting period and the amounts that were agreed to during the reporting period.

TABLE 7: DCAA AUDIT REPORTS WITH QUESTIONED COSTS AND RECOMMENDATIONS THAT FUNDS BE PUT TO BETTER USE

	Amounts in Issued Reports	Amounts Agreed To
Questioned Costs	$50,959,000	$24,158,000
Funds to be put to better use	$0	$2,006,000

Note: This data is provided to the NASA OIG by DCAA and may include forward pricing proposals, operations, incurred costs, cost accounting standards, and defective pricing audits. Because of limited time between availability of management information system data and legislative reporting requirements, there is minimal opportunity for DCAA to verify the accuracy of reported data. Accordingly, submitted data is subject to change based on subsequent DCAA authentication. The data presented does not include statistics on audits that resulted in contracts not awarded or in which the contractor was not successful.

A recommendation by the OIG that funds could be more efficiently used if management took actions to implement and complete the recommendation, including (1) reductions in outlays; (2) deobligation of funds from programs or operations; (3) withdrawal of interest subsidy costs on loans or loan guarantees, insurance, or bonds; (4) costs not incurred by implementing recommended improvements related to the operations of the establishment, a contractor, or grantee; (5) avoidance of unnecessary expenditures noted in pre-award reviews of contract or grant agreements; or (6) any other savings that are specifically identified. (Dollar amounts identified in this category may not always allow for direct budgetary actions but generally allow the Agency to use the amounts more effectively in the accomplishment of program objectives.)

OFFICE OF INVESTIGATIONS

NASA astronaut Barry Wilmore working outside the ISS

TWO SCIENTISTS CONVICTED

In March 2015, after a 4-week trial, a Federal jury in Tampa, Florida, convicted two scientists of conspiracy to commit wire fraud, seven counts of wire fraud, five counts of aggravated identity theft, and two counts of falsifying records in a Federal investigation. In May 2014, the scientists were indicted for fraudulently obtaining approximately $10 million in research contracts from NASA and other Federal agencies. The indictment further alleged that from 2004 to 2014 they used stolen identities to create false endorsements for their proposed contracts.

CONTRACTOR AGREES TO CIVIL SETTLEMENT

In October 2014, a NASA contractor agreed to a $965,000 civil settlement to resolve allegations of defrauding the Federal Government's Small Business Innovation Research (SBIR) program. A joint investigation by the OIG and U.S. Air Force revealed the contractor made duplicate award submissions to NASA and the Air Force. Under the agreement, the contractor will pay each agency $250,000 and use the remaining settlement funds to improve its compliance program.

FORMER BOEING PROCUREMENT OFFICIAL AND THREE SUBCONTRACTORS SENTENCED ON FEDERAL FRAUD CHARGES

In November 2014, a former Boeing procurement officer was sentenced to 20 months in prison for taking bribes from companies seeking to sell military aircraft parts to the company in exchange for providing them with a competitor's confidential bid information to win Government contracts worth more than $1.5 million. Two other codefendants were sentenced to 18 months in prison and fined $10,000, while a third was sentenced to 15 months in prison and fined $2,000.

CIVIL SERVANT AND CONTRACTOR EMPLOYEE ENTER PRETRIAL DIVERSION FOR FALSIFYING INSPECTION RECORDS

In November 2014, a former supervisor in Glenn Research Center's Fabrication Support Office and a machinist working under contract at the Center pleaded guilty in Cuyahoga County State Court to tampering with official records. The court ordered both individuals to pay $3,283 in restitution to NASA. In December 2014, the civil servant elected to retire from his position in lieu of termination. The plea was based on an OIG investigation that found the contractor falsified manufacturing inspection records for NASA's Space Flight Fire Safety Demonstration project at the direction of the former supervisor. NASA spent more than $18,000 to reinspect all critical project parts.

NASA EMPLOYEE ENTERS PRETRIAL DIVERSION FOR TIME AND ATTENDANCE FRAUD

In November 2014, a Stennis Space Center civil servant agreed to repay NASA $10,000 and serve 12 months' probation for time card fraud. An OIG investigation revealed the employee falsified his time during a temporary duty assignment.

FORMER NASA CONTRACTOR INDICTED

In November 2014, after a joint investigation by the OIG and the Johnson Security Office, a former NASA contractor employee was indicted by a Texas grand jury for felony theft of copper and aluminum from the Center.

FORMER CHIEF EXECUTIVE OFFICER SETTLES CIVIL CLAIMS FOR FRAUD

Working with other Federal law enforcement agencies, the OIG successfully resolved civil claims against a former owner and Chief Executive Officer (CEO) of a security company who had previously been found guilty of fraudulently obtaining Government contracts set aside for small businesses. In December 2014, the CEO agreed to pay $4.5 million to settle the civil claims.

JUDGE ORDERS RESTITUTION FOR CONTRACT FRAUD

In December 2014, a Federal judge ordered a company and its owners to pay $2.98 million in restitution, damages, and penalties for defrauding the Government. In earlier criminal proceedings, the individuals had been convicted of defrauding the Government during the performance of an SBIR contract and ordered to pay $391,000 in fines and forfeited assets.

CONTRACTOR AGREES TO PAY $44.5 MILLION TO RESOLVE CONTRACT VIOLATIONS

In December 2014, a contractor agreed to a $44.5 million settlement in the Eastern District of California to resolve allegations that the contractor failed to meet National Archives and Records Administration storage requirements. The multiagency investigation also helped resolve allegations the contractor overcharged Federal agencies for records storage services between 2001 and 2014. NASA's portion of the settlement amount was $232,595.

FORMER CONTRACTOR SENTENCED FOR COMPUTER INTRUSION

In December 2014, a former NASA contract employee was sentenced to 3 years' probation after pleading guilty in U.S. District Court in Maryland to unauthorized access to computer devices. The employee used a computer keylogging device on multiple NASA-funded computer systems to gain unauthorized access to the personal and work accounts of NASA contractor personnel for his personal gain. The former employee was suspended and debarred from any future dealings with NASA or the U.S. Government.

SBIR CONTRACTOR PLEADS GUILTY

In January 2015, a NASA contractor pleaded guilty to one count of wire fraud for submitting false information to obtain SBIR contracts valued in excess of $199,000.

CEO SENTENCED TO STATUTORY MAXIMUM FOR FEDERAL INCOME TAX FRAUD

In January 2015, the CEO of a NASA contractor was sentenced in U.S. District Court in the Southern District of Texas to 3 years' imprisonment and 1 year of supervised release for making false statements on a Federal income tax return. As part of the plea agreement, the CEO agreed to make restitution of $294,300 related to the tax violations and to pay NASA $99,000 as reimbursement for questioned consulting services. The investigation revealed the CEO used consulting fees as a vehicle to hide large portions of his personal income from taxation. In September 2014, the CEO pleaded guilty to one count of making a false statement on his personal tax return.

COUPLE CHARGED WITH DEFRAUDING NASA'S SMALL BUSINESS INNOVATION RESEARCH PROGRAM

In February 2015, a Lehigh University professor and his wife were indicted on 10 counts of wire fraud related to NASA's SBIR program. Our investigation disclosed that the pair submitted false information to NASA in a funding proposal knowing they had no facility in which to conduct the research.

FORMER NASA EMPLOYEE SENTENCED FOR THEFT

In February 2015, a former NASA engineer pleaded guilty to three counts of theft for stealing numerous pieces of expensive electronic testing equipment. He was sentenced in U.S. District Court in the Central District of California to 6 months' imprisonment, 5 months' home detention, and 3 years' supervised release and was ordered to pay $135,922 in restitution.

NASA EMPLOYEE PLEADS GUILTY TO FALSE STATEMENTS

In February 2015, a NASA civil servant pleaded guilty to one count of making a false statement related to a travel voucher. The OIG's investigation determined the employee submitted $15,088 in false hotel receipts to NASA over the course of several years.

FORMER NASA ENGINEER INDICTED FOR FALSE STATEMENTS

In March 2015, a former NASA engineer pleaded guilty to one count of making false statements. The plea was the result of a January 2015 indictment in the Middle District of Florida on two counts of making false statements related to the adjudication of his security clearance. The employee provided false information regarding previous arrests and criminal charges against him when he completed security clearance forms. The engineer has resigned from NASA.

FLORIDA MAN SENTENCED FOR POSSESSING FRAUDULENT NASA IDENTIFICATION

In March 2015, a Florida man was sentenced in U.S. District Court for the Middle District of Florida to 1 year's imprisonment and 3 years' supervised release and ordered to pay $114,000 in restitution. The man had previously pleaded guilty to two counts of false statements and one count of possession of official badges, identification cards, and other insignia. The false statement counts charged him with causing two separate health-care providers to make false Medicare claims, and the possession count charged him with possession of colorable imitations of Defense Criminal Investigative Service and NASA badges.

Mobile Launcher Platform-2 at NASA's Kennedy Space Center

STATISTICAL DATA

TABLE 8: OFFICE OF INVESTIGATIONS COMPLAINT INTAKE DISPOSITION

Source of Complaint	Zero Files[a]	Administrative Investigations[b]	Management Referrals[c]	Preliminary Investigations[d]	Total
Hotline	34	16	6	15	71
All Others	30	23	2	63	118
Total	**64**	**39**	**8**	**78**	**189**

[a] Zero files are complaints for which no action is required or that are referred to NASA management for information only or to another agency.

[b] Administrative investigations include noncriminal matters initiated by the NASA OIG Office of Investigations as well as hotline complaints referred to the OIG Office of Audits.

[c] Management referrals are complaints referred to NASA management for which a response is requested.

[d] Preliminary investigations are complaints where additional information must be obtained prior to initiating a full criminal or civil investigation.

TABLE 9: FULL INVESTIGATIONS OPENED THIS REPORTING PERIOD

Full Criminal/Civil Investigations[a]	26

[a] Full investigations evolve from preliminary investigations that result in a reasonable belief that a violation of law has taken place.

TABLE 10: CASES PENDING AT END OF REPORTING PERIOD

Preliminary Investigations	68
Full Criminal/Civil Investigations	126
Administrative Investigations	66
Total	**260**

TABLE 11: QUI TAM INVESTIGATIONS

Qui Tam Matters Opened This Reporting Period	1
Qui Tam Matters Pending at End of Reporting Period	5

Note: The number of qui tam investigations is a subset of the total number of investigations opened and pending.

TABLE 12: JUDICIAL ACTIONS

Cases Referred for Prosecution	50
Indictments/Criminal Informations	15
Convictions/Plea Bargains	14
Sentencing/Pretrial Diversions	15
Civil Settlements/Judgments	7

TABLE 13: ADMINISTRATIVE ACTIONS

Referrals to NASA management for review and response	15
Referrals to NASA management – information only	12
Referrals to the Office of Audits	3
Referrals to Security or other agencies	7
Recommendation to NASA management for disciplinary action	
Involving a NASA employee	7
Involving a contractor firm	-
Involving a contractor employee	1
Other	-
Total	**8**
Administrative/disciplinary actions taken	
Against a NASA employee	5
Against a contractor employee	1
Procedural change implemented	4
Total	**10**
Recommendations to NASA management on program improvements	
Matters of procedure	6
Total	**6**
Suspensions or Debarments from Government Contracting	
Involving an individual	8
Involving a contractor firm	4
Total	**12**

TABLE 14: INVESTIGATIVE RECEIVABLES AND RECOVERIES

Judicial	$54,280,274
Administrative[a]	$1,051,792
Total	**$55,332,066**
Total NASA	**$5,027,769**

[a] Includes amounts for cost savings to NASA as a result of investigations.

CONGRESSIONAL TESTIMONY

Inspector General Paul Martin

NASA OVERSIGHT HEARING

In February 2015, Inspector General Paul Martin testified before the U.S. House of Representatives Subcommittee on Commerce, Justice, Science, and Related Agencies, Committee on Appropriations, regarding the OIG's view of the major management and performance challenges facing NASA. In his testimony, Martin highlighted a variety of issues, including securing commercial transportation for astronauts to low Earth orbit; developing the GSDO, SLS, and Orion Programs; and managing NASA's science portfolio.

"Moving forward, NASA's ability to sustain its ambitious exploration and science programs will be driven in large measure by whether it can adequately fund and manage such high-profile initiatives as the SLS rocket, Orion capsule, and related launch infrastructure at Kennedy; James Webb Space Telescope; Mars 2020 Rover; and its commercial cargo and crew programs," Martin said.

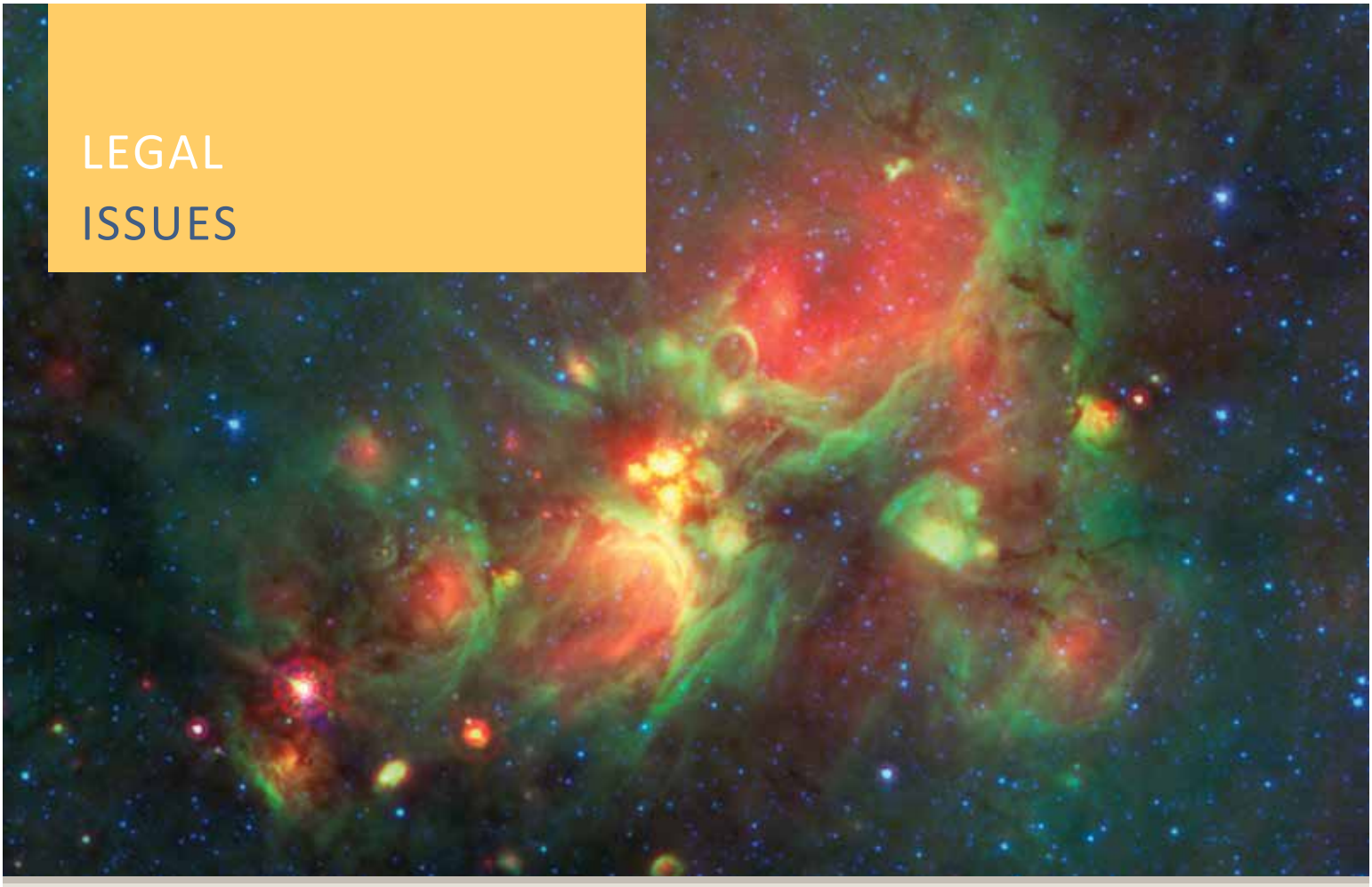
The SLS and its associated Programs continue to face challenging budget scenarios. "For example, the Orion Program anticipates receiving a flat budget of approximately $1.1 billion per year into the 2020s. Given this budget profile, NASA is using an incremental development approach under which it allocates funding to the most critical systems necessary to achieve the next development milestone, rather than developing multiple systems simultaneously as is common in major spacecraft programs," Martin explained.

Martin noted that prior work by the OIG has shown that delaying critical development tasks increases the risk of future cost and schedule problems. "NASA Program officials admit that this incremental development approach is not ideal, but contend that it is the only feasible option given current funding levels," said Martin.

NASA Oversight Hearing
(February 25, 2015)

http://oig.nasa.gov/congressional/IGTestimony02252015.pdf (testimony)

LEGAL ISSUES



This cosmic cloud of gas and dust is W33; photo was taken by NASA's Spitzer Space Telescope.

REGULATORY REVIEW

During this reporting period, the OIG reviewed and commented on several significant NASA directives and regulations.

NPR 1660.1, NASA COUNTERINTELLIGENCE AND COUNTERTERRORISM

NASA's Office of Protective Services is revising NASA Procedural Requirements (NPR) 1660.1, NASA Counterintelligence and Counterterrorism, which establishes requirements, responsibilities, and procedures for maintaining an Agency Counterintelligence/Counterterrorism Program as prescribed by the National Aeronautics and Space Act and other laws. The NPR establishes measures to protect NASA personnel, information, and resources from espionage or other unauthorized intelligence collection activities undertaken on behalf of foreign intelligence entities. We recommended revisions to the NPR to ensure that NASA personnel who work on projects with foreign nationals or entities receive an appropriate foreign intelligence threat briefing before beginning such work and annually thereafter.

NPD 9050.6, NASA EXCHANGE AND MORALE SUPPORT ACTIVITIES

NASA Policy Directive (NPD) 9050.6, NASA Exchange and Morale Support Activities, sets forth NASA's policy that a NASA Exchange operate at each NASA Center for the purpose of promoting the morale and welfare of NASA employees by conducting a variety of activities such as gift shops, cafeterias and food stands, child development centers, health and fitness facilities, recreation centers, and various clubs and organizations. The NASA Exchanges are instrumentalities of the United States with associated privileges, rights, and immunities. To ensure this status, Exchanges are under NASA's control and ownership interests are with the Government. The OIG reviewed proposed changes to NPD 9050.6 and made recommendations intended to ensure that audits of NASA Exchanges are conducted at appropriate intervals to maintain sufficient oversight of Exchange financial activities.

STATISTICAL DATA

TABLE 15: LEGAL ACTIVITIES AND REVIEWS

FOIA Matters	10
Appeals	0
Inspector General Subpoenas Issued	34
Regulations Reviewed	13


INSPECTOR G
NATIONAL AE
NASA

APPENDIXES

Appendixes

Chandra image of NGC 6388

APPENDIX A. INSPECTOR GENERAL ACT REPORTING REQUIREMENTS

Inspector General Act Citation	Requirement Definition	Cross-Reference Page Numbers
Section 4(a)(2)	Review of Legislation and Regulations	55
Section 5(a)(1)	Significant Problems, Abuses, and Deficiencies	12–35
Section 5(a)(2)	Recommendations for Corrective Actions	12–33
Section 5(a)(3)	Prior Significant Audit Recommendations Yet to Be Implemented	39–41
Section 5(a)(4)	Matters Referred to Prosecutive Authorities	50
Sections 5(a)(5) and 6(b)(2)	Summary of Refusals to Provide Information	N/A
Section 5(a)(6)	OIG Audit Products Issued – Includes Total Dollar Values of Questioned Costs, Unsupported Costs, and Recommendations that Funds Be Put to Better Use	41–42
Section 5(a)(7)	Summary of Significant Audits and Investigations	12–50
Section 5(a)(8)	Total Number of Reports and Total Dollar Value for Audits with Questioned Costs	41
Section 5(a)(9)	Total Number of Reports and Total Dollar Value for Audits with Recommendations that Funds Be Put to Better Use	42
Section 5(a)(10)	Summary of Prior Audit Products for which No Management Decision Has Been Made	41–42
Section 5(a)(11)	Description and Explanation of Significant Revised Management Decisions	N/A
Section 5(a)(12)	Significant Management Decisions with which the Inspector General Disagreed	N/A
Section 5(a)(13)	Reporting in Accordance with Section 5(b) of the Federal Financial Management Improvement Act of 1996 Remediation Plan	N/A
Section 5(a)(14)	Peer Review Conducted by Another OIG	62
Section 5(a)(15)	Outstanding Recommendations from Peer Reviews of the NASA OIG	N/A
Section 5(a)(16)	Outstanding Recommendations from Peer Reviews Conducted by the NASA OIG	N/A

APPENDIX B. AWARDS

CIGIE AWARDS CEREMONY

The Council of the Inspectors General on Integrity and Efficiency (CIGIE) held its 17th Annual Awards Ceremony on October 21, 2014, to recognize the work of OIG employees across the Federal Government. Several NASA OIG employees and teams were honored at the ceremony.

AWARD OF EXCELLENCE, AUDIT

Members of the Office of Audits Mission Support and Science and Aeronautics Research Directorates received an Award for Excellence in recognition of exceptional achievement and outstanding teamwork identifying vulnerabilities in NASA's IT governance structure and analyzing a major IT Services Contract.

From left to right: Inspector General Paul Martin, Assistant Inspector General for Audits Jim Morrison, Director Raymond Tolomeo, Julia Eggert, Scott Riggenbach, Jason Hensley, and Director Laura Nicolosi

AWARD OF EXCELLENCE, INVESTIGATION

Office of Investigations Special Agent Philip Mazzella received an Investigation Award of Excellence in recognition of developing an investigative protocol to combat fraud, waste, and abuse in the U.S. Government's Small Business Innovative Research and Small Business Transfer Technology Research Programs.

From left to right: Inspector General Martin, Special Agent Philip Mazzella, and former Assistant Inspector General for Investigations Kevin Winters

SPECIAL ACT AWARD FOR EXCELLENCE, CIGIE GRANT REFORM WORKING GROUP

Members of the Office of Audits Mission Support and Financial Management Directorates received an Award for Excellence in recognition of their efforts as part of the CIGIE Grant Reform Working Group to ensure accountability in the grant reform process. NASA OIG staff recognized were Director Mark Jenson, Director Laura Nicolosi, and Project Manager Joseph Shook.

APPENDIX C. DEBT COLLECTION

The Senate Report accompanying the supplemental Appropriations and Rescissions Act of 1980 (Public Law 96-304) requires Inspectors General to report amounts due the Agency as well as amounts that are overdue and written off as uncollectible. NASA's Financial Management Division provides these data each November for the previous fiscal year. For the period ending September 30, 2014, the receivables due from the public totaled $5,109,681, of which $1,954,665 is delinquent. The amount written off as uncollectible for the period October 1, 2013, through September 30, 2014, was $150,967.

APPENDIX D. PEER REVIEWS

The Dodd-Frank Wall Street Reform and Consumer Protection Act requires the OIG to include in its semiannual reports any peer review results provided or received during the relevant reporting period. Peer reviews are required every 3 years. In compliance with the Act, we provide the following information.

OFFICE OF AUDITS

No external peer reviews were conducted of the Office of Audits during this semiannual period. The date of the last external peer review of the NASA OIG was September 26, 2012, and it was conducted by the Department of Commerce OIG. NASA OIG received a peer review rating of pass. There are no outstanding recommendations from this external peer review.

No external peer reviews of another Federal audit organization were conducted by our office during this semiannual reporting period. There are no outstanding recommendations from the previous peer review conducted by our office. That peer review was conducted on the Small Business Administration's OIG and was completed on September 27, 2012.

OFFICE OF INVESTIGATIONS

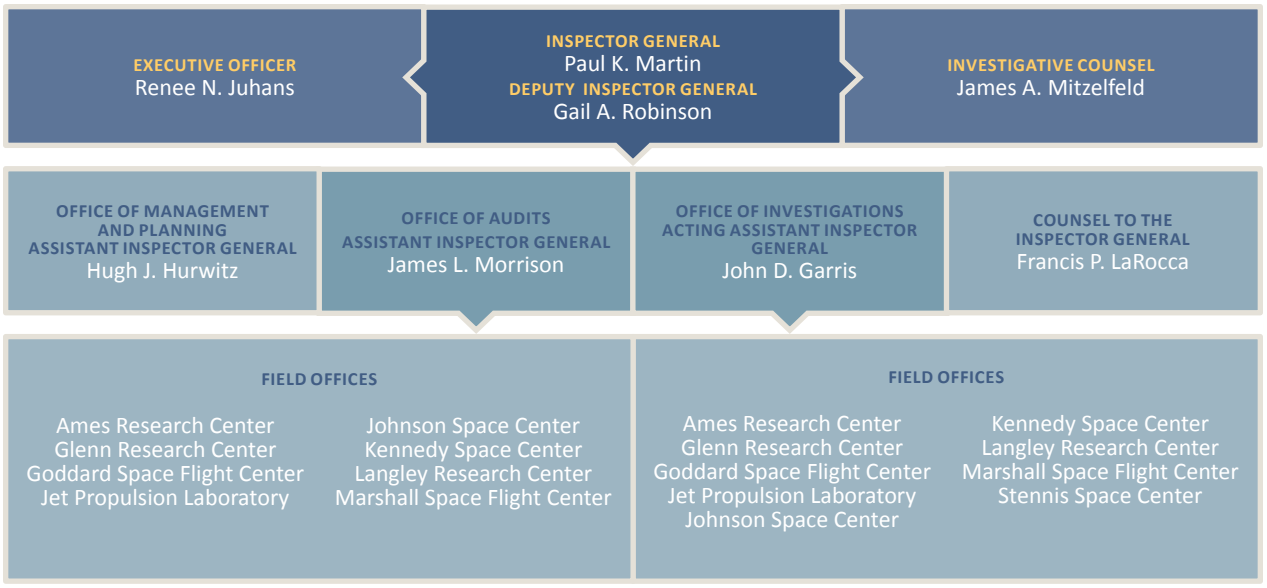
No external peer reviews were conducted of or by the Office of Investigations during this semiannual period.

In October 2014, the Department of Energy's OIG reviewed the NASA OIG Office of Investigations and found the office in compliance with all relevant guidelines. There are no outstanding unaddressed recommendations from that review.

APPENDIX E. ACRONYMS

BPA	Blanket Purchase Agreement
CEO	Chief Executive Officer
CIGIE	Council of the Inspectors General on Integrity and Efficiency
CIO	Chief Information Officer
DCAA	Defense Contract Audit Agency
DSN	Deep Space Network
FISMA	Federal Information Security Management Act
FY	Fiscal Year
GSA	General Services Administration
GSDO	Ground Systems Development and Operations
ICESat-2	Ice, Cloud, and land Elevation Satellite-2
IPERA	Improper Payments Elimination and Recovery Act of 2010
IPIA	Improper Payments Information Act of 2002
ISS	International Space Station
IT	Information Technology
IV&V	Independent Verification and Validation
JPL	Jet Propulsion Laboratory
JWST	James Webb Space Telescope
NEO	Near-Earth Object
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OIG	Office of Inspector General
OSIRIS-REx	Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer
PwC	PricewaterhouseCoopers LLP
SBIR	Small Business Innovation Research
SCaN	Space Communications and Navigation
SLS	Space Launch System
SMD	Science Mission Directorate
SOFIA	Stratospheric Observatory for Infrared Astronomy
STEM	Science, Technology, Engineering, and Mathematics

APPENDIX F. OFFICE OF INSPECTOR GENERAL ORGANIZATIONAL CHART



The NASA OFFICE OF INSPECTOR GENERAL conducts audits, reviews, and investigations of NASA programs and operations to prevent and detect fraud, waste, abuse, and mismanagement and to assist NASA management in promoting economy, efficiency, and effectiveness. The OIG's FY 2015 budget of $37 million supports the work of 195 employees in their audit, investigative, and administrative activities.

THE INSPECTOR GENERAL provides policy direction and leadership for the NASA OIG and serves as an independent voice to the NASA Administrator and Congress by identifying opportunities for improving the Agency's performance. The Deputy Inspector General assists the Inspector General in managing the full range of the OIG's programs and activities and provides supervision to the Assistant Inspectors General and Counsel in the development and implementation of the OIG's diverse audit, investigative, legal, and support operations. The Executive Officer serves as the liaison to Congress and other Government entities, conducts OIG outreach both within and outside NASA, and manages special projects. The Investigative Counsel serves as a senior advisor for OIG investigative activities and conducts special reviews of NASA programs and personnel.

THE OFFICE OF AUDITS conducts independent and objective audits and reviews of NASA programs, projects, operations, and contractor activities. In addition, the Office of Audits oversees the work of an independent public accounting firm in its annual audit of NASA's financial statements.

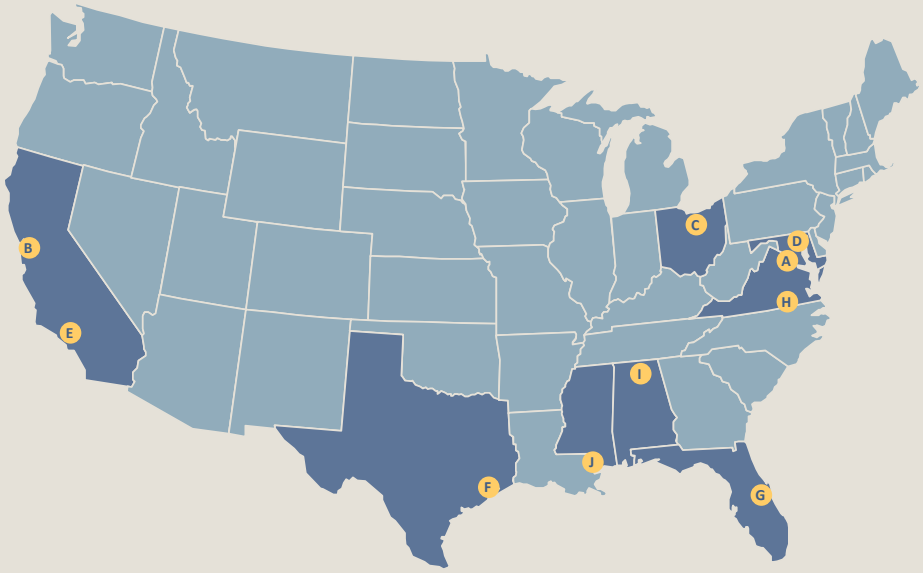
THE OFFICE OF COUNSEL TO THE INSPECTOR GENERAL provides legal advice and assistance to OIG managers, auditors, and investigators. The Office serves as OIG counsel in administrative litigation and assists the Department of Justice when the OIG participates as part of the prosecution team or when the OIG is witness or defendant in legal proceedings. In addition, the Inspector General has designated the Counsel as Whistleblower Protection Ombudsman, and in that role he educates NASA employees about prohibitions on retaliation for protected disclosures and about rights and remedies for protected whistleblower disclosures.

THE OFFICE OF INVESTIGATIONS investigates allegations of cybercrime, fraud, waste, abuse, and misconduct that may affect NASA programs, projects, operations, and resources. The Office refers its findings either to the Department of Justice for criminal prosecution and civil litigation or to NASA management for administrative action. Through its investigations, the Office of Investigations develops recommendations for NASA management to reduce the Agency's vulnerability to criminal activity and misconduct.

THE OFFICE OF MANAGEMENT AND PLANNING provides financial, procurement, human resources, administrative, and information technology services and support to OIG staff.

APPENDIX G. MAP OF FIELD OFFICES

NASA OIG OFFICES OF AUDITS AND INVESTIGATIONS



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