NASA OFFICE OF INSPECTOR GENERAL

SEMIANNUAL REPORT

OCTOBER 1, 2015–MARCH 31, 2016

FROM THE INSPECTOR GENERAL

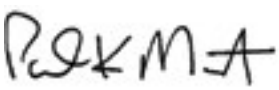
Each Federal Office of Inspector General (OIG) is required annually to report on what it views as the top management and performance challenges facing its agency. While challenges such as ensuring the security of information technology systems and effectively managing grants and contracts are shared across multiple agencies, others are more specific to NASA and its unique exploration, science, and aeronautics missions.

For 2016, the NASA OIG identified the following eight issues as the top challenges facing the Agency:

- Space Flight Operations in Low Earth Orbit: Managing the International Space Station and the Commercial Cargo and Crew Programs
- Positioning NASA for Deep Space Exploration: Developing the Space Launch System, Orion Capsule, and associated Ground Systems, and Mitigating Health and Performance Risks for Extended Human Missions
- Managing NASA's Science Portfolio
- Ensuring the Continued Efficacy of the Space Communications Networks
- Overhauling NASA's Information Technology Governance
- Securing NASA's Information Technology Systems and Data
- Managing NASA's Aging Infrastructure and Facilities
- Ensuring the Integrity of the Agency's Contracting and Grants Processes

Both our Office of Audits and Office of Investigations continue to conduct oversight work in each of these areas, and we will describe the results of their efforts in future reports.

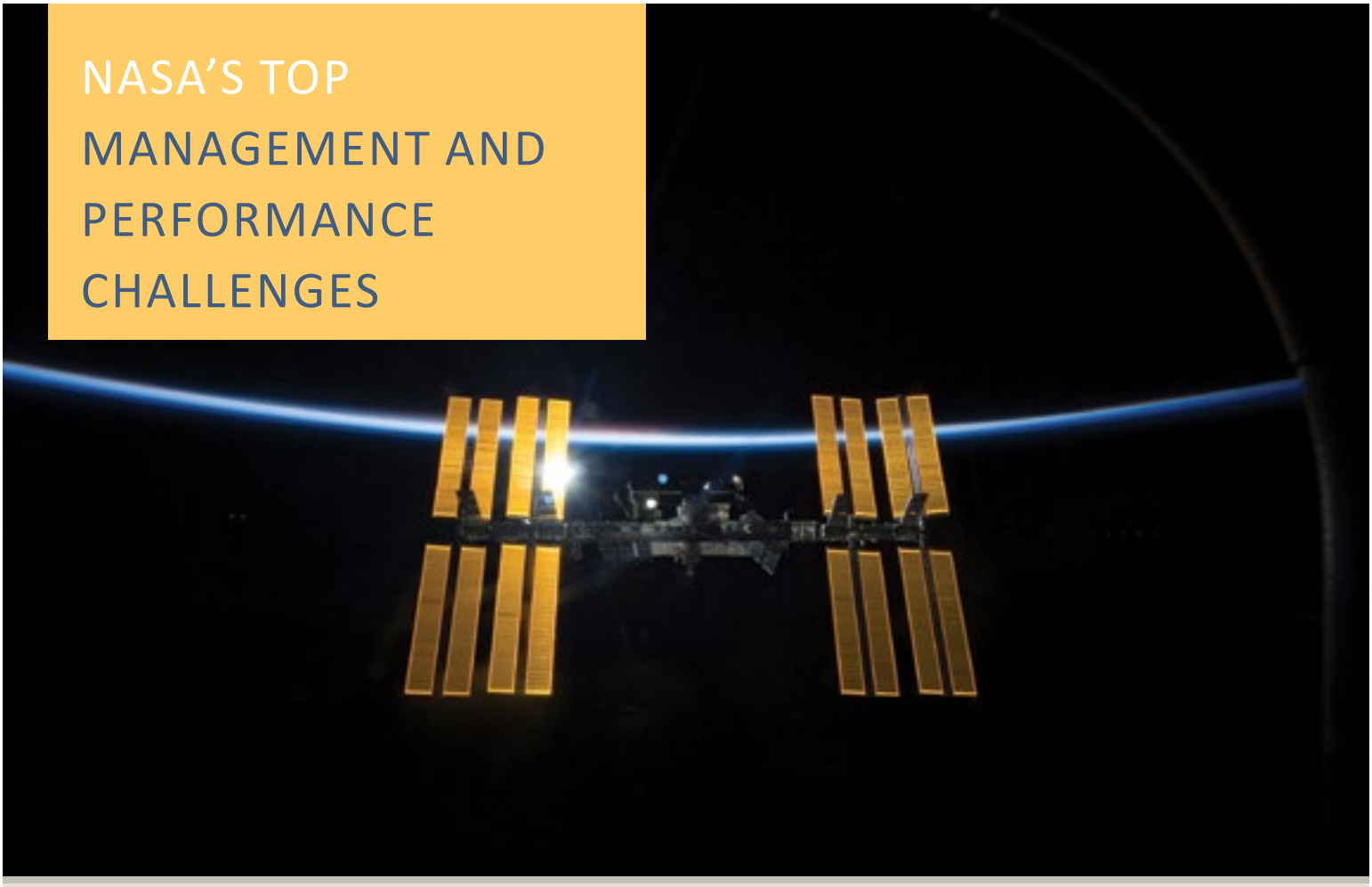
This Semiannual Report summarizes the OIG's activities and accomplishments between October 1, 2015, and March 31, 2016. We hope you find it informative.



Paul K. Martin
Inspector General
April 29, 2016

TABLE OF CONTENTS

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 identifies the most serious management and performance challenges facing NASA. 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 were systemic in nature; the challenge's susceptibility to fraud, waste, and abuse; and the Agency's progress in addressing the challenge. In our November 2015 report, we identified eight issues as top management and performance challenges facing NASA. Below we provide a short summary of our discussion of each challenge.

SPACE FLIGHT OPERATIONS IN LOW EARTH ORBIT: MANAGING THE INTERNATIONAL SPACE STATION AND THE COMMERCIAL CARGO AND CREW PROGRAMS

NASA has operated the International Space Station (ISS or Station) in low Earth orbit for more than 15 years and plans to extend Station operations until at least 2024. To resupply the ISS with cargo and end U.S. dependency on Russia for crew transportation, over the past decade, the Agency has entered into contracts worth billions of dollars with private companies.

The International Space Station

In August 2015, the United States Senate endorsed NASA's proposal to extend ISS operations until at least 2024. Since 1994, the United States has invested almost $81 billion on the ISS for construction, operation, and transportation costs, and NASA plans to spend between $3 billion and $4 billion annually to maintain the Station, including on-orbit vehicle operations, research, crew transportation, and cargo resupply missions. Going forward, NASA's primary challenges relating to the ISS are controlling costs and continuing to maximize the Station's research capabilities, particularly with regard to understanding and mitigating a variety of human health and performance risks that must be addressed to enable long-term human exploration missions to Mars and other deep space destinations.

Commercial Cargo Transportation

In 2008, to stimulate development of transportation systems capable of transporting cargo to the ISS, NASA awarded fixed-price contracts – known as Commercial Resupply Services (CRS-1) contracts – valued at $1.9 billion and $1.6 billion to Orbital Sciences Corporation (Orbital) and Space Exploration Technologies Corporation (SpaceX), respectively. As of June 2015, Orbital had completed two cargo resupply missions and received $1.6 billion from NASA, while SpaceX had completed six resupply missions and received $1.4 billion.[1]

Unfortunately, both Orbital and SpaceX experienced launch failures in October 2014 and June 2015, respectively, which destroyed thousands of pounds of science and research, crew supplies, and vehicle hardware. A Russian Progress cargo mission also failed to reach the ISS in April 2015. In the aftermath of the Orbital and SpaceX failures, both companies suspended

[1] In December 2015 and March 2016, Orbital completed a third and fourth cargo resupply mission, each using an Atlas V rocket.

their cargo resupply missions until completion of an investigation and acceptance by NASA of each company's Return to Flight Plan. In a September 2015 report, we found Orbital's Return to Flight Plan contained technical and operational risks and may be difficult to execute as designed and on the timetable proposed.[2] For example, we believe Orbital's plan to drop one of its five previously scheduled resupply flights and carry the promised cargo in four missions may disadvantage NASA by decreasing the Agency's flexibility in choosing the type and size of cargo Orbital transports to the ISS, particularly given that NASA officials said they will limit the cargo on the first return flight to nonessential items.

We are conducting a review of NASA's response to the SpaceX loss, which we will issue in spring 2016.

Artist's rendering of SpaceX's crewed Dragon docking with the ISS

Commercial Crew Transportation

Since the retirement of the Space Shuttle in 2011, the United States has lacked a domestic capability to transport astronauts to the ISS. Instead, between 2012 and 2018, NASA will pay Russia $2.2 billion to ferry 30 NASA astronauts and international partners to and from the Station at prices ranging from $47 million to almost $82 million per round trip. To address this lack of U.S. capacity, NASA has provided approximately $2.8 billion in funding since 2010 to U.S. commercial space flight companies to spur development of a crew transportation capability. NASA originally hoped commercial flights would be operating by 2016, but the Agency later adjusted this goal to late 2017. In fiscal year (FY) 2015, the Commercial Crew Program received $805 million out of $848 million requested.[3]

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 The Boeing Company (Boeing) and SpaceX – $4.2 billion and $2.6 billion, respectively – to complete development of and certification for operation of their crewed space flight systems.

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) timely requirement and certification guidance, and (4) space flight coordination issues with other Federal agencies. Since that time, the Agency has made progress in each of these areas.[4] In May 2015, we began a follow-on audit examining whether the Commercial Crew Program is meeting its planned cost and schedule goals and how it is managing risks and certification requirements.

[2] NASA OIG, "NASA's Response to Orbital's October 2014 Launch Failure: Impacts on Commercial Resupply of the International Space Station" (IG-15-023, September 17, 2015).

[3] On December 15, 2015, the Commercial Crew Program received its full budget request of $1.2 billion for FY 2016.

[4] NASA OIG, "NASA's Management of the Commercial Crew Program" (IG-14-001, November 13, 2013).

POSITIONING NASA FOR DEEP SPACE EXPLORATION: DEVELOPING THE SPACE LAUNCH SYSTEM, ORION CAPSULE, AND ASSOCIATED GROUND SYSTEMS, AND MITIGATING HEALTH AND PERFORMANCE RISKS FOR EXTENDED HUMAN MISSIONS

NASA's long-term objective for its human exploration program is a crewed mission to Mars. Successful development of the Space Launch System (SLS), the Orion Multi-Purpose Crew Vehicle (Orion), and related launch infrastructure while simultaneously addressing health and human performance risks to extended space flight are critical for achieving NASA's human exploration goals beyond low Earth orbit.

Crew egress training from the Orion vehicle

Developing the SLS, Orion, and Related Launch Infrastructure

Successful development of the SLS, Orion, and Ground Systems Development and Operations (GSDO) 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 Shuttle Program. Although the NASA Authorization Act of 2010 set a goal for the Agency to achieve operational capability for the SLS and Orion by December 2016, the Agency will not meet this timetable. Noting technical and funding uncertainties, NASA has adjusted its planning schedule to reflect an SLS launch readiness date of no later than November 2018, with the first crewed flight of Orion expected no later than 2023.

NASA's challenge in this area continues to be managing the concurrent development of a launch system and crew vehicle and modification of necessary ground systems while also meeting the Administrator's mandate that exploration systems be affordable, sustainable, and realistic. Given the criticality of the Orion and GSDO Programs, we are evaluating NASA's management of Orion relative to achieving technical objectives, meeting milestones, and controlling costs, as well as examining NASA's management of GSDO's software development effort.

Mitigating Human Health and Performance Risks

Space flight is an inherently risky endeavor, and humans living in space experience a range of physiological changes. To further understand and develop countermeasures for 30 major human health and performance risks associated with space travel, NASA and its partners are performing studies on Earth and on the ISS. For example, in March 2015, NASA launched astronaut Scott Kelly on the first 1-year U.S. mission to the ISS in the hope of advancing knowledge about the effects on the human body of longer-duration habitation in space.

In an October 2015 report, we found that although NASA continues to improve its process for identifying and managing health and human performance risks associated with space flight, given the current state of knowledge, the Agency's schedule for mitigating risks is optimistic, and it will not develop countermeasures for many deep space risks until the 2030s at the earliest.[5]

[5] NASA OIG, "NASA's Efforts to Manage Health and Human Performance Risks for Space Exploration" (IG-16-003, October 29, 2015).

One of the major factors limiting more timely development of countermeasures is uncertainty about the mass, volume, and weight requirements of deep space vehicles and habitats. Furthermore, NASA's management of crew health risks could benefit from increased efforts to integrate expertise from all relevant disciplines. While many life science specialists attempt to utilize a range of available expertise both inside and outside the Agency, NASA lacks a clear path for maximizing expertise and data at both the organizational and Agency levels.

Even as NASA gains additional knowledge about deep space vehicles and habitats and the effects of radiation and other space conditions on the human body, the Agency may not be able to develop countermeasures that will lower the risk to deep space travelers to a level commensurate with Agency standards for low Earth orbit missions. Accordingly, for deep space missions, NASA will have to determine the level of risk that is acceptable and clearly communicate the Agency's decisions to astronauts, Congress, and the public.

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 poses significant challenges to NASA. Throughout its history, the Agency has struggled with accurately estimating the amount of time and money required to complete its science projects and programs. The resulting cost and schedule overruns have, in turn, led to challenges in the project development process, diverted funding from other projects, and reduced the number and scope of projects the Agency can undertake.

The largest of the Science Mission Directorate's projects, the James Webb Space Telescope (JWST), has faced significant challenges in meeting cost, schedule, and performance goals throughout its development life cycle. 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. The JWST's revised baseline life-cycle cost estimate is $8.84 billion, and its expected launch date is October 2018.

Over the years, studies have identified several explanations for NASA's challenges in producing accurate cost and schedule estimates for projects such as the JWST. In a September 2012 review, we identified four root causes for NASA's challenges in producing accurate cost and schedule estimates: (1) a culture of optimism, (2) underestimating technical complexity, (3) funding instability, and (4) limited opportunities for project managers' development.[6] To help address these causes and improve the fidelity of its cost and schedule estimates, NASA has developed several tools, including formal adoption of a Joint Cost and Schedule Confidence Level (JCL) requirement that generates a representation of the likelihood a project will achieve its objectives within budget and on time.

While it appears the JCL policy is having a positive impact on NASA's historical challenges with cost and schedule fidelity, the process is relatively new, still evolving, and not a one-stop solution to solving all root causes of cost overruns and schedule delays. In addition, there are varied expectations and understandings among Agency stakeholders about the JCL process, and the effectiveness and consistency of the process NASA uses to review projects' JCL analyses could be improved.[7]

[6] NASA OIG, "NASA's Challenges to Meeting Cost, Schedule, and Performance Goals" (IG-12-021, September 27, 2012).

[7] NASA OIG, "Audit of NASA's Joint Cost and Schedule Confidence Level Process" (IG-15-024, September 29, 2015).

ENSURING THE CONTINUED EFFICACY OF THE SPACE COMMUNICATIONS NETWORK

To meet the need of spacecraft to communicate with Earth and provide communications, navigation, and transmission of scientific data to space flight missions, NASA operates the Space Communications and Navigation (SCaN) Program. SCaN is composed of three networks: (1) the Near Earth Network (NEN), 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 such missions from Earth, and space hardware worth tens of billions of dollars would be little more than orbital debris. We are examining each of the major aspects of the SCaN Program through a series of audits.

Issued in April 2014, our first audit focused on the Space Network, which provides continuous connectivity with NASA spacecraft operating in low Earth orbit, including the ISS.[8] We found that key components of the network were not meeting planned cost, schedule, and performance goals.

Our second audit focused on the Deep Space Network, which 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. In our March 2015 report, we found that although the Deep Space Network is meeting its current operational commitments, budget reductions have challenged its ability to maintain these performance levels and threatened its future reliability by delaying upgrades, closing antennas, and canceling or replanning tasks.[9]

Our third audit examines how NEN is managing risks and adjusting capabilities to meet current and future requirements within its cost, schedule, and performance goals. NEN operates antennas and transmitters at four locations: Wallops Flight Facility, Virginia; White Sands Complex, New Mexico; Alaska Satellite Facility, Fairbanks, Alaska; and the U.S. McMurdo Antarctica Station. To meet increasing demand for communications services, NEN procures communications and navigation services from commercial providers. At the same time, the Network's assets are aging, are located in extreme environments, and require maintenance and modernization to ensure continued services for existing and planned missions. Moreover, similar to our audit of the Deep Space Network, we believe that the NEN may face increased information technology (IT) security risks.[10]

[8] NASA OIG, "Space Communications and Navigation: NASA's Management of the Space Network" (IG-14-018, April 29, 2014).

[9] NASA OIG, "NASA's Management of the Deep Space Network" (IG-15-013, March 26, 2015).

[10] Since the release of our 2015 Top Management and Performance Challenges report, we issued our report examining NEN, a summary of which can be found in 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 IT governance approach that appropriately aligns authority and responsibility commensurate with the Agency's overall mission. Because IT is intrinsic and pervasive throughout NASA – the Agency spends more than $1.5 billion annually on IT assets – the Agency'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 to meet the needs of internal and external stakeholders.

In a June 2013 audit, we found that the decentralized nature of NASA's operations and its longstanding culture of autonomy hinder the Agency's ability to implement effective IT governance.[11] For example, we noted that the Chief Information Officer had limited visibility and control over a majority of the Agency's IT investments, operated in an organizational structure that marginalizes the authority of the position, and could not enforce security measures across NASA's computer networks. Moreover, the Agency's IT governance structure was overly complex and did not function effectively, resulting in managers relying on informal relationships rather than formalized business processes when making IT-related decisions. We made eight recommendations to NASA to improve the Agency's IT governance, which NASA continues to work toward implementing. We plan to conduct a follow-up audit to examine whether the changes NASA has implemented have improved the Agency's IT governance process.

SECURING NASA'S INFORMATION TECHNOLOGY SYSTEMS AND DATA

The large number of NASA networks and websites, coupled with the Agency's statutory mission to share scientific information, present unique IT security challenges. For FYs 2013 and 2014, NASA reported 3,413 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 larger target than most other Government agencies, with the Agency managing approximately 1,200 publicly accessible web applications.

Over the past 5 years, the OIG has issued 19 audit reports containing 75 recommendations designed to improve NASA's information security program. For example, we examined the effectiveness of NASA's Security Operations Center, examined NASA's efforts to identify and assess vulnerabilities on its publicly accessible web applications and mitigate the most severe vulnerabilities, and evaluated NASA's management of its smartphones, tablets, and other mobile devices.

In addition, OIG investigators have conducted more than 100 investigations of breaches of NASA IT networks over the past 5 years and helped to secure convictions of hackers operating all over the world, including Australia, England, Italy, Nigeria, Portugal, Romania, and Turkey. For example, an OIG investigation resulted in the guilty plea of an Estonian national accused of directing an Internet fraud scheme that infected more than four million computers located in over 100 countries with malicious software. In another case, OIG agents successfully investigated an insider threat involving a former contract employee who illegally accessed and attempted to destroy NASA systems.

[11] NASA OIG, "NASA's Information Technology Governance" (IG-13-015, June 5, 2013).

MANAGING NASA'S AGING INFRASTRUCTURE AND FACILITIES

NASA controls approximately 5,000 buildings and structures with an estimated replacement value of more than $35 billion, making the Agency among the larger Federal Government property holders. More than 80 percent of the Agency's facilities are 40 or more years old and thus beyond their design life. NASA strives to maintain these facilities in an efficient operational status and, when not operational, 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 2015 estimated its deferred maintenance costs at $2.3 billion.

The OIG has dedicated substantial resources over the last 5 years to examining NASA's infrastructure challenges. An April 2015 report examined NASA's Plum Brook Station, home to several unique space-related testing facilities, including the Space Power Facility, which is an environmental simulation chamber used to test hardware in a simulated space or planetary environment.[12] Of its facilities, only Plum Brook's Space Power Facility has a full slate of testing planned over the next several years. In contrast, two other facilities have not been utilized for at least 4 years and a third is unusable in its current condition. As of February 2015, NASA had not identified any customers for these three facilities.

Given the disparity between the Agency's infrastructure and its mission-related needs, as well as the likelihood of continued constrained budgets, it is imperative that NASA move forward aggressively with its infrastructure assessment and reduction efforts. To achieve this goal, 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 regarding the impact eliminating or consolidating facilities will have on Centers' missions, their workforces, and the 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 the Agency's infrastructure.

Space Power Facility at Plum Brook Station

In 2014, NASA created the Technical Capabilities Assessment Team (TCAT), which aims to provide NASA leadership with the information needed to make informed decisions about investing and divesting to ensure the Agency has the right mix of people and assets to carry its mission forward. As of September 2015, TCAT has assessed 18 technical capabilities and issued 11 formal decisions. As a result of these decisions, the Agency has excessed some aircraft, eliminated internal microgravity flight operations, and updated several external and internal memorandums of agreement. We plan to review the impact of TCAT and the status of the Agency's other strategic infrastructure initiatives.[13]

[12] NASA OIG, "Audit of NASA's Requirements for Plum Brook Station" (IG-15-014, April 23, 2015).

[13] In January 2016, we initiated a review of NASA's efforts to manage its technical capabilities, including TCAT.

ENSURING THE INTEGRITY OF THE CONTRACTING AND GRANTS PROCESSES

NASA spent approximately 74 percent of its $17.6 billion FY 2014 budget on contracts to procure goods and services, and the Agency awarded another $868 million in grants and cooperative agreements. Accordingly, NASA managers face the ongoing challenge of ensuring the Agency pays contractors in accordance with contract terms and receives fair value for its money, and that grants and cooperative agreements are administered appropriately and recipients are accomplishing stated goals. 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 Agency contract and grant funds.

Our audit work has demonstrated that NASA needs to improve its multibillion-dollar procurement operations. For example, NASA can improve its utilization of Blanket Purchase Agreements, which is a simplified method of acquiring goods and services that establishes terms and conditions (including prices) between a Federal agency and vendors for commonly used goods and services. In FYs 2011 and 2012, NASA obligated more than $248 million through 5,529 Blanket Purchase Agreement orders. By not consistently seeking price reductions on orders, establishing single- rather than multiple-award agreements without appropriate justification, and failing to perform required annual reviews to ensure established Blanket Purchase Agreements still represent the best value to the Government, NASA contracting officials failed to maximize competition and missed potential cost savings.[14]

We also continue to work with NASA to improve the Agency's practices relating to cost-type contracts. More than half of the $15.6 billion NASA spent in FY 2013 acquiring goods and services was associated with cost-type contracts, which pose a financial risk to NASA because they do not promise delivery of a good or service at a set price. Furthermore, NASA is at increased risk of paying unallocable, unallowable, and unreasonable incurred costs and of losing the opportunity to recoup improper costs because Agency contracting officers rely too heavily on the Defense Contract Audit Agency's incurred cost audit process and do not perform additional oversight to ensure the appropriateness of contractor costs. NASA has not strengthened its internal controls to account for the significant reduction in Defense Contract Audit Agency's oversight of Agency cost-type contracts. In addition, NASA's reliance on the Defense Contract Audit Agency is inhibiting the Agency's efforts to timely close out awards, which further delays the identification of questionable costs and limits availability of excess funds for other uses.[15]

OIG investigators continue to uncover fraud and other problems related to NASA contracts. For example, the Chief Executive Officer of a NASA contractor agreed to pay $4.5 million to settle civil claims relating to his involvement in a fraudulent scheme whereby he created a front company to obtain contracts through the Small Business Administration's Section 8(a) Program. The Chief Executive Officer was also criminally prosecuted for the scheme and received a 72-month prison sentence and ordered to forfeit $6.1 million.

[14] NASA OIG, "NASA's Use of Blanket Purchase Agreements" (IG-15-009, December 16, 2014).

[15] NASA OIG, "Costs Incurred on NASA's Cost-Type Contracts" (IG-15-010, December 17, 2014). The National Defense Authorization Act for FY 2016 signed on November 25, 2015, prohibited the Defense Contract Audit Agency from performing audit work for any agencies other than the Department of Defense. As such, we are monitoring NASA's efforts to establish alternate methods of performing this work.

NASA also faces the ongoing challenge of ensuring that the approximately $850 million in grant and cooperative agreement funds the Agency distributes each year are administered appropriately and that recipients are accomplishing stated goals. The OIG has conducted audits during the past several years to examine NASA's management of grants and cooperative agreements. For example, NASA entered into an interagency agreement valued at $8.5 million with the City of New Orleans to provide fire protection services through March 2018 to the Michoud Assembly Facility (Michoud). We found that NASA did not have an adequate system of controls in place to ensure proper administration of the agreement and did not verify that the City of New Orleans performed required tests and inspections or consistently staffed the Michoud Fire Station with the number of personnel specified in the agreement.[16] In addition, we determined that NASA overpaid the City of New Orleans by as much as $1.07 million over the six quarters invoiced under the agreement.

Over the past 5 years, the OIG has conducted 41 grant fraud investigations resulting in 5 indictments, 7 prosecutions, $967,000 in recoveries, and $22.9 million in civil settlements. For example, an investigation determined a university in West Virginia billed administrative costs as direct costs, charged costs that were not allowable, and misused Federal funds and property acquired with Federal funds. The university has agreed to a $2.3 million civil settlement.

2015 Report on NASA's Top Management and Performance Challenges (November 5, 2015)

https://oig.nasa.gov/NASA2015ManagementChallenges.pdf (report); *https://oig.nasa.gov/Video/GRobinson_11192015.html* (video)

[16] NASA OIG, "Audit of NASA's Cooperative Agreement Awarded to the City of New Orleans" (IG-15-018, June 29, 2015).

OFFICE OF AUDITS

Red romaine lettuce plants grown from seed inside the ISS

SPACE OPERATIONS AND HUMAN EXPLORATION

Space operations and human exploration are among NASA's most highly visible missions. In addition to operating the ISS and managing its emerging commercial crew and cargo programs, NASA is planning for future deep space exploration with the Agency's development of the SLS, Orion crew capsule, and supporting launch infrastructure.

NASA'S EFFORTS TO MANAGE HEALTH AND HUMAN PERFORMANCE RISKS FOR SPACE EXPLORATION

NASA has identified 30 human health and performance risks associated with space travel, including Behavioral Health and Performance, Inadequate Food and Nutrition, Space Radiation, and Vision Impairment and Intracranial Pressure. In addition, NASA's current plan to send a crewed mission to the Martian surface by the 2030s will expose astronauts to new and increased hazards. Although the Agency has developed strategies to reduce the impact of most of the risks associated with travel in low Earth orbit, many of the risks associated with long-duration space travel are not fully understood and therefore yet to be mitigated.

To address the risks to human health and performance associated with space travel, NASA and its partners are performing a variety of studies on Earth and the ISS. In addition, multiple NASA offices play a role in developing procedures, medications, devices, and other strategies (countermeasures) to mitigate these risks, including the Human Exploration and Operations Mission Directorate, which provides leadership and management of NASA's human space exploration programs; the Human Health and Performance Directorate, the Agency's primary resource for human health and performance issues related to space travel; and the Human Research Program (HRP), which is focused on investigating and mitigating the highest risks to astronaut health and performance. In 2014, HRP completed a detailed schedule, known as the Path to Risk Reduction, setting forth the rate by which the Program expects to complete development of countermeasures for various risks through 2028.

We examined NASA's efforts to manage the health and human performance risks posed by space exploration.

Although NASA continues to improve its process for identifying and managing health and human performance risks associated with space flight, we believe that given the current state of knowledge, the Agency's risk mitigation schedule is optimistic and NASA will not develop countermeasures for many deep space risks until the 2030s, at the earliest. One of the major factors limiting more timely development of countermeasures is uncertainty about the mass, volume, and weight requirements of deep space vehicles and habitats. Moreover, even as NASA gains additional knowledge about its vehicles and habitats and the effects of radiation and other space conditions on the human body, the Agency may be unable to develop countermeasures that will lower the risk to deep space travelers to a level commensurate with NASA standards for low Earth orbit missions. Accordingly, the astronauts chosen to make at least the initial forays into deep

space may have to accept a higher level of risk than those who currently fly ISS missions. We also found that NASA cannot accurately report the true costs of developing countermeasures for the identified risks.

Furthermore, NASA's management of crew health risks could benefit from increased efforts to integrate expertise from all related disciplines. While many life science specialists attempt to utilize the range of available expertise both inside and outside the Agency, NASA lacks a clear path for maximizing expertise and data at both the organizational and Agency levels. For example, NASA has no formalized requirements for integrating human health and research among life sciences subject matter experts, nor does it maintain a centralized point of coordination to identify key integration points for human health. Moreover, integrating the experiences of NASA's engineering and safety efforts would benefit the outside life sciences community. The lack of a coordinated, integrated, and strategic approach may result in more time-consuming and costly efforts to develop countermeasures to the numerous human health and performance risks associated with deep space missions.

Long-duration missions will likely expose crews to health and human performance risks for which NASA has limited effective countermeasures. Accordingly, for these missions NASA will have to determine the level of risk that is acceptable and clearly communicate the Agency's decisions to astronauts, Congress, and the public. Moreover, NASA needs to continue to examine whether its current health care model for astronauts is sufficient to meet both the long-term health needs of the astronaut community and the research needs of the Agency.

To ensure NASA management has the best possible information available to make decisions related to human health and performance risks to Agency missions, we recommended the Manager of HRP ensure HRP costs for research and countermeasure development are accurate and the Path to Risk Reduction accurately reflects the status of research and realistic timeframes for countermeasure development to better determine what risks will be mitigated for the first human mission to Mars. In addition, to ensure appropriate integration of Agency expertise across disciplines, we recommended the Associate Administrator for the Human Exploration and Operations Mission Directorate establish a primary point of coordination within the Directorate to interface with all NASA programs, projects, and functions; ensure that integration of technical authorities is occurring and consider inclusion of engineering and safety experts on all Human Health and Performance Directorate and HRP control boards; and clarify the organizational technology development responsibilities for human system risk mitigation. Regarding astronaut health care, we recommended the NASA Administrator and the Chief Health and Medical Officer determine whether the current model satisfies Agency needs and the needs of the astronaut community and, if not, pursue legislative authority to implement necessary changes. NASA concurred or partially concurred with each of our recommendations.

NASA's Efforts to Manage Health and Human Performance Risks for Space Exploration (IG-16-003, October 29, 2015)

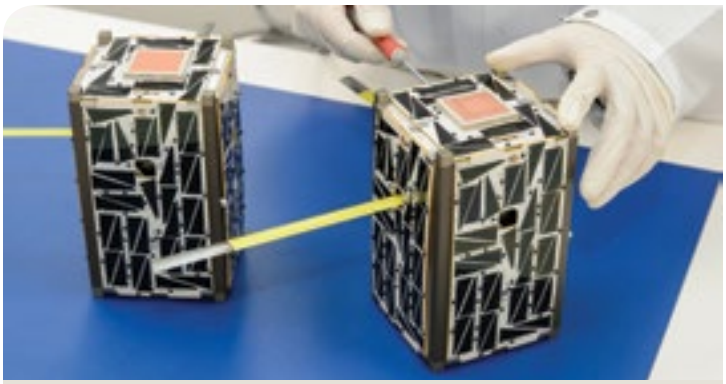
https://oig.nasa.gov/audits/reports/FY16/IG-16-003.pdf (report);
https://oig.nasa.gov/Video/LNicolosi_10292015.html (video)

NASA'S EFFORTS TO MANAGE ITS SPACE TECHNOLOGY PORTFOLIO

For more than 50 years, NASA has been at the forefront of scientific and technological innovation in the United States. NASA-sponsored technology has enabled groundbreaking space science and exploration missions, contributed to the success of other Federal programs, cultivated commercial aerospace enterprises, and helped foster a technology-based U.S. economy. As NASA sets its sights on increasingly challenging human and robotic missions to deep space destinations, the Agency must continue to identify and mature technologies to make such missions feasible, affordable, and safe.

As of November 2015, the Agency is engaged in 1,400 diverse space technology projects with an annual cost of nearly $1 billion. However, Congress, the Office of Management and Budget, and the National Research Council have expressed concern that some NASA space technology projects do not align with Agency mission needs, may be of low priority, or may duplicate other work at NASA, other Federal agencies, or in industry and academia. Moreover, budgetary constraints have made it impossible for the Agency to carry out all of its proposed space technology projects. Nevertheless, NASA has continued to fund a large number of space technology projects, raising concerns about inefficient development as too many projects chase too few dollars.

NASA's portfolio of space technology projects is managed by numerous organizations and individuals at the Council, Mission Directorate, and Center levels. In addition, over the past 5 years, NASA appointed a Chief Technologist, established the Space Technology Mission Directorate, and created technology "roadmaps," a Strategic Space Technology Investment Plan, and the TechPort database. The roadmaps outline a range of technology candidates and development pathways over a 20-year period, while the Technology Investment Plan prioritizes technology in light of NASA's planned missions.



Nodes – Network and Operation Demonstration Satellite

TechPort is an Agency-wide software system designed to track and manage NASA's portfolio of technology investments.

We examined NASA's efforts to align and prioritize projects in its space technology portfolio to meet future mission needs. In addition, we profiled the top 15 space technology projects by FY 2015 funding level in the following programs: the Technology Demonstration Missions Program, the Game Changing Development Program, the Advanced Exploration Systems Program, and the Science Mission Directorate's Research Divisions.

We found deficiencies in NASA's management processes and controls that may limit the usefulness of the Agency's efforts to better manage its space technology investments. First, although NASA has revised its technology roadmaps to provide additional information regarding how specific technologies will help meet Agency mission objectives, it needs to complete the ongoing revision of its Strategic Space Technology Investment Plan to provide the necessary detail to determine the projects that best support Agency priorities. Second, the information in TechPort remains incomplete and inaccurate, impairing the value of the database as a tool to manage and share information about NASA's space technology portfolio. For example, we selected a sample of 49 active projects and found the database contained no information for 16 (33 percent) of the projects. Third, the Agency's management structure, especially the

role of its Technology Executive Council, needs to be clarified to ease efforts to align and prioritize investments. Fourth, while NASA's Mission Directorates and Centers have authority to initiate new space technology projects, the processes for initiating projects need to be better integrated and formalized to ensure cohesion and guard against duplication. Finally, the Agency needs to develop more consistent processes to measure and track return on investment for its space technology projects.

We acknowledge that managing space technology projects in a fluctuating budget environment is a significant undertaking. Consequently, adopting management processes that improve NASA's ability to make strategic decisions regarding its space technology portfolio will help the Agency better address this challenge.

To clarify the role and authorities of NASA's Technology Executive Council, we recommended that the NASA Administrator develop a charter outlining the Council's role, responsibilities, authority, and membership. To ensure management processes and controls better align and prioritize NASA's space technology projects with its mission goals, we recommended that the Office of the Chief Technologist further prioritize "core" and "adjacent" technologies in the new Strategic Space Technology Investment Plan and take steps to ensure project managers utilize TechPort as intended. In addition, we recommended that the Office of the Chief Engineer update NASA Procedural Requirements 7120.8 to establish policy and procedures for initiating space technology projects that include Agency-wide awareness and coordination and requiring all concluded technology projects to complete closeout reports and technology infusion or transfer data for inclusion in TechPort.

While NASA concurred with our first three recommendations and described corrective actions, the Agency partially concurred with our last two recommendations, which remain unresolved pending further discussion.

NASA's Efforts to Manage Its Space Technology Portfolio (IG-16-008, December 15, 2015)

https://oig.nasa.gov/audits/reports/FY16/IG-16-008.pdf (report);
https://oig.nasa.gov/Video/BMullins_12152015.html (video)

NASA'S MANAGEMENT OF THE NEAR EARTH NETWORK

NASA's Near Earth Network (NEN or Network) – part of the Agency's Space Communications and Navigation Program – provides tracking, telemetry, and command services to approximately 40 NASA science missions operating in low Earth orbit and will be used to support the SLS and Orion vehicle scheduled to launch before the end of the decade. The Network also supports other Federal agencies, including contingency launch support for satellites that assist with weather forecasting for the United States. To provide these services, NEN uses NASA-owned antennas and transmitters as well as equipment owned by other U.S. or foreign government agencies or commercial providers. Using non-Government entities to transmit Network data presents security challenges, and constrained budgets have led the Agency to defer maintenance activities.

The OIG assessed whether NASA was properly ensuring the physical and IT security of NEN and adjusting Network capabilities to meet current and future requirements within cost, schedule, and performance goals.

We found that by deviating from elements of Federal and Agency cyber and physical security risk management policies, NASA, Goddard Space Flight Center (Goddard), and the NEN Project Office increased the Network's susceptibility to compromise. Specifically, NASA assigned a security categorization rating of "Moderate" to the Network's IT systems and did not include the Network in its Critical Infrastructure Protection Program. We believe this categorization was based on flawed justifications and the Network's exclusion from the Protection Program resulted from a lack of coordination between Network stakeholders. Given the importance of the Network to the success of NASA Earth science missions, the launch and contingency support it provides for Federal partners, and its importance in supporting human space flight in the future, we believe a higher categorization and inclusion in the Protection Program is warranted.

We also found that information system connections between NEN and the external entities that support its operations are not managed in accordance with Federal and NASA policy. As a result, the Agency does not have sufficient visibility into the security posture of these external systems and cannot ensure the owners are able to adequately respond to or report security events. In addition, IT security controls, such as software that identifies malicious code, are not in place or functioning as intended. Moreover, due to insufficient coordination between the NEN, Goddard, and NASA's Office of Protective Services, physical security controls have not been implemented on NASA-owned and supporting contractor facilities in accordance with Agency or Federal standards.

Finally, NEN components are at risk of unexpected failure due to their age and lack of maintenance. The failure to proactively inspect and replace cables and mechanical systems that are reaching their failure point has already resulted in one unexpected breakdown and could require the Network to purchase more costly commercial services in the future.

Based on the issues identified during the audit, we made 14 recommendations to NASA, including that NASA incorporate NEN in its Critical Infrastructure Program, assign a higher security risk rating to NEN IT systems and implement corresponding security controls, review all external system connections to ensure they are maintained in accordance with Agency policy, and perform and track deferred maintenance. NASA management concurred or partially concurred with our recommendations and described planned corrective actions. With the exception of one recommendation, we consider management's comments responsive and therefore have resolved and will close the recommendations upon completion and verification of the proposed corrective actions.

NASA's Management of the Near Earth Network (IG-16-014, March 17, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-014.pdf (report);
https://oig.nasa.gov/Video/RBowman_03172016.html (video)

AUDIT OF NASA'S SPACEPORT COMMAND AND CONTROL SYSTEM

As part of the effort to prepare Kennedy to launch the next generation of rockets and spacecraft, including the combined SLS-Orion system NASA plans to use for deep space exploration, NASA's Ground Systems Development and Operations Program is developing the Spaceport Command and Control System (SCCS) – software that will control pumps, motors, valves, power supplies, and other ground equipment; record and retrieve data from systems before and during launch; and monitor the health and status of spacecraft as they prepare for and launch. To create the SCCS, NASA is writing a large amount of computer code to "glue" together multiple existing software products or, in some cases, the parts of those products the Agency deems most effective for its purposes.

In the past, NASA has experienced difficulties with similar large, complex software development efforts. For example, between 1995 and 2002, the Agency spent more than $500 million on two separate attempts to update command and control software at Kennedy. Both efforts failed to meet their objectives and were substantially scaled back or cancelled prior to completion.

In this audit, we examined whether NASA is effectively managing the SCCS software development effort. We found that the SCCS development effort has significantly exceeded initial cost and schedule estimates. Compared to FY 2012 projections, development costs have increased approximately 77 percent to $207.4 million and the release of a fully operational version has slipped by 14 months from July 2016 to September 2017. In addition, several planned capabilities have been deferred because of cost and timing pressures, including the ability to automatically detect the root cause of specific equipment and system failures. Without this information, it will be more difficult for controllers and engineers to quickly diagnose and resolve issues. Although NASA officials believe the SCCS will operate safely without these capabilities, they acknowledge that the reduced capability could affect the ability to react to unexpected issues during launch operations and potentially impact the launch schedule for the combined SLS-Orion system.

Vehicle Assembly Building at Kennedy

The root of these software development issues results from how NASA implemented the June 2006 decision to integrate multiple products, or, in some cases, part of the products, rather than developing software in-house or buying a commercial off-the-shelf product. Writing computer code to "glue" together these disparate products has turned out to be more complex and expensive than NASA anticipated. As of January 2016, the SCCS Project had developed 2.5 million lines of glue-ware code for the nine products they are attempting to integrate, with almost two more years of development activity planned. In comparison, NASA reengineered the Hubble Space Telescope command and control system by integrating 30 products with approximately 500,000 lines of glue-ware code.

Based on the issues identified during the audit, we recommended that NASA commission an independent assessment to evaluate the status of the SCCS software development effort and determine the necessary steps to reduce the risk of further cost, schedule, and performance issues, including consideration of acquiring commercial command and control software to replace some or all of the system currently under development.

NASA management concurred with our recommendation and described planned corrective action. We consider management's comments responsive and therefore have resolved and will close the recommendation upon completion and verification of the proposed corrective actions.

Audit of the Spaceport Command and Control System (IG-16-015, March 28, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-015.pdf (report); *https://oig.nasa.gov/Video/LHawkins_03282016.html* (video)

ONGOING AUDIT WORK

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 and projects. Nonetheless, NASA faces financial, political, and legal constraints that impede its international cooperation efforts. These constraints may result in lost opportunities to pursue long-term space exploration, space technologies, science missions, and aeronautics research. We are examining NASA's efforts to partner with international agencies.

Audit of the Orion Multi-Purpose Crew Vehicle

Orion is being developed to take astronauts beyond low Earth orbit to the Moon, an asteroid, and possibly Mars. The capsule will have several primary capabilities, including emergency abort, atmospheric reentry from deep space, and crew life support for extended periods. We are evaluating NASA's management of the Orion Program relative to achieving technical objectives, meeting milestones, and controlling costs.

Audit of NASA's Commercial Crew Program

The Commercial Crew Program was formed to facilitate development of a U.S. commercial crew space transportation capability with the goal of achieving safe, reliable, and cost-effective access to and from the ISS and low Earth orbit. We are evaluating whether the Program is meeting its planned cost and schedule goals and examining how NASA is managing programmatic risks and certification requirements.

NASA's Response to SpaceX's June 2015 Launch Failure: Impacts on Commercial Resupply of the International Space Station

In June 2015, SpaceX's seventh cargo resupply mission failed after launch from Cape Canaveral in Florida, destroying more than 5,400 pounds of science, supplies, and vehicle hardware bound for the ISS. We are examining NASA's response to the SpaceX failure.

Greenland's ice sheet from 40,000 feet

ACQUISITION AND PROJECT MANAGEMENT

Effective contract, grant, and project management remains a top challenge for NASA as it seeks to carry out its multifaceted space, science, and aeronautics missions. Through audits and programmatic reviews, the OIG helps ensure NASA engages in sound procurement and acquisition practices that provide the Agency and taxpayer with the best value.

AUDIT OF A NASA RESEARCH GRANT AWARDED TO THE UNIVERSITY OF MIAMI

In 2014, NASA awarded the University of Miami a 3-year, $2.45 million grant for Earth science research. We determined that the University is managing this grant in accordance with applicable laws, regulations, guidelines, and the terms and conditions of the award. The University has a strong system of accounting and internal controls, adequately accounted for expenditures, properly managed its award budget, and is fulfilling established performance goals. We also found that NASA's oversight of the award was adequate and Agency personnel appropriately monitored the University's performance. However, we identified $264,399 in payments the University made to a vendor that lacked adequate support.

We recommended that the Executive Director of the NASA Shared Services Center (NSSC) and the Associate Administrator for the Science Mission Directorate work with the University to ensure payments associated with the grant are adequately supported in accordance with Office of Management and Budget and NASA requirements.

The Associate Administrator partially concurred with our recommendation, stating that the NSSC will request that the University take corrective action to ensure that future invoices it pays with NASA funds are adequately supported. However, the Associate Administrator stated that applicable Federal regulations do not require NASA to ensure the University has adequate documentation for all invoices it pays with NASA funds. We do not agree with the Associate Administrator's reading of Federal regulations. Rather, we believe that agencies have a responsibility to ensure that award expenditures are adequately supported in accordance with requirements. Nevertheless, we consider NASA's proposed corrective actions responsive to our recommendation.

Audit of a NASA Research Grant Awarded to the University of Miami (IG-16-011, January 21, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-011.pdf (report)

AUDIT OF NASA SPACE GRANT AWARDED TO THE UNIVERSITY OF TEXAS AT AUSTIN

In 2010, NASA awarded a $3.36 million grant to the University of Texas at Austin for education training to increase interest in science, technology, engineering, and mathematics (STEM). We found that the University has a strong system of accounting and internal controls to adequately account for expenditures and that the Texas Space Grant Consortium (Consortium) satisfied the overall performance goals and objectives of the grant. However, we identified deficiencies in the Consortium's management of award funds and NASA's oversight of the grant's cost matching verification. Specifically, the Consortium inappropriately awarded $2,528 in scholarships to students who were not U.S. citizens and failed to adequately track required cost matching. Similarly, NASA did not adequately verify the Consortium's cost matching efforts, and consequently we questioned $325,028 related to these efforts.

Although these are relatively minor issues, in our judgment they point to needed improvements of the Agency's internal controls over scholarships and cost matching. Failure to make such improvements increases the risk that the Space Grant Program will fall short of its potential to reach the widest possible audience to promote STEM activities.

We made four recommendations to the Associate Administrator for Education and the Assistant Administrator for Procurement. We consider management's comments responsive and therefore have resolved and will close the recommendations upon completion and verification of the proposed corrective actions.

Audit of NASA Space Grant Awarded to the University of Texas at Austin (IG-16-013, February 18, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-013.pdf (report)

ONGOING AUDIT WORK

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

Kennedy's largest contract is its engineering services contract, which is valued at approximately $1.9 billion. The contract provides the Center with engineering and technology development, space flight systems engineering support, and laboratory services. We are examining whether NASA is appropriately managing the contract to accomplish mission goals in a timely and cost-effective manner.

Review of NASA's Management of the Earth Science Portfolio

With a FY 2015 budget of $1.8 billion, NASA's Earth Science Division manages 49 coordinated satellite and airborne missions in various stages of development and operations, more than 100 active technology investments, and several applied science programs for global observations of the land surface, biosphere, atmosphere, and oceans. We initiated this audit to assess NASA's management of its Earth science mission portfolio and determine whether it is effectively achieving its goals.

Audit of NASA's Mars 2020 Rover Mission

With an estimated life-cycle cost of $2.3 billion, Mars 2020 is the fourth most expensive project NASA is currently undertaking, trailing only Orion, the SLS, and the James Webb Space Telescope. The Mars 2020 rover is designed to conduct geological assessments of the rover's landing site, determine the potential habitability of the environment, and search for signs of ancient Martian life. Missing its 20-day launch window in July or August 2020 would result in significant cost increases due to a 26-month delay until the next available launch opportunity. We are evaluating NASA's management of the mission relative to achieving technical objectives, meeting milestones, and controlling costs.

Audit of NASA's Parts Quality Control Process

To help achieve its mission of advancing science, technology, aeronautics, and space exploration, NASA procures thousands of parts from contractors and subcontractors to build telescopes, satellites, robots, launch vehicles, propulsion systems, and other science instruments. Because many of these items are part of instruments that will be launched into the harsh environment of space, it is imperative that NASA ensure these parts are of the highest quality. We are assessing NASA's parts quality assurance processes and its efforts to minimize cost and schedule impacts from nonconforming parts.

Galaxy 1068 (photo taken by the Nuclear Spectroscopic Telescope Array)

INFORMATION TECHNOLOGY SECURITY AND GOVERNANCE

NASA's portfolio of IT assets includes approximately 500 information systems that control spacecraft, collect and process scientific data, and enable NASA personnel to collaborate with colleagues around the world. Through audits and investigations, the OIG has identified systemic and recurring weaknesses in NASA's IT security program that adversely affect the Agency's ability to protect the information and information systems vital to its mission. 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 2015 EVALUATION

This annual report, submitted as a memorandum from the Inspector General to the NASA Administrator, provides the OIG's independent assessment of the Agency's IT security posture. For FY 2015, we adopted a risk-based approach, under which we reviewed a sample of 29 Agency and contractor systems. Overall, we found that NASA established a program to address the challenges in each of the areas the Office of Management and Budget identified for this year's Federal Information Security Management Act (FISMA) review. However, we noted the Agency needs to make more progress in addressing NASA's continuous monitoring, configuration management, and risk management issues.

Our report addressed the 10 required areas of review for FY 2015 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

By implementing previous OIG recommendations and taking additional corrective actions, we concluded that NASA is steadily working to improve its overall IT security posture. Nevertheless, IT security remains a top management challenge for the Agency as it seeks to adopt more effective IT governance and risk management practices. We will continue to assess NASA's IT security program through focused audits of discrete issues as well as through our annual FISMA reviews.

Federal Information Security Management Act: Fiscal Year 2015 Evaluation (IG-16-002, October 19, 2015)

https://oig.nasa.gov/audits/reports/FY16/IG-16-002.pdf (summary)

ONGOING AUDIT WORK

Review of NASA's Information Security Program

We believe weaknesses identified in our FY 2015 FISMA review stem from missing requirements related to the Agency's information system security program. This review focuses on whether NASA has implemented programmatic, Agency-wide information security requirements that are independent of any particular information system.

Review of NASA's Information Security Program under the Federal Information Security Modernization Act for Fiscal Year 2016

In this required annual review, we are evaluating NASA's IT security program against the 2016 FISMA metrics. The OIG is 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 evaluating whether major deficiencies identified in our 2015 FISMA review have been addressed.

Audit of Industrial Control System Security within NASA's Critical and Supporting Infrastructure

This audit examines the security of NASA's industrial control system as it relates to the Agency's critical and supporting infrastructure. Specifically, we will evaluate whether NASA has implemented effective physical and logical security controls necessary to protect these systems against physical and cybersecurity threats.

Audit of Information Security Controls over NASA's Cloud Computing Services

The adoption of cloud-computing technologies has the potential to improve IT service delivery and reduce the costs associated with managing NASA's diverse IT portfolio. In this audit, we are examining the current status of NASA's information security controls over cloud computing services. Specifically, we are reviewing whether NASA has implemented Agency-wide controls to meet Federal and Agency IT security requirements to protect the confidentiality, integrity, and availability of NASA data maintained by cloud service providers. In addition, we are determining whether prior deficiencies identified in our 2013 audit of NASA's cloud computing services have been addressed.

Audit of NASA's Efforts to Improve the Agency's Information Technology Governance

IT plays an integral role in every facet of NASA's space, science, and aeronautics operations. The Agency spends more than $1.5 billion annually on a portfolio of IT assets that includes hundreds of information systems it uses to control spacecraft, collect and process scientific data, provide security for its IT infrastructure, and enable NASA personnel to collaborate with colleagues around the world. However, for over two decades, NASA has struggled to implement an effective IT governance approach that appropriately aligns authority and responsibility with the Agency's overall mission. In 2013, the OIG issued a report on IT governance that resulted in eight recommendations to strengthen the structure. This follow-up audit will examine the efforts NASA has made since the issuance of our 2013 report to improve the Agency's IT governance.

Near Earth Network antenna at the Alaska Satellite Facility

James Webb Space Telescope mirrors being readied for shipment

FINANCIAL MANAGEMENT

The OIG and NASA's independent external audit team continue to assess NASA's efforts to improve its financial management practices and make recommendations to assist the Agency in addressing weaknesses.

AUDIT OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S FISCAL YEAR 2015 FINANCIAL STATEMENTS

The OIG contracted with the independent public accounting firm CliftonLarsonAllen LLP (CLA) to audit NASA's FY 2015 financial statements. CLA performed the audit in accordance with the Government Accountability Office's *Government Auditing Standards* and the Office of Management and Budget's Bulletin No. 15-02, "Audit Requirements for Federal Financial Statements."

This audit resulted in an unmodified or "clean" opinion on NASA's FY 2015 financial statements. An unmodified opinion means the financial statements present fairly, in all material respects, the financial position and results of NASA's operations in conformity with U.S. generally accepted accounting principles.

CLA also reported on NASA's internal control and compliance with laws and regulations. For FY 2015, CLA identified two significant deficiencies: (1) accounting and reporting of asbestos-related cleanup costs and (2) IT configuration management. CLA also reported noncompliance with the Single Audit Act, as amended. Additionally, CLA identified deficiencies of a lesser magnitude and reported them to the Chief Financial Officer (IG-16-010) and the Chief Information Officer (IG-16-009). CLA also reported specific information security weaknesses found during its vulnerability assessment and penetrating testing of NASA's financial systems (IG-16-005). Finally, CLA provided an unmodified opinion on NASA's closing package financial statements (IG-16-007).

Audit of the National Aeronautics and Space Administration's Fiscal Year 2015 Financial Statements
(IG-16-006, November 13, 2015)

https://oig.nasa.gov/audits/reports/FY16/IG-16-006.pdf (summary)

ONGOING AUDIT WORK

Audit of NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2015

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

Audit of NASA's Fiscal Year 2016 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 2016 audit conducted by the independent public accounting firm CLA.

OTHER AUDIT MATTERS

NASA'S EDUCATION PROGRAM

Producing sufficient numbers of graduates prepared for STEM occupations is a national priority for the United States. In accordance with this goal, NASA makes available annually more than 1,000 internships, fellowships, and scholarships to students seeking hands-on experience in STEM research, aerospace education, and space exploration. In FY 2014, NASA received about $127 million in STEM education funding, which represents approximately 5 percent of the annual Federal STEM education budget.

The America COMPETES Reauthorization Act of 2010 directed NASA to develop educational programs, improve public STEM literacy, and support research-based programs and activities that increase student interest and participation in STEM. NASA's Headquarters-based Office of Education works with Offices of Education at each of the NASA Centers and with the Agency's four Mission Directorates to coordinate Agency efforts to meet these goals. The Office of Education is also responsible for implementing Objective 2.4 of NASA's Strategic Plan: "Advance the Nation's STEM education and workforce pipeline by working collaboratively with other agencies to engage students, teachers, and faculty in NASA's missions and unique assets."

We examined NASA's education activities and determined whether the Agency was effectively implementing its education objective and Federal STEM education priorities.

NASA's Office of Education has taken steps to improve its management of the Agency's diverse education portfolio by restructuring several programs and projects to better align with Federal guidance; consolidating web applications for internship, fellowship, and scholarship opportunities; and increasing collaboration with other Federal agencies. However, the Office's efforts have been hampered by an outdated strategic framework and a lack of long-term goals upon which to evaluate the success of NASA's education activities. Specifically, the Office of Education did not update a 2006 framework document to align with the priorities outlined in the Agency's 2014 Strategic Plan until July 2015. Furthermore, the updated framework did not include measurable long-term goals that address the United States' need to increase the number of students who earn advanced degrees in preparation for STEM careers.

In addition, a lack of timely and comprehensive management information has adversely impacted the Office of Education's ability to effectively monitor program accomplishments and accurately report NASA contributions to the Administration's STEM education goals. The Office uses the Education Performance Measurement (OEPM) system to collect data related to annual and near-term performance measures, objectives, and outcomes and reports that data to the Office of Management and Budget. We found the OEPM system was unavailable numerous times during a fiscal year, and consequently some NASA data was incomplete, rendering the information in the Agency's Annual Performance Report inaccurate. For example, approximately 4,000 students who had participated in STEM activities were omitted from NASA's Annual Performance Report because of technical and access issues relating to OEPM.

Although the Office of Education has developed a competitive process for identifying effective STEM education activities that deserve funding, NASA can further improve its processes and procedures

to collaborate and consolidate education activities. In response to an Office of Management and Budget requirement that NASA's internal projects and activities compete with one another for education funding, in FY 2015 the Office of Education initiated an internal, criteria-based competition as the basis for its funding prioritization process. We reviewed all 50 abstracts submitted to the competition and found no significant evidence of inter-Center collaboration to identify areas for joint efforts. Consequently, in contrast to Federal guidance, NASA risks funding a fragmented portfolio of activities. We believe the Office of Education could reduce this risk by emphasizing coordination and consolidation as a priority in the initial stages of the competition and subsequently engaging the Centers to identify common themes.

In order to improve the effectiveness of the Office of Education's management of its education portfolio, we recommended that NASA's Associate Administrator for Education issue an Implementation Plan that aligns and remains current with NASA's Strategic Plan, accurately reflects the Office of Education's strategic direction, and includes measures to meet long-term goals and methodologies to gauge success; improve accessibility to the OEPM system to ensure project managers have an adequate and timely opportunity for data entry at the start of each fiscal year; establish internal control procedures to ensure all required education activity data is collected, entered, verified, and validated in the OEPM system for accurate and reliable reporting in the Annual Performance Report; establish a reasonable timeframe for project managers' data entry after completion of individual education activities and ensure it is documented in the internal control procedures; and assist Center Education Offices in developing coordinated activities for future competitions prior to the Office of Education reviewing all submissions and making selections. NASA concurred with our recommendations.

NASA's Education Program
(IG-16-001, October 19, 2015)

https://oig.nasa.gov/audits/reports/FY16/IG-16-001.pdf (report);
https://oig.nasa.gov/Video/RTolomeo_10222015.html (video)

REVIEW OF NASA'S COMPLIANCE WITH FEDERAL EXPORT CONTROL LAWS

In a February 2016 letter to Congress, the OIG summarized its work over the previous year relating to NASA's compliance with Federal export control laws. During the past year, the OIG completed two audits examining NASA's controls over its IT assets and security systems, many of which contain data subject to export control laws. We also initiated three audits related to IT security, export control, and foreign national access procedures. In particular, in July 2015, we initiated a review examining NASA's implementation of 40 recommendations made in reviews completed in 2013 and 2014 by the OIG, Government Accountability Office, and National Academy of Public Administration designed to improve the Agency's export control and foreign national access management procedures. We anticipate completing this review in mid-2016.

In addition, during this period our Office of Investigations closed two investigations related to website intrusion and hacking by foreign nationals that could have exposed export-controlled information to loss or misuse.

Review of NASA's Compliance with Federal Export Control Laws
(IG-16-012, February 2, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-012.pdf (report)

ONGOING AUDIT WORK

Review of NASA-Funded Institutes

NASA provides funds to institutes to obtain research, promote STEM education, and spur economic development consistent with Agency strategic goals. We are identifying and examining 60 such institutes that received funding from NASA between FYs 2013 and 2015.

Review of NASA's Implementation of Export Control and Foreign National Access Recommendations

Since 2013, the OIG, Government Accountability Office, and National Academy of Public Administration have made 40 recommendations to improve NASA's Export Control and Foreign National Access Management Programs. We initiated this audit to assess whether NASA is effectively implementing the recommendations and taking appropriate actions to protect export control-restricted information and manage foreign national access to its facilities and systems.

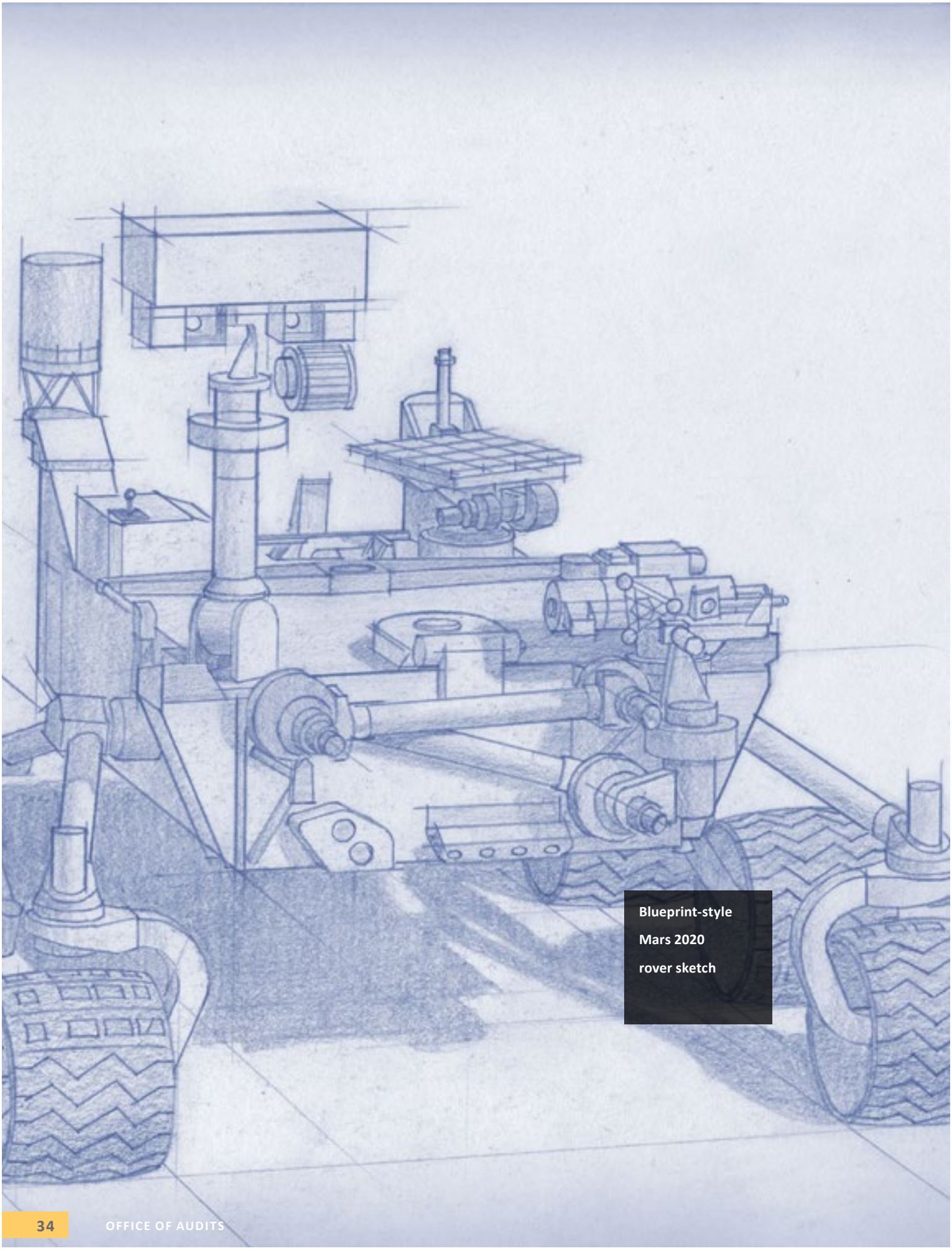
Follow-up Evaluation of NASA's Implementation of Executive Order 13526, Classified National Security Information

In accordance with the Reducing Over-Classification Act, the OIG initiated its second evaluation of NASA's implementation of Executive Order 13526. We issued the first evaluation on September 26, 2013.[17] The objective of this evaluation is to assess the Agency's implementation of the recommendations made in our 2013 report.

Review of NASA's Efforts to Manage Its Technical Capabilities

In 2014, NASA created the Technical Capabilities Assessment Team (TCAT) to provide Agency leadership with information to make informed decisions about the optimal mix of people and assets to carry its mission forward. As of September 2015, TCAT had assessed 18 technical capabilities and issued 11 formal decisions. As a result of these decisions, the Agency excessed several aircraft, eliminated internal microgravity flight operations, and updated external and internal memorandums of agreement. We are examining the status of NASA's recent technical capabilities assessments to assess the progress these initiatives have made towards aligning the Agency's capabilities with current and future mission needs.

[17] NASA OIG, "NASA's Compliance with Executive Order 13526: Classified National Security Information" (IG-13-023, September 26, 2013).



Blueprint-style Mars 2020 rover sketch

STATISTICAL DATA

TABLE 1: AUDIT PRODUCTS AND IMPACTS

Report No. and Date Issued	Title	Impact
Space Operations and Human Exploration		
IG-16-015, 03/28/2016	Audit of Spaceport Control and Command System	Identified issues NASA should address to reduce the risk of further cost, schedule, and performance issues while developing the command control software that will be used to launch Orion and SLS
IG-16-014, 03/17/2016	NASA's Management of the Near Earth Network	Identified issues NASA should address to improve the Network's ability to provide communication services and lessen its vulnerability to IT and physical compromise and to improve the Agency's administration of proactive maintenance on the antennas
IG-16-008, 12/15/2015	NASA's Efforts to Manage Its Space Technology Portfolio	Improvements in organizational roles, processes, and controls for aligning and prioritizing technology projects
IG-16-003, 10/29/2015	NASA's Efforts to Manage Health and Human Performance Risks for Space Exploration	Improvements in NASA's management of human health and performance risks to Agency missions
Acquisition and Project Management		
IG-16-013, 02/18/2016	Audit of NASA Space Grant Awarded to the University of Texas at Austin	Risk that the Space Grant Program will fall short of its potential to reach the widest possible audience to promote STEM activities
IG-16-011, 01/21/2016	Audit of a NASA Research Grant Awarded to the University of Miami	Improvements in the controls established to ensure proper support and payment of invoices
Information Technology Security and Governance		
IG-16-002, 10/19/2015	Federal Information Security Management Act: Fiscal Year 2015 Evaluation	Improvements in internal controls for IT security through the enhancement of management programs and processes
Financial Management		
IG-16-010, 02/09/2016	FY 2015 Financial Accounting Management Letter	Improvements in the effectiveness of controls over financial reporting
IG-16-009, 12/17/2015	FY 2015 Information Technology Management Letter	Improvements in the effectiveness of controls over the financial-related IT control environment
IG-16-007, 11/17/2015	FY 2015 Closing Package Financial Statements 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

Report No. and Date Issued	Title	Impact
Financial Management		
IG-16-006, 11/13/2015	Audit of the National Aeronautics and Space Administration's Fiscal Year 2015 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-16-005, 11/09/2015	Final Report, "Vulnerability Assessment and Penetration Testing of National Aeronautics and Space Administration Enterprise Applications Competency Center," Prepared by CliftonLarsonAllen, in Connection with the Audit of NASA's Fiscal Year 2015 Financial Statements	Improvements in the security of the Agency's financial systems
Other Audit Matters		
IG-16-012, 02/02/2016	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
IG-16-001, 10/19/2015	NASA's Education Program	Improvements in NASA's ability to establish and measure effectiveness relative to long-term goals, implement timely and comprehensive management information, and accurately portray the value and outcomes of its education programs

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

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
Space Operations and Human Exploration					
IG-16-015, 03/28/2016	Audit of Spaceport Control and Command System	03/28/2016	1	0	09/30/2018
IG-16-014, 03/17/2016	NASA's Management of the Near Earth Network	03/17/2016	14	0	03/30/2018
IG-16-008, 12/15/2015	NASA's Efforts to Manage Its Space Technology Portfolio	12/15/2015	5	0	09/30/2016
IG-16-003, 10/29/2015	NASA's Efforts to Manage Health and Human Performance Risks for Space Exploration	10/29/2015	6	0	12/30/2016
Acquisition and Project Management					
IG-16-013, 02/18/2016	Audit of NASA Space Grant Awarded to the University of Texas at Austin	02/18/2016	4	0	09/30/2017
IG-16-011, 01/21/2016	Audit of a NASA Research Grant Awarded to the University of Miami	01/21/2016	1	0	06/30/2016

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Closure Date[a]
			Open	Closed	
Financial Management					
IG-16-010, 02/09/2016	FY 2015 Financial Accounting Management Letter	02/09/2016	14	0	12/31/2016
IG-16-009, 12/17/2015	FY 2015 Information Technology Management Letter	12/17/2015	27	0	12/31/2016
IG-16-006, 11/13/2015	Audit of the National Aeronautics and Space Administration's Fiscal Year 2015 Financial Statements	11/13/2015	18	0	11/30/2016
IG-16-005, 11/09/2015	Final Report, "Vulnerability Assessment and Penetration Testing of National Aeronautics and Space Administration Enterprise Applications Competency Center," Prepared by CliftonLarsonAllen, in Connection with the Audit of NASA's Fiscal Year 2015 Financial Statements	11/09/2016	9	0	11/30/2016
Other Audit Matters					
IG-16-001, 10/19/2015	NASA's Education Program	10/19/2015	5	0	06/29/2018

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
			Open	Closed	
Space Operations and Human Exploration					
IG-15-023, 09/17/2015	NASA's Response to Orbital's October 2014 Launch Failure: Impacts on Commercial Resupply of the International Space Station	12/02/2015	4	3	07/31/2016
IG-15-013, 03/26/2015	NASA's Management of the Deep Space Network	03/26/2015	9	3	03/30/2017
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	05/02/2016

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date
			Open	Closed	
Space Operations and Human Exploration					
IG-14-031, 09/18/2014	Extending the Operational Life of the International Space Station Until 2024	09/29/2014	2	1	—[a]
IG-14-026, 07/22/2014	Audit of the Space Network's Physical and Information Technology Security Risks	07/22/2014	3	1	01/17/2018
Acquisition and Project Management					
IG-15-024, 09/29/2015	NASA's Joint Cost and Schedule Confidence Level Process	09/29/2015	7	1	12/30/2016
IG-15-022, 07/16/2015	Audit of NASA's Cooperative Agreement Awarded to the Wise County Circuit Court	07/16/2015	7	0	12/04/2018
IG-15-009, 12/16/2014	NASA's Use of Blanket Purchase Agreements	12/16/2014	4	4	01/31/2017
IG-14-020, 06/05/2014	NASA's Use of Space Act Agreements	06/05/2014	3	4	12/31/2016
IG-14-003, 11/19/2013	NASA's Use of Award-fee Contracts	04/03/2015	2	13	04/30/2016
IG-12-018, 07/26/2012	Audit of NASA Grants Awarded to the Philadelphia College Opportunity Resources for Education	07/26/2012	3	5	04/30/2016
Information Technology Security and Governance					
IG-14-023, 07/10/2014	Security of NASA's Publicly Accessible Web Applications	07/10/2014	2	3	07/29/2016
IG-14-015, 02/27/14	NASA's Management of its Smartphones, Tablets, and other Mobile Devices	02/27/2014	2	0	06/30/2016
IG-13-006, 03/18/2013	NASA's Process for Acquiring Information Technology Security Assessment and Monitoring Tools	03/18/2013	1	3	04/27/2016
IG-12-017, 08/08/2012	Review of NASA's Computer Security Incident Detection and Handling Capability	08/07/2012	2	1	09/30/2016
IG-12-013, 03/01/2012	Audit of NASA's Process for Transferring Technology to the Government and Private Sector	03/01/2012	2	4	07/30/2016

Report No. and Date Issued	Title	Date Resolved	Number of Recommendations		Latest Target Closure Date
			Open	Closed	
Institutional and Facility Management					
IG-15-019, 06/30/2015	Review of NASA's Pressure Vessel Systems	06/30/2015	8	2	12/30/2016
IG-15-014, 04/23/2015	NASA's Requirements for Plum Brook Station	04/23/2015	2	0	12/31/2016
IG-13-008, 02/12/2013	NASA's Efforts to Reduce Unneeded Infrastructure and Facilities	02/12/2013	2	3	02/01/2017
Financial Management					
IG-15-015, 05/15/2015	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2014	05/15/2015	10	0	05/31/2016
IG-15-008, 11/24/2014	FY 2014 Financial Statement Audit Management Letter	05/18/2015	1	84	12/31/2016
IG-15-002, 10/21/2014	Audit of NASA's Premium Air Travel	10/21/2014	1	6	09/30/2016

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

TABLE 4: AUDITS WITH QUESTIONED COSTS

	Number of Audit Reports	Total Questioned Costs[a]
No management decision made by beginning of period	2	$4,973,060
Issued during period	1	$325,028
Needing management decision during period	3	$5,298,088
Management decision made during period[b]		
Amounts agreed to by management	1	$325,028
Amounts not agreed to by management	1	$1,071,040
No management decision at end of period[b]		
Less than 6 months old	0	$0
More than 6 months old	1	$3,902,020

[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	Funds To Be Put to Better Use
No management decision made by beginning of period	2	$14,053,020
Issued during period	0	$0
Needing management decision during period	2	$14,053,020
Management decision made during period		
Amounts agreed to by management	1	$222,931
Amounts not agreed to by management	1	$9,430,089
No management decision at end of period		
Less than 6 months old	0	$0
More than 6 months old	1	$4,400,000

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

Audits reviewed	12
Audits with findings	7

Findings and Questioned Costs		
	Number of Findings	Questioned Costs
Management decisions pending, beginning of reporting period	49	$736,297
Findings added during the reporting period	7	$0
Management decisions made during reporting period	(13)	
Agreed to by management	$0	$0
Not agreed to by management	$0	$0
Management decisions pending, end of reporting period	43	$736,297

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

DEFENSE CONTRACT AUDIT AGENCY AUDITS OF NASA CONTRACTORS

The Defense Contract Audit Agency (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

Between October 1, 2015, and November 25, 2015, DCAA issued 44 audit reports on contractors who do business with NASA.[18] 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	$91,332,000	$1,384,000
Funds To Be Put to Better Use	$0	$0

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.)

[18] As of November 25, 2015, DCAA is prohibited from performing audit work for any agencies other than the Department of Defense.

OFFICE OF INVESTIGATIONS

Photo taken from the ISS during the U.S. blizzard of 2016

PROCUREMENT, ACQUISITION, AND GRANT FRAUD

Former Research Professor and Corporation Sentenced

A former research professor and his corporation were sentenced to 36 months' probation and fined $175,000 after admitting to fraudulently obtaining millions of dollars in Government grants and contracts. A multi-agency investigation disclosed that the professor made false statements in award proposals to obtain numerous grants and contracts. The corporation entered a guilty plea to felony wire fraud, and the professor entered into a deferred prosecution agreement for his role in the fraud. Additionally, both jointly agreed to forfeit $180,000 as money that was improperly received as a result of the fraud.

One Subcontractor Pleaded Guilty and Four Subcontractors Sentenced

One subcontractor pleaded guilty to conspiracy and mail fraud, and four were sentenced for conspiracy to pay kickbacks to a procurement official at a Government contractor that supplied satellites and satellite parts to the Federal Government, including NASA. Two co-defendants were sentenced to 24 months in jail, a third co-defendant was sentenced to 36 months, and a fourth co-defendant was sentenced to 18 months. Two of the defendants also agreed to forfeitures of $606,048 and $109,843. The investigation was conducted by NASA OIG, the Defense Criminal Investigative Service, and the Internal Revenue Services' Criminal Investigation Division. The National Reconnaissance Office and the U.S. Air Force's Office of Special Investigations also participated in the investigation.

Contractor Agrees to Civil Settlement

A NASA contractor agreed to a $250,000 civil settlement to resolve allegations of fraud arising as part of the Small Business Innovation Research (SBIR) program. A joint investigation by the NASA OIG and the National Science Foundation revealed that the contractor was responsible for submitting duplicative proposals and false claims to NASA and the National Science Foundation.

Business Owner Convicted of Giving Gifts to Government Employees in Exchange for Business

The owner of two businesses that sold office supplies to the Federal Government was convicted of one count of conspiring to give gifts to Federal officials and one count of giving a gift to a public official. Trial testimony disclosed that the vendor also operated a "rewards" program in which Government contracting officers earned "points" based on the amount they approved their agency to purchase from the owner's businesses. The points were converted to gift cards and provided to Government employees.

Research Firm and Former University of Houston Professors Sentenced

A Houston research firm and two former University of Houston professors were sentenced for fraudulent activity related to more than $7 million in SBIR contracts with NASA and other Federal agencies. The firm was ordered to pay a fine of $15,000, while the two professors were sentenced to prison for terms of 3 to 5 months and ordered to pay $235,000 in restitution. An investigation conducted by the NASA OIG, the Defense Criminal Investigative Service, the National Science Foundation OIG, the Department of Energy OIG, the Air Force Office of Special Investigations, and

the Defense Contract Audit Agency revealed that the firm and the professors made false statements in the SBIR application and in claims for payment.

Business and Owner Sentenced

An Atlanta area small business owner was sentenced to 4 months in prison followed by 1 year of supervised release. The small business was also sentenced to 5 years of probation and ordered to pay a $5,000 fine. The business owner and his company were previously convicted of seven counts of wire fraud in a joint investigation conducted by the NASA OIG, the National Science Foundation OIG, and the U.S. Secret Service. The investigation revealed that the owner received almost $800,000 in grant funds and spent the money almost entirely on personal expenses, such as mortgage payments, private school tuition for his children, vacations, shopping, and wire transfers to family and friends overseas.

University Professor and Wife Convicted of Defrauding NASA

A Lehigh University professor and his wife were convicted at trial of six counts of wire fraud stemming from a $600,000 SBIR contract with NASA. In 2010, the professor and his wife's company applied for NASA SBIR funding to develop a cutting-edge sensor to help track climate change. According to the company's proposal, the wife would oversee the project and supervise researchers in her husband's lab at Lehigh, where no more than half the work would be subcontracted. The investigation disclosed that the couple used their company as a front to funnel Federal grant money to themselves while the research was actually performed by students and others working in the university lab. NASA also suspended the individuals and their company from receiving any Federal contracts or grants.

Alabama Business Convicted

As the result of an investigation conducted by the NASA OIG and the Defense Criminal Investigative Service, a Huntsville, Alabama, small business pleaded guilty in Federal court to making a false statement to win an SBIR contract. The NASA OIG's proactive investigative efforts determined that two companies with the same employees were proposing to complete similar research for NASA and the Department of Defense.

Chicago Contractor Indicted for Defrauding NASA's SBIR Program

A joint investigation by the NASA OIG and the National Science Foundation OIG resulted in a four-count Federal indictment against a contractor for wire fraud related to funds obtained by false pretenses under the SBIR Program.

Small Business Owner Charged

A small business owner was charged by a Federal Grand Jury in January 2016 with three counts of wire fraud, one count of false statements, and three counts of aggravated identity theft related to almost $800,000 in NASA SBIR contracts. The OIG investigation revealed that the owner's proposal contained "ghost" employees and fraudulent letters of support, which affected the Agency's decision to award his company multiple research contracts.

EMPLOYEE MISCONDUCT

Civil Servant Charged with Theft

A Goddard civil servant was charged with two misdemeanor counts of theft in connection with the embezzlement of funds. The NASA OIG investigation revealed the civil servant allegedly stole more than $1,000 from the Goddard Employee Welfare Association and the Combined Federal Campaign.

Former Glenn Contractor Found Guilty and Sentenced for Indecent Acts

A joint investigation by the OIG and the Federal Protective Service resulted in the conviction of a former contract employee at Glenn Research Center of 27 state felony counts of pandering obscenity, 19 misdemeanor counts of public indecency, and one misdemeanor count of telecommunications harassment. The conviction stemmed for an investigation into allegations that the former contractor sent nude photographs of himself via his personal e-mail account to female employees working in the Cleveland, Ohio, Federal Building. In January 2016, the individual was sentenced to 6 months' incarceration and 2 years' probation, and he was required to register as a sex offender.

CYBER CRIME

Research Scientist Indicted and Arrested for Child Pornography

A research scientist at Goddard was indicted and subsequently arrested for receipt and possession of child pornography. A joint NASA OIG and U.S. Postal Inspection Service investigation revealed that the employee possessed child pornography.

Former Contractor Employee Enters into Pre-Trial Diversion

A former contractor employee at the Marshall Space Flight Center entered into a pre-trial diversion program in connection with state charges relating to the possession of child pornography. The NASA OIG assisted in the investigation after the employee's arrest on June 12, 2015, by local authorities in the state of Alabama.

Contractor Employee Sentenced for Child Pornography

A NASA OIG investigation revealed that a contractor employee at Kennedy had downloaded child pornographic material using NASA network resources. In July 2015, the employee was indicted by a Federal grand jury and subsequently arrested. On December 14, 2015, the employee was sentenced to 24 months in prison and ordered to pay a $1,000 fine.

Nigerian National Sentenced

A NASA OIG cybercrime investigation led to the identification, arrest, and extradition of a Nigerian national for charges related to aggravated identity and credit card thefts. After extradition to New York from South Africa, the subject pled guilty to one count of conspiracy to defraud the Federal Government and was sentenced to time served of 42 months in prison and ordered to submit to deportation and not reenter the United States.

NASA Employee Charged

A NASA employee was charged with using the Internet to entice an underage minor to cross state lines to engage in criminal sexual activity. The investigation was conducted by the NASA OIG, the Department of Homeland Security, and the Tennessee Bureau of Investigations.

Large Binocular Telescope Interferometer

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	26	16	5	23	70
All Others	28	21	0	50	99
Total	**54**	**37**	**5**	**73**	**169**

[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 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]	23

[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	49
Full Criminal/Civil Investigations	141
Administrative Investigations	50
Total	**240**

TABLE 11: QUI TAM INVESTIGATIONS

Qui Tam Matters Opened This Reporting Period	2
Qui Tam Matters Pending at End of Reporting Period	4

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	32
Indictments/Criminal Informations	12
Convictions/Plea Bargains	15
Sentencing/Pre-Trial Diversions	21
Civil Settlements/Judgments	1

TABLE 13: ADMINISTRATIVE ACTIONS

Referrals to NASA Management for Review and Response	18
Referrals to NASA Management – Information Only	13
Referrals to the Office of Audits	3
Referrals to Security or Other Agencies	8
Total	**42**
Recommendation to NASA Management for Disciplinary Action	
Involving a NASA Employee	7
Involving a Contractor Firm	1
Involving a Contractor Employee	1
Other	0
Recommendations to NASA Management on Program Improvements	
Matters of Procedure	3
Total	**12**
Administration/Disciplinary Actions Taken	
Against a NASA Employee	10
Against a Contractor Employee	4
Against a Contractor Firm	0
Procedural Change Implemented	9
Total	**23**
Suspensions or Debarments from Government Contracting	
Involving an Individual	2
Involving a Contractor Firm	1
Total	**3**

TABLE 14: INVESTIGATIVE RECEIVABLES AND RECOVERIES

Judicial	$2,696,770
Administrative[a]	$741,924
Total	**$3,438,694**
Total NASA	**$278,747**

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

LEGAL ISSUES

SpaceX Falcon 9 launch

2302(C) CERTIFICATION

The U.S. Office of Special Counsel (OSC) offers certification for Federal agencies and Offices of Inspectors General that train their staff on the merit principles in hiring and employment and the prohibited personnel practices identified in 5 U.S.C. § 2302. The OSC Program is mandatory under the White House's National Action Plan.

To be certified, an agency must demonstrate that its employees have received training on whistleblower protections. In addition, each agency must display informational posters in the workplace and provide an internet link to the OSC website. Once issued, a certification by OSC is valid for a period of 3 years.

The OIG has applied for this certification, and OIG attorneys, with the assistance of OIG Human Resources, conducted certification training for OIG Office of Investigations supervisory and management staff in January 2016. This training served as a refresher and enhanced staff skills in handling whistleblower disclosures and conducting reprisal investigations.

WHISTLEBLOWER PROTECTION CASES

During this reporting period, the OIG confirmed two complainants' allegations that they suffered unlawful retaliation for raising whistleblower concerns and requested an appropriate remedy from NASA. The NASA Administrator delegated his decision to the NASA Office of General Counsel, which concluded that the 2008 version of the whistleblower protection statute (10 U.S.C. § 2409) did not protect these complainants because their disclosures did not pertain to a violation of law on a Department of Defense contract. The NASA Office of General Counsel interpreted 10 U.S.C. § 2409 to cover allegations regarding NASA only if they pertained to a substantial and specific danger to public health and safety.

WHISTLEBLOWER PROTECTION WORKING GROUP

On March 7, 2016, NASA OIG attorneys hosted a whistleblower protection working group meeting that focused on the process for completing whistleblower investigations under the National Defense Authorization Act. The FY 2013 Act amended whistleblower protection for employees of NASA and Department of Defense contractors, subcontractors, and grantees. It also established a pilot program for the civilian agencies other than NASA. The statute requires that Offices of Inspector General complete meritorious whistleblower reprisal investigations within 180 days, with the possibility of another 180-day extension with the consent of the whistleblower. The working group discussed resources brought to bear on these investigations, how reports are prepared and processed, and remedial action available under the law. Issues associated with the existing statute were also discussed.

SYSTEM OF RECORDS NOTICE

On November 20, 2015, in accordance with the Privacy Act of 1974 (Privacy Act), as amended, NASA published in the Federal Register notice of a new system of records entitled "The Office of Inspector General Advanced Data Analytics System (ADAS)." ADAS is a system of records that will store individually identifying information from a variety of individuals who have applied for or received grants, contracts, cooperative or other agreements, loans, or payments from NASA. Information for ADAS may also be obtained from systems of records maintained by other Government agencies. All applicable provisions of the Privacy Act, including relevant portions of the Computer Matching Act, will be observed when obtaining and maintaining such records in the ADAS.

This new system of records will be used to identify internal control weaknesses and system issues to improve methods of data modeling and annual audit planning. This system will provide the NASA OIG with access to a single repository of data that currently resides in several different Agency systems of records. The NASA OIG will conduct data modeling on this data, using statistical and mathematical techniques. The result of that data modeling may be used in the conduct of audits, investigations, inspections, or other activities as necessary to prevent and detect waste, fraud, and abuse in NASA programs and operations.

REGULATORY REVIEW

During this reporting period, we reviewed 21 NASA regulations and policies under consideration by the Agency. The following are considered the more significant regulations and reviews:

NPR 1600 DRAFT 2, COMMUNICATIONS SECURITY

This NASA Procedural Requirement is intended to amplify national policy for the use and protection of communications security materials used by NASA programs. We recommended the policy direct the reader to appropriate guidance on handling Sensitive But Unclassified information, define more clearly the process for coordination between the Senior Agency Information Security Officer and the Chief Information Officer, and clarify the process for determining when a NASA system must meet the same communications security requirements as a National Security program.

NPR 2200.2E, REQUIREMENTS FOR DOCUMENTATION, APPROVAL, AND DISSEMINATION OF SCIENTIFIC AND TECHNICAL INFORMATION

This NASA Procedural Requirement provides Agency-wide procedures to document, approve, and disseminate NASA scientific and technical information. We recommended a more in-depth discussion of the various means of disseminating scientific and technical information, including the use of social media. We also recommended the policy include a prior recommendation on timely notification that was accepted by the Agency in a 2008 OIG report.[19]

[19] NASA OIG, "Actions Needed to Ensure Scientific and Technical Information Is Adequately Reviewed at GSFC, JSC, LaRC, and MSFC" (IG-08-017, June 2, 2008).

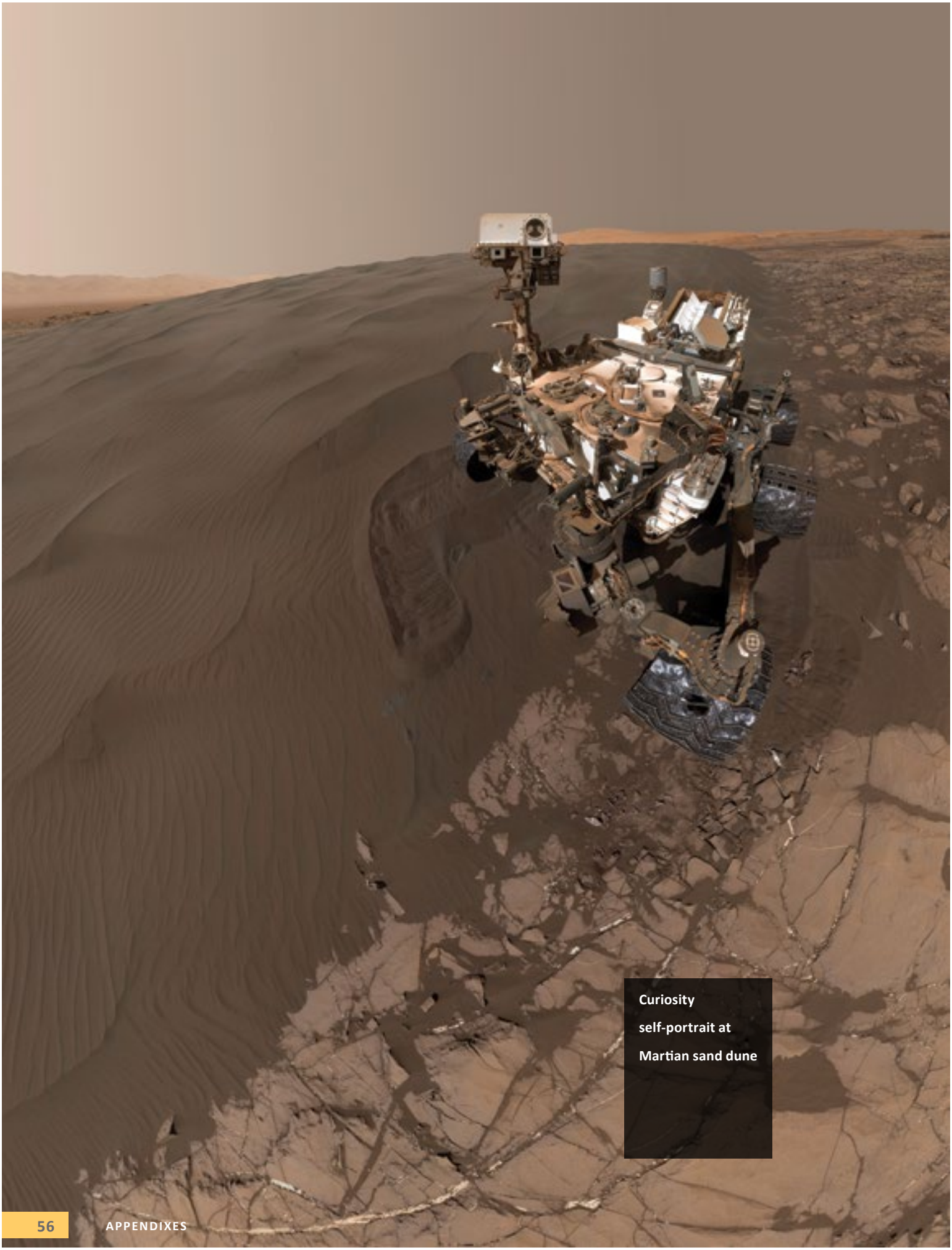
STATISTICAL DATA

TABLE 15: LEGAL ACTIVITIES AND REVIEWS

Freedom of Information Act Matters	23
Appeals	0
Inspector General Subpoenas Issued	38
Regulations Reviewed	21

APPENDIXES

Appendixes



Curiosity self-portrait at Martian sand dune

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	53
Section 5(a)(1)	Significant Problems, Abuses, and Deficiencies	13–33
Section 5(a)(2)	Recommendations for Corrective Actions	13–33
Section 5(a)(3)	Prior Significant Audit Recommendations Yet to Be Implemented	37–39
Section 5(a)(4)	Matters Referred to Prosecutive Authorities	48
Sections 5(a)(5) and 6(b)(2)	Summary of Refusals to Provide Information	None
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	39–40
Section 5(a)(7)	Summary of Significant Audits and Investigations	13–48
Section 5(a)(8)	Total Number of Reports and Total Dollar Value for Audits with Questioned Costs	39
Section 5(a)(9)	Total Number of Reports and Total Dollar Value for Audits with Recommendations that Funds Be Put to Better Use	40
Section 5(a)(10)	Summary of Prior Audit Products for which No Management Decision Has Been Made	39–40
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	N/A
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 18th Annual Awards Ceremony on October 22, 2015, to recognize the work of OIG employees across the Federal Government. Several NASA OIG employees and teams were honored.

Award for Excellence, Audit

Members of the Office of Audits Space Operations Directorate received an Award for Excellence in recognition of exceptional achievement examining NASA's Space Communications and Navigation Program. Team members included Ridge Bowman, Loretta Atkinson, Barbara Moody, Jimmie Griggs, and Chris Reeves.

Left to right: Allison Lerner, CIGIE Vice-Chair; Ridge Bowman, NASA OIG; and Michael Horowitz, CIGIE Chair.

Award for Excellence, Audit

Members of the Office of Audits Science and Research Directorate received an Award for Excellence in recognition of exceptional achievement identifying deficiencies that hamper NASA's efforts to discover, characterize, catalog, and develop mitigation strategies to protect the Earth from the hazards of near-Earth objects. Team members included Raymond Tolomeo, Ronald Yarbrough, Jiang Yu Lin, Anh Doan, and Noreen Khan-Mayberry.

Left to right: Allison Lerner, CIGIE Vice-Chair; Raymond Tolomeo, NASA OIG; and Michael Horowitz, CIGIE Chair.

Award for Excellence, Audit

Members of the Office of Audits Space Operations Directorate received an Award for Excellence in recognition of exceptional achievement examining NASA's decision to extend the International Space Station until 2024. Team members included Ridge Bowman, Kevin Fagedes, Letisha Antone, Gina Davenport, Frank Martin, and Cedric Campbell.

Left to right: Allison Lerner, CIGIE Vice-Chair; Kevin Fagedes, NASA OIG; and Michael Horowitz, CIGIE Chair.

Award for Excellence, Investigation

Members of the Office of Investigations received an Award for Excellence in recognition of the outstanding commitment, dedication, initiative, and teamwork demonstrated in the successful investigation and prosecution of a husband and wife team of scientists that fraudulently obtained more than $10 million in SBIR contracts from NASA and other Federal agencies. Team members included Tracy Walraven (former NASA OIG) and Phil Mazzella.

Left to right: Tracy Walraven and Phil Mazzella, NASA OIG.

APPENDIX C. DEBT COLLECTION

The Senate Report accompanying the supplemental Appropriations and Rescissions Act of 1980 (Pub. L. No. 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 this data each November for the previous fiscal year. For the period ending September 30, 2015, the receivables due from the public totaled $1,900,048, of which $191,566 is delinquent. The amount written off as uncollectible for the period October 1, 2014, through September 30, 2015, was $142,011.

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 our Office of Audits during this semiannual period. The date of the last external peer review of the NASA OIG was September 1, 2015, and it was conducted by the Department of State OIG. NASA OIG received a peer review rating of pass. There are no outstanding recommendations from this external peer review.

During this semiannual reporting period, we performed a peer review the system of quality control for the audit organization of the Special Inspector General for Afghanistan Reconstruction (SIGAR) in effect for the period October 1, 2014, through September 30, 2015. We assigned a peer review rating of "pass" for the period reviewed. We also communicated additional findings and recommendations that required attention by SIGAR managers but were not considered of sufficient significance to affect the opinion expressed in our report. SIGAR has informed us that it has implemented the recommendations we made as the result of our review. We have no outstanding recommendations related to this or past peer reviews that we have conducted.

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 NASA OIG's Office of Investigations and found the office to be in compliance with all relevant guidelines. There are no unaddressed recommendations outstanding from this review.

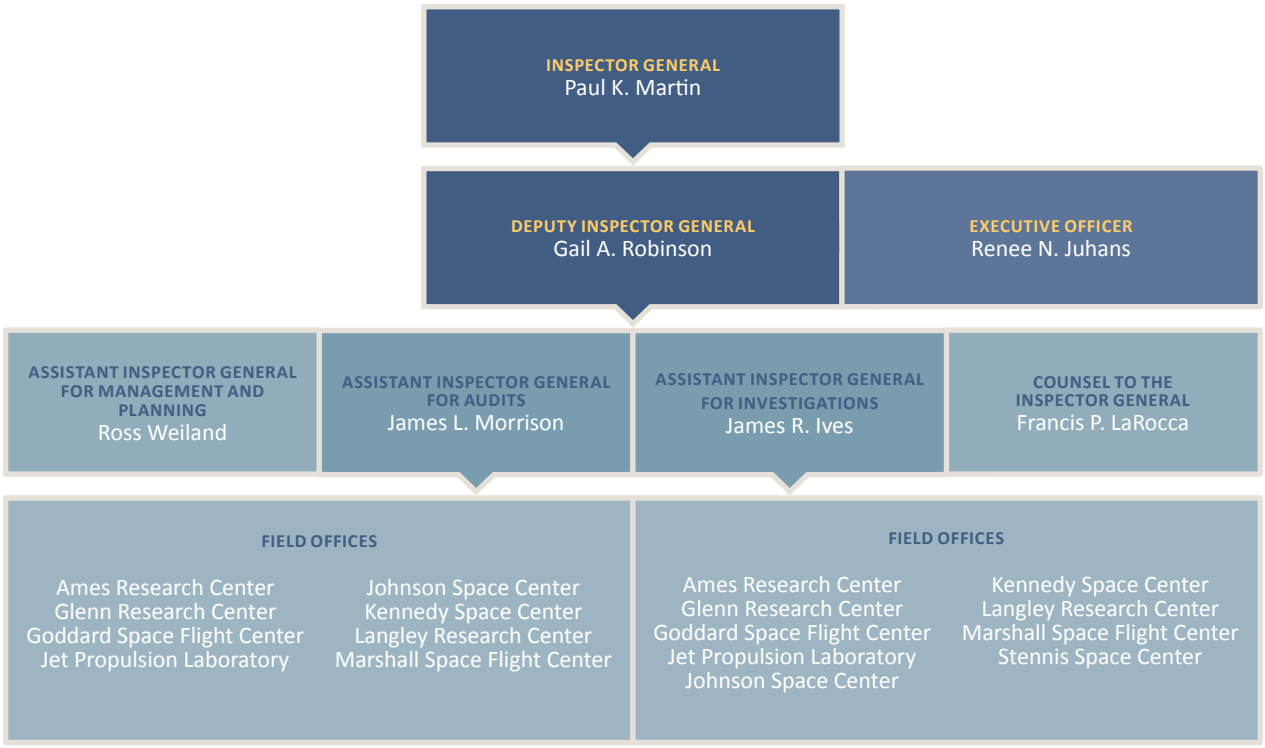
Jason-3 satellite prepared for launch

APPENDIX E. ACRONYMS

ADAS	Advanced Data Analytics System
CIGIE	Council of the Inspectors General on Integrity and Efficiency
CLA	CliftonLarsonAllen LLP
DCAA	Defense Contract Audit Agency
FISMA	Federal Information Security Management Act
FY	Fiscal Year
GSDO	Ground Systems Development and Operations
IG	Inspector General
ISS	International Space Station
IT	Information Technology
HRP	Human Research Program
JCL	Joint Cost and Schedule Confidence Level
JWST	James Webb Space Telescope
NEN	Near Earth Network
NSSC	NASA Shared Services Center
OEPM	Education Performance Measurement
OIG	Office of Inspector General
OSC	Office of Special Counsel
SBIR	Small Business Innovation Research
SCaN	Space Communications and Navigation
SCCS	Spaceport Command and Control System
SIGAR	Special Inspector General for Afghanistan Reconstruction
SLS	Space Launch System
STEM	Science, Technology, Engineering, and Mathematics
TCAT	Technical Capabilities Assessment Team

APPENDIX F. OFFICE OF INSPECTOR GENERAL ORGANIZATIONAL CHART

The OIG's FY 2016 budget of $37.4 million supports the work of 195 employees in their audit, investigative, and administrative activities.



THE NASA OFFICE OF INSPECTOR GENERAL (OIG) 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 INSPECTOR GENERAL (IG) 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 IG 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 OIG liaison to Congress and other Government entities, conducts OIG outreach both within and outside NASA, and manages special projects.

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

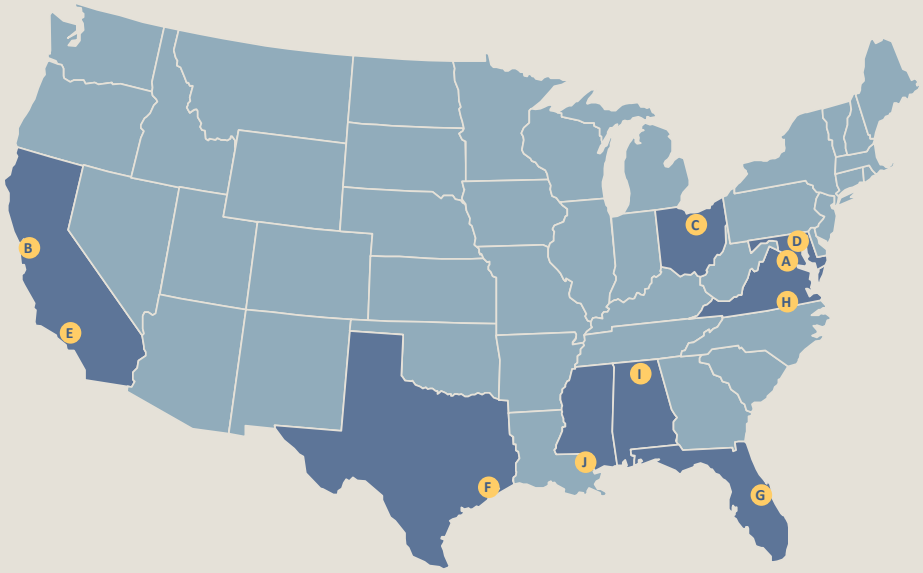
THE OFFICE OF COUNSEL TO THE INSPECTOR GENERAL provides legal advice and assistance to OIG managers, auditors, and investigators. The Office serves as OIG counsel in administrative litigation and assists the Department of Justice when the OIG participates as part of the prosecution team or when the OIG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

THE OFFICE OF INVESTIGATIONS (OI) investigates allegations of cybercrime, fraud, waste, abuse, and misconduct that may affect NASA programs, projects, operations, and resources. OI 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, OI 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



A NASA OIG HEADQUARTERS
300 E Street SW, Suite 8U71
Washington, DC 20546-0001
Tel: 202-358-1220

B AMES RESEARCH CENTER
NASA Office of Inspector General
Ames Research Center
Mail Stop 11, Building N207
Moffett Field, CA 94035-1000
Tel: 650-604-2679 (Audits)
Tel: 650-604-3682 (Investigations)

C GLENN RESEARCH CENTER
NASA Office of Inspector General
Mail Stop 14-9
Glenn Research Center
at Lewis Field
Cleveland, OH 44135-3191
Tel: 216-433-9714 (Audits)
Tel: 216-433-5414 (Investigations)

D GODDARD SPACE FLIGHT CENTER
NASA Office of Inspector General
Code 190
Goddard Space Flight Center
Greenbelt, MD 20771-0001
Tel: 301-286-6443 (Audits)
Tel: 301-286-9316 (Investigations)

NASA Office of Inspector General
Office of Investigations
402 East State Street
Room 3036
Trenton, NJ 08608
Tel: 609-656-2543 or
609-656-2545

E JET PROPULSION LABORATORY
NASA Office of Inspector General
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109-8099

Office of Audits
Mail Stop 180-202
Tel: 818-354-3360

Office of Investigations
Mail Stop 180-203
Tel: 818-354-6630

NASA Office of Inspector General
Office of Investigations
Glenn Anderson Federal Building
501 West Ocean Boulevard
Suite 5120
Long Beach, CA 90802-4222
Tel: 562-951-5485

F JOHNSON SPACE CENTER
NASA Office of Inspector General
Lyndon B. Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

Office of Audits
Mail Stop W-JS
Building 1, Room 161
Tel: 281-483-0483

Office of Investigations
Mail Stop W-JS2
Building 45, Room 514
Tel: 281-483-8427

G KENNEDY SPACE CENTER
NASA Office of Inspector General
Mail Stop W/KSC-OIG
Post Office Box 21066
Kennedy Space Center, FL 32815
Tel: 321-867-3153 (Audits)
Tel: 321-867-4714 (Investigations)

H LANGLEY RESEARCH CENTER
NASA Office of Inspector General
Langley Research Center
9 East Durand Street
Mail Stop 375
Hampton, VA 23681
Tel: 757-864-8562 (Audits)
Tel: 757-864-3263 (Investigations)

I MARSHALL SPACE FLIGHT CENTER
NASA Office of Inspector General
Mail Stop M-DI
Marshall Space Flight Center, AL
35812-0001
Tel: 256-544-1149 (Audits)
Tel: 256-544-9188 (Investigations)

J STENNIS SPACE CENTER
NASA Office of Inspector General
Office of Investigations
Building 3101, Room 119
Stennis Space Center, MS
39529-6000
Tel: 228-688-1493

OIG HOTLINE

1–800–424–9183 / TDD: 1–800–535–8134

http://oig.nasa.gov/hotline.html

NASA Office of Inspector General
P.O. Box 23089, L'Enfant Plaza Station
Washington, DC 20026

http://oig.nasa.gov