NASA OFFICE OF INSPECTOR GENERAL

SEMIANNUAL REPORT

APRIL 1–SEPTEMBER 30, 2016

FROM THE INSPECTOR GENERAL

During the past 6 months, the Office of Inspector General (OIG) released several reports examining aspects of NASA's varied science and human exploration missions. In our report on NASA's international partnerships we identified the interests of more than a dozen space agencies around the world, examined their technical and financial capabilities, noted potential barriers to cooperation with NASA, and suggested possible ways to minimize those barriers.

We also continued to examine NASA's efforts to resupply the International Space Station (ISS or Station) using commercial companies (commercial cargo) and to certify two providers to transport NASA astronauts to the ISS (commercial crew) on U.S. commercial flight systems rather than on Russia's Soyuz spacecraft. On the latter issue, we completed a follow-up audit of NASA's Commercial Crew Program that examined the Agency's human certification process and assessed whether the providers are meeting cost and schedule goals.

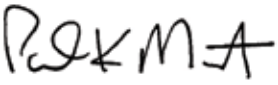
We also released a report that examined NASA's response to the June 2015 launch failure of a Space Exploration Technologies Corporation cargo rocket containing $118 million in supplies bound for the ISS. We had issued a similar post-mishap report in September 2015 examining NASA's efforts to resupply the Station after NASA's other cargo partner – Orbital ATK – suffered a launch failure in October 2014.

In addition to these completed reports, ongoing OIG reviews are examining NASA's plans for human exploration beyond low Earth orbit and the Agency's development of next-generation spacesuits for cislunar and deep space applications.

Finally, we are in the process of finalizing the annual report that provides our views of the top management and performance challenges facing NASA. In addition to challenges such as managing NASA's science portfolio and securing the Agency's information technology systems and data, this year's report highlights the challenge of preparing for a leadership transition following the Presidential election. As NASA's past experience has shown, changes

in Administrations can lead to uncertainty about Agency programs, which can be particularly challenging for an organization like NASA that must plan its projects and missions years in advance.

This Semiannual Report summarizes the NASA Office of Inspector General's activities and accomplishments between April 1, 2016, and September 30, 2016. We hope you find it informative.



Paul K. Martin
Inspector General
November 30, 2016

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OFFICE OF AUDITS

The International Space Station

SPACE OPERATIONS AND HUMAN EXPLORATION

Space operations and human exploration are among NASA's most highly visible missions, with the Agency operating the ISS, managing the commercial crew and cargo programs that support the ISS, and planning for future exploration beyond low Earth orbit with the Space Launch System (SLS) and Orion crew capsule.

NASA'S INTERNATIONAL PARTNERSHIPS: CAPABILITIES, BENEFITS, AND CHALLENGES

The Space Act of 1958 identified the need to cooperate with "nations and groups of nations" in aeronautical and space activities as one of NASA's primary mission objectives. To this end, the Agency manages more than 750 international agreements with 125 different countries. The scope and subject matter of these agreements range from exploring the properties of aerosols with a small African country to billion-dollar commitments to Russia to transport U.S. astronauts to the ISS on Russian rockets. Of the active international agreements NASA had in 2014, 240 focused on space science, 140 on Earth science, 140 on exploration and transportation, and 26 related to the ISS. The remaining 274 agreements related to a wide variety of other subjects. These collaborative efforts have enhanced space-related knowledge through sharing of capabilities, expertise, and scientific research while cultivating positive working relations between nations. Moreover, as NASA missions become more complex and costly, it will be difficult for the Agency to achieve its ambitious goals without leveraging international partnerships, particularly for human exploration in deep space.

For this review, we identified the space-related interests of more than a dozen space agencies around the world, examined their technical and financial capabilities, identified potential barriers to cooperation with NASA, and suggested possible ways to minimize those barriers. We interviewed officials from NASA and the French, German, Indian, and Japanese space agencies, as well as the European Space Agency. We also received responses to a detailed questionnaire from the Australian, Argentinian, Brazilian, Canadian, Italian, South Korean, Spanish, Ukrainian, and United Kingdom space agencies.

In the report we noted that NASA and its international partners share a series of common goals, but the timing and prioritization of the partners' preferred research and exploration projects may not align with NASA's. Moreover, although foreign agencies have demonstrated emerging technical capabilities, adequate funding is the key driver for meeting common goals. While NASA's annual budget is significantly larger than the budgets of other members of the international space community, partnerships with foreign space agencies may enable NASA to obtain instruments or technologies from other space agencies to enhance planned missions.

We also highlighted a number of factors that affect partnerships between NASA and foreign space agencies, including the space policy goals and financial and technical capacities of individual countries, the U.S. Government's review process for international agreements, U.S. export control

laws, and domestic and international politics. First, the process of developing agreements with foreign space agencies requires approval from the Department of State, which often takes many months, if not years, to complete. Second, U.S. export control regulations can hinder dialogue between NASA and its partners, causing frustration with project planning and implementation and reducing the competitiveness of the U.S. space industry. Third, the lack of strong, centralized international space coordination groups and restrictions on the number of NASA employees permitted to attend international conferences make dialog between NASA and its partners more difficult. Finally, both the U.S. political process and geopolitical realities complicate NASA's efforts to expand international partnerships, particularly with the Chinese and Russian space agencies.

Although we made no formal recommendations in the report, we discussed three actions NASA may wish to consider to help improve international cooperation: (1) streamline information sharing about opportunities for cooperation, (2) increase opportunities to share Agency test facilities, and (3) adopt successful past practices.

NASA's International Partnerships: Capabilities, Benefits, and Challenges (IG-16-020, May 5, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-020.pdf (report)

https://oig.nasa.gov/Video/RBowman_05052016.html (video)

NASA'S MANAGEMENT OF THE ORION MULTI-PURPOSE CREW VEHICLE PROGRAM

The Orion Multi-Purpose Crew Vehicle (Orion) will provide NASA with the capability to transport astronauts and cargo beyond low Earth orbit and is essential to achieving the Agency's goal of expanding human presence in the solar system. Orion is one part of a three-part system that also includes a heavy-lift rocket known as the SLS and a ground and launch support program known as Ground Systems Development and Operations (GSDO). The Orion vehicle has four major components: a crew module, a service module, a spacecraft adapter that connects the vehicle to the rocket, and a launch abort system. NASA began developing the vehicle now known as Orion in 2006 as part of the Agency's Constellation Program and had spent about $3.7 billion on the effort when the Constellation Program was cancelled in 2010. Since then, NASA has spent about $1 billion annually, or about 6 percent of its overall budget, on the Orion Program. According to current estimates, the Agency will have devoted approximately $17 billion to the Program by the time Orion makes its first crewed flight in April 2023.

NASA has planned four missions for Orion: Exploration Flight Test-1, an uncrewed mission completed in December 2014 on a Delta IV rocket; Exploration Mission-1 (EM-1), a 22- to 25-day uncrewed mission scheduled for September 2018 that will be the first launch of the combined SLS-Orion system; Ascent Abort Test 2 scheduled for December 2019, when NASA plans to launch a mockup of Orion to test its launch abort and other systems; and Exploration Mission-2 (EM-2), the first crewed flight for the combined system with a promised launch no later than April 2023. That said, the Orion Program has been working toward an August 2021 launch date for EM-2 in an effort to launch earlier and reduce costs.

In this audit, we assessed the status of the Orion Program, including whether NASA could improve management of the 63 technical, schedule, and cost risks identified by the Program, ranging from Orion's flat funding profile to reuse of flight hardware. We also reviewed a sample of 18 risks, 9 of which Program officials identified as the most critical as of February 2015 and an additional 9 that fell into the Program's highest risk category. These risks were characterized as having a greater than 90 percent probability of occurring or, if they did, the potential to cause catastrophic loss of life, loss of vehicle, loss of mission, or cost $500 million or more.

The Orion Program has met several key development milestones on the path to its first crewed mission, including a successful test flight in December 2014. However, much work remains, including evaluating options related to the delayed delivery of the European Service Module; continuing mitigation of seven critical risks while operating with a less-than-optimal budget profile for a developmental project; addressing a potential shortfall of $382 million in reserves managed by its prime contractor; and successfully launching and recovering EM-1 after its uncrewed test flight scheduled for September 2018. At the same time, Program officials are working toward an optimistic internal launch date of August 2021 for EM-2 – 20 months earlier than the Agency's external commitment date of April 2023. While we understand the desire to meet a more aggressive schedule, this approach has led the Program to defer addressing some technical tasks to later in the development cycle, which in turn could negatively affect cost, schedule, and safety.

With respect to Orion's major outstanding risks, the Program has made progress in developing the launch abort system, crew module, and service module elements of the Orion vehicle, while mitigating 10 of the 18 sampled risks. However, as of July 2016, NASA was still working to further mitigate seven of the risks we reviewed, including changes to the Program's Test Plan and reuse of hardware on the vehicle that must be resolved

The Orion Multi-Purpose Crew Vehicle

prior to the launch of both EM-1 and EM-2. Over its life, the Orion Program has experienced funding instability, both in terms of overall budget amounts and the erratic timing of receipt of those funds. In past reports, we noted that the most effective budget profile for large and complex space system development programs like Orion is steady funding in the early stages and increased funding during the middle stages of development. In contrast, the Orion Program's budget profile through at least 2018 was nearly flat and Program officials acknowledged that this funding trajectory increased the risk that costly design changes might be needed in later stages of development when NASA integrates Orion with the SLS and GSDO. In addition, Orion officials noted that the timing of appropriations affected their ability to perform work as planned, with the Program receiving its funding between 4 and 8 months after the start of fiscal years (FY) 2012–2016.

We also found prime contractor Lockheed Martin is expending its management reserves at a higher rate than both the Program and the company expected and that, if continued, would deplete its reserve account almost a year before the planned launch of EM-1. Moreover, we found NASA is not monitoring the impact of this possibility on the Orion Program. Although Program officials acknowledged the current depletion rate is high, they believe it unlikely Lockheed will continue to draw at that rate and, if the reserve is depleted

before the EM-2 launch, Lockheed could cover the costs or NASA could draw on other Agency funds. In our judgment, Orion Program managers would be better informed by formally addressing Lockheed's management reserve as a Program cost risk.

Finally, the Program is working toward an internal planned launch date significantly earlier than the Agency's external commitment date or estimates by an independent review board. We are concerned that such an optimistic approach, given the Program's flat budget profile, increases the risk that Orion officials will defer certain tasks, which ultimately could delay the Program's schedule and increase costs.

To improve the likelihood Orion will be safely operated and developed on cost and schedule, we made four recommendations to NASA, including reevaluating the internal launch readiness dates for EM-1 and EM-2 and designating and managing depletion of Lockheed Martin's reserve as a Program cost risk. The Agency concurred with our recommendations and proposed corrective actions.

NASA's Management of the Orion Multi-Purpose Crew Vehicle Program (IG-16-029, September 6, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-029.pdf

NASA'S COMMERCIAL CREW PROGRAM: UPDATE ON DEVELOPMENT AND CERTIFICATION EFFORTS

Since the Space Shuttle Program ended in July 2011, the United States has lacked the domestic capability to transport crew to the ISS, instead relying on the Russian Federal Space Agency (Roscosmos) to ferry astronauts at prices ranging from $21 million to $82 million per roundtrip. Prior to the end of the Shuttle Program, NASA began working with several U.S. companies to develop commercial crew transportation capabilities. The final phase of the Commercial Crew Program began in September 2014 when NASA selected The Boeing Company (Boeing) and Space Exploration Technologies Corporation (SpaceX) to complete development of crewed space flight systems and, assuming the systems meet the Agency's safety and performance requirements, receive certification to begin flying astronauts to the ISS on a regular basis.

In November 2013, we reported that although Boeing and SpaceX were making steady progress in the initial stages of development, the Commercial Crew Program faced several obstacles including an unstable funding stream, aligning cost estimates with Program schedule, providing timely requirement and certification guidance to the two companies, and increasing coordination with other Federal agencies that have a stake in manned space flight. We concluded that failure to address these challenges in a timely manner could significantly delay the availability of commercial crew transportation services and extend U.S. reliance on the Russians.

This report is a follow-up to our 2013 review. Our objective was to evaluate NASA's management of the Commercial Crew Program and determine if the Program is meeting cost and schedule goals. We also examined Program risks and the Agency's management of the certification process for Boeing and SpaceX. To complete this work, we reviewed internal controls and relevant laws, regulations, and policies. We also interviewed key personnel at NASA, Boeing, and SpaceX, among others.

The Commercial Crew Program continues to face multiple challenges that will likely delay the first routine flight carrying NASA astronauts to the ISS until late 2018 – more than 3 years after NASA's original 2015 goal. While past funding shortfalls have contributed to the delay, technical challenges with the contractors' spacecraft designs are now driving the schedule slippages. For Boeing, these

include issues relating to the effects of vibrations generated during launch and challenges regarding vehicle mass. For SpaceX, delays resulted from a change in capsule design to enable a water-based rather than ground-based landing and related concerns about the capsule taking on excessive water.

Moreover, both companies must satisfy NASA's safety review process to ensure they meet Agency human-rating requirements. As part of the certification process, Boeing and SpaceX conduct safety reviews and report to NASA on potential hazards and their plans for mitigating risks. We found significant delays in NASA's evaluation and approval of these hazard reports and related requests for variances from NASA requirements that increase the risk costly redesign work may be required late in development, which could further delay certification. Although NASA's goal is to complete its review within 8 weeks of receipt of a hazard report, the contractors told us reviews can take as long as 6 months. We also found NASA does not monitor the overall timeliness of its safety review process. Agency officials stated that their primary concern is safety, which requires a comprehensive review of each potential hazard, and we agree; however, we believe timely review of hazard reports contributes to rather than detracts from safety concerns and monitoring progress of this process would provide management with greater visibility of contentious issues. Too many hazard reports left to the end of the process could result in reports getting less attention than they deserve or create pressure to approve variances to avoid design changes that could lead to cost increases or schedule delays.

Given delays in the Commercial Crew Program, NASA has extended its contract with Roscosmos for astronaut transportation through 2018 at an additional cost of $490 million or $82 million a seat for six more seats. If the Program experiences additional delays, NASA may need to buy additional seats from Russia to ensure a continued U.S. presence on the ISS.

To improve NASA's oversight of the Commercial Crew Program, we recommended the Associate Administrator for Human Exploration and Operations (1) implement procedures to monitor the timeliness of NASA's review process for hazard reports to help reduce risk to the Program's schedule and (2) coordinate with Boeing and SpaceX to document a path to timely resolution for variance requests and hazard reports that have exceeded the review period goals. NASA management concurred with our first recommendation and partially concurred with our second; however, we believe the Agency's response to the second recommendation was nonresponsive and therefore it remains unresolved.

NASA's Commercial Crew Program: Update on Development and Certification Efforts (IG-16-028, September 1, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-028.pdf (report)

http://oig.nasa.gov/Video/LNicolosi_09012016.html (video)

NASA'S RESPONSE TO SPACEX'S JUNE 2015 LAUNCH FAILURE: IMPACTS ON COMMERCIAL RESUPPLY OF THE INTERNATIONAL SPACE STATION

On June 28, 2015, just 2 minutes after liftoff, SpaceX's seventh cargo resupply mission (SPX-7) to the ISS failed, destroying $118 million of NASA cargo that included an International Docking Adapter (Adapter) the Agency planned to use when it begins flying astronauts to the Station on commercial vehicles. In the aftermath of the failure, SpaceX suspended resupply missions pending completion of an investigation into

its cause, relicensing of its launch vehicle by the Federal Aviation Administration, and acceptance by NASA of the company's corrective actions.

SPX-7 was the second commercial resupply mission failure in an 8-month period. In October 2014, Orbital ATK's (Orbital) third resupply mission crashed near the launch pad, destroying the company's rocket and capsule as well as $51 million of NASA cargo.[1] SpaceX and Orbital have fixed-price cargo resupply contracts worth a maximum of $3.1 billion each.

In light of these events, we examined NASA's response to the SpaceX failure and its impact on commercial resupply of the ISS. As part of this review, we assessed the technical and operational risks of SpaceX's plans for resuming resupply missions, NASA's efforts to reduce the financial and other risks associated with its contract with SpaceX, and the procedures for investigating the cause of the failure.

Due to the loss of SPX-7 and the shift of SpaceX's eighth resupply mission into 2016, approximately 3.48 metric tons (3,480 kilograms [kg]) of pressurized cargo scheduled for delivery in FY 2015 did not arrive on the Station. NASA was able to absorb this loss because increased packing efficiencies and high cargo densities enabled transport of an additional 746 kg of upmass on two other SpaceX cargo missions and a Japanese cargo flight. In addition, the Russian space agency carried an additional 100 kg of pressurized upmass for NASA over six flights. These measures reduced the total upmass shortfall from 3.48 metric tons to 2.63 metric tons (2,630 kg).

SpaceX-8

Furthermore, the SpaceX and Orbital mission failures have led to a compressed launch schedule in FYs 2016 and 2017, with 11 cargo resupply missions, 7 Russian cargo missions, and 1 Japanese cargo mission scheduled to arrive at the Station during those 2 years. One implication of this new schedule is the time on board the ISS devoted to research. In mid-2014, NASA astronauts were spending up to 44 hours a week on research-related activities. While ISS Program officials have stated that the number of research hours will not fall below the 35-hour/week minimum, the total time devoted to research may decrease from 2014 levels as astronauts take time to receive, unpack, and repack all of these vehicles.

The most significant item lost during the SPX-7 mission was the first of two Adapters necessary to support upcoming commercial crew missions. Although NASA had planned to have two Adapters installed on the Station before the first commercial crew demonstration mission scheduled for July 2017, it is now likely there will be only one installed in time for these missions. Having only one Adapter means that a commercial crew vehicle will not be able to dock with the ISS if technical issues arise with the single available docking port. ISS Program officials stated that they plan to have the replacement Adapter installed before regular commercial crew rotations begin.

[1] We examined NASA's response to Orbital's launch failure in a September 2015 report. NASA OIG, "NASA's Response to Orbital's October 2014 Launch Failure: Impacts on Commercial Resupply of the International Space Station" (September 17, 2015, IG-15-023).

We found NASA is effectively managing its commercial resupply contract with SpaceX to reduce cost and financial risk. The Agency has taken advantage of multiple mission pricing discounts and negotiated equitable adjustments of significant value to the Agency. In addition, following the SPX-7 failure NASA negotiated significant consideration in the form of Adapter hardware, integration services, manifest flexibility, and discounted mission prices for the SPX-16 through SPX-20 resupply missions. However, we also found that for the first seven cargo missions, NASA did not fully utilize the unpressurized cargo space available in the Dragon 1 capsule's trunk, averaging 423 kg for SPX-3 through SPX-7 even though the trunk is capable of carrying more. The ISS Program noted that unpressurized payloads depend on manifest priority, payload availability, and mission risk, and acknowledged it struggled to fully utilize this space on early missions. However, as of June 2016 the Agency's cargo manifests show full trunks on all future SpaceX cargo resupply missions.

Finally, the ISS Program adopted a tailored risk management approach for commercial cargo launches that deviated from existing procedures for evaluating launch risks. In practice, NASA has treated all commercial resupply missions as the lowest level risk classification, irrespective of a mission's value, and relies primarily on its commercial partners (SpaceX and Orbital) to evaluate and mitigate launch risks. As a result, risk mitigation procedures are not consistently employed, and the subjective launch ratings the Agency uses provide insufficient information to NASA management concerning actual launch risks. In addition, NASA does not have an official, coordinated, and consistent mishap investigation policy for commercial resupply launches, which could affect its ability to determine the root cause of a launch failure and implement corrective actions.

International Docking Adapter

NASA concurred with five of six recommendations and described corrective actions; however, our recommendation to quantify overall mission risk ratings and communicate the risks for upcoming launches remains unresolved.

NASA's Response to SpaceX's June 2015 Launch Failure: Impacts on Commercial Resupply of the International Space Station (IG-16-025, June 28, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-025.pdf (report)

http://oig.nasa.gov//Video/RBowman_06282016.html (video)

ONGOING AUDIT WORK

NASA's Plans for Human Exploration Beyond Low Earth Orbit

In 2015, NASA published its plan for the Journey to Mars describing the Agency's strategy for conducting human exploration of space, which includes a crewed asteroid retrieval mission and missions to Mars. In support of this effort, the Agency completed critical design reviews for three major exploration systems – SLS, Orion, and GSDO. We are reviewing NASA's plans for human exploration beyond low Earth orbit, the systems being developed to support these efforts, and the potential costs.

Astronauts training with Extravehicular Mobility Unit spacesuit

NASA's Management and Development of Spacesuits

Since the first extravehicular activities or spacewalks in 1965, the capabilities of astronauts to work outside their spacecraft have steadily progressed. The Extravehicular Mobility Unit, or "spacesuit," NASA astronauts currently use was originally developed in the early 1980s for use during the Space Shuttle Program, and new spacesuits are planned for future human exploration missions such as the Asteroid Redirect Mission and NASA's Journey to Mars. We are examining NASA's management of the current spacesuits and development of next generation suits for cislunar and deep space applications.

NASA's Management of Electromagnetic Spectrum

Electromagnetic spectrum is an essential but limited resource that is vital to every mission NASA undertakes. We are assessing how NASA is managing the spectrum it uses to enable communication for its missions and responding to increasing external demand for spectrum sharing.

Construction of Test Stands 4693 and 4697 at Marshall Space Flight Center

NASA's SLS will incorporate the largest cryogenic fuel tanks ever used on a rocket. Prior to launch, the tanks and related hardware must be tested to ensure they withstand the stresses of launch. The stands NASA will use for these tests are under construction at Marshall Space Flight Center in Huntsville, Alabama. The OIG is examining the test stands projects including cost, schedule, and performance goals, and whether the Agency appropriately considered options for acquisition, testing, and potential future use.

View of the 4670 Engine Test Stand

ACQUISITION AND PROJECT MANAGEMENT

Effective contract, grant, and project management remains a top challenge for many Federal agencies. Through its audits, the OIG helps ensure NASA engages in sound procurement and acquisition practices that provide the Agency and taxpayer with the best possible value.

AUDIT OF NASA'S ENGINEERING SERVICES CONTRACT AT KENNEDY SPACE CENTER

Kennedy Space Center's (Kennedy) Engineering Services Contract (Engineering Contract or Contract) with Vencore is valued at approximately $1.9 billion and provides the Center with a wide variety of services ranging from laboratory and shop maintenance to space flight engineering. This cost-reimbursement contract includes award-fee provisions and two components: a baseline and an indefinite-delivery, indefinite-quantity (IDIQ) component. The baseline covers administrative and managerial services, while the IDIQ allows NASA to issue task orders when the need for a particular service arises. Under the contract, NASA reimburses Vencore for allowable costs it incurs producing or delivering contracted goods or services, and the company may earn additional money under an award fee by meeting or exceeding predetermined performance criteria.

Previous NASA OIG audits have identified issues with the Agency's use of award-fee contracts that raise concerns about its ability to motivate contractor performance and improve acquisition outcomes. Given these concerns and the size of the Engineering Contract, we initiated this audit to determine whether NASA is appropriately managing the Contract to accomplish mission goals in a timely and cost effective manner.

The size and scope of Kennedy's Engineering Contract has made managing the Contract particularly challenging. The cost and tasks included in the baseline and task order components are not clearly defined, managers overseeing the Contract may lack appropriate expertise, and cost allocations are not clear. In addition, several tasks Vencore is performing on a cost-reimbursable basis appear more suitable for a fixed-price arrangement.

Moreover, NASA has limited its ability to evaluate Vencore's performance by including generic milestones and deliverables in some task orders, as well as employing evaluation standards that do not align with the Federal Acquisition Regulation or the Contract's award-fee plan. As a result, NASA's evaluations of Vencore's performance do not consistently support the award-fee scores assigned or the resulting payments, and we questioned more than $450,000 in award-fee payments NASA made to Vencore between FYs 2011 and 2014.

NASA concurred with our four recommendations and proposed corrective actions; however, we found the Agency's proposed actions insufficient for two of the recommendations and considered them unresolved at the time of report issuance. Since issuance of the audit, we have continued to work with the Agency and subsequently resolved both of these recommendations.

Audit of NASA's Engineering Services Contract at Kennedy Space Center (IG-16-017, May 5, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-017.pdf

ONGOING AUDIT WORK

Review of NASA's Management of the Earth Science Portfolio

With an FY 2015 budget of $1.8 billion, NASA's Earth Science Division manages 69 low Earth orbit satellite and instrument 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 are assessing NASA's management of its Earth science portfolio to determine whether it is effectively achieving its goals.

Audit of NASA's Mars 2020 Rover Mission

With an estimated life-cycle cost of $2.4 billion, the Mars 2020 rover mission is the fourth most expensive current NASA project, trailing only Orion, SLS, and the James Webb Space Telescope. The rover is designed to conduct geological assessments of its landing site, determine the potential habitability of the environment, and search for signs of ancient Martian life. NASA is planning to launch the rover during a 20-day window in July 2020. Should it miss this window, the next available launch opportunity is in 2022, and a delay of that length would significantly raise project costs. 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 achieve its mission of advancing science, technology, aeronautics, and space exploration, NASA procures parts from contractors and subcontractors to build launch vehicles, propulsion systems, satellites, robots, telescopes, and other science instruments. Because many of these items become part of instruments that will be launched into the harsh environment of space, it is imperative that NASA ensure those parts are of the highest quality. We are assessing NASA's

quality assurance processes and its efforts to minimize cost and schedule impacts from nonconforming parts.

Audit of NASA's Management of Its Spare Parts Inventory

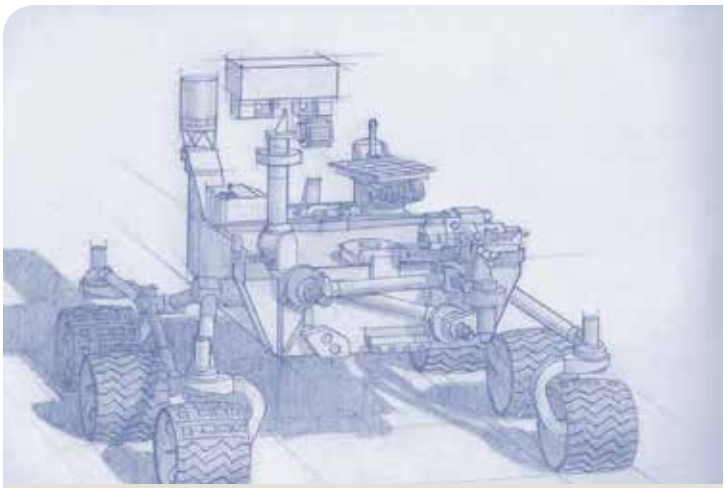
NASA purchases spare parts for flight programs and projects from a variety of contractors. For example, NASA has more than $200 million worth of spare parts from the Mars Science Laboratory Project, some of which will be used for the Mars 2020 rover mission. We are evaluating NASA's procedures related to procurement, usage, storage, and disposal of spare parts used in development of the Agency's science and space projects.

Audit of NASA's Earth Venture Suborbital Investigations

NASA's Earth Venture class of missions includes suborbital projects with a cost cap of $30 million designed to improve understanding of the Earth system. In this audit, we are evaluating whether the investigations are meeting science and technical goals within cost constraints.

Audit of NASA's Management of the Safe Autonomous Systems Operations Project and Unmanned Aircraft Systems

Congress has mandated that NASA, through the Agency's Safe Autonomous Systems Operations Project and in collaboration with the Federal Aviation Administration, address the needs of future air transportation and airspace operations by ensuring safe integration of unmanned aircraft systems (commonly known as drones) into the national airspace. In this audit, we are evaluating NASA's efforts to meet this goal.



Mars 2020 Rover

Looking up inside a nearly complete fuel tank for the SLS

INFORMATION TECHNOLOGY SECURITY AND GOVERNANCE

Information technology (IT) plays an integral role in every facet of NASA's space, science, and aeronautics operations. In FY 2015, the Agency spent more than $1.4 billion 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. 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 governance and management practices.

REVIEW OF NASA'S INFORMATION SECURITY PROGRAM

As part of our 2015 review of NASA's Federal Information Security Modernization Act (FISMA) compliance, we reviewed a representative sample of 29 information systems from NASA Centers, Headquarters, and the Jet Propulsion Laboratory. We concluded that although NASA had established programs to address each of the review areas identified by the Department of Homeland Security's FISMA guidance, the Agency needed to enhance its efforts in three areas: continuous monitoring management, configuration management, and risk management. We believe that weaknesses in these areas stem from missing requirements related to the Agency's information system security program. This report focused on whether NASA has implemented programmatic, Agency-wide information security requirements that are independent of any particular information system.

Although NASA made progress in meeting requirements in support of an Agency-wide information security program, we found it had not fully implemented key management controls essential to managing that program. Specifically, NASA lacks an Agency-wide risk management framework for information security and an information security architecture. In our judgment, this condition exists because the Office of the Chief Information Officer (OCIO) had not developed an information security program plan to effectively manage its resources. In addition, the OCIO was experiencing a period of transition with different leaders acting in the Senior Agency Information Security Officer (Senior Security Officer) role, which caused uncertainty surrounding information security responsibilities at the Agency level. As a result, we believe NASA's information security program could be improved to more effectively protect critical Agency information and related systems.

To improve management of NASA's information security program, we recommended the NASA Chief Information Officer direct the Senior Security Officer to develop and disseminate an Agency-wide information security program plan that meets National Institute of Standards and Technology requirements. NASA concurred with our recommendation.

Review of NASA's Information Security Program (IG-16-016, April 14, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-016.pdf

REPORT MANDATED BY THE CYBERSECURITY ACT OF 2015

The Cybersecurity Act of 2015 (Act) directed the OIG to report on the Agency's IT security practices for protecting data in "covered systems," defined as a national security system or a Federal system that provides access to personally identifiable information. In accordance with Section 406 of the Act, we reported to Congress descriptions of Agency IT security policies, procedures, and practices in the following areas:

- **Logical access controls.** The processes of granting or denying requests to obtain and use electronic information and systems.
- **Multi-factor authentication.** The use of at least two authentication factors, such as passwords and identification badges, to obtain access to IT resources.
- **Software inventory.** The conduct of software inventory and their associated licenses.
- **Threat monitoring and detection.** The capability to not only detect threats, but prevent data loss, employ forensics, and manage digital rights.
- **Contractor oversight.** The process and procedures to ensure contractors are implementing information security management practices.

Because the Act primarily required a description of Agency policies and procedures, we did not evaluate their adequacy or effectiveness as part of this review. However, we have examined many of these issues in depth in previous audit reports.

Report Mandated by the Cybersecurity Act of 2015 (IG-16-026, July 27, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-026.pdf

ONGOING AUDIT WORK

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

This audit examines the security of NASA's industrial control systems as they relate to the Agency's critical and supporting infrastructure. Specifically, we are reviewing whether NASA has implemented effective 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 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. We are also examining whether 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

For more than two decades, NASA has struggled to implement an effective approach to IT governance that appropriately aligns authority and responsibility consistent with the Agency's overall mission. In 2013, the OIG examined NASA's IT governance and made eight recommendations for improvement. This follow-on audit will assess the efforts NASA has made since the issuance of our 2013 report to improve the Agency's IT governance.

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. Specifically, we are reviewing a sample of NASA- and contractor-owned information systems to assess the effectiveness of information security policies, procedures, standards, and guidelines. Additionally, we are evaluating whether major deficiencies identified in our 2015 FISMA review have been addressed.

Dragon 2 propulsive hover test

FINANCIAL MANAGEMENT

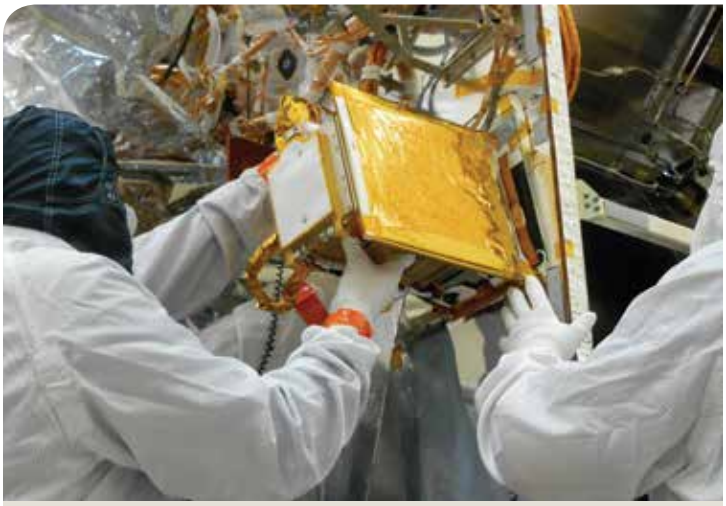
The OIG continues to assess NASA's efforts to improve its financial management practices and make recommendations to assist the Agency in addressing weaknesses.

NASA'S COMPLIANCE WITH THE IMPROPER PAYMENTS INFORMATION ACT FOR FISCAL YEAR 2015

In FY 2015, the Federal Government made an estimated $137 billion in improper payments to individuals, organizations, and contractors, an increase of approximately $12 billion from FY 2014. An improper payment is any payment that should not have been made or was made in an incorrect amount. Improper payments may include payments made to an ineligible recipient or for ineligible goods or services, duplicate payments, payments in an incorrect amount (overpayments or underpayments), payments that lack adequate supporting documentation, or payments for goods and services the agency did not receive.

To help reduce improper payments, the Improper Payments Information Act of 2002 requires heads of Federal agencies to annually identify programs and activities susceptible to improper payments and report information about those payments. In addition, agency Inspectors General are required annually to evaluate whether their agencies comply with the Act's requirements.

Our objective in this audit was to determine whether NASA complied with the Act in FY 2015. We also evaluated the accuracy and completeness of the Agency's reporting and its implementation of recommendations we made in prior reports.



Asteroid-bound spacecraft instrument check

We found that NASA met all applicable Office of Management and Budget (OMB) criteria and complied with the Act for FY 2015. However, as discussed in our previous reports, we continue to believe the Agency can improve its risk assessment process to increase the likelihood of identifying improper payments.

First, NASA should assign greater weight to the risk condition "External Monitoring and Assessments," the only condition that considers independent and objective assessments of program performance by our office and the Government Accountability Office (GAO). Second, NASA considered only the risk factors listed in the Act and OMB guidance, discounting other relevant factors such as the

substantial backlog of incurred cost audits, which assess costs contractors charge to the Government and are a key control for detecting improper payments. Third, NASA continued to limit its annual payment recapture audits to fixed-price contracts, which have a lower risk of improper payments than cost-type contracts, grants, or cooperative agreements. By doing so, NASA increased the risk improper payments may go undetected. Finally, although NASA included the required information on its recapture audit efforts in its FY 2015 Agency Financial Report, we continue to find inaccuracies in the Agency's reporting.

NASA concurred with our five recommendations and proposed corrective actions; however, we found the Agency's proposed actions insufficient for two of the recommendations and consider them unresolved.

NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2015 (IG-16-021, May 12, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-021.pdf

ONGOING AUDIT WORK

Audit of NASA's Fiscal Year 2016 Financial Statements

The Chief Financial Officers Act of 1990, as amended 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 CliftonLarsonAllen LLP.

OTHER AUDIT MATTERS

NASA'S IMPLEMENTATION OF EXPORT CONTROL AND FOREIGN NATIONAL ACCESS MANAGEMENT RECOMMENDATIONS

Throughout its history, NASA has partnered with foreign countries and foreign nationals on a variety of projects and research, some of which may contain sensitive space-related technology and information. The challenge for NASA in such situations is to sustain and nurture these partnerships while protecting the Agency's sensitive information.

Beginning in 2009, Federal law enforcement agencies received complaints that foreign nationals working as contractors at NASA's Ames Research Center (Ames) had been given improper access to export-controlled information. Furthermore, in 2013 questions arose regarding a Chinese national's access to Agency data and information technology systems at the Langley Research Center (Langley). The OIG investigated and issued reports regarding the Ames and Langley matters. In addition, the GAO and National Academy of Public Administration (NAPA) issued reports in 2014 examining NASA's Export Control Program and foreign national access management. Collectively, the OIG, GAO, and NAPA made 40 recommendations to improve NASA's export control and foreign national access processes and procedures.

We initiated this audit to assess NASA's implementation of the OIG, GAO, and NAPA recommendations and the actions the Agency has taken to protect export-controlled information.

NASA has taken significant steps to address the recommendations made by the OIG, GAO, and NAPA. As of December 31, 2015, the Agency had implemented all of the OIG's recommendations, 5 of GAO's 7 recommendations, and 18 of NAPA's 27 recommendations. For example, in March 2014 in response to NAPA recommendations, NASA established a Foreign National Access Management Program under its Office of Protective Services, proposed revisions to its policy regarding foreign national access, and drafted an operating manual to address the issue.

However, some Center officials raised concerns that several requirements in the draft Agency policy – specifically those requiring fingerprints from foreign nationals not living in or likely to visit the United States – are not practical and will impose undue burdens on their projects and programs. We found that due to a lack of effective collaboration and communication, NASA did not fully capitalize on opportunities to address these and other concerns when it developed its new policies. Consequently, completion of policy revisions and the foreign national access manual needed to address several recommendations has taken longer than expected.

In addition, NASA should improve the Export Control Program's self-assessment process and sharing of lessons learned, including those resulting from voluntary disclosures, actions that could reduce the risk of future violations of export control, and foreign national access rules and procedures. Our review of the annual export control audits from the three Centers we visited found that auditors concentrated primarily on administrative requirements rather than evaluating the effectiveness of the functional and procedural components. Furthermore, although NASA policy

encourages sharing knowledge and best practices, Center personnel were generally unaware of the actions other Centers had taken to improve their export control and foreign national access processes and procedures.

In order to improve NASA's Export Control and Foreign National Access Management Programs, we made six recommendations. NASA concurred with five, disagreeing with our recommendation to combine the Export Control and Foreign National Access Operations Manuals. As of publication, all of our recommendations have been resolved.

NASA's Implementation of Export Control and Foreign National Access Management Recommendations (IG-16-022, May 26, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-022.pdf (report)

https://oig.nasa.gov/Video/RTolomeo_05262016.html (video)

REVIEW OF NASA-FUNDED INSTITUTES

Since its beginnings in 1958, NASA has been at the forefront of science and space exploration, serving as the engine behind numerous scientific discoveries and technological innovations. The Agency has relied on contributions from NASA's civilian and contractor workforce, and also from academic establishments, research entities, and other organizations – referred to collectively in this report as "institutes." NASA uses these institutes to conduct research, review and analyze scientific data, develop equipment and technologies to meet mission requirements, and leverage knowledge. In this report, we reviewed 60 NASA-funded institutes and examined their alignment to Agency missions, their history and funding profile, and examples of their contributions to NASA.

Overall, we found NASA-funded institutes play a vital role in enabling the Agency to accomplish its multifaceted science, exploration, and aeronautics mission. Each NASA Center and the four Mission Directorates fund institutes using a variety of procurement vehicles, with the Agency annually investing more than $750 million in the 60 institutes we identified.

While we made no formal recommendations in this review, we identified three issues for NASA to consider. First, NASA does not aggregate information on the universe, status, or funding levels for the many institutes the Agency supports. The absence of this information makes it difficult for Agency leaders to strategically evaluate the scope or purpose of its institute investments or for Congress and other stakeholders to understand how NASA is spending more than three-quarters of a billion dollars of its budget. Moreover, the Agency has not defined what constitutes an institute or established guidance and metrics on their management, use, or expectations for return on investment. Such guidance may enable the Agency to gain a better understanding of how funds directed to institutes are utilized to accomplish its mission and goals, increase its return on investment, and evaluate institutes' performance.

Second, we became aware of two institutes – GeneSys Research Institute (GRI) and the Institute of Global Environment and Society (IGES) – under investigation by the Federal Government for alleged grant fraud.[2] GRI declared bankruptcy and the status of its work under two NASA grants of approximately $500,000 is unknown. Likewise, the status of IGES' work using approximately $500,000 of NASA funding is also unknown. In past work, we found NASA lacked a standard process to assess a potential grantee's financial condition prior to grant award or to impose additional reporting or oversight requirements that such a condition may warrant. Without such a mechanism, NASA risks making uninformed investment decisions.

[2] In February 2016, the OIG closed its investigation of GRI after not identifying any mischarging or misuse of grant funds.

Finally, NASA has made a substantial investment in work conducted by institutes across the spectrum of the Agency's activities. However, absent comprehensive, centralized information about these investments, it may be difficult for NASA to avoid duplication among its efforts.

In response to a draft of this report, the Agency said it would review the issues raised and adjust NASA guidance as necessary.

Review of NASA-funded Institutes (IG-16-023, June 9, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-023.pdf (report)

https://oig.nasa.gov/Video/RTolemeo_07282016.html (video)

FOLLOW-UP EVALUATION OF NASA'S IMPLEMENTATION OF EXECUTIVE ORDER 13526, CLASSIFIED NATIONAL SECURITY INFORMATION

In December 2009, the President signed Executive Order 13526, "Classified National Security Information" (Order), to reform security classification and declassification processes. Follow-on legislation directed Federal Inspectors General to perform two evaluations of their agency's compliance with the Order. We completed our first evaluation of NASA's Classified National Security Information (CNSI) Program in September 2013, finding that NASA's policies and procedures for managing classified information complied with Federal requirements and implementing guidance but that Agency personnel did not consistently adhere to these requirements. Specifically, classified documents were improperly marked, training requirements for classifiers were not met, and self-inspections were not fully implemented. We made three recommendations, all of which NASA agreed to implement.

In our second review, we assessed NASA's implementation of our recommendations and once again reviewed the Agency's compliance with Federal regulations and policies related to CNSI. As part of our work we reviewed CNSI documents, Agency policies and procedures, and external reviews of NASA's CNSI Program and conducted fieldwork at NASA Headquarters and the Johnson Space Center (Johnson).

Although NASA has taken steps to implement our prior recommendations, we continued to identify inconsistencies in the Agency's application of policies and procedures that led to improper marking of classified documents. This occurred because the identification and training of classifiers was insufficient. Further, implementation of the Agency's self-inspection program was not fully effective because NASA Centers did not consistently review documents to verify the accuracy of classified markings. Improved identification and training of classification officials and effective self-inspections would help ensure classified information at NASA is managed in accordance with Federal requirements.

We made four recommendations to NASA's Assistant Administrator for Protective Services, which the Agency concurred with and proposed corrective actions.

Follow-Up Evaluation of NASA's Implementation of Executive Order 13526, Classified National Security Information (IG-16-030, September 28, 2016)

https://oig.nasa.gov/audits/reports/FY16/IG-16-030.pdf

ONGOING AUDIT WORK

Review of NASA's Efforts to Manage Its Technical Capabilities

In 2012, 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 an outgrowth of the TCAT process, in 2015 NASA established 32 Capability Leadership Teams responsible for continuously assessing their disciplines from an Agency-wide perspective to meet long-term needs, optimize deployment of capabilities across Centers, and transition capabilities no longer needed. As of August 2016, TCAT and the Capability Leadership Teams had assessed 32 technical capabilities, including mission operations, propulsion, and aircraft operations, and issued 36 formal decisions. As a result, the Agency divested 17 aircraft and 21 vacuum chambers, deactivated 1 propulsion test stand, eliminated internal microgravity flight operations, updated several internal memorandums of agreement, and consolidated research and development activities in areas such as propulsion and materials development. We are examining the status of NASA's recent technical capabilities assessments to evaluate the progress these initiatives have made toward aligning the Agency's capabilities with current and future mission needs.

STATISTICAL DATA

TABLE 1: AUDIT PRODUCTS AND IMPACTS

Report No. and Date Issued	Title	Impact
Space Operations and Human Exploration		
IG-16-029, 09/06/2016	NASA's Management of the Orion Multi-Purpose Crew Vehicle Program	Improved the likelihood Orion is developed on cost and schedule and safely operated.
IG-16-028, 09/01/2016	NASA's Commercial Crew Program: Update on Development and Certification Efforts	Assessed progress of the Commercial Crew Program and provided recommendations to NASA to improve the timeliness of the Program's hazard-reporting process.
IG-16-025, 06/28/2016	NASA's Response to SpaceX's June 2015 Launch Failure: Impacts on Commercial Resupply of the International Space Station	Improvements in NASA's management and communication of risk related to commercial cargo transportation, use of the transportation services, and processes for investigation and coordination when a mishap occurs.
IG-16-020, 05/05/2016	NASA's International Partnerships: Capabilities, Benefits, and Challenges	Identified challenges facing NASA's international partnerships and actions for improvement.
Acquisition and Project Management		
IG-16-017, 05/05/2016	Audit of NASA's Engineering Services Contract at Kennedy Space Center	Improvements to ensure tasks are clearly defined and performed in a cost-effective manner and that contractor performance is measured and awarded appropriately.
Information Technology Security and Governance		
IG-16-026, 07/27/2016	Report Mandated by the Cybersecurity Act of 2015	Reported to Congress on NASA's IT security practices for protecting data on Agency national security systems or systems that provide access to personally identifiable information.
IG-16-016, 04/14/2016	Review of NASA's Information Security Program	Improvements in internal controls for IT security through enhancement of management programs and processes.
Financial Management		
IG-16-021, 05/12/2016	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2015	Provided specific areas of focus to ensure the Agency complies with the Improper Payments Information Act of 2002, as amended.

Report No. and Date Issued	Title	Impact
Other Audit Matters		
IG-16-030, 09/28/2016	Follow-Up Evaluation of NASA's Implementation of Executive Order 13526, Classified National Security Information	Improved compliance with Agency policies regarding document markings and training for classification officials.
IG-16-023, 06/09/2016	Review of NASA-funded Institutes	Provided a profile of NASA's investments in institutes, including alignment to Agency missions, history and funding, and examples of contributions to NASA.
IG-16-022, 05/26/2016	Review of NASA's Implementation of Export Control and Foreign National Access Management Recommendations	Improved and reduced risks in NASA's Export Control and Foreign National Access Management 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 Completion Date
			Open	Closed	
Space Operations and Human Exploration					
IG-16-029, 09/06/2016	Audit of the Orion Multi-Purpose Crew Vehicle Program	09/06/2016	4	0	12/30/2016
IG-16-028, 09/01/2016	NASA's Commercial Crew Program: Update on Development and Certification Efforts	--	1	1	--[a]
IG-16-025, 06/28/2016	NASA's Response to SpaceX's June 2015 Launch Failure: Impacts on Commercial Resupply of the International Space Station	--	6	0	08/31/2017
Acquisition and Project Management					
IG-16-017, 05/05/2016	Audit of NASA's Engineering Services Contract at Kennedy Space Center	09/30/2016	4	0	10/31/2016
Information Technology					
IG-16-016, 04/14/2016	Review of NASA's Information Security Program	04/14/2016	1	0	12/06/2019
Financial Management					
IG-16-021, 05/12/2016	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2015	--	5	0	05/31/2017

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date
			Open	Closed	
Other Audit Matters					
IG-16-030, 09/28/2016	Follow-Up Evaluation of NASA's Implementation of Executive Order 13526, Classified National Security Information	09/28/2016	4	0	05/31/2017
IG-16-022, 05/26/2016	Review of NASA's Implementation of Export Control and Foreign National Access Management Recommendations	09/19/2016	5	1	07/31/2017

[a] Working with management to resolve the recommendation and obtain an estimated completion date.

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

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date
			Open	Closed	
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	3	1	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	10/31/2016
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	5	2	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	04/21/2017
IG-12-018, 07/26/2012	Audit of NASA Grants Awarded to the Philadelphia College Opportunity Resources for Education	07/26/2012	3	5	10/31/2016
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	08/10/2016	11	3	03/30/2018
IG-16-008, 12/15/2015	NASA's Efforts to Manage Its Space Technology Portfolio	04/13/2016	4	1	03/01/2017

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date
			Open	Closed	
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	2	5	05/31/2017
IG-15-013, 03/26/2015	NASA's Management of the Deep Space Network	03/26/2015	7	5	07/31/2017
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	2	2	01/17/2018
Information Technology Security and Governance					
IG-14-023, 07/10/2014	Security of NASA's Publicly Accessible Web Applications	07/10/2014	2	3	07/28/2017
IG-14-015, 02/27/2014	NASA's Management of its Smartphones, Tablets, and other Mobile Devices	02/27/2014	1	1	10/28/2016
IG-12-017, 08/07/2012	Review of NASA's Computer Security Incident Detection and Handling Capability	08/07/2012	2	1	04/27/2017
IG-12-013, 03/01/2012	Audit of NASA's Process for Transferring Technology to the Government and Private Sector	03/01/2012	3	4	07/30/2016
Institutional and Facility Management					
IG-15-019, 06/30/2015	Review of NASA's Pressure Vessel Systems	06/30/2015	6	4	04/30/2017
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-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

Report No. and Date Issued	Report Title	Date Resolved	Number of Recommendations		Latest Target Completion Date
			Open	Closed	
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	11/09/2015	9	0	11/30/2016
IG-15-015, 05/15/2015	NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2014	05/15/2015	6	4	05/31/2017
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
Other Audit Matters					
IG-16-001, 10/19/2015	NASA's Education Program	10/19/2015	4	1	06/29/2018

[a] Working with management to obtain an estimated completion date.

TABLE 4: AUDITS WITH QUESTIONED COSTS

	Number of Audit Reports	Total Questioned Costs	Total Unsupported Costs
No management decision made by beginning of period	1	$3,902,020	$3,869,797
Issued during period	1	$462,612	$0
Needing management decision during period	2	$4,364,632	$3,869,797
Management Decision Made During Period			
Amounts agreed to by management	1	$187,561	$182,654
Amounts not agreed to by management	1	$3,714,459	$3,687,143
No Management Decision at End of Period			
Less than 6 months old	1	$462,612	$0
More than 6 months old	0	$0	$0

Note: "Questioned Costs" (the Inspector General Act of 1978, as amended) 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.

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

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

	Number of Audit Reports	Total Questioned Costs
No management decision made by beginning of period	1	$4,400,000
Issued during period	0	0
Needing management decision during period	1	$4,400,000
Management decision made during period		
Amounts agreed to by management	0	0
Amounts not agreed to by management	1	$4,400,000
No management decision at end of period		
Less than 6 months old	0	0
More than 6 months old	0	0

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

Audits reviewed	31
Audits with findings	9

Findings and Questioned Costs		
	Number of Findings	**Questioned Costs**
Management decisions pending, beginning of reporting period	43	$736,297
Findings added during the reporting period	22	$82,275
Management decision made during reporting period	(36)	
Agreed to by management		$0
Not agreed to by management		$0
Management decisions pending, end of reporting period	29	$818,572

TABLE 7: OTHER MONETARY SAVINGS[a]

Report	Title	Description	Amount
IG-15-019 06/30/2016	Audit of NASA's Pressure Vessels and Pressurized Systems Program	In June 2015, the NASA OIG recommended the Agency require Centers perform a cost-benefit analysis to determine if an onsite relief valve calibration and repair shop with a VR Code Stamp capability would be cost and mission effective. Changes based upon this analysis will result in projected savings of $1,406,000 over 3 years.	$1,406,000

[a] Savings resulting from actions taken by NASA due to conclusions or information disclosed in an OIG audit report that were not identified as Questioned Costs or Funds To Be Put To Better Use.


OR GENERAL
NASA
ADMINISTRATION

OFFICE OF INVESTIGATIONS

Artist rendering of NASA's Juno spacecraft at Jupiter

The Office of Investigations (OI) investigates criminal activity, fraud, and misconduct involving NASA personnel and contractors and the Agency's programs and operations.

PROCUREMENT, ACQUISITION, AND GRANT FRAUD

Congressman Convicted

An investigation of fraud committed by Educational Advancement Alliance, Inc., and its president ended in convictions of the president, former Pennsylvania Congressman Chaka Fattah, and an associate. The organization received a series of Federal grants, including a $1.8 million grant from NASA to promote science, technology, engineering, and mathematics education. The investigation revealed that Educational Advancement Alliance, Inc., improperly used $100,000 of NASA grant money to pay a campaign debt on Congressman Fattah's behalf. In June 2016, a Federal jury convicted the Congressman and his associates of taking part in a racketeering conspiracy intended to further their political and financial interests by misappropriating Federal, charitable, and campaign funds. The OIG assisted the Federal Bureau of Investigation (FBI) and the Internal Revenue Service in the investigation.

Company Agrees to Civil Settlement

A Woburn, Massachusetts, company and its president agreed to pay $2.25 million in a civil settlement to resolve allegations the company violated the False Claims Act through a fraudulent scheme that falsified labor costs under Federal contracts and grants, including several with NASA. The contractor received funds under 15 Federal contracts awarded through the Small Business Innovation Research (SBIR) and Small Business Technology Transfer programs.

NASA Receives Forfeiture from Contractor

Through the combined investigative efforts of the OIG, the National Science Foundation, and the Defense Criminal Investigative Service (DCIS), a research professor who made false statements to Government officials to obtain 22 grants and contracts from NASA and other agencies valued at $6.4 million pled guilty to wire fraud and was sentenced to 3 years probation, paid a $175,000 fine, forfeited $180,000 in funds he and his company improperly received, and was debarred from Government contracting for 3 years. In award proposals, the professor failed to disclose all of his and his corporation's current and pending grants and contracts, thereby overstating the time he and the corporation could devote to the project awards he was applying to receive. He disclosed only 3 months per year of work, when in fact he had already committed to more than 19 months per year of work to various Government agencies. The professor also falsely certified that he was primarily employed by his corporation, when he was employed full-time as a research professor at the University of California, San Diego. The investigation further revealed the professor received more than $1.9 million in salary from 2005 to 2013 from his corporation, due in part to the fraudulently obtained grants and contracts.

Alabama Company Sentenced

As the result of an investigation conducted by the OIG and DCIS, a Huntsville, Alabama, engineering company was ordered to pay $99,952 in restitution and a $150,000 fine for false billing. The company had previously pleaded guilty to falsely stating in its proposal that it had not received contracts to conduct similar research.

Criminal Charges Filed Against Former Procurement Official in Kickback Scheme

The OIG participated in a joint investigation with DCIS that resulted in conspiracy charges against a former procurement official with Boeing. According to the charges, beginning in 1997 and continuing through September 2013, the official colluded with the president of a machining company to knowingly and willfully solicit, accept, and attempt to accept kickbacks.

Small Businesses Debarred and Suspended

Two small businesses and their owners were excluded from receiving Federal contracts. The first business was debarred and its owner excluded from Federal contracting for 6 years following a fraud conviction related to the SBIR program. The second business was suspended and its owner excluded from competing for Federal contracts indefinitely, pending the outcome of judicial proceedings related to suspected SBIR fraud.

University Professor and Wife Sentenced

A Lehigh University professor and his wife were sentenced for wire fraud stemming from misuse of a $600,000 SBIR contract with NASA. The professor was sentenced to 1-year imprisonment and fined $3,000 while his wife was sentenced to 3 months imprisonment. In addition, both were ordered to pay $72,000 in restitution to NASA. In their application for SBIR funding, the couple proposed the wife would oversee development of a sensor to help track climate change and supervise researchers in her husband's lab at Lehigh, to which no more than half the work would be subcontracted. An investigation by the OIG disclosed the couple had used their company as a front to funnel Federal money to themselves while the research was actually performed by students and others working in the university lab. NASA previously suspended the individuals and their company from receiving any Federal contracts.

THEFT AND EMBEZZLEMENT

Former Langley Employee Agrees to Civil Settlement

A proactive effort by the OIG identified a former Langley civil servant who failed to report income that could have reduced his Federal disability compensation. Based on evidence developed by the OIG, the former employee admitted he was not entitled to $35,072 in Federal workers' compensation benefits paid between 2005 and 2006 and agreed to pay $52,608 to settle allegations that he failed to disclose his employment by, and participation in, an outside business while collecting benefits.

Former NASA Employee Convicted of Theft

A former NASA employee pled guilty to theft, was sentenced to 6 months' probation, and ordered to pay $1,002 in restitution to the Goddard Employee Welfare Association and Combined Federal Campaign. The conviction stemmed from an investigation into allegations the employee embezzled funds from the Association. The employee resigned in lieu of termination.

Contractor Charged with Theft

The OIG, working with Goddard Space Flight Center (Goddard) security, identified a contractor who was responsible for a series of thefts from the Goddard fitness center. The contractor was charged with theft of a wallet that contained credit cards used to improperly purchase $400 in gift cards. In September 2016, the contractor was convicted of misdemeanor theft and sentenced to 6 months' probation and 40 hours of community service.

Hampton, Virginia Resident Entered into Pretrial Diversion Program

A resident of Hampton, Virginia entered into a pretrial diversion program in connection with Federal charges relating to the theft of a handheld portable radio from a Langley ambulance used to transport his wife to a local hospital.

EMPLOYEE MISCONDUCT

Former NASA OIG Employee Enters into Pretrial Diversion

A former NASA OIG employee agreed to enter into a pretrial diversion program for 1 year after an OIG investigation revealed that in an effort to obtain employment with another Federal agency, he altered his employment record to state he had resigned from the OIG's employment when in fact he had been terminated for misconduct. As part of the agreement, the former employee must complete 40 hours of community service and pay all costs associated with his participation in the program.

Contract Employee Sentenced for Child Pornography

A former NASA contract employee was sentenced to 9 years imprisonment and 5 years of supervised release and ordered to pay a $100 special assessment after pleading guilty to one count of possession of child pornography. The subject admitted to possessing child pornography and using hidden cameras to videotape young children. The OIG worked with the FBI on the investigation.

Contract Employee Sentenced for Child Pornography

A former NASA contract employee pled guilty to the possession of child pornography and was sentenced to 3 years imprisonment and 3 years supervised probation.

CYBER CRIME

Estonian National Sentenced for Role in Cybercriminal Scheme

In April 2016, an Estonian national was sentenced for his role as ringleader in a cybercriminal scheme that infected millions of computer systems worldwide, including NASA systems. He was sentenced to 7 years and 3 months imprisonment and ordered to forfeit $2.5 million. The OIG worked the case jointly with the FBI.

Romanian National Sentenced

In May 2016, a Romanian national was sentenced for conspiracy to commit computer intrusion and bank fraud. The violations stemmed from the spread of Gozi Malware, which infected numerous Government computer systems, including NASA systems. The subject was sentenced to 3 years and 1 month imprisonment and forfeited $6,934,979. This case was investigated by the OIG and FBI.

Nigerian Sentenced for Involvement in Cyber Scheme to Steal Government Computer Credentials

In May 2016, a Nigerian national was convicted and sentenced to 7 years imprisonment by the Benin High Court of Nigeria for his involvement in a cyber scheme. In June 2011, an OIG investigation revealed that numerous NASA e-mail accounts were accessed and used by hackers in Nigeria to perpetrate fraud schemes.

OTHER CRIMINAL ACTIVITY

NASA Vendor Driver Charged

A driver for a NASA vendor was charged with submitting a forged commercial driver's license to gain access to Johnson. The driver was charged by a Texas State Grand Jury for false alteration of a Government record.

Crew Dragon pressure vessel built by SpaceX

Ground systems development work at the Vehicle Assembly Building at Kennedy

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	38	10	4	28	80
All Others	28	33	0	54	115
Total	**66**	**43**	**4**	**82**	**195**

[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 NASA OIG Office of Investigations as well as hotline complaints referred to the OIG Office of Audits.

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

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

TABLE 9: FULL INVESTIGATIONS OPENED THIS REPORTING PERIOD

Full Criminal/Civil Investigations[a]	15

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

TABLE 10: CASES PENDING AT END OF REPORTING PERIOD

Preliminary Investigations	68
Full Criminal/Civil Investigations	122
Administrative Investigations	59
Total	**249**

TABLE 11: QUI TAM INVESTIGATIONS

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

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

TABLE 12: JUDICIAL ACTIONS

Cases Referred for Prosecution	29
Indictments/Criminal Informations	6
Convictions/Plea Bargains	9
Sentencing/Pre-Trial Diversions	15
Civil Settlements/Judgments	2

TABLE 13: ADMINISTRATIVE ACTIONS

Referrals to NASA management for review and response	5
Referrals to NASA management – information only	48
Referrals to the Office of Audits	5
Referrals to Security or other agencies	9
Recommendation to NASA management for disciplinary action	
Involving a NASA employee	4
Involving a contractor firm	1
Involving a contractor employee	1
Other	0
Total	**73**
Administrative/disciplinary actions taken	
Against a NASA employee	4
Against a contractor employee	1
Procedural change implemented	4
Total	**9**
Recommendations to NASA management on program improvements	
Matters of procedure	5
Total	**5**
Suspensions or debarments from Government contracting	
Involving an individual	14
Involving a contractor firm	7
Total	**21**

TABLE 14: INVESTIGATIVE RECEIVABLES AND RECOVERIES

Judicial	$2,697,784
Administrative[a]	$2,623,934
Total	**$5,321,718**
Total NASA	**$219,002**

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


OR GENERAL
NASA
ADMINISTRATION

LEGAL ISSUES

Mercury transit across the Sun

IN-SERVICE LEGAL TRAINING

During this semiannual period, the OIG's Office of Counsel conducted training for OIG criminal investigators at in-service meetings of the Central and Eastern investigative regions on legal use of force, deadly force scenarios, implicit bias, and criminal and civil legal updates. This training keeps the OIG compliant with Department of Justice guidelines for Federal law enforcement officers.

NASA OIG CERTIFIED

On August 3, 2016, the OIG obtained certification under 5 USC 2302(c) from the U.S. Office of Special Counsel (OSC). This certification indicates we are compliant with OSC training requirements on prohibited personnel practices and whistleblower protection.

REGULATORY REVIEW

NPR 8705.6C, Safety and Mission Assurance Audits, Reviews, and Assessments

This NASA Procedural Requirements (NPR) establishes NASA requirements for conducting audits, reviews, and assessments to verify compliance with applicable Agency safety and mission assurance requirements in accordance with NASA Policy Directives (NPD) 1000.3, 1210.2, and 8700.1. The proposed revisions to this NPR will move the Institutional, Facility, Operational Safety Audits (IFOSA) and Quality Audit, Assessment, and Reviews from a 3-year review cycle to a 4-year cycle due to generally decreasing trends in audit findings, travel funding caps within the Agency's current budget, as well as annual budget reductions over several years. No changes to the scope of the audits were proposed. The OIG raised concerns about the longer review cycle because findings from our audits of NASA's Explosive Safety Program (IG-13-013) and NASA's Pressure Vessels and Pressurized Systems Program (IG-15-019) found that IFOSA did not conduct adequate audits, and, in many cases, Centers were not subject to audits for multiple cycles. Although the lengthening of the time between audits may be an attempt to mitigate a lack of resources available to conduct an audit, the OIG is troubled that areas that lacked sufficient attention on a 3-year cycle will now not even be considered for review for an additional year. In addition, the OIG shared comments intended to strengthen the Agency process for closing audit findings and verifying corrective action.

NPR 3430.1D, Employee Performance and Communication System

This NPR provides Agency requirements for establishing performance plans and appraising employee performance. The directive is being updated so that Agency procedural requirements will reflect the current Agency performance management system, including changes to procedural requirements for the Employee Performance and Communication System (EPCS) that were implemented Agency-wide beginning in the 2012–2013 appraisal period. The OIG submitted comments intended to eliminate internal inconsistencies within the revised NPR. The OIG is particularly concerned that the revised NPR lacks sufficient guidance and explanation of how EPCS integrates with the Standard Performance Appraisal Communication Environment, which is the online tool through which NASA managers implement EPCS.

NPD 5000.2D, Small Business

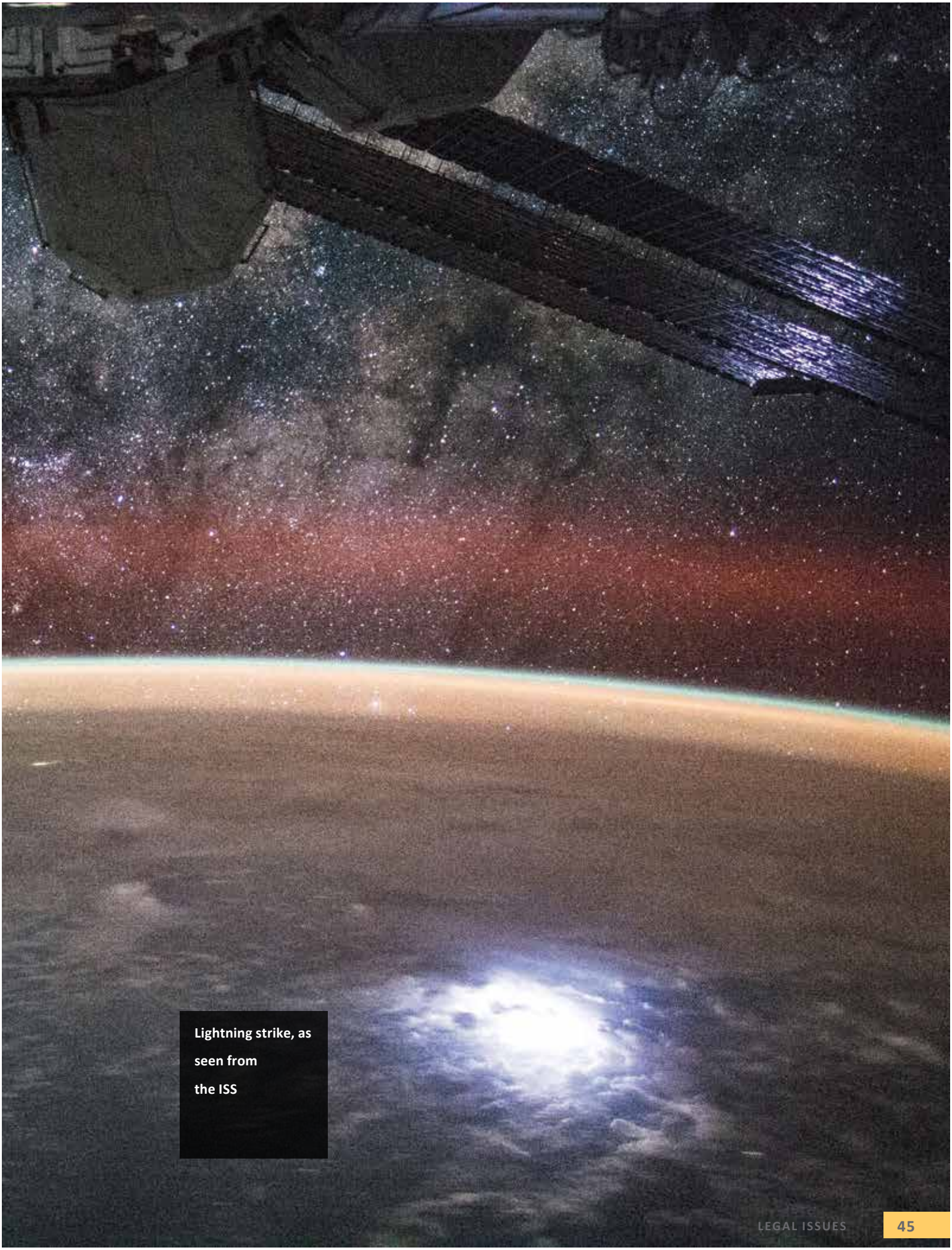
This NPD establishes steps to ensure that maximum practicable subcontracting opportunities are provided to small businesses, small disadvantaged businesses (SDB), woman-owned

small businesses, veteran-owned small businesses, service-disabled veteran–owned small businesses, historically underutilized business zone concerns, and minority-serving institutions, which include historically black colleges and universities and other minority educational institutions. The OIG submitted comments intended to clarify the Agency's guidance and expectations concerning its SDB subcontracting goals.

STATISTICAL DATA

TABLE 15: LEGAL ACTIVITIES AND REVIEWS

FOIA Matters	32
Appeals	0
Inspector General Subpoenas Issued	46
Regulations Reviewed	14



Lightning strike, as seen from the ISS

APPENDIXES

Appendixes

The Vehicle Assembly Building at NASA's Kennedy Space Center

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	42
Section 5(a)(1)	Significant Problems, Abuses, and Deficiencies	2-24
Section 5(a)(2)	Recommendations for Corrective Actions	2-24
Section 5(a)(3)	Prior Significant Audit Recommendations Yet to Be Implemented	27-29
Section 5(a)(4)	Matters Referred to Prosecutive Authorities	39
Sections 5(a)(5) and 6(b)(2)	Summary of Refusals to Provide Information	N/A
Section 5(a)(6)	OIG Audit Products Issued – Includes Total Dollar Values of Questioned Costs, Unsupported Costs, and Recommendations that Funds Be Put to Better Use	29–30
Section 5(a)(7)	Summary of Significant Audits and Investigations	2–36
Section 5(a)(8)	Total Number of Reports and Total Dollar Value for Audits with Questioned Costs	29
Section 5(a)(9)	Total Number of Reports and Total Dollar Value for Audits with Recommendations that Funds Be Put to Better Use	30
Section 5(a)(10)	Summary of Prior Audit Products for which No Management Decision Has Been Made	29–30
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	50
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. 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 or performed by 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 and there are no outstanding recommendations from the review.

The last peer review conducted by our Office of Audits examined the Special Inspector General for Afghanistan Reconstruction's audit organization and was completed March 30, 2016. There are no outstanding recommendations from that review.

OFFICE OF INVESTIGATIONS

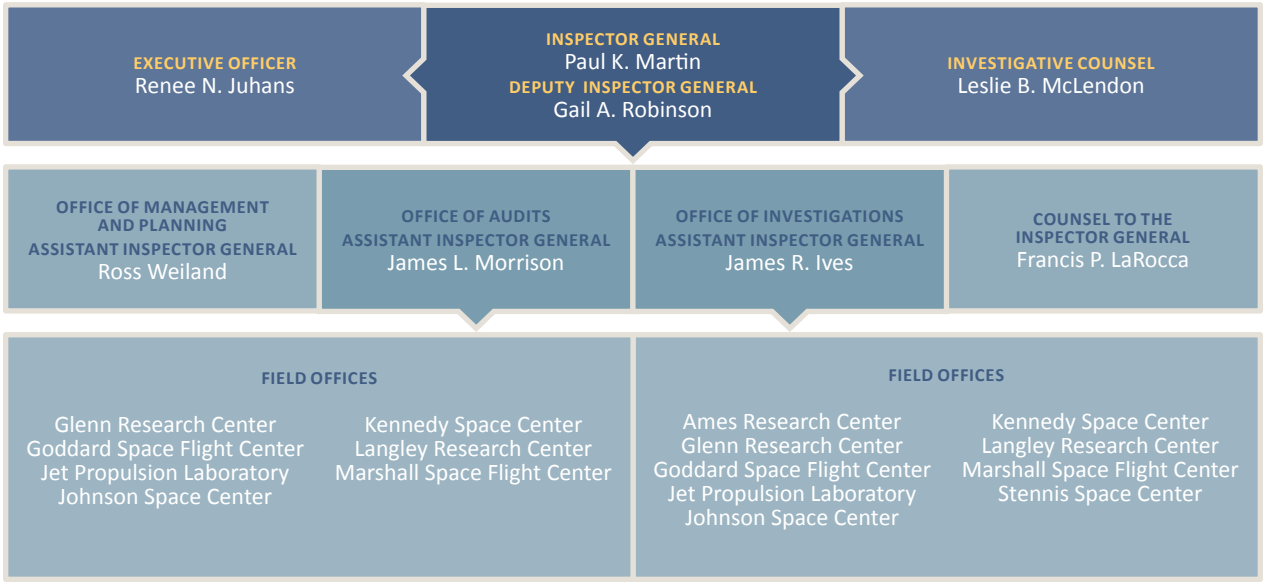
No external peer reviews were conducted of or performed by the Office of Investigations during this semiannual period. In October 2014, the Department of Energy's OIG reviewed NASA OIG's Office of Investigations and found the office to be in compliance with all relevant guidelines. There are no unaddressed recommendations outstanding from this review.

APPENDIX C. ACRONYMS

CNSI	Classified National Security Information
DCIS	Defense Criminal Investigative Service
EM	Exploration Mission
EPCS	Employee Performance and Communication System
FBI	Federal Bureau of Investigation
FISMA	Federal Information Security Modernization Act
FY	Fiscal Year
GAO	Government Accountability Office
GRI	GeneSys Research Institute
GSDO	Ground Systems Development and Operation
IDIQ	Indefinite-delivery, indefinite-quantity
IG	Inspector General
IGES	Institute of Global Environment and Society
ISS	International Space Station
IT	Information Technology
IFOSA	Institutional, Facility, Operational Safety Audits
NAPA	National Academy of Public Administration
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OA	Office of Audits
OCIO	Office of the Chief Information Officer
OI	Office of Investigations
OIG	Office of Inspector General
OMB	Office of Management and Budget
OSC	Office of Special Counsel
SBIR	Small Business Innovation Research
SDB	Small Disadvantaged Business
SLS	Space Launch System
TCAT	Technical Capabilities Assessment Team

APPENDIX D. 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 OIG's FY 2015 budget of $37.5 million supports the work of 195 employees in their audit, investigative, and administrative activities.

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.

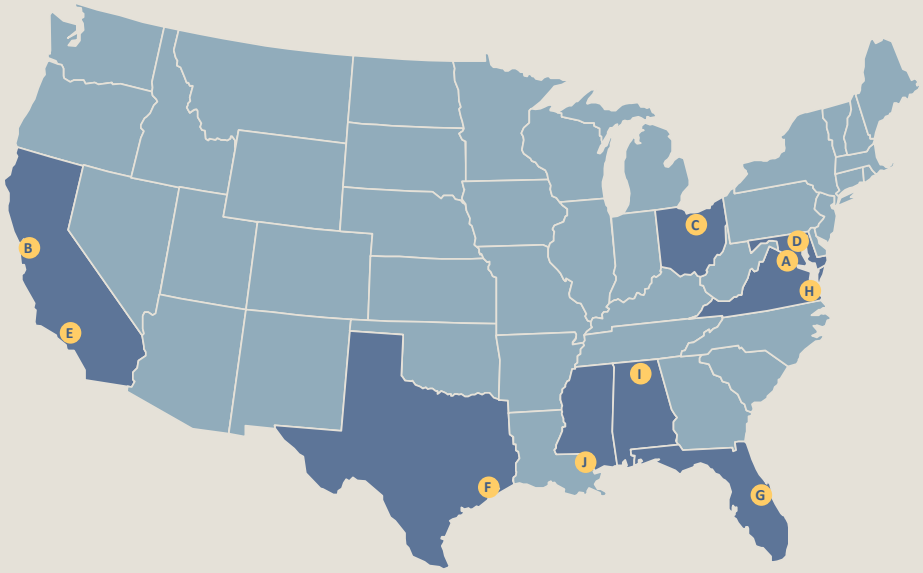
THE OFFICE OF COUNSEL TO THE INSPECTOR GENERAL provides legal advice and assistance to OIG managers, auditors, and investigators. The Office serves as OIG counsel in administrative litigation and assists the Department of Justice when the OIG participates as part of the prosecution team or when the OIG 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 E. MAP OF FIELD OFFICES

NASA OIG OFFICES OF AUDITS AND INVESTIGATIONS



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