

# NASA

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Office of Inspector General

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

May 26, 2016

Report No. IG-16-022





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# RESULTS IN BRIEF

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

May 26, 2016

IG-16-022 (A-15-011-00)

### WHY WE PERFORMED THIS AUDIT

Throughout its history, NASA has been at the forefront of science and space exploration and responsible for numerous scientific and technological discoveries and innovations. In the course of this work, the Agency partners with foreign countries and foreign nationals on projects and research, some of which may contain sensitive space-related technology and information. The challenge for NASA has been 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 NASA Office of Inspector General (OIG) investigated and issued reports regarding the Ames and Langley matters. In addition, the Government Accountability Office (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. We visited NASA Headquarters, Ames, Langley, and the Johnson Space Center and spoke with personnel responsible for developing and implementing export control and foreign national access policies, processes, and procedures.

### WHAT WE FOUND

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. 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.

## WHAT WE RECOMMENDED

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In order to improve NASA's Export Control and Foreign National Access Management Programs, we made six recommendations, including that the Agency review export control and foreign national access processes and procedures at all Centers, address deficiencies, and share best practices; further engage with Headquarters and Center stakeholders to develop foreign national access management policies that will complement NASA's international and bilateral support agreements and foreign national students and interns; combine the Export Control and Foreign National Access Operations Manuals to ensure clarity and consistency between the two Programs; ensure annual audit reports are standardized and consistently evaluated across Centers; and establish a methodology for increasing voluntary disclosures and sharing disclosures across Centers.

In response to a draft of our report, management concurred with five of the six recommendations, disagreeing with our recommendation to combine the Export Control and Foreign National Access Operations Manuals. Although management concurred with our recommendation to review processes and procedures at all Centers, we did not find its proposed actions fully responsive; therefore, this recommendation and the recommendation to combine the Operations Manuals remain unresolved pending further discussions with the Agency. The other four recommendations are resolved and will be closed upon completion and verification of the proposed corrective actions.

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# Acronyms

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CEA	Center Export Administrator
EAR	Export Administration Regulations
FBI	Federal Bureau of Investigation
FNAM	Foreign National Access Management
GAO	Government Accountability Office
IdMAX	Identity Management and Account Exchange
ISS	International Space Station
IT	Information Technology
ITAR	International Traffic in Arms Regulations
NAPA	National Academy of Public Administration
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OIG	Office of Inspector General
OPS	Office of Protective Services
STTCP	Security/Technology Transfer Control Plan

# INTRODUCTION

Throughout its history, NASA has been at the forefront of science and space exploration and responsible for numerous scientific and technological discoveries and innovations. In the course of this work, the Agency produces and has access to sensitive space-related technology and information. At the same time, NASA works closely with foreign countries on projects and research, the foremost example being the International Space Station (ISS). Consequently, foreign nationals work alongside NASA employees and contractors at the Agency's Centers and many other non-U.S. citizens – some of whom never set foot in the United States – have access to Agency information technology (IT) systems over the Internet. Sustaining and nurturing these partnerships while simultaneously protecting its sensitive information remains an ongoing challenge for NASA.

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," namely, information subject to the Export Administration Regulations (EAR) or International Traffic in Arms Regulations (ITAR).<sup>1</sup> In an effort to protect sensitive information and preserve American technological and military advantages, these regulations permit the transfer of certain defense and space-related technology to foreign nationals only with a license issued by the Department of Commerce (Commerce) or Department of State (State).<sup>2</sup> In addition, in 2013, questions arose regarding a Chinese national's access to Agency data and IT systems at the Langley Research Center (Langley).

The NASA Office of Inspector General (OIG) investigated and issued reports regarding both the Ames and Langley matters.<sup>3</sup> In addition, the Government Accountability Office (GAO) and National Academy of Public Administration (NAPA) issued reports in 2014 examining NASA's export control and foreign national access processes and procedures.<sup>4</sup> Collectively, the OIG, GAO, and NAPA made 40 recommendations to NASA.

We initiated this audit to assess NASA's implementation of these recommendations and the actions it has taken to protect export-controlled information. We visited NASA Headquarters, Ames, Langley, and the Johnson Space Center (Johnson) and spoke with personnel responsible for developing and implementing export control and foreign national access policies, processes, and procedures. We selected Ames and

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<sup>1</sup> Although the regulations use the term "export," transfers that occur within the United States are also covered.

<sup>2</sup> The specific hardware and technical data subject to these rules are listed on the Commerce's Control List (<http://www.bis.doc.gov/index.php/regulations/commerce-control-list-ccl>; last accessed May 24, 2016) and State's U.S. Munitions List ([https://www.pmdtc.state.gov/regulations\\_laws/documents/official\\_itar/2014/ITAR\\_Part\\_121.pdf](https://www.pmdtc.state.gov/regulations_laws/documents/official_itar/2014/ITAR_Part_121.pdf); last accessed May 24, 2016). In addition, the Departments of Energy and the Treasury have authority to issue export licenses for subjects regarding nuclear technology and trade embargoes/sanctions, respectively.

<sup>3</sup> The Ames report was the administrative culmination of a multi-year criminal investigation into the allegations that ended without criminal charges. NASA OIG, "Review of International Traffic in Arms Regulations and Foreign National Access Issues at Ames Research Center," February 26, 2014, and "Bo Jiang's Access to NASA's Langley Research Center," October 22, 2013.

<sup>4</sup> GAO, "Export Controls: NASA Management Action and Improved Oversight Needed to Reduce the Risk of Unauthorized Access to Its Technologies" (GAO-14-315, April 15, 2014). The NAPA report was commissioned by NASA in July 2013 in response to the Langley incident. NAPA, "An Independent Review of Foreign National Access Management," January 2014.

Langley because of the issues described above and Johnson because the Center, with its central role in the ISS Program, interacts with more foreign nationals than any other NASA Center. See Appendix A for details on our scope and methodology.

## Background

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A complex series of rules, regulations, and processes govern foreign national access to NASA facilities, information, hardware, and IT resources. In part, these rules seek to ensure foreign nationals do not have inappropriate access to export-controlled information and technology. While quite rare, a willful disclosure of export-controlled material to a foreign national can be prosecuted as a criminal offense punishable by up to 20 years in prison and a fine of up to \$1 million per violation. To establish willfulness, the Government typically must prove the defendant acted with knowledge that their conduct was unlawful. Violations of export control regulations can also be punished through civil penalties.<sup>5</sup>

### NASA's Export Control Program

All NASA employees and contractors are required to ensure transfers of export-controlled technology and information to foreign persons and foreign destinations are carried out in accordance with U.S. law and regulations and Agency policy.<sup>6</sup> The Associate Administrator for International and Interagency Relations is responsible for overall management of NASA's export control policy. The Headquarters Export Administrator (HQ Export Administrator), who reports to the Associate Administrator, is responsible for

- ensuring all NASA Export Control Program activities and exports comply with U.S. law and regulations and NASA policy and requirements,
- certifying and approving all NASA export license applications,
- serving as the point-of-contact with Center Export Administrators (CEA), and
- interacting with Commerce and State regarding export licensing matters.

Both EAR and ITAR require voluntary self-disclosure if a NASA employee or contractor either mistakenly or inadvertently fails to comply with export control regulations. The HQ Export Administrator is responsible for managing voluntary disclosures for NASA to Commerce and State for possible EAR and ITAR violations, respectively.

### NASA's Management of Foreign National Access

NASA's Assistant Administrator for Protective Services, in coordination with the Office of the Chief Information Officer and the Office of International and Interagency Relations, is responsible for implementation and oversight of Agency policy regarding foreign national access to physical and

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<sup>5</sup> 22 U.S. Code § 2778, Control of Arms Exports and Imports, (c) and (e).

<sup>6</sup> NASA Policy Directive (NPD) 2190.1B, "NASA Export Control Program," June 20, 2012, and NASA Procedural Requirements (NPR) 2190.1B, "NASA Export Control Program," December 27, 2011.



IT resources other than authorized tours of NASA facilities conducted for the general public.<sup>7</sup> Recordkeeping related to tracking foreign nationals is accomplished via the Agency’s Identity Management and Account Exchange System (IdMAX).<sup>8</sup>

## OIG, GAO, and NAPA Reports

As noted earlier, in 2013 and 2014, the OIG, GAO, and NAPA issued reports containing a total of 40 recommendations to improve NASA’s foreign national access and export control processes and procedures. Table 1 summarizes the general issues covered in the reports.

**Table 1: Topics Covered in the OIG, GAO, and NAPA Reports**

Topic	OIG	GAO	NAPA
Managing foreign national access management as a program			X
Reducing the flexibility given to Centers to interpret foreign national access requirements		X	X
Testing and evaluating foreign national access processes and procedures	X		
Testing and evaluating export control processes and procedures		X	
Determining critical assets and building mechanisms to protect them		X	X
Correcting longstanding IT security issues	X		X
Changing aspects of NASA culture	X	X	X
Communicating the importance of foreign national access process changes clearly, firmly, and consistently	X	X	X

Source: NASA OIG analysis of OIG, GAO, and NAPA information.

### *NASA Office of Inspector General*

In its October 2013 report on the Langley matter, the OIG found the Center’s foreign national access process was overly complex and insufficiently integrated to ensure responsible personnel had access to all relevant information and that errors by NASA employees contributed to confusion about the proper scope of a foreign national’s access to Center facilities and IT resources. The OIG made six recommendations, all of which NASA agreed to implement.

In its February 2014 report on the Ames matter, the OIG found that a foreign national working at the Center inappropriately traveled overseas with a NASA-issued laptop containing ITAR-restricted information. Although the foreign national had an ITAR license, the regulations forbid taking the information out of the country. The OIG also found that in the rush to bring foreign nationals on board,

<sup>7</sup> NPR 1600.4, “Identity and Credential Management,” August 1, 2012. This policy provides the personnel responsibilities and procedural requirements for “creation, usage, and management of identities and the creation and issuance of identity credentials to...protect people, property, and information” applicable to all U.S. and foreign personnel. Chapter 4, “Foreign Nationals,” addresses NASA requirements for granting foreign nationals access to physical and IT resources.

<sup>8</sup> IdMAX supports NASA’s Identity, Credential, and Access Management Program, which manages identities, credentials, and access to Agency facilities and IT systems.

Ames did not consistently follow security rules designed to protect NASA property and data. For example, a foreign national improperly received unescorted access privileges to the Center prior to the completion of required background checks and worked there for nearly 3 years without a required security plan. Although the report made no specific recommendations, the OIG encouraged NASA to consider the information presented together with other reviews and previous OIG reports as it examined and adjusted its export control and foreign national processes. In its response to the report NASA agreed to do so.

### ***Government Accountability Office***

In its April 2014 report, GAO found weaknesses in NASA's export control policies and implementation of foreign national access procedures that created an increased risk unauthorized access could occur. GAO noted that each Center determined the organizational placement and authority of its CEA and some CEAs were too far removed from Center leadership to be effective. In addition, NASA lacked a comprehensive inventory of export-controlled technologies, and Headquarters personnel had not developed a risk-based approach to addressing deficiencies NASA uncovered through internal audits and other oversight procedures. GAO made seven recommendations, all of which NASA agreed to implement.

### ***National Academy of Public Administration***

In its report issued in January 2014, NAPA concluded that budget and personnel cuts had complicated management of NASA's security programs and that the Agency could potentially realize long-term savings by managing its foreign national efforts in a more efficient and effective manner. NAPA also found NASA had no systematic approach to foreign national access management and instead relied on multiple approaches by its various Centers to implement program requirements. NAPA made 27 recommendations to improve NASA's foreign national access processes, including that NASA create a formal Foreign National Access Management Program (Foreign National Access Program) and develop a comprehensive and detailed manual covering all aspects of its foreign national access process. NASA agreed to take action on all the recommendations.

# NASA IS IMPLEMENTING RECOMMENDATIONS, BUT CONCERNS ABOUT THEIR IMPACT HAS SLOWED PROGRESS

NASA has taken significant steps to address the recommendations made by the OIG, GAO, and NAPA, including creating a Foreign National Access Program and developing new policy and procedures to address previous failures. However, Ames and Johnson personnel raised concerns that several requirements in the draft Agency policy such as requiring fingerprints from foreign nationals not living in or likely to visit the United States are not practical and will impose undue burdens on projects and programs. Due to a lack of effective collaboration and communication, NASA did not fully capitalize on opportunities to address these and other concerns about the policy revisions. Consequently, completion of new policies and a comprehensive foreign national access manual needed to address several recommendations has taken longer than expected. In addition, NASA could strengthen its Export Control and Foreign National Access Programs by improving its internal audit process and communication of lessons learned, best practices, and voluntary disclosures.

## NASA Has Fully Implemented or is Working to Implement All Recommendations

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We discuss below NASA's progress implementing the 40 recommendations made by the OIG, GAO, and NAPA.

### OIG Recommendations

NASA has taken appropriate actions to implement all of the OIG's recommendations (see Appendix B, Table 2 for a list of individual recommendations and their status). The following summarizes several examples of actions taken at Langley and Ames.

#### *Langley Research Center*

Langley has taken aggressive steps to strengthen its foreign national access procedures, including increasing education and training for Center employees, revising the form used to request access for foreign nationals, and ensuring its Office of the Chief Information Officer is involved in the foreign visitor process to coordinate proper access to IT resources. In addition, Center leadership established the Langley Internal Coordination Team to examine foreign national access and related approval processes.<sup>9</sup> The Team helps ensure any allegations of improper access are directed to the proper investigating

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<sup>9</sup> The Langley Internal Coordination Team meets monthly and consists of the Director and Deputy Director, Center Operations Directorate (the functional organization with responsibility for security and export control), Chief of Security, CEA, Inspector General Resident Agent-in-Charge, IT Security, Counter Intelligence, Center Chief Information Officer, and Center Chief Counsel.

authority and that responsible offices coordinate on process improvements and any potential disciplinary or performance actions that might arise from an investigation. The Team also examines any foreign national processes or coordination breakdowns and proposes solutions to avoid similar issues in the future.

The Langley Deputy Center Director has also established a working group composed of members of the Langley technical and research communities to make recommendations for improving communication about the requirements for obtaining access for foreign nationals. The group has examined ways to simplify the process and ensure employees understand their responsibilities when serving as an escort, host, or sponsor of a foreign national.

### ***Ames Research Center***

According to many of the Ames personnel we spoke with, they have experienced a dramatic change in the Center's approach to export control and foreign national access processes since February 2015. For example, the employees stated responsible Center organizations are effectively collaborating to improve the foreign national access process by proactively identifying and correcting issues that may arise. In addition, as recommended by GAO, the position of CEA has been elevated to report to the Center Operations Director. The Center also created a team composed of the CEA, Center Chief of Security, Counterintelligence Agent, and the Personnel Security Manager to assess its foreign national processes. The Ames Security Office in conjunction with the Center's Counterintelligence Office also updated the escort policy and created an agreement that all personnel who serve as foreign national escorts must certify they understand the requirements. In addition, foreign persons who require escort are now issued passes mounted in red holders that indicate the locations they may access and the hours during which access is allowed.

## **GAO Recommendations**

NASA has completed actions on five of the seven GAO recommendations (see Appendix B, Table 3). For example, the NASA Associate Administrator issued a directive that CEAs report to the Center Director or the Director's designee (e.g., the Center Operations Director) and that the position be filled by individuals at the GS-15 (senior management) level. Ames, Johnson, and Langley have all implemented this directive. In addition, in August 2014, the Associate Administrator for International and Interagency Relations provided Center Directors with the results of the most recent annual export control audit and directed they work with their respective CEAs to correct any identified deficiencies.<sup>10</sup> Finally, in April 2015, the HQ Export Administrator published the Export Control Operations Manual.<sup>11</sup> The Manual addresses export control processes for all Agency personnel and export control staff, establishes an export control training program, and includes a process to identify technologies that warrant additional protection or attention.

NASA has not completed actions on GAO's recommendations to evaluate CEA workload and develop plans to monitor the status of corrective actions related to management of foreign national access. The HQ Export Administrator planned to complete a detailed analysis of CEA workload by April 2016, when all Centers were expected to have fully implemented the recommendations regarding the position level

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<sup>10</sup> NPR 2190.1B requires each Center perform an annual self-assessment of its Export Control Program. The HQ Export Administrator directs the performance of these audits and evaluates the results.

<sup>11</sup> NASA Advisory Implementing Instruction 2190.1, "NASA Export Control Operations Manual," April 2015.

and reporting structure for the position. In addition, the Foreign National Access Program Manager has engaged with Agency and Center stakeholders to develop a manual containing detailed procedures for managing foreign national access to Agency facilities, including processes to implement and monitor corrective actions. However, as discussed in the following sections, progress on this effort has been slowed by disagreements between Headquarters and some Centers, particularly Ames and Johnson, regarding several of the proposed procedures.

## NAPA Recommendations

As of December 31, 2015, NASA had closed 18 of NAPA's 27 recommendations and was working to implement the remaining 9 (see Appendix B, Table 4).<sup>12</sup> Among the open items is a recommendation that NASA develop a comprehensive and detailed manual covering all aspects of the Agency's Foreign National Access Program.

In response to the NAPA recommendations, in March 2014 NASA established a Foreign National Access Program under the auspices of the Headquarters Office of Protective Services (OPS). OPS partnered with the Office of the Chief Information Officer and the Office of International and Interagency Relations to develop a 5-year plan to address NAPA's recommendations. According to the plan, NASA was to complete an operating manual for its Foreign National Access Program by December 31, 2015. However, due in part to disagreements between Headquarters and Center personnel regarding the implementation of certain procedures, NASA missed the December target date. For example, in accordance with Office of Personnel Management standards, Headquarters maintained and clarified in draft policy the requirement that all foreign nationals who require access to NASA facilities and remote access to information submit fingerprints.<sup>13</sup> Johnson managers believe it is unreasonable to require fingerprints from foreign nationals who will have remote access to Center IT assets and information but may never physically travel to the United States.<sup>14</sup> NASA is working to resolve this and other issues and hopes to publish the manual by May 2016.

In addition, NAPA found that although OPS' functional reviews had been performed at NASA Headquarters and all Centers between 2009 and 2013, they did not address all relevant aspects of export control and foreign national access. NASA policy requires these reviews every 3 years to ensure each Center is implementing its protective services operations and programs in accordance with applicable NASA and Federal regulations and addressing identified areas for improvement.<sup>15</sup> NASA noted that a Foreign National Access Program team member has been part of the review team since February of 2015 – completing reviews at four Centers and NASA Headquarters – and that the review process will be improved and the revised process detailed in the operating manual. In our opinion, these reviews provide insight into Center deficiencies, identify best practices, and serve as a means to share lessons learned.

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<sup>12</sup> In its March 7, 2016, quarterly report to Congress, NASA marked four additional recommendations as "completed" during the quarter ending December 31, 2015. However, these recommendations are associated with revision of NPR 1600.4 and the Foreign National Access Operations Manual, neither of which had yet been finalized nor published.

<sup>13</sup> Office of Personnel Management Memorandum, "Final Credentialing Standards for Issuing Personal Identity Verification Cards under HSPD-12," July 31, 2008.

<sup>14</sup> Johnson personnel estimated initial travel costs at \$3 million and annual costs of \$1 million to obtain fingerprints for the more than 700 ISS Program users with remote-only access.

<sup>15</sup> NPR 1600.1A, "NASA Security Program Procedural Requirements," August 12, 2013.

# Collaboration and Communication Issues Have Delayed Implementation of Some Recommendations

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Although NASA leaders have taken a number of positive steps to correct weaknesses in the Agency's export control and foreign national access processes, because of a lack of effective collaboration and communication NASA did not fully capitalize on opportunities to address concerns raised by some Agency organizations about proposed policy revisions. Consequently, completion of the revised policy and a comprehensive foreign national access manual needed to address several recommendations has taken longer than expected. In addition, improvements to the self-assessment process and improved sharing of lessons learned could reduce the risk of violations of export control and foreign national access rules and procedures.

## Implementing Foreign National Access Management Policy Revisions

NASA did not fully capitalize on opportunities to address concerns of Center and Headquarters officials about policy revisions. Consequently, the implementation of some recommendations has been delayed.

### *Issues Raised During the Moratorium on Foreign National Access*

In March 2013, in response to foreign national access issues at Ames and Langley, the NASA Administrator restricted visits by foreign nationals Agency-wide. This moratorium prevented Centers from authorizing on-site access to new foreign national visitors and employees from designated countries and barred their physical and remote access to NASA's IT systems until Center management (1) reviewed and confirmed compliance with NASA's foreign national procedures, (2) established escort processes and provided escort policy training, and (3) confirmed all foreign nationals from specific designated countries met current NASA policy, including conducting fingerprint checks for foreign nationals with remote access to Agency systems.<sup>16</sup> By the end of June 2013, each Center had provided a response to these requirements, and Headquarters OPS lifted the moratorium.

In reviewing documentation associated with the process of lifting the moratorium, we found that although Headquarters resolved some inconsistencies between Center practices and Agency policy, other opportunities were missed. For example, Ames management expressed concern with the requirement to obtain fingerprints from foreign nationals requesting remote access to Center IT systems and data. Specifically, they noted that most requests came from students or research assistants associated with professors at major universities and that there was no "fool-proof" way to obtain fingerprints from those individuals. In response, OPS revised the draft NASA Procedural Requirements (NPR) 1600.4 to eliminate the requirement for fingerprints when foreign nationals request remote access to "very low-risk systems."

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<sup>16</sup> The designated countries cited in the moratorium were Burma, China, Eritrea, Iran, North Korea, Saudi Arabia, Sudan, and Uzbekistan. NASA maintains a list of designated countries at <http://oiir.hq.nasa.gov/nasaecp/> (last accessed May 24, 2016). NASA defines a designated country as one with which the United States (1) has no diplomatic relations, (2) countries determined by State to support terrorism, (3) counties under sanction or embargo by the United States, and (4) countries of missile technology concern.

Conversely, Johnson noted it did not have written procedures to address some of the scenarios outlined in NASA's foreign national access policy and was not in compliance with the policy because of inconsistent processing and a lack of Center-level access procedures regarding fingerprinting and escort requirements. These issues were not timely resolved and remained contentious into 2016, delaying completion of the revised NPR 1600.4 and Foreign National Access Operations Manual.<sup>17</sup>

### ***Issues Raised Following Release of NAPA Report***

In explaining its recommendation that NASA establish a Foreign National Access Program and develop a comprehensive operating manual, NAPA noted that Centers had too much flexibility and stated the Agency's "stove-piped" organizational structure and overly broad and organizationally-specific directives had resulted in inconsistent and ineffective outcomes. In response to NAPA's recommendations, NASA began revising NPR 1600.4 to incorporate aspects of the recommendations, such as escort and remote access requirements, and drafting the new operations manual.

Although Headquarters officials engaged Center personnel regarding the draft policy through roundtable meetings and focus group sessions, several of the Center personnel we spoke with told us they felt they were not given adequate opportunity to provide input into the Headquarters process. They said they did not fully understand the rationale for NASA commissioning the NAPA review, were not given the opportunity to read an advance draft of NAPA's findings that was provided to Headquarters, and were not aware of the specific recommendations in the report. Although the HQ Export Administrator and Foreign National Access Program Manager told us the full report was sent to Center leadership including the CEAs, none of the personnel we spoke with at Ames, Johnson, or Langley said they had seen it. Rather, they reported having access only to the public executive summary, which did not include detailed findings or the recommendations.<sup>18</sup>

Johnson personnel said they neither participated in the process of implementing the recommendations nor received complete answers to questions they raised regarding policy requirements and how to implement fingerprinting and remote access of foreign nationals from designated countries. Johnson, which manages more foreign nationals than any other NASA Center, determined that it would be unable to comply with many of the proposed revisions to NPR 1600.4. According to Johnson personnel, some of the policy revisions created serious issues for managing foreign nationals who are NASA's partners on the ISS and would have a significant impact on the Center's relationships with international partners under ISS Program intergovernmental agreements.

In addition to these issues, several officials at Ames and Headquarters stated that the draft policy could be improved by clarifying procedures related to foreign national students and interns. Specifically, the Office of International and Interagency Relations and the Office of Education proposed adding to NPR 1600.4 that foreign visitor requests include the educational status (i.e. undergraduate or graduate) and the associated NASA international program, if any, for students and interns that work at NASA Centers. For example, foreign national students and interns could require access to NASA as part of a cooperative agreement with an academic institution or as an intern with a contractor employed by

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<sup>17</sup> NPR 1600.4A, "Identity and Credential Management," April 8, 2016, and NASA Advisory Implementing Instruction 1600.4, "Foreign National Access Management (FNAM) Operations Manual," May 2016, were published after we issued this draft report for Agency comment.

<sup>18</sup> NAPA, "An Independent Review of Foreign National Access Management," January 2014. The full NAPA review was deemed Sensitive But Unclassified and not publicly distributed. An Executive Summary is available at [https://www.nasa.gov/sites/default/files/files/NAPA\\_Executive\\_Summary\\_FNAM\\_Review\\_2014\\_Outlined-TAGGED-Final.pdf](https://www.nasa.gov/sites/default/files/files/NAPA_Executive_Summary_FNAM_Review_2014_Outlined-TAGGED-Final.pdf) (last accessed May 24, 2016).



NASA. Ames personnel said they generally have limited knowledge regarding the specifics of foreign national students and interns – such as for whom they are working and if they are from designated countries – making it difficult to provide that information when seeking access for them. However, OPS rejected the proposed revision saying the Office of Education has authority to determine who participates in internship programs. When we inquired with Office of Education personnel about OPS’ decision, we were told they were unaware of the decision, they do not provide funding for foreign national students and interns, and planned to meet with OPS to discuss the issue.

The Headquarters Foreign National Access Program Manager provided us documentation of communications with Center staff and examples of instances in which the Centers did not respond to requests for comments on the draft policy or operating manual. For example, the Program Manager solicited input on the draft operating manual from each of NASA’s 10 Centers but received feedback from only 6. Center personnel we spoke with acknowledged that Headquarters had provided information regarding the new Foreign National Access Program and proposed revisions to the Agency’s export control and foreign national access policies. However, they believed Headquarters did not adequately appreciate the significant impact the proposed changes would have on the Centers and were not willing to consider alternate approaches. Rather, Headquarters directed the Centers to submit waivers for requirements they believe they could not meet. Johnson officials told us they nonconcur with the draft version of NPR 1600.4 in the hopes of bringing about a more focused discussion with Headquarters.

In December 2015, Headquarters hosted a roundtable discussion and multiple video conferences with Johnson staff to discuss their concerns, but made no significant changes to the draft policy at that time, instead instructing Johnson to submit waivers to the policies the Center believed it could not implement. In December 2015 Johnson personnel informed OPS of five areas for which they believed waivers would be necessary:

- *Escorts of foreign nationals.* Draft policy required that only holders of a NASA-issued identity credential be allowed to escort foreign nationals. Johnson allowed foreign nationals from some international partner countries to whom the Center had issued badges to escort international partners from their respective agencies.<sup>19</sup> For example, Johnson allowed a vetted and badged Canadian national to escort a visiting Canadian foreign national.
- *Designated country.* Draft policy required foreign nationals born in designated countries, whether or not they claim citizenship in a designated country, be escorted at all times by a trained holder of a NASA-issued identity credential. Thirteen individuals who Johnson previously vetted and who hold Center-issued credentials that allowed them unescorted access to the Center would require escorted access under the proposed policy.
- *Remote access for foreign nationals.* Draft policy required fingerprints from foreign nationals requesting remote-only access to Agency systems. However, some ISS partners have employees who require such access but have never been and are not likely to visit the United States, making this requirement difficult to implement and verify. As an alternative, Johnson proposed using the Federal Bureau of Investigation (FBI) name search, a fingerprint check based on

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<sup>19</sup> Johnson issues an Alternative Facility Access Identity Credential badge to permit international partners physical access to Center facilities. For non-U.S. nationals, Federal regulations state that agencies may delay a background investigation until the individual has been in the United States for 3 years. In such cases, an Alternative Facility Access Identity Credential may be issued at the discretion of the relevant agency official based on a risk determination.



National Criminal History Check if the foreign national travels to a NASA Center, and a visual compliance check, which includes a check against the unverified list, entities list, denied person lists, debarred parties list, and the terrorists screening lists.<sup>20</sup>

- *Requestors for foreign national access.* Draft policy required anyone requesting access for a foreign national be a NASA civil servant or contractor. Johnson allowed U.S. citizens and foreign nationals working for ISS international partners to make such requests.
- *Identity vetting requirements.* Draft policy required Centers to initiate an FBI name search and fingerprint check for foreign nationals requesting physical access. However, according to Johnson personnel, before foreign nationals visit the Center they undergo a comprehensive screening by U.S. Customs and Border Protection upon entry to the United States that includes an FBI name search and fingerprint check.

According to Johnson personnel, as of March 2016, one of these issues had been resolved, OPS had provided clarification on the others, and Center personnel were evaluating what waivers would be needed in light of the additional information provided.

In our view, an Agency policy that requires multiple waivers may not be suitable to the reality of NASA's interactions with foreign nationals. Resolving the remaining differences could avoid further delays in implementing the open GAO and NAPA recommendations and result in a more workable, comprehensive policy.

## **NASA Can Further Streamline Operations Manuals**

As previously discussed, NASA issued the Export Control Operations Manual in April 2015. This manual addresses export control processes for personnel, establishes a training program, and includes a process to identify technologies that warrant additional protection or attention from an export control perspective. The manual also explains the processes to grant a foreign national access to NASA facilities and resources, including IT and technical data.

As of February 2016, NASA had drafted but not yet published its Foreign National Access Operations Manual. NAPA recommended NASA develop a comprehensive and detailed foreign national access management operating manual covering all functional aspects of the Program to include export control operations. Development of such a manual is essential to NASA completing corrective actions and closing five other NAPA recommendations, as well as one of the two outstanding GAO recommendations.

The Export Control and Foreign National Access Programs overlap in a number of areas and share responsibility for different aspects of the related processes. Combining the Export Control and Foreign National Access Program manuals into a single document detailing all functional aspects of the Programs would ensure consistency of their shared critical elements.

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<sup>20</sup> National Criminal History Check – often referred to as a criminal history record or a “rap sheet” – is a listing of information taken from fingerprint submissions maintained by the FBI that includes details on arrests and, in some instances, Federal employment, naturalization, or military service.

## Annual Export Control Audits

NASA policy requires each Center perform an annual review on the operations of their Export Control Program.<sup>21</sup> The HQ Export Administrator uses these audits to evaluate the Centers' implementation of NASA requirements and confirm that screening and licensing procedures, as well as export control documentation, comply with EAR and ITAR requirements. These audits include a review of the Center's records of exports and transfers executed in support of programs that involve international partners.

Our review of the annual export control audits from Ames, Johnson, and Langley found that auditors conducted a compliance review in which they concentrated primarily on administrative requirements – such as appointment and organizational position of the CEA, access to the Center export control website, availability of training, and employees' knowledge of export control policies – rather than evaluating the Program's effectiveness. For example, the reports contained little or inconsistent support to show that the tasks required to approve foreign national access to export-controlled information were evaluated or that Center personnel were evaluated on the performance of procedures required to obtain approval for foreign national access.

We also found inconsistencies and a lack of standardization in the audits across the Centers that reduce the ability of the HQ Export Administrator to determine the relative needs of the various Centers or whether topic areas were adequately evaluated. For example, in preparing for the 2015 audit, the HQ Export Administrator sent instructions to the Centers outlining specific areas the audits were required to cover, including foreign national access procedures. At the three Centers we visited, the auditors examined this issue but used different methods and reported their results differently. At one Center, the auditor examined a single access request and reported no issues with the request process. At another Center, the auditor reviewed all foreign national access authorizations and found no issues but did not convey this result in the report. At the third Center, the annual report noted an example of a foreign national who the Center discovered had been badged incorrectly. When we asked the HQ Export Administrator to interpret the results, he admitted it was challenging to determine what the reports indicated about the comparative performance of the various Centers. He also noted that the new Export Control Operations Manual should help by providing a baseline for auditing and comparing the Centers' performance.

## Sharing Best Practices and Lessons Learned

NASA policy encourages sharing knowledge and best practices “to continuously improve the performance of NASA in implementing its mission.”<sup>22</sup> However, the three Centers we visited were generally unaware of the actions other Centers had taken to improve their foreign national access processes.

### *Langley as a Model*

Langley has implemented procedures to strengthen coordination and communication between Center offices responsible for implementing export control and foreign national access management policies, as well as operational personnel and offices impacted by those policies. Specifically, the Langley Internal Coordination Team has helped offices across the Center understand requirements particular to

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<sup>21</sup> NPR 2190.1B, Chapter 7.

<sup>22</sup> NPD 7120.6, “Knowledge Policy on Programs and Projects,” November 26, 2013.

individual offices. According to the Langley personnel we spoke with, understanding the responsibilities and requirements of the other Center offices has led to more effective communication and greater efficiency in meeting export control and foreign national access management requirements, which helps minimize potentially disruptive procedures while supporting the mission needs of program and project personnel.

Although the processes and procedures Langley has implemented could be helpful at other Centers, personnel at Ames and Johnson were not familiar with them. At Ames, the Deputy Center Director noted that the Center already holds periodic meetings involving most of the relevant stakeholders and that it would not be difficult to expand the meeting's agenda to include a discussion of export control and foreign national access concerns. At Johnson, we observed examples of misunderstandings about designated country and escort requirements leading to tension between the Center's protective services, export control, and mission operations offices. We believe a forum similar to the Langley Internal Coordination Team at all Centers would help minimize such tensions and lead to improved communication and coordination. Personnel at both Centers agreed that the Langley model could prove helpful.<sup>23</sup>

Similarly, Ames and Johnson personnel were unaware that Langley has required all computer equipment issued to foreign nationals include software that records user activity (e.g., opening a browser window or sending an e-mail).<sup>24</sup> Using this information, Langley IT security personnel review the activity of two randomly selected foreign nationals each day and through these efforts have identified behavior warranting further investigation. For example, Langley personnel identified a foreign national who was sending files through an external e-mail service to a non-NASA affiliated foreign national in violation of NASA rules. Personnel at Ames and Johnson expressed interest in learning more about the software.

### ***Greater Dissemination of Voluntary Disclosures***

We obtained a listing and supporting documentation for the 11 voluntary disclosures the HQ Export Administrator submitted to Commerce and State between August 1, 2012, and August 1, 2015. We found the corrective actions taken by the Centers were in line with NASA export control policies and the recommendations made in GAO and NAPA reports. However, the HQ Export Administrator believes that Centers could be submitting more voluntary disclosures, and therefore he said he planned to take the following actions:

- Develop metrics to evaluate the effectiveness of the changes in NASA's export control policies and procedures as they pertain to voluntary disclosures.
- Create an automated database to track voluntary disclosures.
- Establish export control awareness training modules that include a section on voluntary disclosures for the key players in NASA's Export Control Program.

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<sup>23</sup> In January 2016, Johnson formed a similar team with participation of security, export control, the ISS Program, and the Flight Operations Directorate.

<sup>24</sup> Langley personnel told us the software costs less than \$50 per license.

At each of the Centers we visited, export control personnel did not receive copies of voluntary disclosures from other Centers and therefore did not have the benefit of learning from these mistakes. We believe access to voluntary disclosure information should more closely adhere to the model NASA uses for safety information in which close calls are widely disseminated throughout the Agency. NASA's Safety Culture Handbook describes a learning culture as one where employees collect, assess, and share information in an atmosphere of open communication, mutual trust, and shared values and lessons, with the objective of creating a safe and healthful workplace.<sup>25</sup> The same principles should apply to the export control voluntary disclosure process.

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<sup>25</sup> NASA Technical Handbook 8709.24, "NASA Safety Culture Handbook," November 23, 2015.

# CONCLUSION

Although NASA has taken appropriate steps to implement the majority of OIG, GAO, and NAPA recommendations, progress on some recommendations has been slowed by disagreements between Headquarters OPS and a few stakeholders regarding the implementation and burden of proposed processes and procedures. Because of some missed opportunities to address concerns, NASA has not yet implemented all of the policy and procedural changes recommended by the NAPA report. In addition, the contentious working relationship between NASA Headquarters and functional organizations responsible for Export Control and Foreign National Access Programs at the individual Centers resulted in the slow implementation of corrective actions. NASA can further reduce risks in its Export Control and Foreign National Access Programs by finding common ground to support the operational needs of its programs and working to establish practical policies and procedures, strengthening internal audit processes, and sharing lessons learned.

# RECOMMENDATIONS, MANAGEMENT'S RESPONSE, AND OUR EVALUATION

In order to improve NASA's Export Control and Foreign National Access Management Programs, we recommended the Associate Administrator for International and Interagency Relations and the Assistant Administrator for Protective Services coordinate on the following:

1. Review export control and foreign national access processes and procedures at all Centers, address deficiencies, and share best practices.
2. Further engage Headquarters and Center stakeholders to develop foreign national access management policies that will complement NASA's international and bilateral support agreements and work with foreign national students and interns.
3. Combine the Export Control Operations Manual and Foreign National Access Operations Manual to ensure clarity and consistency between the two Programs.
4. Expand annual audits to assess the effectiveness and efficiency of export control and foreign national access processes and procedures.
5. Ensure annual audit reports are standardized and able to be evaluated consistently across Centers.
6. Establish a methodology for increasing voluntary disclosures and for sharing disclosures across Centers.

We provided a draft of this report to NASA management who concurred with all of our recommendations except recommendation 3. We consider management's comments to recommendations 2, 4, 5, and 6 responsive; therefore, those recommendations are resolved and will be closed upon completion and verification of the proposed corrective actions.

Although management concurred with recommendation 1, we do not find their comments fully responsive. Specifically, management asserts that because it is conducting annual self-assessments of the Agency's Export Control Program and triennial integrated functional reviews, no further action is required. Although NASA has changed the staffing and content of the functional reviews and promises to do the same for the annual self-assessments in response to our recommendations, the Agency has not consistently performed the assessments nor has it performed the integrated functional reviews on a 3-year basis as promised. Accordingly, we believe the Agency needs to develop a specific timetable for comprehensive assessments of export control and foreign national access compliance at all Centers. Consequently, we are leaving the recommendation unresolved pending further discussions with the Agency.

Management did not concur with recommendation 3, stating that although the Export Control Operations Manual and the Foreign National Access Operations Manual share some commonality, each has "a unique intent and focus which require them to remain separate." The intent of our recommendation was to ensure consistency between the two manuals. Although we believe that combining the manuals would be the best way to achieve this goal, it is certainly not the only means of

doing so. Accordingly, this recommendation will remain unresolved pending further discussions with Agency officials about how they intend to ensure consistency between the two manuals.

Management's response to our report is reproduced in Appendix C. Technical comments provided by management have been incorporated, as appropriate.

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Major contributors to this report include Raymond Tolomeo, Science and Aeronautics Research Director; Vincent Small, Project Manager; Bessie Cox; and Carol St. Armand. Additional support provided by Sarah McGrath.

If you have questions about this report or wish to comment on the quality or usefulness of this report, contact Laurence Hawkins, Audit Operations and Quality Assurance Director, at 202-358-1543 or [laurence.b.hawkins@nasa.gov](mailto:laurence.b.hawkins@nasa.gov).

A handwritten signature in black ink, appearing to read "PKMJA".

Paul K. Martin  
Inspector General

## APPENDIX A: SCOPE AND METHODOLOGY

We performed this audit from July 2015 through March 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives.

Our objective was to assess whether NASA is effectively implementing the recommendations made by various organizations to improve its Export Control and Foreign National Access Programs. NASA OIG, GAO, and NAPA reviewed NASA's export control and foreign national access processes and procedures, and noted areas of weakness. We reviewed NASA's corrective actions for the 40 recommendations made and agreed to by the Agency to improve its export control and foreign national access procedures. In addition, through its voluntary disclosures process, NASA has made recommendations to improve their Export Control Program. Specifically, we

- evaluated NASA's implementation of the recommendations made to improve its Export Control and Foreign National Access Programs and the corrective actions taken;
- reviewed NASA internal controls, processes, and procedures used to administer and manage the Export Control and Foreign National Access Programs; and
- interviewed key responsible officials within the NASA Headquarters OPS, Office of the Chief Information Officer, and the Office of International and Interagency Relations to determine the roles and responsibilities of organizations and individuals involved in Export Control and Foreign National Access Programs.

We performed our fieldwork at Ames, Johnson, and Langley. We selected Ames and Langley because of the past issues outlined in the OIG reports, and Johnson manages the most foreign nationals of any NASA Center. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We identified and reviewed all applicable Federal, Agency, and Center level regulations and guidance, including the following:

- Export Administration Regulations, 15 CFR §§730-774, July 20, 2015
- International Traffic in Arms Regulations, 22 CFR §§120-130, July 20, 2015
- Office of Personnel Management Memorandum, "Final Credentialing Standards for Issuing Personal Identity Verification Cards under HSPD-12," July 31, 2008
- NPR 1600.1A, "NASA Security Program Procedural Requirements," August 12, 2013
- NPR 1600.4, "Identity and Credential Management," August 1, 2012
- NPD 2190.1B, "NASA Export Control Program," June 20, 2012
- NPR 2190.1B, "NASA Export Control Program," December 27, 2011
- NASA Advisory Implementing Instruction 2190.1, "NASA Export Control Operations Manual," April 2015



- NPD 7120.6, “Knowledge Policy on Programs and Projects,” November 26, 2013

## **Use of Computer-Processed Data**

We did not use computer-processed data to assess NASA’s implementations of the recommendations made to improve its Export Control and Foreign National Access Programs.

## **Review of Internal Controls**

We reviewed internal controls as they relate to Export Control and Foreign National Access Programs. We discussed the control weaknesses identified in the body of this report. Our recommendations, if implemented, will improve those identified weaknesses.

## **Prior Coverage**

During the last 5 years, the NASA OIG, GAO, and NAPA have issued four reports of significant relevance to the subject of this report. NASA OIG, GAO, and NAPA reports can be accessed at <http://oig.nasa.gov/audits/reports/FY16>, <http://www.gao.gov>, and <http://www.napawash.org/reports-publications.html>, respectively.

### ***NASA Office of Inspector General***

*Review of International Traffic in Arms Regulations and Foreign National Access Issues at Ames Research Center* (February 26, 2014)

*Bo Jiang’s Access to NASA’s Langley Research Center* (October 22, 2013)

### ***Government Accountability Office***

*Export Controls: NASA Management Action and Improved Oversight Needed to Reduce the Risk of Unauthorized Access to Its Technologies* (GAO-14-315, April 15, 2014)

### ***National Academy of Public Administration***

*An Independent Review of Foreign National Access Management* (January 2014)

## APPENDIX B: EVALUATION OF RECOMMENDATIONS

The following tables detail the OIG, GAO, and NAPA report recommendations as well as NASA and OIG evaluation of their status.<sup>26</sup> In making our assessment, “red” represents that NASA has not made significant progress on the corrective actions to address the recommendations; “yellow” represents that NASA has taken steps to address the recommendations; and “green” represents that the corrective action is complete and addresses the recommendations.

**Table 2: OIG Recommendations Status as of December 31, 2015**

Recommendations	OIG Status Assessment
1. Examine the roles of the different offices that have input into the foreign visitor approval process and ensure that all appropriate offices are represented and that responsibilities are appropriately assigned.	<b>Green.</b> The Langley Deputy Director commissioned a Langley Internal Coordination Team that addresses foreign national access matters and performs foreign national access process reviews.
2. Improve training for sponsors of foreign nationals to ensure they understand how the foreign national visit approval process works and their responsibilities as sponsors.	<b>Green.</b> Langley developed an interim directive that focuses on access and escort requirements for the Center. The directive gives the Center Chief of Security the authority to carry out risk-based determinations to require a visitor escort.
3. Revise the Security/Technology Transfer Control Plan (STTCP) to include NASA policy regarding taking IT equipment out of the United States and ensure that employees are trained regarding this policy.	<b>Green.</b> Langley uses an STTCP (NASA Langley Form 294) for all non-U.S. citizens that requests physical access for 30 days or more and/or logical access regardless of request durations. Identification badges, Government furnished equipment, data, hardware and software in the possession of foreign nationals are not allowed outside the United States.
4. Require individuals who will be acting as sponsors to acknowledge receipt of the Plan and their understanding of all conditions placed on the visits of foreign nationals they are sponsoring, and prevent the system from generating final approval until all key documents, including the STTCP, are loaded into the system.	<b>Green.</b> Langley developed an interim directive that focuses on access and escort requirements for the Center. The directive gives the Center Chief of Security the authority to carry out risk-based determinations to require a visitor escort. Also, foreign nationals who require IT access are monitored on a continuous basis.
5. Ensure that the National Institute of Aerospace and other similar organizations have a process in place so that appropriate organizational officials are aware of any conditions NASA places on foreign nationals associated with their organizations who are working with NASA.	<b>Green.</b> Langley issued a letter that required the National Institute of Aerospace to submit a plan of action for foreign national access policies and procedures.
6. Consider whether discipline and/or performance-based counseling is appropriate for any of the NASA civil servants discussed in this report.	<b>Green.</b> NASA took appropriate steps to discipline two civil servants discussed in the OIG report.

Source: NASA OIG analysis of Agency actions taken in response to report recommendations.

<sup>26</sup> Many of the recommendations are edited and summarized for readability and presentation.

**Table 3: GAO Recommendations Status as of December 31, 2015**

Recommendations	NASA's Assessment	OIG Status Assessment
1. Establish guidance defining the level and organizational placement of the CEA.	Completed	<b>Green.</b> NASA issued guidance that the CEA will be a direct report to the Center Director or designee at the GS-15 level.
2. Assess the CEA workload and resources needed to support the CEA functions at each Center.	Ongoing	<b>Yellow.</b> Estimated completion date is April 2016.
3. Implement a risk-based approach to the Export Control Program by using existing information sources, such as counterintelligence assessments, to identify targeted technologies and then direct that the types and location of those export-controlled technologies be identified and managed by CEAs.	Completed	<b>Green.</b> NASA's Export Control Operations Manual outlines a risk-based approach to identifying technologies that warrant additional protection or attention from an export control perspective.
4. Direct Center Directors to oversee implementation of export-related audit findings, which could involve collaboration among several Center offices.	Completed	<b>Green.</b> The Associate Administrator for International and Interagency Relations provided each Center Director with the results of the annual export control audit for their Center and directed them to ensure implementation of corrective measures.
5. Develop a plan, including timeframes for addressing CEA issues and suggestions for improvement provided during the annual export control conference, and share the plan with CEAs.	Completed	<b>Green.</b> The HQ Export Administrator developed an action tracking matrix that tracks progress on suggestions for improvement provided during the Annual Export Control Program Reviews.
6. Re-emphasize to CEAs the requirements on how and when to notify the HQ Export Administrator about potential voluntary disclosures to ensure more consistent reporting of potential export control violations at NASA Centers.	Completed	<b>Green.</b> NASA provided written guidance to CEAs on how and when to notify the HQ Export Administrator of potential voluntary disclosures.
7. Develop plans with specific time frames to monitor corrective actions related to management of foreign national access to NASA facilities and assess their effectiveness.	Ongoing	<b>Yellow.</b> NASA was working on its Operations Manual that will contain detailed procedures for managing foreign national access to NASA facilities. The manual will also contain processes to implement and monitor corrective actions related to the Program.

Source: NASA OIG analysis of GAO report and Agency actions.

**Table 4: NAPA Recommendations Status as of December 31, 2015**

Recommendations	NASA's Assessment	OIG Status Assessment
1. Write a detailed operating manual which incorporates all foreign national access management (FNAM) elements.	Completed	<b>Yellow.</b> The FNAM Manager was developing the Manual, coordinating with Center personnel, and had not yet published the Manual.
2. Reduce the flexibility for Centers to change requirements of the FNAM system and create a compliance and audit mechanism.	Completed	<b>Yellow.</b> The FNAM Manager was in the process of developing the policy and manual.
3. Establish clear, specific, and mandatory requirements for all Centers to follow regarding remote access.	Completed	<b>Yellow.</b> The FNAM Manager was developing the policy and manual in phases, coordinating with Center personnel, and had not yet published either.
4. Conduct a thorough review of the IdMAX process by a team consisting of representatives from all NASA stakeholders.	Ongoing	<b>Yellow.</b> NASA has defined requirements and workflows for a Visitor Management Module that will be added to the IdMAX system. Target completion in late fiscal year 2018.
5. Develop procedures for a positive "hit" in Visual Compliance.	Closed	<b>Yellow.</b> The requirement for Visual Compliance checks was included in NASA's interim policy on FNAM and will be included in the FNAM Manual.
6. Determine what critical information needs to be protected.	Ongoing	<b>Yellow.</b> NASA was working on establishing an Agency security perimeter. The schedule showed the capabilities for interior border and exterior border projects being delivered in fiscal year 2016 or 2017.
7. Reduce Center Chief Information Officer and system owners' autonomy.	Ongoing	<b>Yellow.</b> In response to the OIG report, "NASA's Information Technology Governance" (IG-13-15, June 5, 2013), the Administrator made the Chief Information Officer a direct report. The NASA Mission Support Council also approved a three-phase IT governance improvement model that focuses on increasing the Chief's oversight and governance of all Agency IT investments.
8. Limit the number of system administrators and see if there are foreign nationals with privileged access.	Ongoing	<b>Yellow.</b> NASA validated the specific system administrator accounts held by foreign nationals and required the Federal sponsors to confirm continued system administrator accounts need in IdMAX.
9. Increase the number of counterintelligence personnel.	Closed	<b>Green.</b> NASA has increased applicable staffing.
10. Place Center counterintelligence staff under Center management.	Closed	<b>Green.</b> NASA's current organizational alignment will support communication goals.
11. Standardize and enhance counterintelligence awareness and education programs.	Closed	<b>Green.</b> In February 2015, a computer-based learning course, titled "Insider Threat Training," was added to NASA's System for Administration, Training and Educational Resources for NASA.

Recommendations	NASA's Assessment	OIG Status Assessment
12. Expand the travel briefings to include all personnel with foreign travel.	Closed	<b>Green.</b> NASA has implemented processes for ensuring that threat training is provided, as needed, to NASA and contractor personnel.
13. Simplify counterintelligence policies and procedures and eliminate overlap.	Closed	<b>Yellow.</b> Areas of overlap and inconsistency in NPRs 1600.1A, 1600.4, and 1660.1B were identified. These areas are in the process of being corrected.
14. NASA leadership should reiterate the importance of security and counterintelligence/counterterrorism programs and functions.	Closed	<b>Yellow.</b> Recommendation is tied to Recommendations #1 and #21. A communications plan is in development to ensure continued communications from both the FNAM Program Manager and senior leadership.
15. Develop standardized security and counterintelligence awareness and training materials.	Completed	<b>Yellow.</b> The FNAM Manager is including the information in the Operations Manual, which had yet to be published.
16. Produce simplified and standardized, procedural instructions for each functional FNAM component.	Ongoing	<b>Yellow.</b> The FNAM Manager is including the information in the Operations Manual, which had yet to be published.
17. Integrated Functional Reviews should assess FNAM procedural components and their effectiveness and efficiency.	Closed	<b>Green.</b> NASA implemented the requirements through the Integrated Functional Reviews beginning in February 2015. The reviews are done once every 3 years at each NASA location. See also Recommendation #22.
18. Develop training that clearly indicate the threats that exist.	Closed	<b>Green.</b> See Recommendation #11.
19. Systematize export control with a detailed manual, communication of commitment to export compliance, conduct outside periodic reviews, and require Headquarters endorsement for any CEA position.	Closed	<b>Green.</b> The Export Control Operations Manual is available at the NASA Online Directives Information System as a NASA Advisory Implementation Instruction.
20. Develop an improved and more effective, standardized export control training program.	Closed	<b>Green.</b> NASA's export control training program has been developed and implemented to provide standardized training.
21. Formally establish FNAM as a program within OPS and appoint a single Program Manager to oversee it.	Closed	<b>Green.</b> The FNAM Program was established by the NASA Associate Administrator, along with an applicable Program Commitment Agreement.
22. Create an Independent Review Team to assess and evaluate the asset protection program.	Closed	<b>Green.</b> The Integrated Functional Review team incorporated elements of the proposed FNAM policy into the existing reviews.
23. Create an Asset Protection Oversight Board to oversee the safety and security of NASA assets in the field.	Closed	<b>Yellow.</b> NASA explored utilizing an existing council to serve as an Asset Protection Oversight Board and identified the Mission Support Council to best serve this capacity. This activity was identified as an ongoing and continuing effort.

Recommendations	NASA's Assessment	OIG Status Assessment
24. Elevate Protective Services in NASA Headquarters and create a "dotted-line" (organizational relationship) between the Headquarters and Centers.	Closed	<b>Green</b> . See Recommendations #10 and #19.
25. Reduce competition between field Centers.	Closed	<b>Green</b> . Implementing other recommendations will resolve the issue.
26. NASA leaders in both Headquarters and the Centers need to promote cooperation as opposed to competition between field Centers and encourage and facilitate sharing of best practices and FNAM capabilities.	Closed	<b>Yellow</b> . Actions are ongoing to promote cooperation among Centers in the effective implementation of the NAPA recommendations.
27. Hold individuals accountable when they make serious, preventable errors, guard against the tendency to revert back to previous flawed behaviors.	Closed	<b>Green</b> . NASA training is being provided to Center personnel on Export Control and FNAM requirements. Center supervisors are required to take appropriate personnel actions when these requirements are violated.

Source: NASA OIG analysis of NAPA report and Agency actions.



# APPENDIX C: MANAGEMENT'S COMMENTS

National Aeronautics and Space Administration  
 Headquarters  
 Washington, DC 20546-0001



MAY 18 2016

Reply to Attn of: Office of International and Interagency Relations

TO: Assistant Inspector General for Audits

FROM: Associate Administrator for International and Interagency Relations  
 Assistant Administrator for Protective Services

SUBJECT: Agency Response to OIG Draft Report "NASA's Implementation of Export Control and Foreign National Access Management Recommendations" (A-15-011-00)

NASA appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report entitled "NASA's Implementation of Export Control and Foreign National Access Management Recommendations" (A-15-011-00), dated March 31, 2016.

In the draft report, the OIG makes six recommendations addressed to the Associate Administrator for International and Interagency Relations and the Assistant Administrator for Protective Services intended to improve NASA's Export Control and FNAM programs.

Specifically, the OIG recommends the Associate Administrator for International and Interagency Relations and the Assistant Administrator for Protective Services coordinate on the following:

**Recommendation 1:** Review export control and foreign national access processes and procedures at all Centers, address deficiencies, and share best practices.

**Management's Response:** Concur. As recommended by the 2014 National Academy of Public Administration (NAPA) report, NASA continues to review export control and foreign national access processes and procedures at all Centers, identify and address deficiencies, and share best practices within all major international programs. These reviews are accomplished during annual Export Control program audits and during integrated security functional reviews conducted triennially. Deficiencies that are Center-specific are reported to the Center, and a mitigation strategy is proposed by the Center, reviewed and approved by the Agency, and implemented. Best practices identified during functional reviews and as identified by the Agency or Centers are shared across the Agency in a variety of forums (e.g., monthly Security Chief teleconferences, annual Security Chief's Face-to-Face; bi-monthly Identity, Credential, and Access Management (ICAM) User Group meetings; International Visits Coordinator teleconferences; quarterly Export Control program video conferences; and annual Export

Control program review). The 2016 NAPA Report noted that “NASA has also taken appropriate steps to ensure that its Export Control community works closely with the other programmatic components that contribute to the FNAM Program.” The 2016 NAPA Report found that the 2014 NAPA Panel Report’s recommendation for regular outside periodic reviews of each Center’s Export Control program has been addressed by including Center Export Administrators (CEAs) on functional review teams that conduct ongoing/recurring reviews of each Center’s security, export control, and Information Technology (IT) protection programs. These teams are comprised of reviewers from the separate functional disciplines as well as from other Centers in an effort to enhance the objectivity of the reviews. The NAPA study team considers this initiative to be an important step in NASA’s effort to create an FNAM program that receives the support of all of the cross-functional organizational areas involved in foreign national access. This “Team Approach” greatly facilitates the review of export control and foreign national access processes and procedures, addressing deficiencies, and the sharing of best practices. To further strengthen the FNAM program, the Agency will also include stakeholders from the major NASA international programs in this team approach.

**Estimated Completion Date:** OPS and OIIR continue to implement the intent of this recommendation, as initially recommended by NAPA, to ensure continued identification and mitigation of deficiencies and identification and sharing of best practices across the Agency. This recommendation is completed and no completion date is necessary, although the review and updating will be an ongoing activity. Consequently, we request that the recommendation be closed upon issuance of the final OIG report.

**Recommendation 2:** Further engage Headquarters and Center stakeholders to develop foreign national access management policies that will complement NASA’s international and bilateral support agreements and work with foreign national students and interns.

**Management’s Response:** Concur. NASA recognizes the importance of strengthening and expanding the inclusion of Headquarters and Center stakeholders involved with NASA’s international programs in the future development of FNAM policies. To this end, OPS and OIIR have initiated discussions with programs such as the International Space Station program to evaluate implementation of FNAM policies and procedures and to ensure safety of crew and spacecraft and international agreements are supported, appropriately.

In addition, OPS and OIIR are supporting the Office of Education (OE) in developing policies applicable to foreign national students and interns. Once policy has been established, OPS will update NPR 1600.4 to reference this policy and implement it through the Identity Management and Account Exchange (IdMAX), as appropriate to both.



**Estimated Completion Date:** OPS continues to implement the intent of this recommendation by involving international and bilateral program stakeholders in the FNAM program and supporting OE in the development of policies related to foreign national students and interns. In consultation with OPS, OIIR, and other offices as needed, OE will establish policies for foreign national students and interns by December 31, 2016.

**Recommendation 3:** Combine the Export Control Operations Manual and Foreign National Access Operations Manual to ensure clarity and consistency between the two Programs.

**Management's Response:** Non-concur. While there are some areas of commonality between these two manuals, each one has a unique intent and focus which require them to remain separate. Moreover, each manual supports distinct policies of a specific NPR and is published as a NASA Advisory Implementing Instruction (NAII) under the respective NPR. Clarity in the manuals and consistency between them are what is important, and together they represent a standard which the FNAM program and Export Control program have worked closely together to achieve.

The 2014 NAPA Report recommended the production of separate manuals for both the Export Control and FNAM programs. The 2016 NAPA Report noted its recommendation regarding the export control manual had been implemented, while that regarding the FNAM manual had been developed, but was waiting approval prior to being implemented.

**Estimated Completion Date:** No completion date is necessary as the two manuals have already been developed. OIIR and OPS have made a strong effort to ensure clarity and consistency between the manuals and will continue to work closely to that end. Consequently, we request that the recommendation be closed upon issuance of the final OIG report.

**Recommendation 4:** Expand annual audits to assess the effectiveness and efficiency of export control and foreign national access processes and procedures.

**Management's Response:** Concur. NASA has begun the process of expanding the annual export control audits to assess the effectiveness and efficiency of processes and procedures. In the CY 2015 Audit Guidance issued January 29, 2016, the NASA Headquarters Export Administrator added specific direction to auditors to measure consistency of each Center's processes against those described in the Export Control Operations Manual, applicable NPRs, interim guidance established for the FNAM program, in addition to evaluating compliance with the requirements of the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR). The CY 2015 audit reports are due July 1, 2016. For the CY 2016 Audit Guidance, OIIR

will, in coordination with the FNAM program, include specific measures of effectiveness and efficiency of the Center export control and foreign national access processes.

**Estimated Completion Date:** July 31, 2017.

**Recommendation 5:** Ensure annual audit reports are standardized and able to be evaluated consistently across Centers.

**Management's Response:** Concur. The reports from the CY 2015 annual audit are due to Headquarters in July 2016. For the CY 2016 Audit Guidance, OIIR will, in coordination with the FNAM program, include standard format and content for the Center audit reports to allow for comparison of results across the Centers. The CY 2016 Audit Guidance will be issued in January 2017, with audits reports due to Headquarters by July 2017.

**Estimated Completion Date:** July 31, 2017.

**Recommendation 6:** Establish a methodology for increasing voluntary disclosures and for sharing disclosures across Centers.

**Management's Response:** Concur. Continued awareness training and emphasis on the importance of making voluntary disclosures as a regular business process will naturally increase the number of disclosures that NASA will make. The 2016 NAPA Report found that NASA has taken the important step of having export control awareness promoted by its senior executive management team. The NASA Administrator and many NASA senior executives have been promoting the importance of export control compliance to all NASA employees through the use of letters, internal electronic messaging, and personal discussions at Center town hall meetings. During recent interviews conducted by the NAPA study team, it was noted that NASA employees have a much better understanding of export control regulations as a result of NASA's outreach program. This greater awareness will, in turn, afford greater protection to NASA's sensitive protected technologies. A Center staff employee noted that within a year of the issuance of the 2014 Panel Report, there was a greater emphasis placed on the proper labeling of ITAR-restricted documents to ensure that they are safeguarded on internal IT systems in order to avoid unauthorized dissemination. Greater export control awareness was posited as the main reason for this improvement regarding technical data protection and security.

NASA has begun the process of establishing a forum to promote the sharing of disclosures among the Centers. In conjunction with the FNAM program, the Export Control program is establishing a secure shared workspace accessible to all CEAs and Center Export Control staff to contain NASA submitted voluntary disclosures. New voluntary disclosures will be discussed during regularly scheduled quarterly video teleconferences and the annual Export Control program review to highlight the corrective measures that the disclosures include.

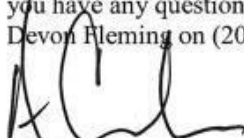
**Estimated Completion Date:** May 31, 2017, for establishment of the secured shared workspace but inclusion of disclosures in the agenda for the teleconferences will begin June 2016, during the next video teleconference.

In addition to the formal recommendations in the report, the OIG also states that “[d]ue to a lack of effective collaboration and communication, NASA did not fully capitalize on opportunities to address [some Centers’] concerns about policy revisions” (see OIG draft report at “Results in Brief”). Since the preparation of the draft report, all concerns with the policy revisions that OIG observed have been resolved through continuous communication and collaboration among NASA HQ and the relevant Centers. Management also notes that OIG’s finding contrasts with NAPA’s 2016 assessment, which found that with respect to FNAM, “HQ efforts over the past two years to engage stakeholder groups representing multiple Centers in developing the FNAM program have helped change the culture to one of more sharing and cooperation in this area.”

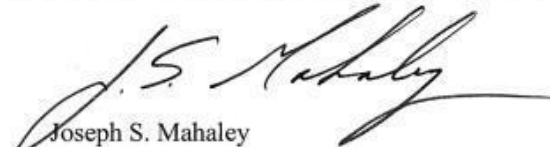
Regarding FNAM policy revisions, the OIG also states that “[i]n our view, an Agency policy that requires multiple waivers may not be suitable to the reality of NASA’s interactions with foreign nationals.” However, it is Management’s strong view that waivers are an effective and necessary tool for managing risk and documenting mitigation measures required for the Agency to responsibly accept any increased risk for continued critical mission operations while adhering to U.S. laws, regulations, and policies governing export control and foreign national access to U.S. Government facilities. The review and approval of such waivers are a normal part of responsible and professional security operations.

Finally, we have reviewed the draft report, and we have not identified any information that should not be publicly released.

Once again, thank you for the opportunity to review and comment on the subject draft report. If you have any questions or require additional information regarding this response, please contact Devon Fleming on (202) 358-1622.



Al Condes



Joseph S. Mahaley

# APPENDIX D: REPORT DISTRIBUTION

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## National Aeronautics and Space Administration

Administrator  
Deputy Administrator  
Associate Administrator  
Chief of Staff  
Chief Information Officer  
Associate Administrator for Human Exploration and Operations  
Associate Administrator for International and Interagency Relations  
Associate Administrator for Mission Support  
Assistant Administrator for Protective Services  
Director, Ames Research Center  
Director, Johnson Space Center  
Director, Langley Research Center

## Non-NASA Organizations and Individuals

Office of Management and Budget  
    Chief, Science and Space Branch  
Government Accountability Office  
    Director, Office of Acquisition and Sourcing Management

## Congressional Committees and Subcommittees, Chairman and Ranking Member

Senate Committee on Appropriations  
    Subcommittee on Commerce, Justice, Science, and Related Agencies  
Senate Committee on Commerce, Science, and Transportation  
    Subcommittee on Space, Science, and Competitiveness  
Senate Committee on Homeland Security and Governmental Affairs  
House Committee on Appropriations  
    Subcommittee on Commerce, Justice, Science, and Related Agencies  
House Committee on Oversight and Government Reform  
    Subcommittee on Government Operations  
House Committee on Science, Space, and Technology  
    Subcommittee on Oversight  
    Subcommittee on Space

**(Assignment No. A-15-011-00)**