National Aeronautics and
Space Administration

Office of Inspector General
Washington, DC 20546-0001

MAR 14 2006

TO: Assistant Administrator for External Relations
Director, Goddard Space Flight Center

FROM: Assistant Inspector General for Auditing

SUBJECT: Final Memorandum on NASA's Policies for Protecting Technology Exported to Foreign Entities (Report No. IG-06-006; Assignment No. A-04-038-00)

The Office of Inspector General (OIG) conducted an audit of NASA's policies for protecting technology exported to foreign entities. Our objective was to determine whether the policies adequately protected export-controlled technology. We specifically focused on determining (1) whether NASA's policies were consistent with Federal guidance concerning export license exemptions[1] and whether the exemptions used by NASA were appropriate, (2) whether technology transfer control plans (TTCPs) were prepared when required, and (3) whether NASA provided for independent monitoring of its satellites launched from foreign countries. We also reviewed internal controls as appropriate. (See Enclosure 1 for details on the audit scope and methodology.)

Executive Summary

We found no systemic issues related to our audit objectives. NASA policies were consistent with Federal guidance concerning export license exemptions, and NASA appropriately used export license exemptions. NASA Procedural Requirement (NPR) 2190.1, "The NASA Export Control Program," April 10, 2003, adequately discusses and outlines the requirements and processes that NASA employees and support contractors must follow when deciding whether they can use an exemption and how to do so. Although a TTCP was required but not in place in two instances, the lack of a TTCP did not lead to an inappropriate export. Finally, the Department of State did not require NASA to arrange independent monitoring of its foreign satellite launches made to date.

Although our audit did not reveal any systemic issues, we believe that NASA should ensure that program and project managers prepare TTCPs when required and that NASA should seek a legal opinion from its General Counsel as to the applicability of the satellite monitoring requirement to NASA. In addition, the Goddard Export Control Office

[1] For purposes of this report, the term "exemption" is used to refer to exemptions under the International Traffic in Arms Regulations and exceptions under the Export Administration Regulations.

needed to improve its internal controls over the maintenance of export control documents.

Management's comments on a draft of this memorandum are responsive (see Enclosure 2). We have closed two recommendations and will close the third upon completion and verification of management's corrective action.

Background

The United States controls the export of certain goods and technologies for national security, foreign policy, or nonproliferation reasons. To export controlled goods or technologies, U.S. entities must apply for an export license or use one of the export license exemptions provided for in Federal guidance. Federal guidance concerning export exemptions is contained in the Code of Federal Regulations (CFR): Export Administration Regulations (EAR), 15 CFR 740, revised January 1, 2004, and the International Traffic in Arms Regulations (ITAR), 22 CFR 120 and 123 through 126, revised April 1, 2004. The EAR regulates the export of dual-use commodities[2] and the ITAR regulates the export of defense articles and services.

NASA's export control program is managed by the Export Control and Interagency Liaison Division, Office of External Relations. The Export Control and Interagency Liaison Division ensures compliance with U.S. laws and regulations, provides policy guidance, and represents the Agency on interagency working groups dealing with international technology transfer, nonproliferation, and export control. The Division is also responsible for disseminating export control policy and guidance to the Center Export Administrators and NASA program and project offices. NASA's export control policy is contained in NASA Policy Directive 2190.1, "NASA Export Control Program," May 24, 2001, and NPR 2190.1.

Export License Exemption Guidance and Use

NASA's Guidance Consistent with Federal Guidance. We determined that NASA export policies and procedures concerning export license exemptions were consistent with the EAR and the ITAR. Both regulations provide for export license exemptions under certain conditions, allowing items that would otherwise require a license to be exported. NASA guidance concerning export license exemptions is contained in NPR 2190.1, Chapters 4 and 5, for items subject to the EAR and the ITAR, respectively. Each Chapter explains how to classify technology items, how to determine the export controls over those items, and under what conditions an export license exemption may be granted. Each Chapter also provides a "decision tree" to assist NASA personnel in determining whether an export license is required. The NPR requires that NASA personnel refer to the EAR and the ITAR before making an exemption determination and provides the specific EAR and ITAR sections to reference.

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[2] Dual-use commodities are goods or technologies that have both civilian and military application.

NASA's Use of Export License Exemptions Appropriate. We reviewed 167 NASA exports that used an export license exemption.[3] All of those exports used the appropriate exemption as stipulated in the EAR, the ITAR, and NPR 2190.1. The 167 exports—from 24 NASA programs and projects at 6 NASA Centers—were selected from all NASA exports made in calendar years 2003 and 2004 that used an export license exemption. We validated that the exemptions were correct by reviewing the supporting documentation for each export. Supporting documentation included background data describing the technology that was exported, the rationale for the exemption used, and the corresponding shipping documents.

TTCPs

Although a TTCP was required but not prepared in two instances—the 21st Century Aircraft Technology Program and one of the projects initiated under the Aerosol Robotic Network (AERONET) Program—the lack of a TTCP did not lead to an inappropriate export.

TTCPs outline the procedures to be taken to handle and safeguard export-controlled technology. A TTCP contains a list of the export-controlled items included in a program or project, the foreign entities involved, which of the export-controlled items are being provided to those foreign entities, and the means of transfer and markings required to export those items. TTCPs are required in certain instances. For example, the ITAR requires that a TTCP be prepared when spacecraft systems and associated equipment are exported to countries that are not members of the North Atlantic Treaty Organization (NATO) or to countries that are not a major non-NATO ally of the United States.

In April 2003, NASA revised NPR 2190.1, requiring TTCPs for programs and projects that intend to export technology to foreign parties. However, the NPR does not clearly state the TTCP requirement. Chapter 2 of the NPR states that TTCPs should be prepared "when appropriate," but does not define "appropriate." It is not until the third page of Chapter 3 that the NPR states ". . . if a NASA activity will export hardware or software, or will transfer or disclose export-controlled technology or software to a foreign party, then a TTCP is an appropriate and useful tool." We believe that, taken independently, each Chapter implies that "appropriate" is a subjective term, when in fact the intent was to require a TTCP for all programs and projects that will export to foreign parties. We discussed the issue with the Headquarters Export Administrator, who agreed with our conclusion.

Of the 24 programs and projects that we reviewed from our sample, 22 were initiated before the effective date of the NPR revision and were not required to have a TTCP. In the two instances in which a TTCP was required (the 21st Century Aircraft Technology Program initiated in June 2003 and the AERONET project initiated in May 2004), neither had a TTCP prepared in accordance with the NPR. The 21st Century Aircraft Technology Program had no document containing the information required in a TTCP,

[3] Of the 167 export items, 79 used an EAR exemption and 88 an ITAR exemption.

and the AERONET project's document was missing two of the required TTCP elements—the names of foreign national participants and a list of applicable exemptions for each item exported. Although the 21st Century Aircraft Technology Program and the AERONET project did not comply, or did not fully comply, with the requirement to prepare a TTCP, we did not consider this material to our audit objective because the lack of a TTCP did not result in an inappropriate export. However, to assist managers in determining the need to prepare a TTCP in the future, we believe that NPR 2190.1 should be revised to more clearly state the requirement.

Monitoring of Foreign Satellite Launches

To date, NASA has not been required to obtain independent monitoring for its foreign satellite launches. Independent monitoring has been required for certain exports since 1999, when the ITAR was updated in accordance with the "Strom Thurmond National Defense Authorization Act for Fiscal Year 1999." That Act strengthened export control laws on satellite and missile technology and was passed following a congressional investigation into the release of U.S. technical information on advanced thermonuclear weapons, missiles, and space technology.

The 1999 Act requires that all aspects of export-controlled satellite launches be monitored to ensure that there are no unauthorized transfers of export-controlled technology. The requirement applies to all satellite launches made from non-NATO or non-major U.S. ally countries. The 1999 Act specifically states, "In any case in which a license is approved for the export of a satellite or related item in a foreign country, the Secretary of Defense shall monitor all aspects of the launch in order to ensure that no unauthorized transfer of technology occurs, including technical assistance and technical data." The Department of Defense (DoD) performs the monitoring and the exporter fully reimburses DoD for the services. Since the Act went into effect, NASA has launched only two satellites that met the monitoring requirement. Those satellites were launched from the Plesetsk Cosmodrome in Russia on March 17, 2002, as part of the Gravity Recovery and Climate Experiment (GRACE) mission. That mission was jointly managed by NASA and the German Aerospace Center. NASA was responsible for mission design, instrumentation, satellite development, integration, and testing while the German Aerospace Center was responsible for launch and mission operations.

NASA initially exported GRACE satellite components to Germany pursuant to Office of Defense Trade Controls, U.S. Department of State export license number 830965, dated October 2, 2001.[4] That license authorized NASA to export the GRACE satellite components to Germany and then reexport those components to Russia for launch. Because Germany is a NATO country, the satellite components were not required to be monitored while in Germany. However, because Russia is not a member of NATO, nor a major non-NATO ally of the United States, upon reexport to Russia in February 2002, the satellite components were subject to the monitoring requirements of the 1999 Act. However, the Office of Defense Trade Controls Policy (which is responsible for

[4] An additional export license (number 837719) was granted to NASA on November 30, 2001, for hardware needed to repair the GRACE satellites.

administering the ITAR) provided the audit team with an agreement negotiated with the Government of the Russian Federation that exempted U.S. Government entities from certain technology safeguard provisions, to include monitoring requirements. We discussed the agreement with the Defense Trade Controls Policy Director, who agreed that the document fully supported that, for the GRACE launch, NASA was not required to procure independent monitoring.

Although the Department of State has not required NASA to obtain independent monitoring in the past, section 124.15 of the ITAR makes no general exceptions to the monitoring requirement. Representatives from the Departments of Defense and State stated that the original intent of the requirement was that it apply only to commercial satellite launches; however, that intent did not translate to the ITAR. We believe that unless ITAR section 124.15 is updated to state that it applies to commercial satellite launches only, NASA should seek a legal opinion from the NASA General Counsel as to the applicability of the monitoring requirement with respect to NASA launches occurring in non-NATO or non-major U.S. ally countries.

Internal Controls at Goddard Space Flight Center

During our review of export license exemptions at Goddard, we determined that Goddard export personnel had altered copies of 17 shipping documents for the export of laptop computers. The original shipping documents stated that, according to the EAR, no license was required[5] to export the laptops, which was correct. However, Goddard personnel provided the audit team with copies of supporting documentation that reflected an EAR "temporary export"[6] exemption. We identified the discrepancy when we requested the original supporting documentation and compared it to the copies. Goddard's Export Administrator stated that the documents were altered in anticipation of our site visit because the export staff believed they should have used the temporary export exemption. Although the original shipping documents were correct, we are concerned that personnel were able to alter the documentation after the fact and provide it to the audit team as evidence. The Goddard Export Control Office should tighten the internal controls over the maintenance of export control documents to ensure that personnel cannot alter those documents after an export has been made. We referred this issue to the NASA OIG Office of Investigations for further action, if warranted.

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[5] An export is annotated as "no license required" when it is not subject to the EAR.

[6] A temporary export exemption authorizes certain items to be exported without an export license when the item will be returned to the United States within 1 year from the date of the export.

Recommendations, Management's Response, and Evaluation of Management's Response

Recommendation 1. We recommended that the Assistant Administrator for External Relations revise NPR 2190.1 to clearly state the requirement to prepare TTCPs.

Management's Response. Management concurred, stating that sections 1.2.53, 2.3.4.8, and 3.5 of NPR 2190.1 will be reviewed and revised to clarify when TTCPs are required for NASA programs.

Evaluation of Management's Response. Management's planned action is responsive to the recommendation. The recommendation is resolved and will be closed upon completion and verification of management's corrective action.

Recommendation 2. We recommended that the Assistant Administrator for External Relations request a legal opinion from the NASA General Counsel whether ITAR section 124.15 is applicable to NASA launches of export-controlled technology from non-NATO or non-major U.S. ally countries.

Management's Response. Management concurred and has sought an opinion from the Office of the General Counsel regarding the applicability of both the independent monitoring and TTCP requirements described in section 124.15 of the ITAR, since both of those requirements stem from the same statutory and regulatory promulgations addressing the launch of certain spacecraft abroad.

Evaluation of Management's Response. We obtained and reviewed management's request for a legal opinion from the Office of the General Counsel, dated February 26, 2006. Management's actions are responsive to the recommendation, and the recommendation is closed.

Recommendation 3. We recommended that the Director, Goddard Space Flight Center implement procedures to ensure that export documentation is properly maintained and safeguarded against alteration.

Management's Response. Goddard management concurred and implemented a process that requires the Center's Export Control Office to document any administrative changes or updates to previously approved documents regarding export control. Management revised Goddard export control procedure, 230-WI-6400.1.6B, "GSFC Export Control Office," on February 9, 2006, to show the new process.

Evaluation of Management's Response. We reviewed the revised processes and procedures and found that they adequately address our concerns. We consider management's actions responsive, and the recommendation is closed.

We appreciate the courtesies extended the audit staff during the review. If you have any questions, or need additional information, please contact Ms. Carol Gorman, Space Operations and Exploration Director, at 202-358-2562 or me at 202-358-2572.

Evelyn R. Klemstine

2 Enclosures

cc:
NASA General Counsel
Director, Export Control and Interagency Liaison Division
Director, Management Systems Division
Center Export Administrator, Goddard Space Flight Center
Chief Counsel, Goddard Space Flight Center

Scope and Methodology

We collected, reviewed, and analyzed documents dated from October 1998 through October 2005. We reviewed guidance applicable to export license exemptions, TTCPs, and independent monitoring, to include the EAR; the ITAR; NPR 2190.1; Public Law 105-261, the "Strom Thurmond National Defense Authorization Act for Fiscal Year 1999"; and Public Law 106-65, the "National Defense Authorization Act for Fiscal Year 2000." We also reviewed applicable guidance and agreements developed by the Departments of Defense and State, as well as NASA program documents.

We selected a random sample of 167 exports made by the NASA Centers to analyze and determine whether export control exemptions were properly used and TTCPs were prepared when required. The sample universe was compiled by requesting data on all NASA exports that used an exemption for calendar years 2003 and 2004. A total of 663 EAR and 514 ITAR exemptions were reported for Ames Research Center, Goddard Space Flight Center, Johnson Space Center, Kennedy Space Center, Langley Research Center, and Marshall Space Flight Center. The Dryden Flight Research Center, Glenn Research Center, and Stennis Space Center reported no exemptions for the period.

We interviewed personnel responsible for export controls at NASA Headquarters and the Center Export Control Offices to determine roles and responsibilities concerning export controls and the use of export license exemptions. We also interviewed personnel from the Departments of Defense and State concerning export controls and the monitoring of foreign satellite launches.

We reviewed and evaluated the internal controls associated with using and processing export exemptions, preparing TTCPs, and monitoring foreign satellite launches. Except for the internal control problem identified at Goddard, we did not find reportable internal control weaknesses. Goddard management's self-evaluation would not have identified the problem we found, since Center export personnel only changed the records that they provided to us for this audit. Management action taken in response to Recommendation 3 corrects the identified control weakness.

We performed this audit from June 2004 through January 2006 in accordance with generally accepted government auditing standards. We did not use computer-processed data to perform this audit.

Management's Comments

National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001

February 17, 2006

Office of External Relations

TO: Assistant Inspector General for Auditing

FROM: Assistant Administrator for External Relations

SUBJECT: Draft Memorandum on NASA's Policies for Protecting Technology Exported to Foreign Entities (Assignment No. A-04-038-00)

In response to your request, received on February 2, 2006, I have reviewed the draft audit report regarding the use of export license exemptions and exceptions, technology transfer control plans (TTCPs), and foreign launch monitoring. I have coordinated this response with Dr. Edward Weiler, Director of the Goddard Space Flight Center (GSFC), and we are both appreciative of your efforts to help NASA review and improve these areas of the NASA Export Control Program (ECP).

I am genuinely pleased with your determination that NASA's policies and procedures concerning export license exemptions and exceptions are consistent with the Export Administration Regulations and International Traffic in Arms Regulations (ITAR). I would also like to acknowledge the excellent working relationships between your audit personnel and the various export control and program personnel who were interviewed or contacted during the conduct of the audit.

In general, I concur with the draft report's observations and recommendations. Accordingly, in response to Recommendation 1, and in consultation with the Department of State and the Office of the General Counsel (OGC), I have directed the review and revision, as appropriate, of sections 1.2.53, 2.3.4.8, and 3.5 of NPR 2190.1, to clarify when TTCPs are required for NASA programs. In response to Recommendation 2, I have sought an opinion from OGC regarding the applicability of both the independent monitoring and TTCP requirements described in section 124.15 of the ITAR, since both of those requirements stem from the same statutory and regulatory promulgations addressing the launch of certain spacecraft abroad.

In response to Recommendation 3, Dr. Weiler has confirmed that GSFC has implemented a new process that requires the GSFC Export Control Office to document any administrative changes or updates to previously approved export control-related documents, such as shipping documents. The process includes use of a form that contains an explanation of the changes or updates which is attached to the original document maintained by the GSFC Export Control Office. As such, no administrative changes or alterations are made directly to the originally-approved document.

The following types of revisions are covered by the new process: updates to contact information such as names or phone numbers, corrections of typographical errors, reproducing information which is illegible on the approved document, and adding information which clarifies the intent of the original document. Changes or updates that modify the substance or intent of the approved document shall require cancellation and reissuance of the document. The new process for administrative changes and updates was implemented on February 8, 2006, and the GSFC export control procedure, 230-WI-6400.1.6B, "GSFC Export Control Office," was updated on February 9, 2006, to reflect this new process.

I appreciate this opportunity to comment on your draft report and look forward to working with your office as we move forward in a continuous effort to improve NASA's ECP, and achieve the Nation's space exploration objectives while safeguarding critical national technologies. Please do not hesitate to contact Mr. John Hall of my staff at (202) 358-2070 if you require further information.

Michael F. O'Brien

cc:
Deputy Administrator/Ms. Dale
Chief of Strategic Communications/Mr. Davis
Office of General Counsel/Mr. Wholley/Mr. Steptoe/Mr. Schlabs
Goddard Space Flight Center/Dr. Weiler/Mr. Stephens/Mr. Weisz
Office of External Relations/Mr. Condes/Mr. Hall