IG-00-048

AUDIT REPORT

CONTRACTOR EXPORTS OF CONTROLLED TECHNOLOGIES

September 19, 2000

National Aeronautics and
Space Administration

OFFICE OF INSPECTOR GENERAL

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Acronyms

EAA	Export Administration Act
EAR	Export Administration Regulations
ECP	Export Control Program
GAO	General Accounting Office
ISS	International Space Station
ITAR	International Traffic in Arms Regulations
NPD	NASA Policy Directive
NPG	NASA Procedures and Guidelines
OIG	Office of Inspector General

W September 19, 2000

TO: A/Administrator

FROM: W/Inspector General

SUBJECT: INFORMATION: Contractor Exports of Controlled Technologies
Assignment Number A9903301
Report Number IG-00-048

The NASA Office of Inspector General has completed an audit of Contractor Exports[1] of Controlled Technologies. We found that two of the three major NASA contractors[2] that we reviewed, TRW Space and Electronics Group (TRW) and Lockheed-Martin Michoud Space Systems (Lockheed-Martin), have adequate export control programs in place to ensure that exports of controlled technologies are effected in compliance with applicable laws and regulations. TRW and Lockheed-Martin have (1) developed effective export control policies, (2) established export control training programs, and (3) maintained required export records that were readily available for review. The third contractor, Boeing Space and Communications Group (Boeing) may not have complied with applicable export laws and regulations when exporting controlled items on behalf of the International Space Station (ISS) Program. Specifically, Boeing was unable to readily produce records related to exports of controlled technologies. Further, on two of the six[3] NASA-obtained export licenses related to the ISS, Boeing potentially effected exports of controlled technologies beyond the scope of the licenses. NASA, therefore, lacks assurance that Boeing's export activities on behalf of the Agency for the ISS Program are being performed in full compliance with applicable export laws and regulations.

Background

NASA's international activities often involve the transfer of commodities, software, or technologies to foreign partners not only by NASA, but also by its contractors.[4] The

[1] Exports are transfers of any commodities, software, or technologies to foreign entities and include items such as flight hardware and software, propulsion systems, and spacecraft systems and associated equipment.
[2] See Appendix E for details on the specific contracts selected for review.
[3] For the ISS Program, Boeing has effected exports against a total of five NASA-obtained export licenses and one special comprehensive license (see details on this type of license in footnote 14).
[4] See Appendix C for situations in which controlled technologies are exported in support of NASA programs.

transfers are generally subject to export control laws and regulations, regardless of whether they occur in the United States, overseas, or in space. Export controls are imposed on such transfers and activities in order to protect the national security and to further U.S. foreign policy objectives.

In 1995, NASA established an Export Control Program (ECP). The "NASA Export Control Program" pamphlet, dated November 1995 (revised October 1998), establishes policies and procedures on an Agency-wide basis to ensure that NASA's exports and transfers to foreign parties and international activities are consistent with the requirements of the Department of State's, International Traffic in Arms Regulations (ITAR) and the Department of Commerce's, Export Administration Regulations (EAR). NASA contractors are responsible for following the same U.S. export laws and regulations.

Recommendations

We recommended that management require Boeing to establish an appropriate export control program and a detailed company-wide export policy that comply with all EAR requirements prior to authorizing Boeing to utilize NASA-obtained export licenses on behalf of the ISS program. We also recommended that management direct the ISS Program Office, in coordination with the Center Export Administrator, to periodically review Boeing's and its subcontractors' export control programs to ensure that exports effected against NASA-obtained licenses in support of the ISS Program are being accomplished in accordance with applicable U.S. export laws and regulations.

Management's Response

Management concurred with the recommendations and provided comments on our finding (see Appendix H). Management questioned whether some of the examples detailed in the report were in fact export violations. We reaffirm our position that the examples of export shipments detailed in the report could represent possible export violations because of the disparities in explanations provided by management and the inconsistencies in the available supporting documentation. Our detailed response to management's comments is in Appendix I of the report.

[original signed by]
Roberta L. Gross

Enclosure
Final Report on Audit of Contractor Exports of Controlled Technologies

FINAL REPORT
AUDIT OF CONTRACTOR EXPORTS OF CONTROLLED TECHNOLOGIES

W September 19, 2000

TO: I/Associate Administrator for External Relations
AA/Director, Lyndon B. Johnson Space Center

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on Audit of Contractor Exports of Controlled Technologies
Assignment Number A9903301
Report Number IG-00-048

The subject final report is provided for your information and use. Our evaluation of your response is incorporated into the body of the report and into Appendix I. The corrective actions planned for the recommendations are responsive. The recommendations will remain open for reporting purposes until corrective actions are completed. Please notify us when action has been completed on the recommendations, including the extent of testing performed to ensure corrective actions are effective.

If you have questions concerning the report, please contact Mr. Kevin J. Carson, Program Director, Safety and Technology Audits, at (301) 286-0498, or Mr. Timothy L. Bailey, Auditor-in-Charge, at (301) 286-3355. We appreciate the courtesies extended to the audit staff. The final report distribution is in Appendix J.

[original signed by]
Russell A. Rau

Enclosure

cc:
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division
G/General Counsel
H/Associate Administrator for Procurement
JM/Acting Director, Management Assessment Division
M/Associate Administrator for Space Flight
Y/Associate Administrator for Earth Science
100/Director, Goddard Space Flight Center
DA01/Director, Marshall Space Flight Center

NASA Office of Inspector General

IG-00-048 **September 19, 2000**
A9903301

Contractor Exports of Controlled Technologies

Introduction

The NASA Office of Inspector General (OIG) has completed an audit of Contractor Exports of Controlled Technologies, which we conducted as part of the overall audit of Contractor Control of Sensitive Technologies (controlled technologies). This report is the second and final report on the audit.[5] The audit objective discussed in this report was to determine whether major contractors have established adequate controls over NASA's controlled technologies to preclude unauthorized or unlicensed exports.

The majority of exports are governed and controlled by either the Office of Defense Trade Controls at the Department of State or the Bureau of Export Administration at the Department of Commerce. The Bureau's EAR state that when an export license is issued to a particular person or entity, that person or entity becomes the licensee. The licensee is accountable for the use of the license, whether as a principal (exporting for own account) or as an agent. The licensee assumes responsibility for effecting the export and appropriately using the license and for due performance of all of the license's terms and conditions.

Appendix A contains further details on the audit objectives, scope, and methodology.

Results in Brief

Two of the three major NASA contractors that we reviewed, TRW and Lockheed-Martin, have adequate export control programs in place to ensure that exports of controlled technologies are effected in compliance with applicable laws and regulations. TRW and Lockheed-Martin have (1) developed effective export control policies, (2) established export control training programs, and (3) maintained required export records that were readily available for review. The third contractor, Boeing, needs to improve its export control program in order to prevent the potential unauthorized or unlicensed transfers of controlled technologies related to NASA's ISS Program. NASA, therefore, lacks assurance that Boeing's export activities on behalf of the Agency for the ISS Program are being performed in full compliance with applicable export laws and regulations.

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[5] The results of the first audit are discussed in Audit Report IG-00-018, "NASA Oversight of Contractor Exports of Controlled Technologies," March 23, 2000 (see Appendix B for details).

Background

NASA's international activities often involve the transfer of commodities, software, or technologies to foreign partners not only by NASA, but also by its contractors.[6] The transfers are generally subject to export control laws and regulations, regardless of whether they occur in the United States, overseas, or in space. Export controls are imposed on such transfers and activities in order to protect the national security and to further U.S. foreign policy objectives.

The Department of State's Office of Defense Trade Controls is responsible for controlling items identified on the U.S. Munitions List[7] pursuant to the International Traffic in Arms Regulations (ITAR).[8] The Commerce Department's Bureau of Export Administration controls items that are identified on the Commerce Control List[9] pursuant to the EAR.[10]
Appendix D contains further details on the U.S. Munitions List and Commerce Control List.

NASA's Office of External Relations has overall Agency responsibility for ensuring the compliance of all NASA program activities and exports with U.S. export control laws and regulations. NASA Center Directors are responsible for appointing a Center Export Administrator to ensure full compliance of all Center program activities with applicable export laws and regulations.

The NASA ECP establishes policies and procedures on an Agency-wide basis to ensure that NASA's exports and transfers to foreign parties and international activities are consistent with the requirements of the ITAR and EAR. NASA contractors are responsible for following the same U.S. export laws and regulations. An essential part of the ECP is the establishment of mechanisms within the Agency (including the Centers) that provide checks and safeguards at key steps in program development and implementation, helping to better manage international program initiatives. Such oversight helps to ensure that NASA export personnel ask the right questions to preclude NASA officials and contractors from effecting transfers that may be contrary to U.S. export controls or that may be inconsistent with requirements of the ITAR and EAR.

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[6] See Appendix C for situations in which controlled technologies are exported in support of NASA programs.
[7] U.S. Munitions List, April 1999, identifies items designated by the President to be defense articles and services.
[8] The ITAR provide guidance for controlling the export and import of defense articles and services.
[9] The Commerce Control List, October 1999, identifies "dual-use" items that have military/strategic and civil applications.
[10] The EAR implement the export and re-export requirements of the Export Administration Act (EAA) of 1979, as amended (Note: Although the EAA expired in September 1990; the provisions of the EAR are continued under the authorities of the International Emergency Economic Powers Act, which states "the administration of section 38 (e) of the Arms Export Control Act (22 U.S.C. 2778 (e) shall remain in full force and effect until amended or revoked under proper authority.")

Contractor Exports of Controlled Technologies

Finding. Boeing may not have complied with applicable export laws and regulations when exporting controlled items on behalf of the ISS Program. Specifically, Boeing was unable to readily produce records related to exports of controlled technologies. Further, on two of the six[11] NASA-obtained export licenses related to the ISS, Boeing potentially effected exports of controlled technologies beyond the scope of the licenses. This condition exists because Boeing did not have effective company policies in place with regard to exports. In addition, NASA does not provide oversight of Boeing's export control program, even though NASA is the licensee for several ISS-related export licenses. As a result, exports of controlled technologies by Boeing in support of the ISS Program have been effected in potential noncompliance with U.S. export laws and regulations.

ISS Contract Requirements

NASA's ISS contract (NAS15-10000) with Boeing, Clause H.5, "Export of Technical Data, Computer Software, or Hardware in the Conduct of Space Station Related Activities," states:

> When such a need arises, NASA may exercise the applicable exemptions, general licenses, existing NASA export licenses or other approvals available to a Federal agency under the U.S. export control laws, and may effect the export of such technical data, computer software, or hardware provided for NASA by direction to the contractor. When directed in writing by the Contracting Officer, or designated representative, the Contractor, acting as an agent of NASA for the purposes of export control, shall export on behalf of NASA specifically identified technical data, computer software, or hardware to a named foreign entity or person, in the manner and under the conditions provided for in the direction. Further, the Contractor agrees to include this clause in all Space Station related subcontracts, the performance of which may require the development, delivery, or use of technical data, computer software, or hardware.

Although this clause requires Boeing to comply with applicable export laws and regulations, NASA is responsible for the proper use of any export license that the Agency has obtained and is the identified licensee.

Export Administration Regulations

The EAR governs most export activities in support of the ISS Program. The EAR, Part 736.2, "General Prohibitions and Determination of Applicability," states that "you may not, without a license or license exception, export any item subject to the EAR to another country or reexport any item of U.S. origin if the item is controlled for a reason indicated in the applicable Export

[11] For the ISS Program, Boeing has effected exports against a total of five NASA-obtained export licenses and one special comprehensive license (see details on this type of license in footnote 14).

Control Classification Number." Part 758.3, "Shippers Export Declaration," states that a Shippers Export Declaration must be submitted by the exporter or the duly authorized forwarding agent of the exporter, to the Commerce Department's, Foreign Trade Division, Bureau of the Census. The Shippers Export Declaration is a statement to the U.S. Government asserting that information on the specific item being exported as shown on the declaration is true.

Part 762, "Recordkeeping," requires the retention of records related to individual export licenses and the exports effected against those licenses. The records must be retained for 5 years and must be originals, unless the licensee complies with certain requirements related to reproductions. Part 762 also states:

> Persons located in the United States may be asked to produce records that are required to be kept by any provision of the EAR, or any license, order, or authorization issued thereunder and to make them available for inspection and copying by any authorized agent, official, or employee of the Bureau of Export Administration, the U.S. Customs Service, or any other agency of the U.S. Government, without any charge or expense to such agent, official, or employee.

Availability of Boeing's Export Records

Boeing was unable to readily provide for our review the records and supporting documentation related to exports effected on NASA licenses in support of the ISS program. Specifically, Boeing was unable to produce complete records and supporting documentation related to exports effected against two of the six NASA-obtained export licenses for the ISS program. Boeing's Huntington Beach, California, facility, in particular, could not readily provide the records. As part of the audit, we informed NASA and Boeing officials of our intention to review supporting records and documentation for export activities related to the ISS contract.[12] In July 1999, the audit team asked Boeing to provide a complete list of export licenses related to the ISS contract and the location of the export records associated with the licenses. Boeing did not provide the OIG with the requested information until September 1999.

Upon receiving the requested license and record location information from Boeing Export Control officials in Houston, Texas, the audit team notified Boeing of planned visits to its Huntington Beach, California, and Huntsville, Alabama, facilities with the express purpose of reviewing export records and supporting documentation. The visits occurred in September 1999. The Huntsville facility gave the audit team access to all requested export-related records and supporting documentation. However, Boeing Huntington Beach informed the audit team that the records were not available, may be archived, and could take from 2 to 3 weeks to retrieve.

[12] We also reviewed similar information for the TRW and Lockheed-Martin contracts reviewed as part of the audit.

After the Huntington Beach visit, we expressed concern to Boeing officials that we were not provided access to Huntington Beach's records. Boeing responded that the Huntington Beach facility had subsequently located the records and that a shipment to the OIG would be forthcoming. After receiving two partial, incomplete shipments of records, the OIG issued a subpoena to Boeing for the records on October 8, 1999.

Boeing Huntington Beach should have appropriately maintained the records and made them available for our review in accordance with the requirements of Part 762 of the EAR. In contrast to Boeing (Huntington Beach), TRW and Lockheed-Martin gave the audit team free access to export records and related supporting documentation. Both contractors had available for OIG review, all records and supporting documentation related to NASA exports as required by the EAR.

The NASA Contracting Officer for the Boeing ISS Contract took action to notify Boeing that records related to exports effected on NASA's behalf must be produced in accordance with the EAR. The Contracting Officer issued a November 15, 1999, letter to Boeing stating:

> With regard to records of exports you effect on NASA's behalf, we require that you ensure that you can produce these records as required by U.S. export regulations. It has come to our attention that your Huntington Beach site was unable to produce records of NASA exports recently in the course of an audit.

NASA should take follow-up action on this request to ensure that Boeing has an adequate system in place to ensure it meets the recordkeeping responsibilities of EAR Part 762 for exports effected by Boeing against NASA-obtained export licenses.

Boeing Exports of Controlled Items

Boeing may have effected exports of controlled items in support of the ISS Program that were beyond the scope of two NASA-obtained licenses and were in potential noncompliance with the EAR.[13] As the prime contractor for the ISS, Boeing is directed/authorized, by contract clause, to export controlled technologies. Since award of the ISS contract to Boeing in 1993, NASA has obtained from the Bureau of Export Administration a total of five export licenses and one special comprehensive[14] license. Boeing has exported ISS Program controlled technologies using both types of licenses. Although Boeing has effected the exports, NASA is the licensee[15] for both the individual and special comprehensive licenses, and as such, is

[13] The Department of Commerce's Bureau of Export Administration is the final determinant as to whether a noncompliance with the EAR has occurred.

[14] NASA and approved, related entities use the special comprehensive license, which eliminates the need for obtaining individual export licenses for every item expected to be exported. The special comprehensive license identifies foreign cosignees, governments, and organizations authorized to receive NASA controlled exports and re-exports.

[15] Boeing has also obtained licenses for ISS-related exports for which Boeing is the licensee.

responsible for the proper use of the license, and for due performance of all the license's terms and conditions.

Upon receiving the subpoenaed export records and supporting documentation from Boeing, we initially identified potential noncompliances with the EAR related to a total of 25 shipments of export controlled items effected against two of the six NASA-obtained licenses. The potential noncompliances included shipped items that were not included on the referenced license, items shipped in excess of amounts identified on the license, and items shipped without appropriate supporting documentation. After discussing these potential noncompliances with NASA management, Boeing provided additional information to satisfy our concerns with all but nine shipments. The nine shipments that are in potential noncompliance with the EAR are discussed below:

NASA Export License D219490. NASA-obtained export license D219490 from the Department of Commerce's Bureau of Export Administration on April 4, 1995. The license authorized NASA to ship five line items of ISS-related hardware with a total value of about $2.9 million to the Russian Space Agency and its related contractors. Our review of exports effected against this license identified a total of eight shipments made in potential noncompliance with the EAR. Problems identified with these eight shipments include (1) items shipped in excess of amounts identified on the license (2) items shipped that were not on the license, (3) items shipped prior to receiving a license amendment, and (4) incomplete shipping records. Some of the specific items follow:

- **Multiplexer/Demultiplexer (MDM)** - The Shippers Export Declaration, dated April 17, 1995, indicates that Honeywell, a Boeing subcontractor, shipped two MDM's with a total value of $760,000 to a Russian Space Agency contractor. Export license D219490 authorized the shipment of two MDM's but at a total value of $400,000. When we asked Boeing to explain the discrepancy in the value of the items shipped, Boeing initially stated that the additional $360,000 consisted of "cables and connectors and loose items." When Johnson Space Center (Johnson) Export Officials questioned the excessive dollar amount associated with the cables, connectors, and loose items, Boeing responded that the shipment actually consisted of one MDM at $200,000, and two Space Station MDM Application Test Environment (MATE)-3 items at $1.2 million or a total of $1.4 million. License D219490 authorized the shipment of three MATE-3 items at a total value of $1.8 million. This revised explanation from Boeing places the value of the controlled items listed on license D219490 at $1.4 million, almost double the amount listed on the Shippers Export Declaration. Based on the inconsistencies of Boeing's explanations and the $640,000 difference between the Shippers Export Declaration and the items listed on license D219490, we cannot conclude that the controlled items were actually shipped against the license. In addition, Honeywell shipped these items prior to being approved as a consignor to license D219490. The shipments were made on April 17, 1995, but amendment 7 to the license, which authorized Honeywell as a consignor, was not authorized by the Bureau of Export Administration until June 12, 1996, or more than 1 year later.

- **Wire Harness Assembly** - Boeing made a shipment of six wire harness assemblies valued at $22,800 to a Russian Space Agency contractor on June 3, 1996. The license contained no authorization for this item. Boeing stated that the item did not require an export license in accordance with the EAR. When Johnson Export Officials stated that previous shipments of wire harnesses had been licensed, Boeing replied that the wire harness assembly is made of wire that does not require a license and connectors that do require a license. The packing list and cargo specification sheet for the shipment identifies the wire harness assembly as a controlled item requiring an export license. Boeing was also unable to locate the Shippers Export Declaration for this item.

NASA Export License D238777. NASA obtained export license D238777 from the Department of Commerce's Bureau of Export Administration on June 3, 1997. The license authorized NASA to ship nine line items of ISS-related hardware with a total value of about $15 million to the Russian Space Agency and its related contractors. Our review of exports effected against this license identified one shipped item that was not authorized on the license. The details follows:

- **Thermal Protection Blankets** - Boeing was unable to locate the Shippers Export Declaration for this shipment. Our review of available documentation such as the Requisition and Invoice/Shipping Documents related to this license showed that Boeing shipped thermal protection blankets with a value of $9,650 to a contractor for the Russian Space Agency. The blankets were not authorized on export license D238777 (the license was referenced by Boeing on the shipping document). Boeing stated that freight forwarders prepared the Shippers Export Declaration and that Boeing did not retain a copy. When we asked Boeing why these items were not authorized by the license, Boeing responded that the items did not require a license. However, documentation related to the items clearly showed that the items should be controlled in accordance with the EAR and required an export license.

Exports of the items discussed above represent potential noncompliances with the EAR. Appendix F contains details on additional exports of controlled items by Boeing or its subcontractors that are in potential noncompliance with the EAR. NASA should take appropriate actions to ensure that Boeing's exports on behalf of the ISS Program are effected in compliance with applicable laws and regulations.

Boeing's Commercial Exports

We identified similar areas of potential noncompliance with regard to commercial exports effected by Boeing with licenses it obtained for the ISS Program. Boeing maintains an ISS commercial program through which the ISS Program Office allows Boeing to market similar and sometimes identical technologies developed under the NASA ISS contract to foreign partners involved in the ISS program. Boeing follows the same export policies regardless of whether the

export is on a Boeing- or NASA-obtained license. Our review of exports related to Boeing's commercial program identified records and supporting documentation that were either not readily available or incomplete. In addition, Boeing made exports that were beyond the scope of the export license. Appendix G of the report provides details on the potential noncompliances we identified. Although contractors are responsible for ensuring that their export activities are in compliance with U.S. export laws and regulations, NASA management should be concerned that technology developed under a NASA contract is being exported to foreign entities under a contractor's commercial program in potential noncompliance with applicable laws and regulations.

Boeing's Export Policies

Boeing's export control policies did not effectively outline the necessary requirements for ensuring that exports of controlled technologies are effected in accordance with applicable laws and regulations. Boeing's export policies, as described in Boeing Policy, "Export and Import of Hardware, Software, Technical Data and Services," are not specific. For example, the policies identify the responsibilities of various Boeing officials as related to export control; however, the policies do not identify detailed export procedures, the required forms, and export control documentation needed for the export process. In addition, the policies do not address exports effected by subcontractors or oversight of subcontractor exports. Boeing officials stated that it is the subcontractors' responsibility to ensure that export controls are in compliance with the EAR.

Boeing officials acknowledged that the company's export policies lack detailed, descriptive procedures that could aid employees who encounter export control issues. These same officials stated that Boeing will develop a detailed corporate export compliance manual that will contain export policies for Boeing employees to use in ensuring compliance with U.S. export laws and regulations. NASA should ensure that Boeing has adequate export policies in place prior to authorizing Boeing to utilize NASA-obtained licenses on behalf of the ISS program.

Lack of NASA Oversight of Boeing's Export Activities

NASA has not performed sufficient oversight of Boeing's export activities even though the Agency is the licensee for six licenses (including the special comprehensive license) that Boeing uses in support of the ISS Program. As the licensee, NASA is responsible for the proper use of the license and for due performance of all of the license's terms and conditions.

As described in the NASA Export Control Program Pamphlet, oversight helps ensure that the right questions are asked to preclude NASA officials and contractors from effecting exports that may be contrary to U.S. export controls or inconsistent with the requirements of the EAR. The pamphlet requires NASA Headquarters and the Centers to appoint an export control auditor who, on an annual basis, reviews the Center's export control program to ensure its adequacy. Although the pamphlet states that oversight is necessary to preclude contractors from effecting

exports that may be in noncompliance with applicable laws and regulations, the pamphlet has no specific provision for the review of contractor export control programs by the export control auditor. NASA has not reviewed Boeing or its subcontractors export control programs. As a result, NASA is relying on Boeing and its subcontractors to ensure that exports effected against NASA-obtained licenses are in compliance with applicable export laws and regulations.

Actions Taken by NASA Management

After we notified NASA management that several exports effected by Boeing against two NASA-obtained export licenses were in potential noncompliance with the EAR, the Agency took some corrective actions. For example, in March 2000, the Johnson Export Services Team initiated a system to track licensed hardware, software, and data against actual shipping information. This system provides a database for tracking all items on a particular license including authorized quantities and dollar amounts. Upon receipt of shipping documents such as the Shippers Export Declaration, the Export Services Team enters into the database actual information on dollar amounts and quantities shipped. The database alerts Johnson export officials who use it when the quantities or dollar amounts on the shipping documents exceed the scope of the export license.

Initiatives such as the Johnson database system should help ensure that exports effected against NASA-obtained licenses are in compliance with applicable export laws and regulations. In addition, NASA management has actions planned as a result of a previous OIG audit[16] to improve Agency oversight with respect to contractor exports of controlled technologies. NASA should take further steps to ensure that Boeing and its subcontractors have effective controls in place to make certain that exports effected on NASA-obtained licenses in support of the ISS Program are accomplished in accordance with applicable U.S. export laws and regulations.

Recommendations, Management's Response, and Evaluation of Response

1. The Associate Administrator for External Relations should require Boeing to establish an appropriate export control program and a detailed company-wide export policy that comply with all EAR requirements prior to authorizing Boeing to utilize NASA-obtained export licenses on behalf of the ISS program.

Management's Response. Concur. Boeing established a company-wide export control manual that has been reviewed by Johnson officials. These officials found the manual to be satisfactory in regard to Boeing being authorized to effect exports under NASA licenses.

[16] The results of the audit are in Audit Report IG-00-018, "NASA Oversight of Contractor Exports of Controlled Technologies," March 23, 2000 (see Appendix B for details).

Management questioned whether some of the examples detailed in the report were, in fact, export violations and provided additional information to support its position.

The complete text of management's response is in Appendix H.

Evaluation of Management's Response. Management's planned actions are responsive to the recommendation. The recommendation is resolved, but will remain undispositioned and open for reporting purposes until corrective actions are completed. We reaffirm our position that the examples of export shipments detailed in the report could represent possible export violations because of the disparities in explanations provided by management and the inconsistencies in the available supporting documentation.

We address management's additional comments on the finding in Appendix I.

2. The Associate Administrator for External Relations, in conjunction with the Director, Lyndon B. Johnson Space Center, should direct the ISS Program Office in coordination with the Center Export Administrator to periodically review Boeing's and its subcontractors' export control programs to ensure that exports effected against NASA-obtained licenses in support of the ISS Program are being accomplished in accordance with applicable U.S. export laws and regulations.

Management's Response. Concur. NASA Headquarters will provide direction to the ISS Program Office, in coordination with the Johnson Center Export Administrator, to periodically review Boeing and its applicable subcontractors' export programs for those exports authorized by NASA under NASA-obtained licenses (see Appendix H).

Evaluation of Management's Response. Management's planned actions are responsive to the recommendation. The recommendation is resolved, but will remain undispositioned and open for reporting purposes until corrective actions are completed.

Appendix A. Objectives, Scope, and Methodology

Objectives

Our objective, as discussed in this report, was to determine whether major contractors have established adequate controls over controlled technologies to preclude unauthorized or unlicensed exports. This is the second report issued as part of the overall audit of Contractor Control of Sensitive Technologies. Details on the findings and recommendations in the previous report are in Appendix B.

Scope and Methodology

We reviewed export policies for selected contractors to determine contractor compliance with the ITAR and EAR. We also obtained an overall understanding of selected contractors' export control programs and how the contractors export controlled technology on behalf of NASA. During the audit, we:

- Identified and reviewed NASA and selected contractors' export policies, in addition to the ITAR and EAR.

- Reviewed export licenses, applications, and supporting documentation, dated from 1992 through 1999, at both NASA and contractor locations.

- Interviewed personnel in NASA's Office of External Relations and program, contracting, and export officials at Goddard Space Flight Center (Goddard), Johnson, and Marshall Space Flight Center (Marshall).

- Interviewed program, contracting, and export officials at Lockheed-Martin, Boeing, and TRW.

- Interviewed personnel with the Defense Contract Management Agency at Lockheed-Martin, Boeing, and TRW.

Management Controls Reviewed

We reviewed the following management controls relative to NASA and contractor exports of controlled technologies:

- NASA Policy Pamphlet, "NASA Export Control Program," November 1995 (revised October 1998).

- TRW Space and Electronics Group's Export/Import Compliance Manual.

Appendix A

- TRW Space and Electronics Group's Export and Import Compliance Pamphlet.
- Boeing Company-Wide Procedures, PRO-2805, "Export of Hardware, Software, Technical Data, and Services," June 29, 1999.
- Lockheed Martin Acquisition Procedure LMAP 2.230, "Procurements with Foreign Suppliers."
- Lockheed Martin Michoud Space Systems Standard Procedure 6-13, "Export Requirements."
- U.S. Export Administration Regulations, January 1998
- International Traffic in Arms Regulations, April 1999

Audit Field Work

We conducted field work on this portion of the audit from November 1999 through June 2000 at NASA Headquarters, Goddard, Johnson, and Marshall. We visited contractor locations in Huntsville, Alabama; New Orleans, Louisiana; Houston, Texas; and Huntington Beach and Redondo Beach, California. We performed the audit in accordance with generally accepted government auditing standards.

Appendix B. Summary of Prior Audit Coverage

NASA Office of Inspector General

"NASA Oversight of Contractor Exports of Controlled Technologies," IG-00-018, March 23, 2000. The report states that NASA export, program, and contracting personnel at Goddard, Johnson, and Marshall could not readily identify the types and amounts of NASA-funded controlled technologies that contractors export in support of NASA programs. This condition exists because NASA's current export policies do not clearly define the Agency's oversight responsibilities regarding its contractors who export controlled technologies. Consequently, NASA does not have assurance that contractors are exporting controlled technologies in accordance with applicable U.S. export laws and regulations. The report contains two recommendations to assist the Agency in ensuring that controlled technologies are exported in accordance with applicable laws and regulations. Management concurred with both recommendations.

"NASA Control of Export Controlled Technologies," IG-99-020, March 31, 1999. The report states that NASA has not identified all export-controlled technologies related to its major programs and does not maintain a catalog of classifications for transfers of export-controlled technologies. Also, Agency oversight of and training for personnel in the Export Control Program need improvement. Specifically, annual audits of each NASA Center's export control systems were not adequately performed, and NASA personnel lack training in controlling and documenting export-controlled technologies. The report contains six recommendations to assist NASA in addressing export-controlled technologies. Management concurred with all recommendations.

General Accounting Office (GAO)

"Export Controls – International Space Station Technology Transfers," GAO/NSIAD-00-14, November 1999. The House of Representatives Committee on Science requested that GAO review NASA's implementation of Federal export regulations. The Department of Commerce has issued nine validated licenses to NASA to export specific items and one special comprehensive license. The special comprehensive license allows NASA to export certain preapproved items without seeking Commerce's approval each time NASA needs to export them for the ISS program. The special comprehensive license has been used only once, even though its purpose was to preclude the need for individual licenses.

The GAO also reported that NASA erroneously authorized the export of radiation-hardened electronic parts to a Russian firm in 1997 without obtaining a license from the Department of State. Further, NASA's internal and external reviews of Agency export control activities have identified weaknesses. The GAO made one recommendation to improve the quality of NASA's internal audits of Agency export control activities.

Appendix C. Situations in Which Controlled Technologies are Exported

1. NASA exports controlled technologies on its own behalf. NASA exports controlled technologies on its behalf, usually for in-house programs and projects. In this situation, NASA is the exporter of record. NASA is responsible for administration and oversight of the export licenses that it obtains from either the Department of State or Department of Commerce.

2. NASA grants license exemptions (for licenses from State Department only). In some cases, NASA can grant contractors authorization to export controlled technologies without obtaining licenses from the State Department. As a Government agency, NASA is entitled to certain license exemptions not available to industry. NASA, in turn, utilizes its exemptions to make it easier for contractors to export controlled technologies for NASA programs.

3. NASA obtains export license, and contractors effect the exports. For certain programs, such as the ISS, NASA can obtain a single or special comprehensive export license from the Commerce Department. This process enables contractors, pursuant to contract direction/authority, to export controlled technologies to NASA's international partners. NASA is the exporter of record and is responsible for administration and oversight of the license.

4. Contractor obtains export license from the Departments of State or Commerce for NASA-funded programs. Contractors directly obtain the export licenses for controlled technologies to be transferred to foreign entities. In this situation, the contractor is the license holder and exporter of record. The contractor is also responsible for administration of the export license.

5. Contractor obtains export license from the Departments of State or Commerce for NASA-funded technologies exported commercially. For certain programs such as the ISS, the contractor commercially markets hardware and software containing NASA-funded controlled technologies. In this situation, the contractor is the license holder and exporter of record and is responsible for administration of the export license.

Appendix D. Laws, Regulations, and Guidance Relating to Controlled Technologies

Arms Export Control Act, 22 U.S.C. § 2778. The Arms Export Control Act authorizes the President to control the export of defense articles and services. This authority has been delegated to the State Department, which implements the Act through the ITAR. Defense articles and services subject to the Act are identified in broad categories on the U.S. Munitions List. Violations of the Act are punishable by debarment; fines of up to $500,000; and imprisonment up to 10 years.

Export Administration Act of 1979, as amended, 50 U.S.C., Appendix 2401-2420. The Export Administration Act (EAA) is a legal authority underlying the Export Administration Regulations (EAR). (The EAA expired in September 1990; however, the provisions of the EAR are continued under the authorities of the International Emergency Economic Powers Act, which states "the administration of section 38 (e) of the Arms Export Control Act (22 U.S.C. 2778 (e) shall remain in full force and effect until amended or revoked under proper authority.")

U.S. EAR, 15 Code of Federal Regulation (CFR), Part 730. The Commerce Department's Bureau of Export Administration issues the EAR under laws relating to the control of exports and re-exports. The EAR were designed to implement the Export Administration Act of 1979. The term "dual-use" distinguishes the types of items covered by the EAR from those covered by regulations of certain other U.S. Government departments and agencies with export licensing responsibilities. The term dual-use also distinguishes EAR-controlled items that can be used in military and other strategic uses and in civil applications from those that are weapons and are for military-related use or designs subject to the controls of the State Department. The export items are classified in at least 1 of the 10 categories of the Commerce Control List:

- Category 0 - Nuclear Materials, Facilities and Equipment, and Miscellaneous
- Category 1 - Materials, Chemicals, Microorganisms, and Toxins
- Category 2 - Materials Processing
- Category 3 - Electronics
- Category 4 - Computers
- Category 5 - Telecommunications and Information Security
- Category 6 - Lasers and Sensors
- Category 7 - Navigation and Avionics
- Category 8 – Marine
- Category 9 – Propulsion Systems, Space Vehicles, and Related Equipment

Appendix D

International Traffic in Arms Regulations (ITAR), 22 CFR, Parts 120-130. The Bureau of Political-Military Affairs, Office of Defense Trade Controls, Department of State, issues the ITAR to control the export and import of defense articles and defense services. The President shall designate the articles and services deemed to be defense articles and services. These defense articles and services constitute the U.S. Munitions List, a subpart of the ITAR. The intended use of the article or service after its export is not relevant in determining whether the article or service is subject to the controls of the ITAR. The defense articles or services fall into 1 of the 21 categories of
the U.S. Munitions List:

- Category 1 - Firearms
- Category 2 - Artillery Projectors
- Category 3 - Ammunition
- Category 4 - Launch Vehicles, etc.
- Category 5 - Explosives, Propellants, Incendiary Agents, and Their Constituents
- Category 6 - Vessels of War and Special Naval Equipment
- Category 7 - Tanks and Military Vehicles
- Category 8 - Aircraft and Associated Equipment
- Category 9 - Military Training Equipment
- Category 10 - Protective Personnel Equipment
- Category 11 - Military Electronics
- Category 12 - Fire Control, Range Finder, Optical and Guidance and Control Equipment
- Category 13 - Auxiliary Military Equipment
- Category 14 - Toxicological Agents and Equipment and Radiological Equipment
- Category 15 - Spacecraft Systems and Associated Equipment
- Category 16 - Nuclear Weapons Design and Related Equipment
- Category 17 - Classified Articles, Technical Data, and Defense Services Not Otherwise Enumerated
- Category 18 - Reserved
- Category 19 - Reserved
- Category 20 - Submersible Vessels, Oceanographic, and Associated Equipment Category
- Category 21 - Miscellaneous Articles

Appendix E. Contracts Selected for Review

We reviewed the following three contracts as part of the audit.

Contractor/Contract Number	Description/Value	Location of Performance	Cognizant NASA Center
Boeing Missiles and Space Division, NAS5-10000	International Space Station Alpha Program $7.1 billion	Houston, TX Huntington Beach, CA Huntsville, AL Canoga Park, CA	Johnson
TRW, NAS5-32954	Earth Observing System Common Spacecraft $396 Million	Redondo Beach, CA	Goddard
Lockheed-Martin Michoud Space Systems, NAS8-36200	Space Shuttle External Tanks $3.7 billion	New Orleans, LA	Marshall

Appendix F. Controlled ISS Parts and Equipment Exported in Potential Noncompliance with EAR on NASA-obtained Licenses

Export License/Bill of Lading Shipment Number	Description of Export	Destination of Export	Area of Noncompliance
License-D219490			
D-1,902,298	Model Multiplexer Demultiplexer (MDM) – 4	Russia	Item not listed on Export License
D-1,902,516	Field Test Connector	Russia	Recordkeeping – Complete shipping records were not available
D-1,902,718	SPDSU-PROD* Hardware	Russia	Item not listed on export license
D-1,902,756	SPDSU-PROD Hardware	Russia	Item not listed on export license
D-1,902,732	Wire Harness Assembly	Russia	Item not listed on export license Recordkeeping – Complete shipping records were not available
D-1,902,735	6B Box Mounting Hardware Kit (2 each) and Connector Kit	Russia	Recordkeeping – Complete shipping records were not available
D-1,902,757	SPDSU-PROD Hardware	Russia	Item not listed on export license
D-3,004,162	SS Model Multiplexer Demultiplexer (MDM)-4 FGB Spare	Russia	Item not listed on export license
License-D238777			
D-3,004,725	Thermal Blankets	Russia	Item not listed on export license Recordkeeping – Complete shipping records were not available

* Serial Parallel Digital Simulation Unit Production

Appendix G. Boeing ISS Commercial Program Exports

License and Description of Export	Destination of Export	Shipments Against Export License	Shipments in Potential Noncompliance with EAR
D240166 Connectors and Accessories	Japan	146	98 shipments - Complete shipping documents not available.
D220611 Connectors and Accessories	Japan	180	68 shipments - Complete shipping documents not available. Dollar value of shipments exceeds dollar value scope of export license by $4.95 million
D234914 PTCS Temperature Sensors	Japan	1	1 shipment - Complete shipping documents not available.
D234917 PTCS Temperature Sensors	Japan	1	1 shipment – Complete shipping documents not available.

Appendix H. Management's Response

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

AUG 24 2000

Reply to Attn of: ID

TO: W/Assistant Inspector General for Auditing

FROM: I/Associate Administrator for External Relations

SUBJECT: Agency Comments to Draft Report on Audit of Contractor Exports of Controlled Technologies (Assignment #A9903301)

Thank you for the opportunity to comment on the subject, draft report. As with the previous audit on this same subject (#A9903300), I would like to commend your staff for their cooperation in the preparation of this draft report.

The NASA response to your recommendations and specific NASA comments to the report are enclosed.

If you have any questions, please contact me at 202-358-0400, or Mr. Robert Tucker at 202-358-1605.

John D. Schumacher

NASA Comments to the Recommendations of the Inspector General's Draft Report on the Audit of Contractor Exports of Controlled Technologies (Assignment #A9903301)

Recommendations for Corrective Action:

The Associate Administrator for External Relations should:

1. Require Boeing to establish an appropriate export control program and a detailed company-wide export policy that comply with all EAR requirements prior to authorizing Boeing to utilize NASA-obtained export licenses on behalf of the ISS program.

NASA Response: Concur

NASA believes the requirement for Boeing to have a company-wide export control policy and program comes from the State and Commerce regulations, not NASA. That said, we do believe that Boeing now has such a policy in place, and a comprehensive export control program. Since the completion of the audit, NASA personnel at the Johnson Space Center have reviewed Boeing's company-wide export control manual, believe it to be satisfactory for purposes of Boeing being authorized to effect exports under NASA licenses, and will periodically follow up as indicated in our response to Recommendation 2.

2. In conjunction with the Director, Lyndon B. Johnson Space Center, direct the ISS Program Office in coordination with the Center Export Administrator to periodically review Boeing's and its subcontractors' export control programs to ensure that exports effected against NASA-obtained licenses in support of the ISS Program are being accomplished in accordance with applicable U.S. export laws and regulations.

NASA Response: Concur

Within the context of Boeing (or its subcontractors) being authorized by NASA to effect exports under NASA-obtained export licenses on the ISS Program, NASA Headquarters will provide direction to the ISS Program Office, in coordination with the Johnson Space Center Export Administrator, to periodically review the export control programs of Boeing and, as applicable, Boeing subcontractors.

Appendix H

NASA Comments to the Inspector General's Draft Report on the Audit of Contractor Exports of Controlled Technologies (Assignment #A9903301)

Page 3, "Finding"

See Appendix I, OIG Comment 1

The Draft Report states that Boeing potentially effected exports of controlled technologies beyond the scope of NASA-obtained export licenses, and that "...this condition exists because Boeing did not have effective company policies in place with regard to export..." NASA personnel at the Johnson Space Center reviewed the Boeing policies in place in the Summer of 1999. At that time Boeing was in the process of bringing the export compliance programs of several other acquired companies into the Boeing corporate structure, and there were a number of export policies in effect. NASA believes that a more accurate statement would be that Boeing did not, at the time of the audit, have company-wide standardized procedures in place to establish consistency and traceability for exports. Boeing currently has a company-wide export manual in place.

Page 6, "NASA Export License D219490"

See Appendix I, OIG Comment 2

The following information is offered in response to the Draft Report assertion that Multiplexer/Demultiplexers (MDMs) were shipped in potential noncompliance with the EAR. The primary assertion is that the dollar value for the actual shipment is undervalued compared to the licensed value. NASA does not believe this to be a potential export violation. Rather, the estimated dollar amount on the license for three MATEs ($1.8 million) was based on a Boeing conservative estimate of $600,000 per MATE (NASA understands that Honeywell had provided Boeing with a value of $350,000 per MATE). The value on the Honeywell eleven page DD-1149 that is associated with this license is $710,000 for 2 MATEs (see pages 3 and 7 of the DD-1149), or $355,000 each. This does not constitute a potential export violation.

Draft Report description	NASA response
Multiplexer/Demultiplexer (MDM) - The Shippers Export Declaration, dated April 17, 1995, indicates that Honeywell, a Boeing subcontractor, shipped two MDM's with a total value of $760,000 to a Russian Space Agency contractor.	The Shippers Export Declaration (SED) indicates that an "MDM Application Test Environment" (MATE; equivalent to "Mate" referenced in the IG Draft Report) and associated equipment was shipped. The two Honeywell prepared DD 1149s for this shipment indicate that the actual items shipped were: 1 MASS EQUIVALENT MODEL (MEM) MDM, and 2 MATE's. The total dollar value of these two DD-1149s is $760,000, as stated on the SED. This is made up of the two MATEs at $355,000 each and one MEM MDM at $50,000.

Export license D219490 authorized the shipment of two MDM's but at a total value of $400,000. When we asked Boeing to explain the discrepancy in the value of the items shipped, Boeing initially stated that the additional $360,000 consisted of "cables and connectors and loose items." When Johnson Space Center (Johnson) Export Officials questioned the excessive dollar amount associated with the cables, connectors, and loose items, Boeing responded that the shipment actually consisted of one MDM at $200,000, and two Space Station Mate-3 items at $1.2 million or a total of $1.4 million.	NASA/JSC, Boeing and Honeywell did not understand the initial IG question because the SED indicates that two MATES were shipped, not two MDM's. This caused confusion as NASA tried to collect an answer. As indicated above, through further fact finding, Boeing demonstrated (based on the DD 1149s) that the shipment consisted of 1 MEM MDM and 2 MATEs. Boeing represents that they did not respond that the 3 items totaled $1.4 million, as implied in the IG's statement. This $1.4 million figure equals the sum of the license values (D219490) for two MATEs and the one MEM MDM.
License D219490 authorized the shipment of three Mate-3 items at a total value of $1.8 million. This revised explanation from Boeing places the value of the controlled items listed on license D219490 at $1.4 million, almost double the amount listed on the Shippers Export Declaration.	While the value of the corresponding items in the approved License (D219490) total $1.4 million, the value of the same licensed items in the shipment is $760,000. The value on the license ($600,000 per MATE) was Boeing's estimate as provided to NASA (NASA understands that Boeing increased the Honeywell provided value of $350,000 to be conservative), and the $600,000 was the value used by NASA in applying for the license. The license value is generally used as a "not to exceed" value for the shipment.
Based on the inconsistencies of Boeing's explanations and the $640,000 difference between the Shippers Export Declaration and the items listed on license D219490, we cannot conclude that the controlled items were actually shipped against the license.	This dollar amount difference is in favor of the exports effected by Boeing's subcontractor Honeywell. The value of the items exported did not exceed the value authorized by the License. The DD-1149s show what items were shipped and are consistent with the items listed under License D219490.

Page 7 – Wire Harness Assembly

The following information is offered in response to the Draft Report assertion that Wire Harness Assemblies were shipped by Boeing in potential noncompliance with the EAR.

See Appendix I, OIG Comment 3

A Wire Harness Assembly is composed of connectors, wire and cable. The Wire Harness Assembly sent to Russia was specialized because of the attached Amphenol connectors. These connectors were licensed under D219490. The Wire Harness Assembly parts list

Appendix H

was previously provided to the IG to show that the Amphenol connectors were part of the assembly.

Page 7 – Thermal Protection Blankets

The following information is offered in response to the Draft Report assertion that Thermal Protection Blankets were shipped by Boeing in potential noncompliance with the EAR.

See Appendix I, OIG Comment 4

Enclosure 1 is a May 9, 2000, letter from Chemfab Corporation, the manufacturer of the Beta Cloth fabrics (Thermal Protection Blankets), to Boeing, indicating that to the best of their knowledge, when used as intended, these products do not require an export license. The fabrics are used extensively in aerospace applications. The Requisition and Invoice/Shipping Document erroneously lists License D238777 as the license authority for the export of the blankets. It is NASA's understanding that these items were not subject to a license requirement and should have been shipped No License Required (NLR).

Page 18, "Appendix F"

Model Multiplexer/Demultiplexer, Wire Harness Assembly, and Thermal Blankets -- The notation "Item not listed on export license" should be deleted for these items based on the information provided above; i.e., in the case of the wire harness assembly the connectors were listed and in the case of the thermal blankets (Beta cloth) it was EAR-99.

See Appendix I, OIG Comment 5

SPDSU_PROD Hardware -- NASA has previously provided data to the IG to demonstrate that these items were approved by the Dept of Commerce in License D219490, Amendment 3, as part of "MATE Hardware Upgrades." NASA does not agree that these shipments are in potential noncompliance with EAR. They should be removed from this Appendix.

See Appendix I, OIG Comment 6

SSMDM-4 FGB Spare -- The SSMDM-4 FGB Spare referenced by the IG as "not listed on export license" was in fact a replacement unit for an MDM found in License D219490, line item 3. This license authorizes shipment of "2 Space Station FEU SS MDM 4 (FEUM4 FGB-1, -2)." FEU stands for Functional Equivalent Unit. The confusion stems from shipping documents for the SS MDM-4 FGB Spare which indicated both Export License D219490 "RPL" (for the EAR License Exception for replacement units), and Export Control Classification Number "EAR99." The reference to EAR99 was in error. The correct License authority was cited. A McDonnell Douglas Aerospace (Boeing), Information Transmittal Sheet dated in July 1997, is at Enclosure 2 that shows that the Spare unit was approved for shipment to Russia after completion of rework and inspection efforts. NASA does not agree that this shipment was potentially non-compliant with the EAR. It should be removed from the Appendix.

Missing Shipper's Export Declarations (SEDs) – Boeing has requested the missing SEDs from Census. They will be provided as soon as possible.

ATTACHMENT A

CHEMFAB®

Chemfab Corporation
701 Daniel Webster Highway, P.O. Box 1137
Merrimack, New Hampshire 03054-1137 U.S.A.
Telephone: 603-424-9000
Telefax: 603-424-9028

May 9, 2000

Laurie K. Troy
Boeing Company
5301 Bolsa Ave.
MS H017 D304
Huntington Beach, CA 92647

Dear Laurie:

Thank you for your interest in our Beta® Cloth fabrics. These fabrics are used extensively in aerospace applications, including in the Space Shuttle program and on the International Space Station.

The Beta Cloth family of fabrics include Chemglas® 500F, Chemglas 500G, Chemglas 250F and Chemglas 250G, as well as other versions that include various surface treatments – including the addition of either a metallic film or an adhesive. These products are intended for use in various insulation applications, and are approved for use in space.

To the best of our knowledge, when used as intended, these products do not require an export license.

Please call me at 800 451-6101 ext. 2344 if you have any questions about this or other Chemfab products.

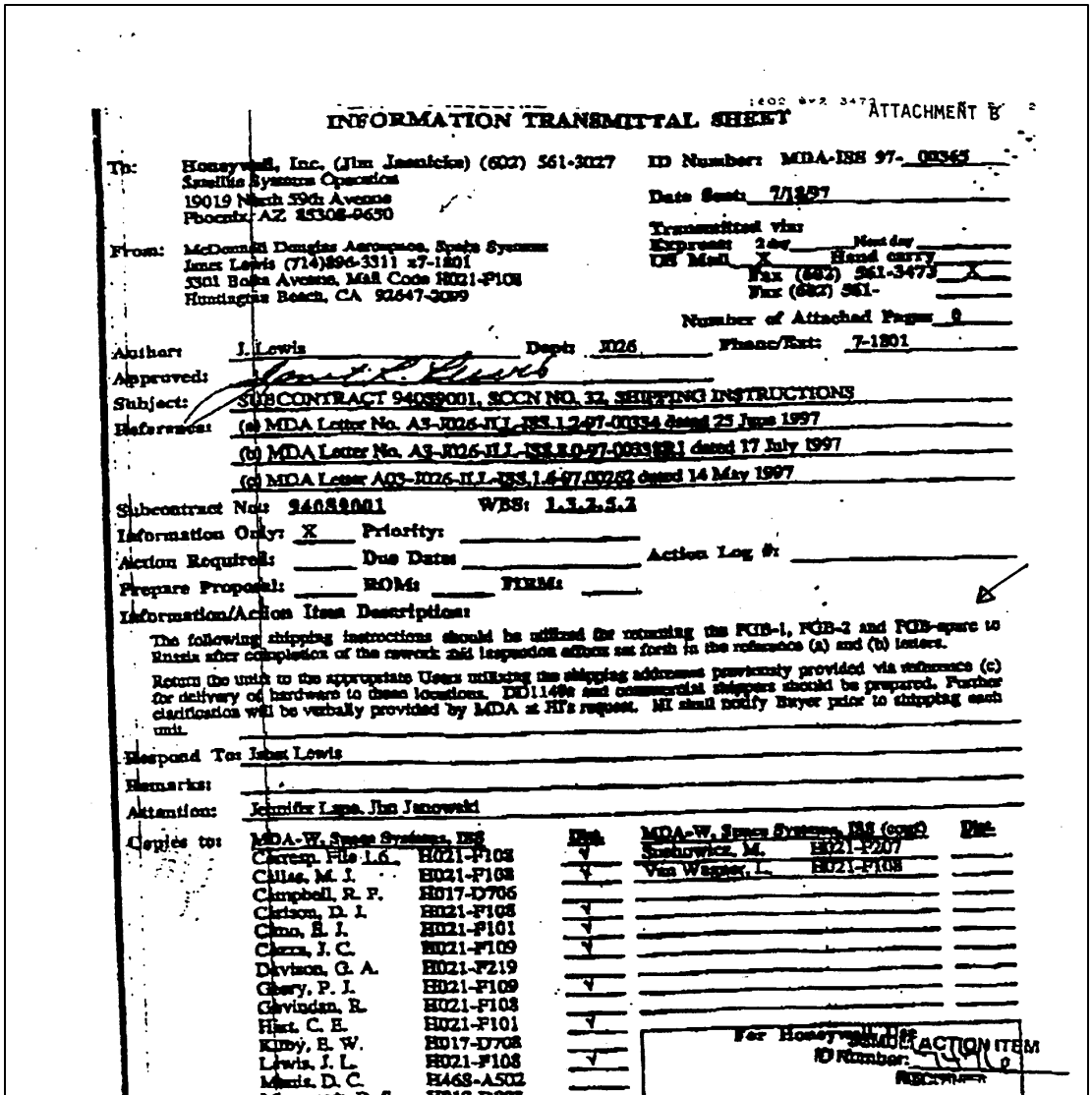
Sincerely,

Michael J. Lussier
Product Manager – Coated Fabrics

The Beta Cloth is not listed on the CCL. The Contractor concurs with the manufacturer that the commodity does not require a license.

CFA
Listed
NYSE

ENCLOSURE 1



INFORMATION TRANSMITTAL SHEET ATTACHMENT B

To: Honeywell, Inc. (Jim Jasnicka) (602) 561-3027
Satellite Systems Operation
19019 North 59th Avenue
Phoenix, AZ 85308-9650

ID Number: MDA-ISS 97-00345

Date Sent: 7/18/97

Transmitted via:
Express: 2 day ____ Next day ____
US Mail X Hand carry ____
Fax (602) 561-3473 X
Fax (602) 561- ____

From: McDonnell Douglas Aerospace, Space Systems
Janet Lewis (714)896-3311 x7-1801
5301 Bolsa Avenue, Mail Code H021-F108
Huntington Beach, CA 92647-2099

Number of Attached Pages 0

Author: J. Lewis Dept: H026 Phone/Ext: 7-1801

Approved: Janet K. Lewis

Subject: SUBCONTRACT 94089001, SCCN NO. 32, SHIPPING INSTRUCTIONS

References: (a) MDA Letter No. AS-H026-JLL-ISS.1.2.97-00334 dated 25 June 1997
(b) MDA Letter No. AS-H026-JLL-ISS.8.0-97-00398R1 dated 17 July 1997
(c) MDA Letter AS-H026-JLL-ISS.1.4-97.00262 dated 14 May 1997

Subcontract No: 94089001 WBS: 1.3.2.5.2

Information Only: X Priority: ____

Action Required: ____ Due Date: ____ Action Log #: ____

Prepare Proposal: ____ ROM: ____ FIRM: ____

Information/Action Item Description:

The following shipping instructions should be utilized for returning the FCB-1, FCB-2 and FCB-spare to Russia after completion of the rework and inspection efforts set forth in the references (a) and (b) letters.

Return the units to the appropriate Users utilizing the shipping addresses previously provided via reference (c) for delivery of hardware to these locations. DD1149s and commercial shippers should be prepared. Further clarification will be verbally provided by MDA at HI's request. HI shall notify Buyer prior to shipping each unit.

Response To: Janet Lewis

Remarks:

Attention: Jennifer Lapa, Jim Janowski

Copies to:

MDA-W, Space Systems, ISS		Dist.
Cherem, File 1.6.	H021-F108	√
Callas, M. J.	H021-F108	√
Campbell, R. P.	H017-D706	
Carlson, D. J.	H021-F108	√
Cimo, E. J.	H021-F101	√
Cherra, J. C.	H021-F109	√
Davison, G. A.	H021-F219	
Ghery, P. J.	H021-F109	√
Govindan, R.	H021-F108	
Hart, C. E.	H021-F101	√
Kirby, R. W.	H017-D708	
Lewis, J. L.	H021-F108	√
Morris, D. C.	H468-A502	
Marquardt, D. S.	H017-D803	
McCabe, J.	H021-F101	
Mora, V.	H017-D403	
Saputo, A.	H017-D108	
Simonis, M. W.	H021-F109	

MDA-W, Space Systems, ISS (cont)		Dist.
Szubowicz, M.	H021-F207	
Van Wagner, L.	H021-F108	

For Honeywell Use
SUBMIT ACTION ITEM
ID Number: 97-00345
RECEIVED
JUL 18 1997
ASSIGNED TO: N/A
DUE DATE

Please fill out Distribution Information. For any changes, please notify Allen Peck, Ext. 6-0972; Revised 4/2/97
KEY: √ = Complete Document, √√ = 2 Copies, * = Cover Sheet ONLY, ** = Cover W/Letter

ENCLOSURE 2

Appendix I. OIG Comments on Management's Response

NASA management provided the following comments in response to our draft report. Our responses to the comments are also provided.

Management's Comment. NASA personnel at the Johnson Space Center reviewed the Boeing policies in place in the summer of 1999. At that time, Boeing was in the process of bringing the export compliance programs of several other acquired companies into the Boeing corporate structure, and there were a number of export policies in effect. Management believes that the report should state that Boeing did not, at the time of the audit, have company-wide, standardized procedures in place to establish consistency and traceability for exports. Boeing currently has a company-wide export manual in place.

1. OIG Comments. We interviewed export control and International Space Station (ISS) Officials at Johnson on July 7, 1999. During the interview, those officials informed us that they had not formally reviewed Boeing's export policies and procedures. Boeing officials further confirmed that, prior to July 7, 1999, Johnson export control and ISS officials had not reviewed Boeing's export policies and procedures.

Management's Comment. The estimated dollar amount on the license for three Multiplexer/Demultiplexer (MDM) Application Test Environments (MATE's) ($1.8 million) was based on a Boeing conservative estimate of $600,000 per MATE. The value on Honeywell's Requisition and Invoice/Shipping Document (DD-1149) that is associated with this license is $710,000 for two MATE's, or $355,000 each. This does not constitute a potential export violation.

The Shippers Export Declaration indicates that a MATE and associated equipment was shipped. The two Honeywell-prepared DD-1149s for this shipment indicate that the actual items shipped were: one Mass Equivalent Model (MEM) MDM, and two MATE's. The total dollar value of the two DD-1149s is $760,000, as stated on the Shippers Export Declaration. The value is made up of the two MATE's at $355,000 each and one MEM MDM at $50,000.

Through further fact finding after the auditor's initial questioning of this shipment, Boeing demonstrated (based on the DD-1149s) that the shipment consisted of one MEM MDM and two MATE's. While the value of the corresponding items in the approved License (D219490) total $1.4 million, the value of the same licensed items in the shipment is $760,000. The value on the license of $600,000 per MATE was Boeing's estimate as provided to NASA and was the value NASA used in applying for the license. The license value is generally used as a "not to exceed" value for the shipment. This dollar amount difference is in favor of the exports effected by Boeing's subcontractor Honeywell. The value of the items exported did not exceed the value authorized by the license. The DD-1149s show what items were shipped and are consistent with the items listed under License D219490.

2. OIG Comments. It is our opinion that the MDM may not have been shipped in accordance Export License D219490 due to the inconsistencies of Boeing's explanations of shipments. Since our initial questioning of Honeywell's (Boeing's subcontractor) shipment of the MDM's, we have received three different explanations of the shipments from Johnson/Boeing export officials. The initial explanation we received from Boeing was that Honeywell shipped two MDM's at a total value of $760,000 to a Russian Space Agency contractor when export license D219490 authorized the shipment of two at a total value of $400,000. Boeing officials explained the dollar value discrepancy by stating that the additional $360,000 consisted of cables, a connector, and loose items. Johnson export officials also questioned this initial explanation by Boeing. Boeing subsequently provided a revised explanation that Honeywell shipped MDM and MATE items, which according to the export license were valued at $1.4 million. We again questioned this explanation because the Shippers Export Declaration indicated that the value of the shipment was only $760,000, or almost half the value of the items listed on license D219490. In its most recent explanation, Boeing again asserts that Honeywell shipped two Mate's with a value of $710,000 ($355,000 each) and one MDM with a value of $50,000 for a total shipment valued at $760,000, which is within the dollar and quantity scope of the export license. However, those items were identified in license D219490 as having a value of $1.4 million, or a $640,000 difference between the license and the Shippers Export Declaration. We believe that Boeing's inconsistent explanations cast doubt as to whether this shipment was made in accordance with U.S. export laws and regulations. Further, as stated in the finding discussion, Honeywell shipped these items prior to being approved by the Bureau of Export Administration as a consignor to license D219490.

Management's Comment. A wire harness assembly is composed of connectors, wire, and cable. The wire harness assembly sent to Russia was specialized because of the attached amphenol connectors. These connectors were licensed under D219490. The wire harness assembly parts list was previously provided to the auditors to show that the connectors were part of the assembly.

3. OIG Comments. We reviewed available documentation on this shipment such as the DD-1149 and Packing List Cargo Specification Sheet. Both documents clearly show that the wire harness assembly items were shipped as controlled items under license D219490, even though the export license does not list the items. Further, Boeing was unable to produce the Shippers Export Declaration, which would definitively identify whether the wire harness assembly items were shipped against license D219490. Our position is further strengthened by documentation related to Boeing's commercial exports effected for the ISS Program which showed that wire harness assemblies were shipped against export licenses. In addition, when we first questioned this shipment, Johnson export officials

responded that previous shipments of wire harness assemblies by Boeing had been licensed. Because of the conflicting explanations and the lack of a Shippers Export Declaration, we maintain our position that the wire harness assembly items were shipped without an export license.

Management's Comment. A May 9, 2000, letter from Chemfab Corporation, the manufacturer of the Beta Cloth fabrics (thermal protection blankets), to Boeing, indicates that when used as intended, these products do not require an export license. The fabrics are used extensively in aerospace applications. The Requisition and Invoice/Shipping Document erroneously lists License D238777 as the license authority for the export of the blankets. It is management's understanding that these items were not subject to a license requirement and should have been shipped "No License Required."

4. OIG Comments. We reviewed the available documentation on this shipment such as the DD-1149 and Packing List Cargo Specification Sheet. Both documents clearly show that the thermal blankets were shipped as controlled items under license D238777, even though the license does not list the items. Boeing was unable to produce the Shippers Export Declaration, which would identify whether the thermal blankets were shipped against license D238777. Management's response includes a letter, obtained after our initial questioning of the shipment, from the manufacturer of the blanket's fabric. The letter states that to the "best of our knowledge," the products do not require a license. Our conclusion that the thermal blankets were shipped without the benefit of an export license is based on the incomplete shipping documentation, which indicated that the thermal blankets were controlled items and were shipped under license D238777.

Management's Comment. NASA has previously provided data to the OIG to demonstrate that these items were approved by the Department of Commerce in license D219490, Amendment 3, as part of "MATE Hardware Upgrades." Management does not agree that these shipments are in potential noncompliance with the EAR.

5. OIG Comments. Honeywell's Export Shipping/Invoice and DD-1149 list the descriptions of the export items as "VME Assembly" and SPDSU Upgrade Kit," not as "MATE Hardware Upgrades" as listed on Amendment 3 of license D219490. For our audit, we identified eight export shipments that were specifically listed as "MATE Hardware Upgrades" on Honeywell's shipping documents and could be clearly traced to license D219490. However, we cannot conclude that the "VME Assembly and SPDSU Upgrade Kit" were effected against license D219490 Amendment 3, due to the fact that the item descriptions do not match.

Management's Comment. The SSMDM-4 FGB Spare referenced by the report as "not listed on export license" was in fact a replacement unit for an MDM found on license D219490, line item 3. This license authorizes shipment of "2 Space Station FEU [Functional Equivalent Unit] SS MDM 4 (FEUM4 FGB-1, 2)." The confusion stems from shipping documents for the SSMDM-4 FGB Spare which indicated both export license D219490 "RPL" (for the EAR License Exception for replacement units), and Export Control Classification Number "EAR99." The reference to EAR99 was in error. The correct license authority was cited. A McDonnell Douglas Aerospace (Boeing), Information Transmittal Sheet dated in July 1997, shows that the Spare unit was approved for shipment to Russia after completion of rework and inspection efforts. Management does not agree that this shipment was potentially noncompliant with the EAR.

6. OIG Comments. It remains our position that the SSMDM-41 FGB Spare may have been shipped without benefit of an export license. Specifically, our review of the Shippers Export Declaration showed that Honeywell shipped the SSMDM-41 FGB-Spare on July 24, 1997, or after the April 1997 expiration date of license D219490. In addition, the description of the SSMDM-41 FGB-Spare on the Shippers Export Declaration does not match the description listed on license D219490. Further, the explanation Boeing now provides indicates that Honeywell shipped an SSMDM-41 FGB Spare valued at $500,508, which exceeded the dollar value of $350,000 listed on export license D2194990.

Appendix J. Report Distribution

National Aeronautics and Space Administration (NASA) Headquarters

A/Administrator
AE/Chief Engineer
AI/Associate Deputy Administrator
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division
G/General Counsel
H/Associate Administrator for Procurement
I/Associate Administrator for External Relations
ID/Director, Assessments and Technology Division
IM/Director, Resources Management Office
J/Associate Administrator for Management Systems
JM/Acting Director, Management Assessment Division
L/Associate Administrator for Legislative Affairs
M/Associate Administrator for Space Flight
P/Associate Administrator for Public Affairs
Q/Associate Administrator for Safety and Mission Assurance
R/Associate Administrator for Aerospace Technology
S/Associate Administrator for Space Science
U/Associate Administrator for Life and Microgravity Sciences and Applications
Y/Associate Administrator for Earth Science
Z/Associate Administrator for Policy and Plans

NASA Centers

Director, Ames Research Center
  Center Export Administrator, Ames Research Center
  Center Export Counsel, Ames Research Center
  Procurement Office, Ames Research Center
Director, Dryden Flight Research Center
  Center Export Administrator, Dryden Flight Research Center
  Center Export Counsel, Dryden Flight Research Center
  Procurement Office, Dryden Flight Research Center
Director, John H. Glenn Research Center at Lewis Field
  Center Export Administrator, John H. Glenn Research Center at Lewis Field
  Center Export Counsel, John H. Glenn Research Center at Lewis Field
  Procurement Office, John H. Glenn Research Center at Lewis Field

NASA Centers (Cont.)

Director, Goddard Space Flight Center
Center Export Administrator, Goddard Space Flight Center
Center Export Counsel, Goddard Space Flight Center
Procurement Office, Goddard Space Flight Center
Director, Jet Propulsion Laboratory
Center Export Administrator, Jet Propulsion Laboratory
Procurement Office, Jet Propulsion Laboratory
Director, Lyndon B. Johnson Space Center
Center Export Administrator, Lyndon B. Johnson Space Center
Center Export Counsel, Lyndon B. Johnson Space Center
Procurement Office, Lyndon B. Johnson Space Center
Director, John F. Kennedy Space Center
Center Export Administrator, John F. Kennedy Space Center
Center Export Counsel, John F. Kennedy Space Center
Procurement Office, John F. Kennedy Space Center
Director, Langley Research Center
Center Export Administrator, Langley Research Center
Center Export Counsel, Langley Research Center Director
Procurement Office, Langley Research Center Director
Director, George C. Marshall Space Flight Center
Center Export Administrator, George C. Marshall Space Flight Center
Center Export Counsel, George C. Marshall Space Flight Center
Procurement Office, George C. Marshall Space Flight Center
Director, John C. Stennis Space Center
Center Export Administrator, John C. Stennis Space Center
Center Export Counsel, John C. Stennis Space Center
Procurement Office, John C. Stennis Space Center

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Branch Chief, Science and Space Programs Branch, Energy and Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division, Defense Acquisitions Issues, General Accounting Office
Professional Assistant, Senate Subcommittee on Science, Technology, and Space

Chairman and Ranking Minority Member – Congressional Committees and Subcommittees

Senate Committee on Appropriations
Senate Subcommittee on VA, HUD, and Independent Agencies
Senate Committee on Commerce, Science, and Transportation
Senate Subcommittee on Science, Technology, and Space
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on VA, HUD, and Independent Agencies
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology
House Subcommittee on National Security, Veterans Affairs, and International Relations
House Committee on Science
House Subcommittee on Space and Aeronautics, Committee on Science

Congressional Member

Honorable Pete Sessions, U.S. House of Representatives

NASA Assistant Inspector General for Auditing
Reader Survey

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Report Title: Contractor Exports of Controlled Technologies

Report Number: _____ **Report Date:** _____

Circle the appropriate rating for the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A
1. The report was clear, readable, and logically organized.	5	4	3	2	1	N/A
2. The report was concise and to the point.	5	4	3	2	1	N/A
3. We effectively communicated the audit objectives, scope, and methodology.	5	4	3	2	1	N/A
4. The report contained sufficient information to support the finding(s) in a balanced and objective manner.	5	4	3	2	1	N/A

Overall, how would you rate the report?

Excellent Fair
Very Good Poor
Good

If you have any additional comments or wish to elaborate on any of the above responses, please write them here. Use additional paper if necessary. _____

_____

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How did you use the report? _____

How could we improve our report? _____

How would you identify yourself? (Select one)

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NASA Employee	Public Interest
Private Citizen	Other: _____

Government: _____ Federal: _____ State: _____ Local: _____

May we contact you about your comments?

Yes: _____ **No: _____**

Name: _____

Telephone: _____

Thank you for your cooperation in completing this survey.

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