

GAO

Report to the Chairman, Subcommittee
on National Security, Emerging
Threats, and International Relations,
Committee on Government Reform,
House of Representatives

January 2004

NONPROLIFERATION

Improvements Needed to Better Control Technology Exports for Cruise Missiles and Unmanned Aerial Vehicles



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Highlights

Highlights of [GAO-04-175](#), a report to Chairman, Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform, House of Representatives

Why GAO Did This Study

Cruise missiles and unmanned aerial vehicles (UAV) pose a growing threat to U.S. national security interests as accurate, inexpensive delivery systems for conventional, chemical, and biological weapons. GAO assessed (1) the tools the U.S. and foreign governments use to address proliferation risks posed by the sale of these items and (2) efforts to verify the end use of exported cruise missiles, UAVs, and related technology.

What GAO Recommends

The Secretary of Commerce should assess and report to the Committee on Government Reform on the adequacy of an export administration regulation provision to address missile proliferation by nonstate actors and on ways the provision might be modified.

The Secretaries of State, Commerce, and Defense each should complete a comprehensive assessment of cruise missile, UAV, and related dual-use transfers to determine if U.S. exporters and foreign end users comply with conditions related to the transfers.

Commerce and Defense partially agreed with the recommendations. State disagreed to complete an assessment, but said it would pay special attention to the need for more checks on cruise missile and UAV transfers.

www.gao.gov/cgi-bin/getrpt?GAO-04-175.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Joseph A. Christoff at (202) 512-8979 or christoffj@gao.gov.

NONPROLIFERATION

Improvements Needed to Better Control Technology Exports for Cruise Missiles and Unmanned Aerial Vehicles

What GAO Found

The growing threat to U.S. national security of cruise missile and UAV proliferation is challenging the tools the United States has traditionally used. Multilateral export control regimes have expanded their lists of controlled technologies, but key countries of concern are not members. U.S. export control authorities find it increasingly difficult to limit or track unlisted dual-use items that can be acquired without an export license. Moreover, a gap in U.S. export control authority enables American companies to export certain dual-use items to recipients that are not associated with missile projects or countries listed in the regulations, even if the exporter knows the items might be used to develop cruise missiles or UAVs. American companies have in fact legally exported dual-use items with no U.S. government review to a New Zealand resident who bought the items to build a cruise missile.

The U.S. government seldom uses its end-use monitoring programs to verify compliance with conditions placed on the use of cruise missile, UAV, or related technology exports. For example, State officials do not monitor exports to verify compliance with license conditions on missiles or other items, despite legal and regulatory requirements to do so. Defense has not used its end-use monitoring program initiated in 2002 to check the compliance of users of more than 500 cruise missiles exported between fiscal years 1998 and 2002. Commerce conducted visits to assess the end use of items for about 1 percent of the 2,490 missile-related licenses we reviewed. Thus, the U.S. government cannot be confident that recipients are effectively safeguarding equipment in ways that protect U.S. national security and nonproliferation interests.

A Chinese SILKWORM Cruise Missile in Iraq



Source: Department of Defense.

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Abbreviations

DOD	Department of Defense
EAR	Export Administration Regulations
ICE	Bureau of Immigration and Customs Enforcement
MTCR	Missile Technology Control Regime
PSV	post-shipment verification
UAV	unmanned aerial vehicle
WMD	weapons of mass destruction

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Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

January 23, 2004

The Honorable Christopher Shays
Chairman
Subcommittee on National Security,
Emerging Threats, and International Relations
Committee on Government Reform
House of Representatives

Dear Mr. Chairman:

Efforts to limit the proliferation of cruise missiles and unmanned aerial vehicles (UAV) are complicated by the availability of these items among countries of concern.¹ An unmanned aerial vehicle, a pilotless vehicle that operates like an airplane, can be used for a variety of military and commercial purposes. A cruise missile is an unmanned aerial vehicle with the airframe designed for one-time use, which travels through the air like an airplane before delivering its payload. The U.S. government faces trade-offs when making decisions about transfers of cruise missiles, UAVs, or related technology. U.S. policy aims to prevent the proliferation of these weapons systems to countries of concern and terrorists. At the same time, the U.S. government has an interest in encouraging transfers of cruise missiles and UAVs to U.S. allies to support regional security and bilateral relations. The U.S. government also wants to use these sales to help maintain the health of the U.S. defense industrial base. To accomplish these goals, the U.S. government regulates the export of cruise missiles, UAVs, or related technology through three agencies: the Departments of State, Commerce, and Defense.

You asked us to assess U.S. and international efforts to limit the proliferation of cruise missiles, unmanned aerial vehicles, and related technology. Specifically, this report (1) describes the nature and extent of cruise missile and UAV proliferation; (2) assesses the nonproliferation tools that the United States and other governments use to address the proliferation risks posed by the sale of these items; and (3) assesses U.S.

¹Countries of missile proliferation concern listed in the Export Administration Regulations are Bahrain, China, Egypt, India, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Macau, North Korea, Oman, Pakistan, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen.

and other governments' efforts to verify the end use of exported cruise missiles, UAVs, and related technology.

To address these issues, we reviewed analyses prepared by the Departments of State, Commerce, Defense, and Homeland Security, and the U.S. intelligence community, as well as studies prepared by nonproliferation experts. We also reviewed multilateral export control regime documentation; met with representatives of the Missile Technology Control Regime (MTCR) in Paris, France; and interviewed government officials in France, Italy, and the United Kingdom. Furthermore, we analyzed export licensing information from the Departments of State, Commerce, and Defense on exports of cruise missiles, UAVs, and related dual-use technology that have both military and civilian applications. For more on our scope and methodology, see appendix I.

Results in Brief

Cruise missiles and UAVs pose a growing threat to U.S. national security interests as accurate and inexpensive delivery systems for conventional, chemical, and biological weapons. Conventional anti-ship cruise missiles pose an immediate threat to U.S. naval vessels because of the widespread availability of these weapons worldwide. In addition, land-attack cruise missiles pose a future threat to the U.S. homeland because of the anticipated growth in the availability of these more accurate, longer-range systems between 2005 and 2015. U.S. government projections show that the numbers of producers of cruise missiles and UAVs will increase to include countries where the United States is concerned about missile proliferation activities. At least 70 nations currently possess some type of anti-ship missiles armed with conventional, high explosive warheads. Currently, at least 32 nations are developing or manufacturing more than 250 models of UAVs. The widespread availability of commercial items, such as global positioning systems and lightweight engines, has made it easier for countries and terrorists to acquire or build at least rudimentary cruise missile or UAV systems.

The United States and other governments use multilateral export control regimes and national export controls to address the threat associated with cruise missile and UAV proliferation. The United States has made some advances using the regimes to address the threat of cruise missile and UAV proliferation, but both tools have limitations. For example, between 1997 and 2002, the United States and other governments successfully revised the MTCR's control lists of sensitive missile-related equipment and technology to include six of eight U.S.-proposed items related to cruise missile and UAV technology. Adding items to the control lists commits

regime members to provide greater scrutiny when deciding whether to license the items for export. Despite the efforts of these regimes, nonmembers such as China and Israel continue to acquire, develop, and export cruise missile or UAV technology. This growing capability of nonmember supplier countries to develop technologies used for weapons of mass destruction and trade them with other countries of proliferation concern undermines the regimes' ability to impede proliferation. In addition, the United States faces limitations in applying national export controls. First, the U.S. government finds it difficult to identify and track widely available dual-use items that are not on control lists but that can be used for cruise missile and UAV proliferation purposes. Second, a gap in U.S. export control authority enabled American companies to legally export dual-use items to a New Zealand resident who bought the items to show how a terrorist could legally build a cruise missile. The gap results from current catch-all² regulations that restrict the sale of unlisted dual-use items to certain national missile proliferation projects or countries of concern, but not to nonstate actors such as certain terrorist organizations or individuals.

The U.S. government applies conditions to exports of cruise missile and UAV technology to specify how items can be used and by whom, but performs little end-use monitoring to verify that exporters and foreign recipients comply with conditions.³ The U.S. government uses post-shipment verification visits to confirm that the recipients of sensitive U.S. technologies are using them in accordance with license conditions. However, State's verification is limited to confirming that the item is delivered to its designated destination and does not confirm other export license conditions. Of 786 licenses for cruise missile and UAV technology that State issued between fiscal years 1998 and 2002, State conducted verification visits on only four licenses and reported unfavorable results for three. Defense conducted no monitoring over more than 500 cruise missiles that it transferred to other countries between fiscal years 1998 and 2002. However, Defense's program director stated that Defense may

²Catch-all controls are controls that authorize a government to require an export license for items that are not on control lists but that are known or suspected of being intended for use in a missile or WMD program.

³End-use monitoring refers to the procedures used to verify that foreign recipients of controlled U.S. exports use such items according to U.S. terms and conditions of transfer. Verification measures, referred to as end-use checks, range from contacting the appropriate government or company representative to physical inspection by U.S. personnel.

conduct more frequent monitoring of cruise missiles and UAVs in the future. Finally, Commerce conducted verification visits on 1 percent of nearly 2,500 missile-related licenses issued between fiscal years 1998 to 2002. Similarly, other supplier countries place conditions on cruise missile and UAV-related transfers, but few reported conducting end-use monitoring once they exported the items.

We are recommending that the Secretary of Commerce assess and report to the Committee on Government Reform on the adequacy of the export control regulations' catch-all provision to address missile proliferation by nonstate actors and on ways the provision might be modified. We are also recommending that the Secretaries of State, Commerce, and Defense each complete a comprehensive assessment of the nature and extent of compliance with license conditions on cruise missiles, UAVs, and related dual-use technology. As part of the assessment, the departments should also conduct additional PSV visits on a sample of cruise missile and UAV licenses. This assessment would allow the departments to gain critical information that would allow them to better balance potential proliferation risks of various technologies with available resources for conducting future PSV visits.

Commerce did not agree that the limited scope of the current catch-all provision should be called a gap in U.S. regulations and noted that our draft report was ambiguous as to whether the gap relates to items listed on the control list or to items that are not listed because they are not considered as sensitive for missile proliferation reasons. Commerce agreed to review whether the existing catch-all provision sufficiently protects U.S. national security interests. Our references to the gap in the regulations refer to dual-use items that are not listed on the Commerce Control List, and we have made changes to the draft to clarify this point. We also modified our recommendation to specify the need to include nonstate actors among the entities considered under the Department's assessment of its catch-all provisions. State said that our report was inaccurate in suggesting that State does not monitor exports to verify compliance with export authorizations and noted that we did not discuss the importance of pre-license checks to verify end use and end user restrictions. We added pre-license check information to the report and found that State conducted such checks for only 6 of the 786 licenses for cruise missile and UAV-related items that State issued between fiscal years 1998 and 2002.

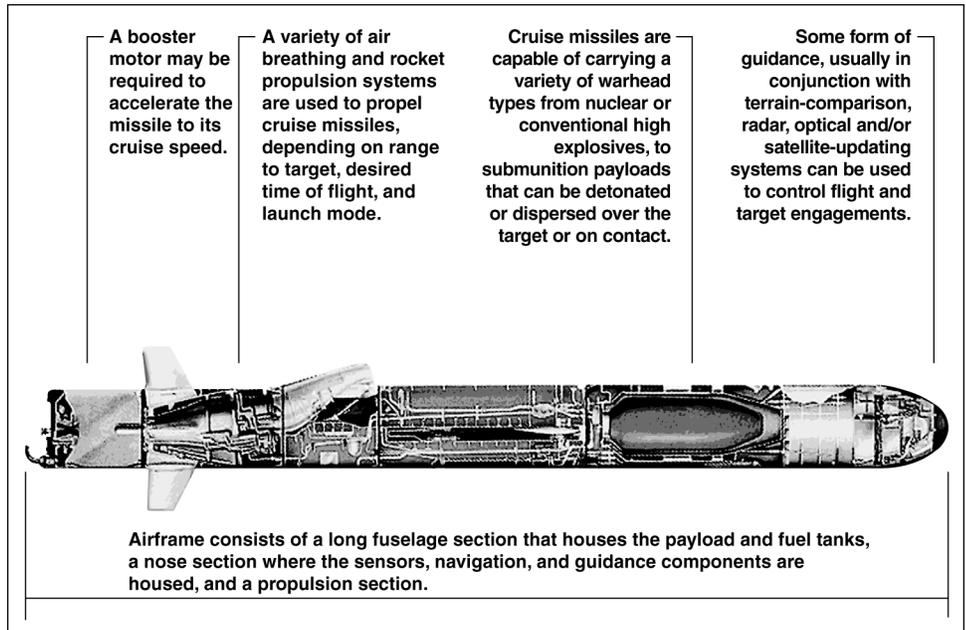
DOD generally agreed with our findings and recommendations but suggested that a sample would yield the same results as a comprehensive

assessment. Similarly, Commerce said that it has limited resources for compliance monitoring and wants greater precision on the scope of transactions that may need increased scrutiny. We modified the recommendation to allow for sampling techniques when conducting the assessment and to recognize that critical information from this assessment would help the departments better balance potential proliferation risks of various exported technologies with available resources for conducting future post-shipment visits. State disagreed with the recommendation to conduct a comprehensive assessment. Nonetheless, State said that in conjunction with steps taken to improve the targeting of Blue Lantern checks and increase the number conducted annually, it would pay special attention to the need for additional pre- and post-shipment checks for cruise missile- and UAV-related technologies.

Background

Distinctions between cruise missiles and UAVs are becoming blurred as the militaries of many nations, in particular the United States, add missiles to traditional reconnaissance UAVs and develop UAVs dedicated to combat missions. A cruise missile consists of four major components: a propulsion system, a guidance and control system, an airframe, and a payload. The technology for the engine, the autopilot, and the airframe could be similar for both cruise missiles and UAVs, according to a 2000 U.S. government study of cruise missiles. Figure 1 shows the major components of a cruise missile.

Figure 1: Diagram of a Cruise Missile

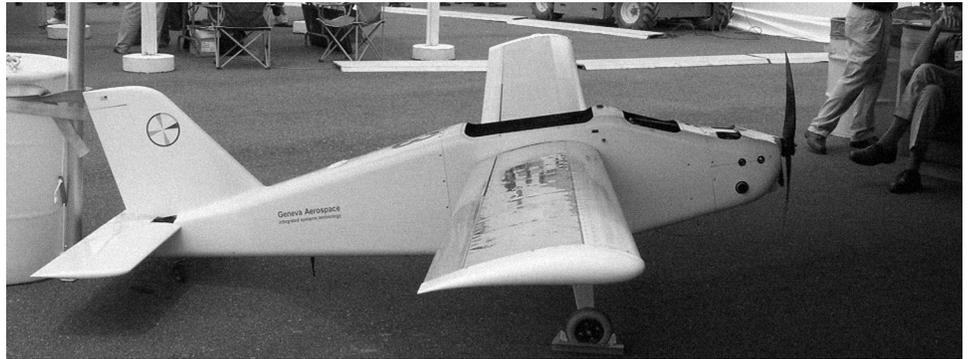


Source: U.S. Government Publication, *Cruise Missiles: Potential Delivery Systems for Weapons of Mass Destruction*, April 2000.

Cruise missiles provide a number of military capabilities. For example, they present significant challenges for air and missile defenses. Cruise missiles can fly at low altitudes to stay below radar and, in some cases, hide behind terrain features. Newer missiles are incorporating stealth features to make them less visible to radars and infrared detectors. Modern cruise missiles can also be programmed to approach and attack a target in the most efficient manner. For example, multiple missiles can attack instantaneously from different directions. Furthermore, land attack cruise missiles may fly circuitous routes to get to their targets, thereby avoiding radar and air defense installations.

UAVs are available in a variety of sizes and shapes, propeller-driven or jet propelled, and can be straight-wing aircraft or have tilt-rotors like helicopters. They can be as small as a model aircraft or as large as a U-2 manned reconnaissance aircraft (see fig. 2).

Figure 2: Examples of UAVs



Straightwing UAV.



Source: GAO (above), Department of Defense (below).

Global Hawk UAV.

U.S. policy on the proliferation of cruise missiles and UAVs is expressed in U.S. commitments to the MTCR and Wassenaar Arrangement. These multilateral export control regimes⁴ are voluntary, nonbinding

⁴Multilateral export control regimes are referred to as either regimes or “arrangements,” and the countries invited to participate in them are variously referred to as “members,” “participants,” or “participating states.” In this report, we use the term “regimes” and refer to participating countries as members. For more information, see our report, U.S. General Accounting Office, *Nonproliferation: Strategy Needed to Strengthen Multilateral Export Control Regimes*, [GAO-03-43](#) (Washington, D.C.: Oct. 25, 2002).

arrangements among like-minded supplier countries that aim to restrict trade in sensitive technologies. Regime members agree to restrict such trade through their national laws and regulations, which set up systems to license the exports of sensitive items. The four principal regimes are the MTCR; the Wassenaar Arrangement, which focuses on trade in conventional weapons and related items with both civilian and military (dual-use) applications; the Australia Group, which focuses on chemical and biological technologies; and the Nuclear Suppliers Group, which focuses on nuclear technologies. The United States is a member of all four regimes. Regime members conduct a number of activities in support of the regimes, including (1) sharing information about each others' export licensing decisions, including certain export denials and, in some cases, approvals and (2) adopting common export control practices and control lists of sensitive equipment and technology into national laws or regulations.

Exports of commercially supplied American-made cruise missiles, military UAVs, and related technology are transferred pursuant to the Arms Export Control Act, as amended,⁵ and the International Trafficking in Arms Regulations,⁶ implemented by State. Government-to-government transfers are made pursuant to the Foreign Assistance Act of 1961, as amended,⁷ and subject to DOD guidance. Exports of dual-use technologies related to cruise missiles and UAVs⁸ are transferred pursuant to the Export Administration Act of 1979, as amended,⁹ and the Export Administration Regulations,¹⁰ implemented by Commerce.

Bureaus in two U.S. agencies are responsible for the initial enforcement of export control laws. The Bureau of Immigration and Customs Enforcement (ICE) in the Department of Homeland Security conducts investigations enforcing the Arms Export Control Act, which is

⁵22 U.S.C. §§ 2751 and following.

⁶22 C.F.R. §§ 120 and following.

⁷22 U.S.C. §§ 2311 and following.

⁸Related items include technical data, subcomponents, and spare parts.

⁹50 U.S.C. app. §§ 2401 and following. Executive Order 13222, 66 Fed. Reg. 44025 and subsequent presidential notices continue the export control regime established under the act and the Export Administration Regulations.

¹⁰15 C.F.R. §§ 730-774.

administered by the State Department. ICE combines the enforcement and investigative arms of the Customs Service, the investigative and enforcement functions of the former Immigration and Naturalization Service, and the Federal Protective Service as part of the Department of Homeland Security. ICE shares responsibility with Commerce's Bureau of Industry and Security for enforcing the Export Administration Act. ICE and the Bureau of Industry and Security use enforcement tools such as investigations of purported violations of law and regulation and interdictions¹¹ of suspected illicit shipments of goods. Investigations can result in criminal prosecutions, fines, or imprisonment or in export denial orders, which bar a party from exporting any U.S. items for a specified period of time.

The Arms Export Control Act, as amended in 1996, requires the President to establish a program for end-use monitoring of defense articles and services sold or exported under the provisions of the act and the Foreign Assistance Act.¹² This requirement states that, to the extent practicable, end-use monitoring programs should provide reasonable assurance that recipients comply with the requirements imposed by the U.S. government on the use, transfer, and security of defense articles and services. In addition, monitoring programs, to the extent practicable, are to provide assurances that defense articles and services are used for the purposes for which they are provided. The President delegated this authority to the Secretaries of State and Defense.

Proliferation of Cruise Missiles and UAVs Poses a Growing Threat to U.S. National Security Interests

The proliferation of cruise missiles and UAVs poses a growing threat to U.S. national security. Both can be used to attack U.S. naval interests, the U.S. homeland, and forces deployed overseas. Cruise missiles and UAVs have significant military capabilities, including surveillance and attack, which the United States has demonstrated during military engagements in Afghanistan and Iraq. In addition, U.S. government projections show that the numbers of producers and exporters of cruise missiles and UAVs will increase and that more countries of concern will possess and begin to export them. The growing availability of these weapons, and of related components and technology that are not readily controllable, makes it

¹¹Interdiction is the action of law enforcement agencies physically preventing the export of certain items from their country.

¹²22 U.S.C. § 2785.

easier for countries of concern and terrorists to acquire or build at least rudimentary cruise missile or UAV systems.

Military Capabilities of Cruise Missiles and UAVs Threaten U.S. Interests

Although cruise missiles and UAVs provide important capabilities for the United States and its friends and allies, in the hands of U.S. adversaries they pose substantial threats to U.S. interests. First, anti-ship cruise missiles threaten U.S. naval forces deployed globally. Second, land-attack cruise missiles have a potential in the long-term to threaten the continental United States and U.S. forces deployed overseas. Finally, UAVs represent an inexpensive means of launching chemical and biological attacks against the United States and allied forces and territory.

Cruise missiles pose a current and increasing threat to U.S. naval vessels. For example, there are more than 100 existing and projected missile varieties (including sub- and supersonic, high and low altitude, and sea-skimming models) with ranges up to about 185 miles or more. We reported in 2000 that the next generation of anti-ship cruise missiles—most of which are now expected to be fielded by 2007—will be equipped with advanced target seekers and stealthy design.¹³ These features will make them even more difficult to detect and defeat.

Land-attack cruise missiles pose a long-term threat to the U.S. homeland and U.S. forces deployed overseas. Because land attack cruise missiles suitable for long-range missions require sophisticated guidance and complicated support infrastructures, they have historically been found almost exclusively in superpower arsenals. According to an unclassified summary of a national intelligence estimate¹⁴ from December 2001, several countries are technically capable of developing a missile launch mechanism to station on forward-based ships or other platforms so that they can launch land-attack cruise missiles against the United States. Technically, cruise missiles can be launched from fighter, bomber, or even commercial transport aircraft outside U.S. airspace. According to the National Air Intelligence Center, defending against land attack cruise missiles will strain air defense systems. Moreover, cruise missiles are

¹³*Defense Acquisitions: Comprehensive Strategy Needed to Improve Ship Cruise Missile Defense*, GAO-NSIAD-00-149 (Washington, D.C.: July 2000).

¹⁴*Foreign Missile Developments and the Ballistic Missile Threat Through 2015, Unclassified Summary of a National Intelligence Estimate*, National Intelligence Council (Washington, D.C.: December 2001).

capable of breaking through U.S. defenses and inflicting significant damage and casualties on U.S. forces, according to the Institute for Foreign Policy Analysis' October 2000 study.

UAVs pose a longer-term threat as accurate and inexpensive delivery systems for chemical and biological weapons and are increasingly sought by nonstate actors, according to U.S. government and other nonproliferation experts. For example, the U.S. government reported its concern over this threat in various meetings and studies. The Acting Deputy Assistant Secretary of State for Nonproliferation testified in June 2002 that UAVs are potential delivery systems for WMD, and are ideally suited for the delivery of chemical and biological weapons given their ability to disseminate aerosols in appropriate locations at appropriate altitudes. He added that, although the primary concern has been that nation-states would use UAVs to launch WMD attacks, there is potential for terrorist groups to produce or acquire small UAVs and use them for chemical or biological weapons delivery.

Cruise Missiles and UAVs Continue to Proliferate

At least 70 nations possess some type of cruise missile, mostly short-range, anti-ship missiles armed with conventional, high-explosive warheads, according to a U.S. government study. Estimates of the total number of cruise missiles place the world inventory at a minimum of 75,000. Countries that export cruise missiles currently include China, France, Germany, Israel, Italy, Norway, Russia, Sweden, United Kingdom, and the United States. Nations that manufacture but do not yet export cruise missiles currently include Brazil, India, Iran, Iraq, North Korea, South Africa, and Taiwan. None of these nonexporting manufacturing countries is a member of the Wassenaar Arrangement, and only Brazil and South Africa are in the MTCR.¹⁵ The number of cruise missile exporters is expected to grow with producers such as India and Taiwan making their missiles available for export.

Currently, at least 12 countries are believed to be developing land-attack cruise missiles; some of these new systems will be exported. France, for example, signed a deal with the United Arab Emirates (UAE) to export a type of cruise missile. By 2005, six countries of concern will have acquired land-attack capabilities, up from only three in 2000, according to the

¹⁵China and Israel are not MTCR members, although Israel has declared that it adheres to the MTCR guidelines and control list.

National Air Intelligence Center.¹⁶ Furthermore, cruise missile inventories are projected to increase through 2015 and one to two dozen countries probably will possess a land-attack cruise missile capability by this date, according to an unclassified National Intelligence Estimate. While both land-attack and anti-ship cruise missile inventories are projected to increase, land-attack cruise missile inventories are expected to experience a significantly higher percentage of growth.¹⁷

According to defense industry sources, interest has picked up dramatically from countries all over the world for acquiring and developing even the simplest UAV technology and is expected to continue, further diffusing this technology. Forty-one countries operate about 80 types of UAV, primarily for reconnaissance. Currently, some 32 nations are developing or manufacturing 250 models of UAVs. Several countries involved in key aspects of the UAV industry are not members of the MTCR. For example, 13 non-MTCR countries develop and manufacture UAVs.¹⁸ Countries that pose a threat of WMD proliferation concern, such as China, Russia, and Pakistan, are among the 32 countries developing and expected to export UAVs.

Cruise Missile and UAV Proliferation Is Facilitated by the Ease of Acquiring Systems and Technologies

Cruise missiles and UAVs can be acquired in several ways, including purchase of complete systems and conversion of existing systems into more capable weapons. Acquisition of commercially available dual-use technologies has made development of new systems and conversion of existing systems more feasible.

Purchasing complete missile systems provides the immediate capability of fielding a proven weapon. Complete cruise missiles can be acquired from a variety of sources. For example, China and Russia have sold cruise missiles to Iran, Iraq, Libya, North Korea, and Syria. In addition, France has widely exported the Exocet, now in service in more than 29 countries.

¹⁶Information on specific countries is classified.

¹⁷Information on specific countries and inventories is classified.

¹⁸This number does not include Iraq, which had a program to develop military UAVs until Operation Iraqi Freedom, according to the Iraq Survey Group. The Iraq Survey Group was tasked to find WMD after Operation Iraqi Freedom. *Statement by David Kay on the Interim Progress Report on the Activities of the Iraq Survey Group Before the House Permanent Select Committee on Intelligence, House Committee on Appropriations, Subcommittee on Defense and the Senate Select Committee on Intelligence*, October 2, 2003.

Israel, Italy, Norway, Sweden, the United Kingdom, and the United States have also exported anti-ship cruise missiles.

Various government and academic studies have raised concerns that the wide availability of commercial items, such as global positioning system receivers and lightweight engines, allows both countries and nonstate actors to enhance the accuracy of their systems, upgrade to greater range or payload capabilities, and convert certain anti-ship cruise missiles into land-attack cruise missiles.¹⁹ Thus, less capable and expensive systems could be more easily improved to attack targets not currently accessible, especially on land. Although not all cruise missiles can be modified into land-attack cruise missiles because of technical barriers, specific cruise missiles can and have been. For example, a 1999 study outlined how the Chinese Silkworm anti-ship cruise missile had been converted into a land-attack cruise missile.²⁰ Furthermore, the Iraq Survey Group reported in October 2003 that it had discovered 10 Silkworm anti-ship cruise missiles modified to become land-attack cruise missiles and that Iraq had fired 2 of these missiles at Kuwait.

Many issues concerning modification of cruise missiles also apply to UAVs, according to one industry group. Larger UAVs are more adaptable to change. Although several experts said that it is more expensive and difficult to modify an existing aircraft into a UAV than to develop one from scratch, some countries, such as Iraq, developed programs to convert manned aircraft into UAVs. Some experts also expressed concerns over adding autopilots to small aircraft to turn them into unmanned UAVs that could deliver chemical or biological weapons.

¹⁹Upgrades have to fit within the weight, space, electrical, and cooling capacities of the individual cruise missile or UAV for which they are intended. Typically, changes to the outer dimensional lines of either are limited so that the aerodynamics are not adversely affected. In a well-engineered upgrade, the new components would take up no more space or weight than those they are replacing.

²⁰*Feasibility of Third World Advanced Ballistic and Cruise Missile Threat, Volume 2: Emerging Cruise Missile Threat*, Systems Assessment Group; National Defense Industrial Association Strike, Land-Attack and Air Defense Committee (Washington, D.C.: August 1999).

Key Nonproliferation Tools Have Limitations Addressing Cruise Missile and UAV Proliferation

The U.S. government generally uses two key nonproliferation tools—multilateral export control regimes and national export controls—to address cruise missile and UAV proliferation, but both tools have limitations. The United States and other governments have traditionally used multilateral export control regimes, principally the MTCR, to address missile proliferation. However, despite successes in strengthening controls, the growing capability of countries of concern to develop and trade technologies used for WMD limits the regime’s ability to impede proliferation. The U.S. government uses its national export control authorities to address missile proliferation but finds it difficult to identify and track commercially available items not covered by control lists. Moreover, a gap in U.S. export control regulations could allow subnational actors to acquire American cruise missile or UAV technology for missile proliferation or terrorist purposes without violating U.S. export control laws or regulations. The United States has other nonproliferation tools to address cruise missile and UAV proliferation—diplomacy, sanctions, and interdiction of illicit shipments of items—but these tools have had unclear results or have been little used.

Multilateral Export Control Regimes Increased Focus on Cruise Missiles and UAVs, but Are Limited in Their Effectiveness

The United States and other governments have used the MTCR, and, to some extent, the Wassenaar Arrangement, as the key tools to address the proliferation of cruise missiles and UAVs. While the United States has had some success in urging these regimes to focus on cruise missiles and UAVs, new suppliers who do not share regime goals limit the regimes’ ability to impede proliferation. In addition, there has been less consensus among members to restrict cruise missiles and UAVs than to restrict ballistic missiles.

The MTCR is principally concerned with controlling the proliferation of missiles with a range of 300 kilometers and a payload of 500 kilograms or with any payload capable of delivering chemical or biological warheads. MTCR members seek to restrict exports of sensitive technologies by periodically reviewing and revising a commonly accepted list of controlled items, such as lightweight turbojet and turbofan engines, or materials and devices for stealth technology usable in missiles. The Wassenaar Arrangement seeks to limit transfers of conventional arms and dual-use goods and technologies that could contribute to regional conflict. Military UAVs below MTCR capability levels of 300 kilometers range and 500 kilograms payload are included on the Wassenaar Munitions List. DOD officials noted that MTCR attempts to impede the proliferation of UAVs capable of delivering WMD, while Wassenaar covers conventional weapons and items with a military function.

In recent years, the increased awareness of the threat of chemical and biological weapons and terrorists has increased members' interest in cruise missile and UAV controls, according to State. MTCR control lists were revised between 1997 and 2002 to adopt six of eight U.S. proposals to include additional items related to cruise and UAV technologies. Members agreed in 2002 to adopt (1) expanded controls on small, fuel-efficient gas turbine engines, (2) a new control on integrated navigation systems, and (3) a new control on UAVs designed or modified for aerosol dispensing.²¹ At the September 2003 MTCR Annual Plenary, members agreed to add to the control list complete UAVs designed or modified to deliver aerosol payloads greater than 20 liters. In the Wassenaar Arrangement, the United States and other members during 2003 made several proposals for new controls related to UAVs and short-range cruise missiles and their payloads. Once changes are officially accepted, MTCR and Wassenaar members are expected to incorporate the changed control lists into their own national export control laws and regulations. While including an item on a control list does not preclude its export, members are expected to more carefully scrutinize listed items pending decisions on their export. They are also expected to notify other members when denying certain export licenses for listed items.

Despite the efforts of these regimes, nonmembers such as China and Israel continue to acquire, develop, and export cruise missile or UAV technology. The growing capability of nonmember supplier countries to develop technologies used for WMD and trade them with other countries of proliferation concern undermines the regimes' ability to impede proliferation. For example, China has sold anti-ship cruise missiles to Iran and Iraq (see fig. 3). Israel also reportedly sold the Harpy UAV to India, according to a Director of Central Intelligence report in 2003.²²

²¹In addition, since 1998, the United States has presented two white papers and five briefings to MTCR members to share information on cruise missile or UAV-related issues.

²²*Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January through 30 June 2002*, Central Intelligence Agency (Washington, D.C.: April 2003).

Figure 3: Chinese SILKWORM Cruise Missile in Iraq



Source: Department of Defense.

In addition to the limitations posed by non-member suppliers, some nonproliferation experts and foreign government officials noted that MTCR's effectiveness has been limited because there has been less consensus among MTCR and Wassenaar members to restrict cruise missiles and UAVs than to restrict ballistic missiles. MTCR members have not always agreed with each others' interpretation of the MTCR guidelines and control lists concerning cruise missiles. Specifically, members have had different views on how to measure the range and payload of cruise missiles and UAVs, making it difficult to determine when a system has the technical characteristics that require more stringent export controls to apply under MTCR guidelines. For example, cruise missiles can take advantage of more fuel-efficient flight at higher altitudes to gain substantially longer ranges than manufacturers and exporting countries advertise. Even with the new definition of range that the MTCR adopted in 2002, different interpretations remain among members over whether particular cruise missiles could be modified to achieve greater range. In one case, the United States and France disagreed about France's proposed sale of its Black Shaheen cruise missile to the United Arab Emirates, according to French and U.S. government officials and nonproliferation experts (see fig. 4). In a second case, members have raised questions about Russia's assistance to India, a nonmember, to develop the Brahmos cruise missile project and called for further discussion of the system's technical capabilities.

Figure 4: Black Shaheen Cruise Missile



Source: National Air and Space Intelligence Center, Department of Defense.

The United States and France disagreed about France's proposed sale of the Black Shaheen cruise missile to the United Arab Emirates.

In October 2002, we reported on other limitations that impede the ability of the multilateral export control regimes, including MTCR and the Wassenaar Arrangement, to achieve their nonproliferation goals. For example, we found that MTCR members may not share complete and timely information, such as members' denied export licenses, in part because the regime lacks an electronic data system to send and retrieve such information. The Wassenaar Arrangement members share export license approval information but collect and aggregate it to a degree that it cannot be used constructively. Both MTCR and the Wassenaar Arrangement use a consensus process that makes decision-making difficult and lack a means to enforce compliance with members' political commitments to regime principles. We recommended that the Secretary of State establish a strategy to work with other regime members to enhance the effectiveness of the regimes by implementing a number of steps, including (1) adopting an automated information-sharing system in MTCR to facilitate more timely information exchanges, (2) sharing greater and more detailed information on approved exports of sensitive transfers to nonmember countries, (3) assessing alternative processes for reaching

decisions, and (4) evaluating means for encouraging greater adherence to regime commitments.²³

U.S. Government Authorities Have Had Difficulty Restricting Dual-use Missile Technology Exports

U.S. ICE and Commerce authorities have had difficulty identifying and tracking dual-use exports in transit that could be useful for cruise missiles and UAV development because such exports have legitimate civilian uses. As a result, U.S. enforcement tools have been limited in conducting investigations of suspected exports of illicit cruise missile and UAV dual-use items. Moreover, a gap in U.S. export control regulations could allow missile proliferators to acquire unlisted American cruise missile or UAV dual-use technology without violating the regulations.²⁴

Investigations Challenged by Nature of Cruise Missile and UAV Dual-use Technology and Regulatory Limitations

ICE officials said that it is difficult to conduct Customs enforcement investigations of possible export violations concerning certain cruise missile or UAV dual-use technologies. First, parts or components that are not on control lists are often similar to controlled parts or components, enabling exporters to circumvent the controls entirely, according to ICE officials. Because ICE inspectors are not engineers and shipping documents do not indicate the end product for the component being shipped, determining what the components can do is problematic. Second, countries seek smaller UAVs than those controlled. ICE officials said that buyers who cannot get advanced UAVs instead try to obtain model airplanes and model airplane parts, which might substitute for UAVs and their components. Third, ICE officials noted that circumventing the export control law is easy because the U.S. government has to prove both the exporter's knowledge of the law and the intent to violate it.²⁵ As of October 2003, Customs had completed two investigations related to UAVs, and had nine others open, as well as one open case related to cruise missiles. The two cases related to UAVs, both involving suspected diversions of items to Pakistan, resulted in one finding of no violation and one guilty plea. As a

²³U.S. General Accounting Office, *Nonproliferation: Strategy Needed to Strengthen Multilateral Export Control Regimes*, GAO-03-43 (Washington, D.C.: Oct. 25, 2002).

²⁴Although several criminal laws might apply to these acquisitions, the laws do not specifically apply to the export control process. Thus, bringing prosecutions under these criminal laws might be difficult.

²⁵Knowledge and intent are elements of criminal violations of the Export Administration Regulations, but are not necessary elements of most administrative violations of the regulations, according to Commerce.

result, two defendants received prison terms of 24 and 30 months, respectively, with 2 years of supervised release.

Commerce officials also indicated that there are challenges to enforcing export controls on dual-use goods related to cruise missile or UAV development. They stated that some investigations were not pursued because the technical parameters of the items exported were below the export control thresholds for missile technology. Nonetheless, Commerce officials noted that exported items below these parameters could be changed after export by adding components to improve the technology. For example, software exported without a license could receive an upgrade card that would make it an MTCR-controlled item. As of October 2003, Commerce had completed 116 investigations related to missile proliferation, but not specifically to cruise missiles or UAVs.²⁶ Furthermore, the Secretary of Commerce in 2003²⁷ identified other challenges for the enforcement of controls on dual-use goods related to missile development. First, it is difficult to detect and investigate cases under the “knowledge” standard²⁸ set by the “catch-all” provision.²⁹ Second, some countries do not yet have catch-all laws or have different standards for catch-all, which complicates law enforcement cooperation. Third, identifying illegal exports and re-exports of missile-related goods requires significant resources. Nonetheless, the Secretary stated that United States has the ability to effectively enforce end-use and end-user controls on missile technology and that multilateral controls provide a strong framework for cooperative enforcement efforts overseas.

²⁶It is Department of Commerce policy to provide no public information on open investigations.

²⁷2003 Foreign Policy Report, Department of Commerce.

²⁸According to the Export Administration Regulations, 15 C.F.R. § 772.1, knowledge of a circumstance includes either positive knowledge that the circumstance exists or is substantially certain to occur, or an awareness that its existence or future occurrence is highly probable. The conscious disregard of facts or willful avoidance of facts is evidence that the person was aware of the circumstance.

²⁹Catch-all controls are controls that authorize a government to require an export license for items that are not on control lists but that are known or suspected of being intended for use in a missile or WMD program.

Gap in U.S. Export Controls
Could Allow Proliferators to
Gain U.S. Dual-use Technology
for Cruise Missile or UAV
Purposes

A gap in U.S. export control regulations could allow missile proliferators or terrorists to acquire U.S. cruise missile or UAV dual-use technology without violating U.S. export control laws or regulations. The Export Administration Regulations (EAR) establish license requirements for items not listed in the regulations on the Commerce Control List, as well as for items that are listed.³⁰ License requirements for items not listed are based on the exporter's knowledge of the end user or end uses to which the item would be applied. For missile controls, an exporter may not export or re-export an item if the exporter knows that the item (1) is destined to or for a missile project listed in the regulations³¹ or (2) will be used in the design, development, production or use of missiles in or by a country listed in the regulations, whether or not that use involves a listed project.³² However, this condition on exports does not apply to activities that are unrelated to the 12 projects or 20 countries listed in the regulation. This section of the regulations was intended to apply to national missile proliferation programs, according to Commerce officials, and not to nonstate actors such as certain terrorist organizations or individuals.³³ Finally, this section of the regulations does not apply to exports of dual-use items for missiles with less than 300 kilometers range and 500 kilograms payload because the regulatory definition of a missile excludes missiles below MTCR range and payload thresholds. However, such missiles with lesser range or payload could be sufficient for terrorist purposes.

The case of a New Zealand citizen obtaining unlisted dual-use items to develop a cruise missile illustrates this gap in U.S. export controls. In June 2003 this individual reported that he purchased American components necessary to construct a cruise missile to illustrate how a terrorist could do so. Because the New Zealand citizen is not on a list of prohibited missile projects, terrorist countries, or terrorists, there is no specific export control requirement that an American exporter apply to the U.S. government for a review of the items before export, according to

³⁰“Items subject to the EAR” consist of the items listed on the Commerce Control List in part 774 of the EAR and all other items subject to the EAR. For ease of reference and classification purposes, items subject to the EAR that are not listed on the Commerce Control List are designated as “EAR99.”

³¹15 C.F.R. § 744.3(a).

³²Such projects include the Indian Agni and Prithvi missile projects and the Iranian Surface-to-Surface Missile Project.

³³Although the EAR restricts exports to terrorist organizations and individuals that are listed in the regulations, the regulations do not apply to those that are not listed.

Commerce officials. According to Commerce licensing and enforcement officials, they have no legal recourse in this or similar cases, as there is no violation of U.S. export control law or regulations. The Commerce officials said that they would need to wait until the New Zealander used the weapon improperly before action under export control law or regulations could be taken. It would be the New Zealand government's responsibility to address any illicit action resulting from such transfers of U.S. items, according to other Commerce officials. One department official stated that not all export control loopholes can be closed and that U.S. export controls cannot fix defects in other countries' laws. Another Commerce official explained that current catch-all controls assume that terrorists would not attempt to acquire illicit arms in friendly countries, such as NATO allies.

Commerce officials explained that proliferators seeking a rudimentary, rather than state-of-the-art cruise missile, would be able to construct such a weapon of components not listed on the Commerce Control List. For these items, Commerce must directly link the items to a WMD program to apply the catch-all controls; otherwise, no action can be taken, according to the officials. They remarked that catch-all controls were added to give licensing officers more flexibility in reviewing items. However, exporters adept in covering up direct links to a WMD program could continue to divert dual-use missile-related items, according to the Commerce officials.

Other Nonproliferation Tools Had Unclear Results or Were Little Used

The United States has other nonproliferation tools to address cruise missile and UAV proliferation: diplomacy, sanctions, and interdiction of illicit shipments of items. The United States used diplomacy to address suspected cases of proliferation of cruise missiles and UAVs in at least 14 cases.³⁴ U.S. efforts to forestall transfers of items succeeded in about one-third of these cases. The United States issued diplomatic action in at least 14 cases to inform foreign governments of proposed or actual transfers of cruise missile or UAV items. The U.S. government successfully halted transfers in five cases, did not successfully halt a transfer in two cases, did not know the results of its actions or action was still in process in six cases, and claimed partial success in one other case. Of nine cases involving MTCR items, six of the nine countries demarched were MTCR members and three were not.

³⁴Details of these cases are not publicly available.

Under several U.S. laws that authorize the use of sanctions when the U.S. government determines that missile proliferation has occurred, the U.S. government used sanctions twice between 1996 and 2002 for violations related to exports of cruise missiles. In these two cases, the United States sanctioned a total of 18 entities in 5 countries. However, a State official did not know whether the entities ceased their proliferation activities as a result.

Although the Acting Deputy Assistant Secretary of State for Nonproliferation identified interdiction as one tool used to address proliferation of cruise missile and UAV technology, U.S. and foreign government officials knew of few cases of governments' interdicting such shipments. To date, the United States reported using interdiction once to stop illicit shipments of cruise missile or UAV technology. ICE officials referred to only one case of an interdiction of a propeller for a Predator UAV destined for Afghanistan. Commerce officials knew of no cases where Commerce had been involved in interdiction of cruise missile or UAV dual-use technology. Foreign governments reported no known cases of interdiction of suspect cruise missile or UAV technology exports.

The U.S. government announced discussions in June 2003 with 11 foreign governments to increase the use of interdiction against all forms of WMD and missile proliferation. A meeting in Paris of these governments participating in the Proliferation Security Initiative announced a statement of interdiction principles on September 4, 2003.³⁵ These principles include a commitment to

- undertake effective measures for interdicting the transfer or transport of WMD, delivery systems, and related materials to and from states and nonstate actors of proliferation concern;
- adopt streamlined procedures for rapid exchange of relevant information concerning suspected proliferation activity; and
- review and work to strengthen relevant national legal authorities and international law and frameworks to accomplish these objectives.

³⁵The participating countries are Australia, Britain, France, Germany, Italy, Japan, The Netherlands, Poland, Portugal, Spain, and the United States.

Compliance with Conditions on Exports of Cruise Missiles, UAVs, and Related Dual-use Items Seldom Verified through End-use Monitoring

Post-shipment verification (PSV) is a key end-use monitoring tool used by U.S. agencies to confirm that authorized recipients of U.S. technology both received transferred items and used them in accordance with conditions of the transfer. However, State and Commerce seldom conduct PSVs of transferred cruise missiles, UAVs, and related items; State's program does not monitor compliance with conditions when checks are made. Furthermore, Defense officials were not aware of any end-use monitoring for more than 500 cruise missiles transferred through government-to-government channels, although officials are considering conducting such checks in the future. Similarly, other supplier countries place conditions on transfers, but few reported conducting end-use monitoring once items were exported.

State Did Not Assess Compliance and Infrequently Monitored Cruise Missile and UAV Exports

The Arms Control Export Act, as amended in 1996,³⁶ requires, to the extent practicable, that end-use monitoring programs provide reasonable assurance that recipients comply with the requirements imposed by the U.S. government in the use, transfer, and security of defense articles and services. In addition, monitoring programs are to provide assurances that defense articles and services are used for the purposes for which they are provided. Accordingly, under State's monitoring effort, known as the Blue Lantern program, State conducts end-use monitoring of direct commercial sales of defense articles and services, including cruise missiles, UAVs, and related technology. According to Blue Lantern program guidance, a PSV is the only means available to verify compliance with license conditions once an item is exported. Specifically, a PSV is used (1) to confirm whether licensed defense goods or services exported from the United States actually have been received by the party named on the license and (2) to determine whether those goods have been or are being used in accordance with the provisions of that license.

Despite these requirements, we found that State did not use PSVs to assess compliance with cruise missile or UAV licenses having conditions limiting how the item may be used. These licenses included items deemed significant by State regulations.³⁷ Based on State licensing data, we

³⁶22 U.S.C. § 2785.

³⁷The International Trafficking in Arms Regulations defines significant military equipment as articles for which special export controls are warranted because of their capacity for substantial military utility or capability. 22 C.F.R. § 120.7.

identified 786 licenses for cruise missiles, UAVs, or related items³⁸ from fiscal years 1998 through 2002. Of these, 480 (61 percent) were licenses with conditions, while 306 (39 percent) were licenses without conditions. These 786 licenses included one for a complete state-of-the-art Predator B UAV (see fig. 5), and 27 for supporting Predator technical data, defense services, and parts. The licenses also included 7 for supporting technical data, defense services, and parts for the highly advanced Global Hawk UAV.

Figure 5: Predator B UAV



Source: Department of Defense.

The State Department approved one license for a complete Predator and 27 licenses for exports of Predator technology from fiscal year 1998 through 2002.

We found that State did not conduct PSVs for any of the 480 licenses with conditions and conducted PSVs on only 4 of 306 licenses approved without conditions. Each license reviewed through the post-shipment checks involved transferred UAV-related components and equipment. Three of the licenses receiving checks resulted in unfavorable determinations because a company made inappropriate end-use declarations or the end user could not confirm that it had received or ordered the items. State added that it has many other sources of information besides PSV checks on the misuse and diversion of exported articles. These sources include intelligence

³⁸Related items may include spare parts, software, or technical data.

reporting, law enforcement actions, embassy reporting, and disclosures of U.S. companies.

A State licensing official stated that few post-shipment Blue Lantern checks have been conducted for cruise missiles, UAVs, and related items because many are destined for well-known end users in friendly countries. However, over fiscal years 1998 through 2002, 129 of the 786 licenses authorized the transfer of cruise missile and UAV-related items to countries such as Egypt, Israel, and India. These countries are not MTCR members, which indicates that they might pose a higher risk of diversion. In addition, over the last 4 years, State's annual end-use monitoring reports to Congress³⁹ recognized an increase in the incidence of West European-based intermediaries involved in suspicious transactions. State noted in its 2001 and 2002 reports that 23 and 26 percent, respectively, of unfavorable Blue Lantern checks for all munitions items involved possible transshipments through allied countries in Europe.

In contrast to State's guidance, State officials said that the Blue Lantern program was never intended to verify license condition provisions on the transfer of munitions such as cruise missile and UAV-related items. Instead, State officials explained that the program seeks to make certain only that licensed items are being used at the proper destination and by the proper end user. A State official further said that the compliance office is not staffed to assess compliance with license conditions and has not been managed to accomplish such a task.

In commenting on a draft of this report, State emphasized the importance of Blue Lantern pre-license checks in verifying controls over the end user and end use of exported items and said that we did not include such checks in our analysis. We reviewed the 786 cruise missile and UAV licenses to determine how many had received Blue Lantern pre-license checks, a possible mitigating factor reducing the need to conduct a PSV. We found that only 6 of the 786 licenses from fiscal years 1998 through 2002 that State provided us had been selected for pre-license checks. Of these, four received favorable results, one received an unfavorable result, and one had no action taken.

³⁹*End-Use Monitoring Report for FY 2001: Commercial Exports*, Department of State (Washington, D.C.: 2002) and *End-Use Monitoring Report for FY 2002: Commercial Exports*, Department of State (Washington, D.C.: 2003).

**Department of Defense
Conducted Little
Monitoring of Transferred
Cruise Missiles**

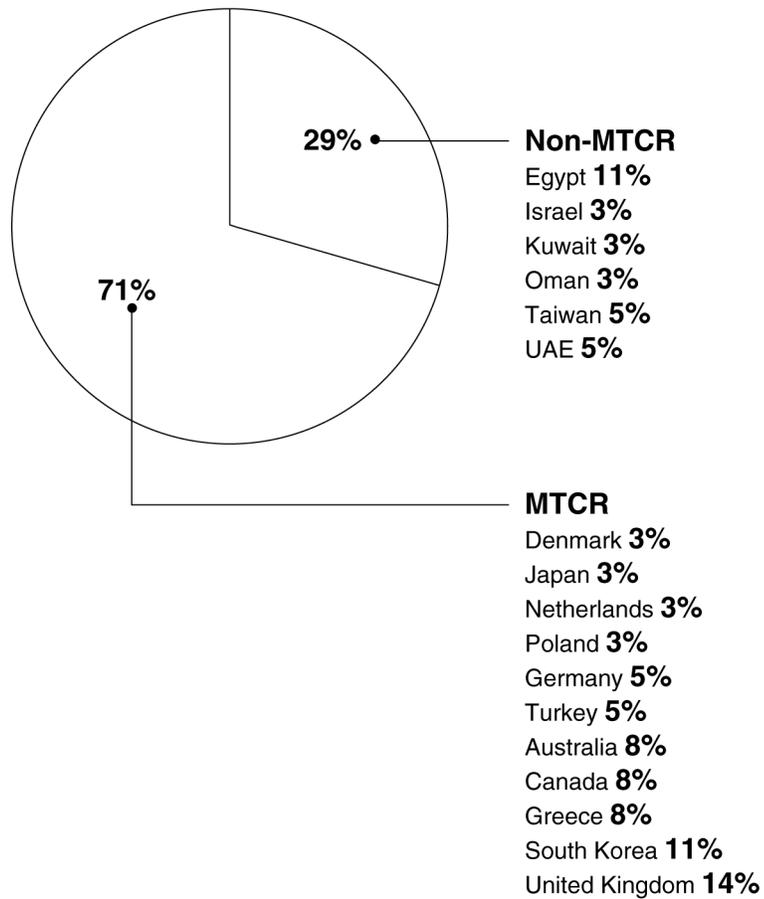
Under the Arms Control Export Act, as amended in 1996,⁴⁰ the Department of Defense also is required to monitor defense exports to verify that foreign entities use and control U.S. items in accordance with conditions. The amended law requires an end-use monitoring program for defense articles and services transferred through the Foreign Military Sales program. Monitoring programs, to the extent practicable, are required to provide reasonable assurances that defense articles and services are being used for the purposes for which they are provided.

The Defense Security Cooperation Agency (DSCA) is the principal organization through which Defense carries out its security assistance responsibilities, including administering the Foreign Military Sales program. Under this program, the United States transfers complete weapons systems, defense services, and related technology to eligible foreign governments and international organizations from Defense stocks or through Defense-managed contracts. Bilateral agreements contain the terms and conditions of the sale and serve as the equivalent of an export license issued by State or Commerce.

From fiscal years 1998 through 2002, DSCA approved 37 agreements for the transfer of more than 500 cruise missiles and related items, as well as one transfer of UAV training software. The agreements authorized the transfer of Tomahawk land-attack cruise missiles, Standoff land-attack missiles, and Harpoon anti-ship cruise missiles, as well as supporting equipment such as launch tubes, training missiles, and spare parts. Approximately 30 percent of cruise missile transfers were destined for non-MTCR countries. Figure 6 shows the destinations of transferred cruise missiles.

⁴⁰22 U.S.C. § 2785.

Figure 6: Destinations of Transferred Cruise Missiles, Fiscal Years 1998-2002



Source: GAO analysis of DSCA data.

Note: Numbers may not total due to rounding.

Defense’s end-use monitoring program, called Golden Sentry, has conducted no end-use checks related to cruise missile or UAV transfers, according to the program director. DSCA guidance states that government-to-government transfers of defense items, including cruise missiles, are to receive routine end-use monitoring. Under routine monitoring, Security Assistance Officers and/or military department representatives account for the end use of defense articles through personal observation in the course of other assigned duties. However, the program director stated that he was unaware of any end-use monitoring checks, routine or otherwise, for transferred U.S. cruise missiles over the period of our review. In addition,

a past GAO report⁴¹ found problems with monitoring of defense items and recommended that DSCA issue specific guidance to field personnel on activities that need to be performed for the routine observation of defense items. Nonetheless, Defense's Golden Sentry monitoring program is not yet fully implemented, despite the 1996 legal requirement to create such an end-use monitoring program. DSCA issued program guidance in December 2002 that identified the specific responsibilities for new end-use monitoring activities. In addition, as of November 2003, DSCA was conducting visits to Foreign Military Sales recipient countries to determine the level of monitoring needed and was identifying weapons and technologies that may require more stringent end-use monitoring. The program director stated that he is considering adding cruise missiles and UAVs to a list of weapon systems that receive more comprehensive monitoring.

Commerce Conducted Little Monitoring of Cruise Missile and UAV-related Dual-use Exports

The Export Administration Act, as amended, provides the Department of Commerce with the authority to enforce dual-use controls. Under the act, Commerce is authorized to conduct PSV visits outside the United States of dual-use exports.⁴² The Export Administration Regulations indicate that a transaction authorized under an export license may be further limited by conditions that appear on the license, including a condition that stipulates the need to conduct a PSV.⁴³ Commerce can conduct a PSV by applying a condition to a license that requires U.S. mission staff residing in the recipient country to conduct a PSV, or it can send a safeguards verification team from Commerce headquarters to the country to conduct a PSV. Based on Commerce licensing data, we found that Commerce issued 2,490 dual-use licenses between fiscal years 1998 and 2002 for items that could

⁴¹See General Accounting Office, *Foreign Military Sales: Changes Needed to Correct Weaknesses in End-Use Monitoring Program*, [GAO-00-208](#) (Washington, D.C.: August 2000).

⁴²50 U.S.C. app § 2411(a)(1).

⁴³See 15 C.F.R. § 744.1, § 732.4(b)(3).

be useful in developing cruise missiles or UAVs.⁴⁴ Of these, Commerce selected 2 percent of the licenses, or 52 cases, for a PSV visit and completed visits to 1 percent of the licenses. Specifically, Commerce designated PSVs as a license condition for 28 licenses, and completed 5. Commerce designated PSVs as part of a safeguards team for 24 cases, and completed all of them. Of these 24 checks, 23 resulted in favorable determinations, while 1 was unfavorable.

Commerce guidance for selecting PSVs and pre-license checks establish criteria based on technologies and countries that require a higher priority for conducting PSVs and pre-license checks. The guidance identifies 19 specific missile technology categories from the Commerce Control List involving particularly sensitive commodities as choke points for the development of missiles and indicating a priority for PSV or pre-license selection. For example, items such as software and source code to improve inertial navigation systems, as well as lightweight turbojet and turbofan engines, are included as choke point missile technologies. In addition, the guidance identifies 20 countries of missile diversion concern that may also warrant a pre-license check or PSV. The guidance further identifies 12 specific countries or destinations that have been used repeatedly, and are likely to be used again, as conduits for diversions of sensitive dual-use commodities or technology.⁴⁵ The guidance states that other factors might mitigate the need to select a license for a PSV.

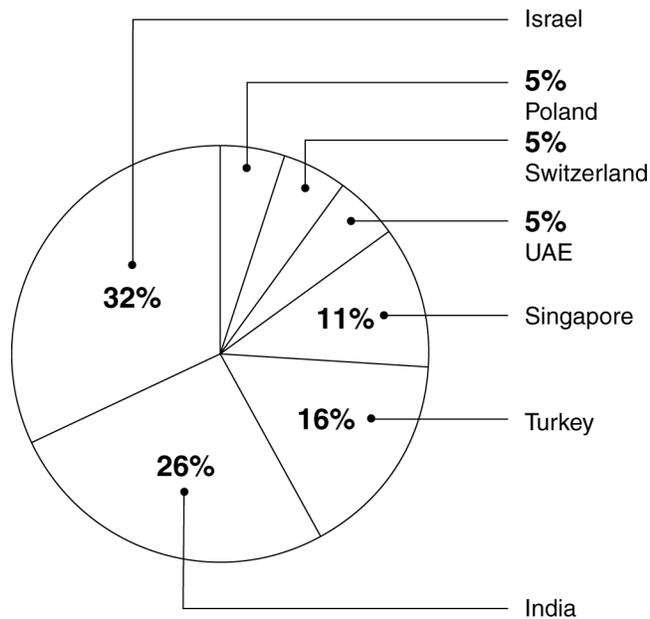
We applied Commerce's guidelines to the 2,490 cruise missile or UAV-related licenses and identified 20 that met the criteria to receive a PSV or a pre-license check. However, Commerce selected only 2 of these 20 licenses. All 20 licenses were for choke point missile technology useful for cruise missile or UAV development. Some of these licenses were for countries of missile diversion concern, such as India, while others were for transshipment countries, such as Singapore. Figure 7 shows the

⁴⁴The Commerce Control List does not designate whether an item is useful for ballistic missiles or cruise missiles, according to Commerce officials, but identifies only that an item is useful for missile technology. Commerce identified 102 of 130 dual-use missile-related categories in the Export Administration Regulations that contain items that could be used either for cruise missile or ballistic missile purposes, and 9 categories that could be used "primarily" for cruise missile purposes. Three categories of items relate to UAVs or their components. The 2,490 cruise missile or UAV-related licenses that we reviewed were in these categories of items.

⁴⁵Two countries are listed on both the list of missile technology diversion concern and the list of conduit countries.

destinations for items in the 20 licenses and the percentage of licenses for each destination.

Figure 7: Destinations of Dual-use Approved Licenses for Chokepoint Technologies, Fiscal Years 1998–2002, by Country



Source: GAO analysis of Commerce licensing data.

We found that Commerce selected 2 of the 20 licenses for a PSV. One PSV resulted in a favorable determination, while the other had not been completed at the time of our review. Even though the 20 licenses met guidance criteria, few of these licenses had been selected for PSVs. A Commerce official explained that licenses might not be selected for a PSV because many factors might mitigate the need for a PSV for a particular license even though it meets the selection criteria. However, Commerce officials could not explain which factors lessened the need for a PSV for the remaining 18 licenses.

Few International Suppliers Verify End-use Controls

Other supplier countries have established export control laws and regulations, which also place conditions on transfers and can authorize agencies to conduct end-use monitoring of sensitive items. For example, government officials from the United Kingdom, France, and Italy stated that their respective governments might add conditions for cruise missile and UAV-related items, as well as for other exports. While national export

laws authorize end-use monitoring, none of the foreign government officials reported any PSV visits for cruise missile or UAV-related items.

The national export control systems of other cruise missile and UAV supplier countries that responded to our request for information apply controls differently from the United States for missile-related transfers. Government officials in France, Italy, and the United Kingdom stated that their respective governments generally do not verify conditions on cruise missile and UAV transfers and conduct few post-shipment verification visits of such exports. The South African government was the only additional supplier country responding to a written request for information⁴⁶ that reported it regularly requires and conducts PSVs on cruise missile and UAV transfers.

- Officials in the United Kingdom stated that the U.K. government seeks to ensure compliance with license conditions, but it has no institutional system for conducting PSVs for British exports. Although defense attaches keep their eyes open for cases of misuse of an item, the officials did not know whether any PSV visits had been done for transfers of British cruise missiles or UAVs. A U.K. government official said that occasionally embassy officials may conduct PSVs on other British equipment. For example, a PSV may be undertaken to confirm that British tanks are not being used by Israel to conduct operations in Gaza. However, the official added that such actions are neither required nor routine.
- Italian government officials stated that all armament transfers include conditions that the end user cannot retransfer to other countries or users without prior permission from the government. Additionally, some export licenses require an import delivery certificate as a condition to certify that an item has been imported. For those licenses, the government of Italy allows firms fixed periods of time to provide required documents. If the recipient does not send a required delivery certificate, then a PSV would be conducted to verify whether the end user received the items.
- According to French officials, France does not conduct explicit PSV visits. Instead, its officials observe end-use conditions during technical or military-to-military contacts. Specifically, French officials stated that when missiles or any other highly technological goods are sold contact between

⁴⁶Governments responding to our request were Israel, Japan, South Africa, and Switzerland. Russia's and Canada's responses were provided too late to be included in this report. Other countries that we queried provided no information on end-use monitoring.

the government and the recipient provides opportunities to ensure the disposition of the exported item.

- According to South African government officials, requirements for PSV visits may be applied to licenses for cruise missile and UAV-related technology. Furthermore, South Africa conducts regular end-use verifications to selected end users of non-MTCR countries and may initiate other ad hoc visits as required by the South African control authorities. In addition, government-to-government agreements require end-use certificates containing delivery verification information and include authorizations for end-use verification visits, as well as non-retransfer, non-modification, and non-reproduction clauses. South African government officials also stated that each clause must be fully verified and authenticated.

Conclusions

The continued proliferation of cruise missiles and UAVs poses a growing threat to the United States, its forces overseas, and its allies. Most countries already possess cruise missiles, UAVs, or related technology, and many are expected to develop or obtain more sophisticated systems in the future. The dual-use nature of many of the components of cruise missiles and UAVs also raises the prospect that terrorists could develop rudimentary systems that could pose additional security threats to the United States. Since this technology is already widely available throughout the world, the United States works in concert with other countries through multilateral export control regimes to better control the sale of cruise missiles, UAVs, and related technologies. Even though the effectiveness of these regimes is limited in what they can accomplish, the United States could achieve additional success in this area by adopting our previous recommendations to improve the regimes' effectiveness.

U.S. export controls may not be sufficient to prevent cruise missile and UAV proliferation and ensure compliance with license conditions. Because some key dual-use components can be acquired without an export license, it is difficult for the export control system to limit or even track their use. Moreover, current U.S. export controls may not prevent proliferation by nonstate actors, such as certain terrorists, who operate in countries that are not currently restricted under missile proliferation regulations. Furthermore, the U.S. government seldom uses its end-use monitoring programs to verify compliance with the conditions placed on items that could be used to develop cruise missiles or UAVs. Thus, the U.S. government does not have sufficient information to know whether recipients of these exports are effectively safeguarding equipment and

technology in ways that protect U.S. national security and nonproliferation interests. The challenges to U.S. nonproliferation efforts in this area, coupled with the absence of end-use monitoring programs by several foreign governments for their exports of cruise missiles or UAVs, raise questions about how nonproliferation tools are keeping pace with the changing threat.

Recommendations for Executive Action

A gap in dual-use export control regulations could enable individuals in most countries of the world to legally obtain without any U.S. government review U.S. dual-use items not on the Commerce Control List to help make a cruise missile or UAV. Consequently, we recommend that the Secretary of Commerce assess and report to the Committee on Government Reform on the adequacy of the Export Administration Regulations' catch-all provision to address missile proliferation by nonstate actors. This assessment should indicate ways the provision might be modified.

Because the departments have conducted so few PSV visits to monitor compliance with U.S. government export conditions on transfers of cruise missiles, UAVs and related dual-use technology, the extent of the compliance problem is unknown. While we recognize that there is no established or required number of PSV visits that should be completed, the small number completed does not allow the United States to determine the nature and extent of compliance with these conditions. Thus, we recommend that the Secretaries of State, Commerce, and Defense, as a first step, each complete a comprehensive assessment of cruise missile, UAV, and related dual-use technology transfers to determine whether U.S. exporters and foreign end users are complying with the conditions on the transfers. As part of the assessment, the departments should also conduct additional PSV visits on a sample of cruise missile and UAV licenses. This assessment would allow the departments to gain critical information that would allow them to better balance potential proliferation risks of various technologies with available resources for conducting future PSV visits.

Agency Comments and Our Evaluation

We provided a draft of this report to the Secretaries of Commerce, Defense, and State for their review and comment. We received written comments from Commerce, Defense, and State that are reprinted in appendixes II, III, and IV. DOD and State also provided us with technical comments, which we incorporated as appropriate.

Commerce did not agree that the limited scope of the current catch-all provision should be called a gap in U.S. regulations but agreed to review

whether the existing catch-all provision sufficiently protects U.S. national security interests. Commerce said that it believes that the export control system effectively controls items of greatest significance for cruise missiles and UAVs and are on the Commerce Control List. It stated that our report is ambiguous as to whether the gap relates to items listed on the control list or to items that are not listed, as they are not considered as sensitive for missile proliferation reasons. Commerce also stated that we should explain the basis for suggesting that noncontrolled items are sensitive and should be placed on the MTCR control list, if that is our position. Our references to the gap in the regulations refer to dual-use items that are not listed on the Commerce Control List and we have made changes to the draft to clarify this point. Furthermore, we are not suggesting that unlisted items should be added to the MTCR control list to deal with the issue we identified in the New Zealand example. As we recommend, the vehicle to address this gap would be an expansion of Commerce's catch-all provision whereby license reviews would be required when the exporter knows or has reason to know that the items might be used by nonstate actors for missile proliferation purposes. In commenting on our draft report's recommendation to require an export license review for any item that an exporter knows or has reason to know would be used to develop or design a cruise missile or UAV of any range, Commerce agreed to review whether the existing provision sufficiently protects U.S. national security interests. We have modified our recommendation to reflect the need for an assessment of the catch-all provision's scope and possible ways to modify the provision to address the gap.

State disagreed with our findings and conclusions concerning its end-use monitoring program. State said that our report was inaccurate in suggesting that State does not monitor exports to verify compliance with export authorizations and noted that we did not discuss the importance of pre-license checks to verify end use and end user restrictions. It said that our report was misleading and inaccurate to suggest that State does not monitor exports to verify compliance with export authorizations. State said that the most important restrictions placed on export authorizations involve controls over the end user and the end use of the article being exported. State also said that it uses many tools in the export licensing process to verify these restrictions and that the Blue Lantern program's pre- and post-license checks are only one of these tools. State said that pre-license checks verify the bond fides of end users, as well as the receipt and appropriate end use of defense articles and services, including UAV- and missile-related technologies. It also questioned why our analysis did

not include pre-license checks as part of State's efforts to ensure compliance with arms export regulations.

We agree that pre-license checks are critical to ensure that licenses are issued to legitimate, reliable entities and for specified programs or end uses in accordance with national security and foreign policy goals. We also agree that they augment controls and checks used during the licensing process to determine the legitimacy of the parties involved and the appropriate end use of the export prior to license approval. However, such checks cannot confirm the appropriate end user or end use of an item after it has been shipped and received by the recipient. Regarding other tools in the export licensing process to verify conditions, we asked State for additional information that would indicate what other actions, besides PSV checks, State took. State officials said that some license conditions required follow-up action—such as forms or reports—either by State officials, exporters, or end users. We asked for examples of such follow-up action related to licenses for cruise missiles, UAVs, or related technology. A State official said that, after querying the relevant licensing teams, State officials did not identify any licenses requiring follow-up action and that there is no system, formal or otherwise, that would document follow-up actions that had been taken. In response to State's comments, we added information on Blue Lantern pre-license checks to the report, information that further demonstrates the limited monitoring that State conducts on cruise missile and UAV-related transfers. We reviewed the 786 cruise missile and UAV licenses to determine how many had received Blue Lantern pre-license checks, a possible mitigating factor reducing the need to conduct a PSV. These included 129 licenses to non-MTCR countries, such as Egypt, Israel, and India, which present a higher risk of misuse or diversion. We found that only 6 of the 786 licenses that State provided us had been selected for pre-license checks. Of these, 4 received favorable results, 1 received an unfavorable result, and 1 had no action taken.

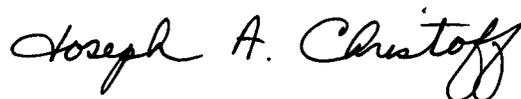
Commerce and DOD partially agreed with our second recommendation to complete a comprehensive assessment of cruise missile, UAV and related dual-use technology transfers. However, both departments raised concerns over the resources needed to conduct such a comprehensive assessment and sought further definition of the scope of the transfers to be assessed as the basis for interagency action and additional resources for monitoring. DOD suggested that a random sample of cases could achieve results equivalent to that of a comprehensive assessment. It agreed to conduct a greater number of PSVs in order to (1) provide the U.S. government with a high level of confidence over time that exporters and end users are complying with export license conditions and (2) allow

the U.S. government to determine whether adequate resources are devoted to license compliance issues. We clarified our recommendation so that a comprehensive assessment could include a sampling methodology so long as it provided each agency with a high level of confidence that the sample selected accurately demonstrated the nature and extent of compliance with conditions. State disagreed with our recommendation and said that the absence of evidence in our report of misuse or diversion does not warrant such an extensive effort. Nonetheless, State said that in conjunction with steps taken to improve the targeting of Blue Lantern checks and increase the number conducted annually, it would pay special attention to the need for additional pre- and post-shipment checks for cruise missile- and UAV-related technologies. Since State conducted no PSV checks for any of the 480 licenses for cruise missile or UAV-related licenses with conditions that we reviewed and only 6 pre-license checks for the 786 licenses, the need for State to assess its monitoring over cruise missile and UAV licenses is a recommendation we strongly reaffirm.

As arranged with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days after the date of this letter. At that time, we will send copies of this report to appropriate congressional committees and to the Secretaries of Commerce, Defense, and State. Copies will be made available to others upon request. In addition, this report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions concerning this report, please contact me at (202) 512-8979 or at christoffj@gao.gov. A GAO contact and staff acknowledgments are listed in appendix V.

Sincerely yours,



Joseph A. Christoff
Director, International Affairs and Trade

Appendix I: Scope and Methodology

To determine the nature and extent of cruise missile and UAV proliferation, we reviewed documents and studies of the Departments of Commerce, Defense, Homeland Security, and State, the intelligence community, and nonproliferation and export controls specialists in academia and the defense industry. These included the *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January through 30 June 2002*; the Director of Central Intelligence worldwide threat briefing on *The Worldwide Threat in 2003: Evolving Dangers in a Complex World* 11 February 2003; and the DOD UAV Roadmap for 2000 to 2025 and 2002 to 2025. We also reviewed databases of the UAV Forum and UVONLINE. Also, we reviewed plenary, working group, and information exchange documents of the MTCR. We met with officials of the Departments of Commerce, Defense, Homeland Security, and State, the intelligence community, and with nonproliferation and export controls specialists in academia in Washington, D.C., and officials of the National Air Intelligence Center in Dayton, Ohio. We also met with representatives of private companies Adroit Systems Inc., EDO, Boeing, MBDA, Lockheed Martin, and with the industry associations National Defense Industrial Association (NDIA) and the Aerospace Industries Association in Washington, D.C. In addition, we received a written response from NDIA to a list of detailed questions. Also, we met with representatives of the Defense Manufacturing Association, SBAC, Goodrich, BAE Systems, and MBDA in London, United Kingdom; and of the European Unmanned Vehicle Systems Association (EURO UVS) in Paris, France. In addition, we attended two conferences of the Association for Unmanned Vehicle Systems International (AUVSI) in Washington, D.C., and Baltimore, Maryland.

To examine how the U.S. and other governments have addressed proliferation of cruise missile and UAV risks, we analyzed the documents and studies noted above and met with officials and representatives of the previously mentioned governments and nonproliferation and export controls specialists in academia. We also reviewed relevant documents and data to determine how the U.S. and other governments have used export controls, diplomacy, interdiction, and other policy tools. Based on this information, we conducted analyses to determine how each tool had been employed and with what results.

To evaluate the end-use controls used by the U.S. and other governments, we obtained documents and met with officials from the Departments of Commerce, Defense, and State. We also reviewed arms transfer data from DOD and export licensing data from State and Commerce databases to

assess what cruise missile and UAV technology the United States exported, how the U.S. government selected licenses to receive post-shipment monitoring, and how it applied end-use post-shipment controls. Moreover, we reviewed applicable U.S. export control laws and regulations. We performed qualitative and quantitative analyses of selected export licenses to determine the extent and frequency of applied license conditions and end-use checks related to cruise missile and UAV transfers. To determine the completeness and accuracy of the Defense and State data sets, we reviewed related documentation, interviewed knowledgeable agency officials, and reviewed internal controls. The State database system is not designed to identify all cruise missile or UAV commodities transferred. Therefore, the team developed a list of search terms based on consultations with State officials concerning which terms would likely capture all transfers involving cruise missiles, UAVs, and related technology. State provided the criteria we used to determine what State-licensed exports were cruise missile or UAV-related. State officials queried their licensing database to search for specific category codes and 12 keywords.¹ The resulting report that State provided to us contained 400 pages with 1,300 entries. While we have high confidence that our analysis allowed us to capture most of the relevant cases, it is possible that a few relevant State cases might have been missed. We also assessed the reliability of the Commerce data by performing electronic testing of required data elements and by interviewing agency officials knowledgeable about the data. We determined that the data elements were sufficiently reliable for the purposes of this engagement.

We also interviewed officials of the governments of France, Italy, and the United Kingdom, and met with representatives of the point of contact for the MTCR in Paris, France. In addition, we received written responses to questions we provided to the governments of Israel, Japan, South Africa, and Switzerland. Russia and Canada provided a response too late to be included in this report. We requested the same information from the government of Germany, but received no response. Our ability to address two objectives was impaired by a Department of State delay in assisting our efforts to collect responses to written questions from foreign governments. State agreed to facilitate this effort 4 months after our initial request for assistance and only after we reduced the number of countries

¹State reported that the keywords were (1) UAV, (2) RPV, (3) Cruise Missile, (4) Harpoon, (5) Tomahawk, (6) Slam, (7) Drone, (8) Prowler, (9) GNAT, (10) Predator, (11) Altus, and (12) *UNMAN* and *VEHIC*.

to receive our questions from 16 to 7 and reduced the number of questions. Given this delay, governments had less time to respond to our questions than we had originally planned. Thus, we could not fully assess how other governments address the proliferation risks of cruise missiles, UAVs, and related technology and apply end-use controls on their exports of these items.

We performed our work from October 2002 to November 2003 in accordance with generally accepted government auditing standards.

Appendix II: Comments from the Department of Commerce

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



UNITED STATES DEPARTMENT OF COMMERCE
Under Secretary for Industry and Security
Washington, D.C. 20230

November 14, 2003

Mr. Joseph A. Christoff
Director, International Affairs and Trade
General Accounting Office
Washington, D.C. 20548

Dear Mr. Christoff:

I am writing with regard to your November 4, 2003 letter to Secretary Evans forwarding the GAO's proposed report entitled *Nonproliferation: Improvements Needed to Better Control Technology Exports for Cruise Missiles and Unmanned Aerial Vehicles (GAO-04-175)* ("GAO Report"). The Secretary has requested that we provide the Department's comments.

As an initial point, we would like to comment briefly on GAO's description of the proliferation of cruise missiles and unmanned aerial vehicles (UAVs) as posing a growing threat to U.S. national security interests (pp. 11-16). The GAO has requested comments from the Departments of State and Defense on its draft report, and we generally defer to those Departments on this issue. We note, however, that the extent of this threat varies significantly based on the type of cruise missile or UAV that is at issue. In our view, there is an important distinction, for instance, between the threats posed by a rudimentary UAV that is radio-controlled and operates only in line of sight, versus a cruise missile with a range of 1000 km and payload of 1000 kg. The GAO report does not distinguish among the varying threats posed by different types of cruise missiles and UAVs, and we suggest that it would be more useful to policymakers if the report drew such distinctions.

The Commerce Department's principal comments are organized in two parts: (1) comments to ensure a complete and accurate understanding of the facts relating to current U.S. export control policies as they pertain to cruise missiles and UAVs, and (2) comments regarding the two draft GAO recommendations.

I. Comments Regarding Current U.S. Export Control Policies

The United States implements a vigorous export control program to address the international problem of missile proliferation, both by applying significant domestic export controls and by working to strengthen the relevant international agreements.

A. Multilateral Activities

The GAO first focuses on the relevant multilateral export control regimes, *i.e.*, the Missile Technology Control Regime (MTCR) and the Wassenaar Arrangement, making several points (pp.16-20). First, the GAO argues that the emergence of non-member suppliers



See comment 1.

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undermines the regimes' ability to prevent proliferation. The Commerce Department concurs, as members of the MTCR and the Wassenaar Arrangement do not have a monopoly on most controlled cruise missile/UAV systems. This fact poses a significant challenge for these regimes in this context and more generally.

Second, the GAO suggests that there may be insufficient consensus among MTCR members to restrict cruise missiles and UAVs. The GAO focuses on two aspects of the MTCR's cruise missile /UAV policies – the measurement of range and payload, and the addition of items to the MTCR control list. Regarding the former, we agree that the discrepancies in definitions of range and payload have had an impact on control effectiveness in the past. However, as the GAO notes, the MTCR adopted new definitions of range and payload in 2002, at U.S. instigation. We believe that these definitions will play a useful role in enabling the members to resolve technical questions that inevitably arise.

Regarding the latter issue, as the GAO correctly points out (p. 17), the MTCR has recently adopted numerous U.S. proposals to include additional items on control lists. Most recently, at the September 2003 Plenary Session, agreement was finalized on the addition of complete UAVs designed or modified to deliver aerosol payloads greater than 20 liters. This expansion of controls is specifically intended to address the chemical and biological terrorist threat. Overall, we believe that the MTCR and Wassenaar Arrangement generally do control dual-use items of current significance for cruise missiles and UAVs that pose concerns for U.S. national security. While various components of cruise missiles or UAVs could be added to the control list, these items generally have significant commercial uses as well, and it is important to take into account the impact on the commercial marketplace as well as the extent to which an MTCR or Wassenaar control would be effective.

Moreover, the report does not discuss that, at the September 2003 MTCR Plenary Session, MTCR members agreed to include a "catch-all" provision in the regime guidelines to address situations when an exporter has knowledge that a non-listed item is intended to contribute to missile proliferation, or when the national authority informs the exporter that a license is required for the export of non-listed items that support unmanned delivery systems. When properly implemented, this catch-all provision could significantly strengthen MTCR disciplines and address some of the concerns in the GAO report.

B. U.S. Export Controls

The GAO then proceeds to discuss U.S. export controls relating to cruise missiles and UAVs, specifically (1) the adequacy of enforcement of these controls, and (2) whether there is a "gap" in U.S. export control regulations.

See comment 2.

See comment 3.

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1. Adequacy of enforcement of U.S. controls

We generally defer to the Department of Homeland Security regarding enforcement of these controls by Customs officials. However, we question whether all of the statements cited necessarily support the conclusion that it is “difficult to conduct Customs enforcement investigations into possible export violations concerning cruise missile or UAV dual-use technologies.” (p. 20.) The fact that similar parts or components are “not on control lists,” and can be legally exported, if this is correct, may indicate that it is appropriate to revise the control list, depending on the particular facts. But this fact would not demonstrate that it is difficult to enforce the controls on items that are controlled. Similarly, the fact that “countries seek smaller UAVs than those controlled,” if this is correct, would not support the conclusion quoted above, but would raise the separate issue of whether it is appropriate to control “model airplanes and model airplane parts.”

The GAO discusses the “knowledge” standard for export control violations (pp. 20-21). We disagree with the statement, attributed to the Department of Homeland Security, that “the U.S. government has to prove both the exporter’s knowledge of the law and the intent to violate it.” Civil penalties can be imposed for the export without a valid license of items controlled for “missile technology” reasons, without any showing of intent. Even under the “catch-all” provision in the Export Administration Regulations (EAR), it is only necessary to show that an exporter was “[aware] of a high probability” that an item was destined for a missile proliferation activity – it is not necessary to show, in a civil penalty case, “knowledge of the law” or “the intent to violate it.” The GAO also refers to Commerce’s previous acknowledgment that it is difficult to detect and investigate cases under the “knowledge” standard set by the “catch-all” provision. The Department of Commerce is taking steps to clarify exporters’ obligations under the EAR catch-all requirements.

The GAO correctly notes that in selecting PSVs and pre-license checks, Commerce uses criteria based on technologies and countries. (p. 31.) Commerce has an established protocol for conducting end-use checks that describes a number of variables that are considered in determining whether an end-use check should be initiated. These include information about the parties to the transaction, the proposed end-use, the ultimate destination, the previous licensing history of the parties, and known enforcement concerns. Of the 19 or 20 licenses referenced in the report (the report references 19 licenses in some parts of the analysis and 20 licenses in others) to which GAO applied “Commerce guidelines,” it is unclear how GAO applied the established Commerce protocol to reach its conclusions.

2. “Gap” in U.S. export control regulations

The Commerce Department is concerned that there is ambiguity in the GAO’s draft report as to whether the alleged “gap” it identifies relates to items listed on the Commerce Control List.

See footnote 23.

See comment 4.

See comment 5.

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(We also question, as discussed in Section II.A below, whether it is accurate to refer to the issue raised by the GAO as a “gap.”) We suggest that GAO clearly distinguish between items controlled for “missile technology” reasons on the Commerce Control List, and items that are not listed (because they are not considered as sensitive for missile proliferation reasons). In particular, on page 5, the GAO expresses concern that U.S. law does not “restrict the sale of sensitive items . . . to subnational entities such as certain terrorist organizations or individuals.”

A license is required for the export of all items controlled for missile technology reasons on the Commerce Control List, regardless of destination (except for Canada). Moreover, Sections 744.12, 744.13, and 744.14 of the EAR prohibit exports and reexports of any item subject to the EAR to persons designated by the Treasury Department as Specially Designated Global Terrorists (SDGTs), Specially Designated Terrorists (SDTs), or Foreign Terrorist Organizations (FTOs), respectively. In particular, Section 744.13 imposes a license requirement for the export or reexport to an SDT of any item subject to the EAR. Moreover, the Commerce Department maintains an extensive system of unilateral anti-terrorism controls in addition to the controls it imposes on the export of MTCR Annex items. Thus, we do not agree that the U.S. export control system permits “sensitive items” to be legally exported for nefarious end uses, as implied on page 5 of the proposed report. The discussion on pages 22-23 of the draft report, in contrast, makes clear that the issue raised by the GAO relates only to “items not listed in the regulations on the Commerce Control List.” If it is the position of the GAO that such non-controlled items are “sensitive,” and should be included on the MTCR control list, the basis for this position should be explained.

See comment 6.

Thus, it is important to correctly describe the issues raised (p. 23) by the example of one New Zealand resident purchasing uncontrolled U.S.-origin items to develop a “cruise missile.” The issues raised by this example are: (1) whether additional items should be controlled for export, and (2) whether the “catch-all” control should be broadened to include additional countries or end-users, and if so, how. As to the first issue, it is difficult to comment without a detailed understanding of the type of “cruise missile” the New Zealand resident constructed and the type of U.S. components he used. However, in general, as stated above, the Commerce Department’s position is that the United States, together with other MTCR members, effectively controls the items of greatest significance for cruise missiles and UAVs that pose concerns for U.S. national security. Regarding the second issue, we address this issue below (see Section II.A).

See comment 7.

Finally, we strongly request that GAO clarify the statements attributed to Commerce officials that “they have no recourse in this or similar cases” (p. 23) and “must wait to act until after proliferators or terrorists have used the weapons that they might develop with U.S. components.” It is correct that our enforcement authority is limited with respect to the New Zealand transaction because the items were not listed on the Commerce Control List and the New Zealand national was not named on the Specially Designated National or Specially Designated

See comment 8.

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Terrorist lists. However, if Commerce learned that U.S. items not included on multilateral control lists had been shipped to proliferators or terrorists who were developing weapons with these components, Commerce could and would take specific actions, which could include (but are not limited to) the following. Commerce, working with its law enforcement partners, could determine whether through cooperation with other countries (under the Proliferation Security Initiative (PSI) or otherwise) the items could be interdicted, detained, and disabled. Further, Commerce could use its authority to inform exporters that they cannot ship additional items to the end-user without obtaining a license. See Sections 744.3(b) and 744.6(b).

II. Comments Regarding Draft GAO Recommendations

The following are Commerce Department comments regarding the specific GAO recommendations contained on page 36 of the draft report:

A. Modification of EPCI “Catch-all” Missile Proliferation Controls

The proposed GAO report recommends that “. . . the Secretary of Commerce modify the Export Administration Regulations to require an export license review for any item that an exporter knows or has reason to know would be used to develop or design a cruise missile or UAV of any range.” We agree that, in consultation with the Technical Advisory Committees and the interagency community, the Department should consider whether the current catch-all provision sufficiently protects U.S. national security interests.

The EAR catch-all provision applies only to MTCR Category I systems (i.e., those with a range of at least 300 kilometers and an ability to deliver a 500 kilogram payload), and applies only to listed projects and to countries listed in Group D:4 of Supplement 1 to Part 740 of the EAR¹, except when the Department of Commerce informs a U.S. exporter of the requirement to submit a license application. In such cases, the catch-all provision applies “anywhere in the world.” See EAR Section 744.3(b) and 744.6(b).

The limitations on the “catch-all” provision were intended to ensure that the provision would not be so expansive as to place unwarranted burdens on the exporting community and impede the flow of legitimate trade. The GAO notes (p.14) that U.S. industry has identified an increase in interest in UAV program acquisition abroad. Much of the foreign interest comes from U.S. allies and partner nations. In September 2002, the GAO stated that “Commerce seeks to

¹ The countries listed in Group D:4 are: Bahrain, the People’s Republic of China, Egypt, India, Iran, Iraq, Israel, Jordan, North Korea, Kuwait, Lebanon, Libya, Macau, Oman, Pakistan, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen.

See comment 9.

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balance national security, foreign policy, and economic interests when considering how to control items and review export licenses.” See “Export Controls: Processing for Determining Proper Control of Defense-Related Items Needs Improvement,” September 2002 (GAO-02-996), p.3. The GAO’s recommendation does not take into account the economic impact that could result from the implementation of such a broad expansion of the catch-all policy.

Any modifications to the catch-all policy should be carefully considered in order to ensure that the controls protect U.S. national security, but avoid unnecessary burdens on U.S. trade. For instance, one option to consider would be to expand the list of countries and end-users subject to the missile technology catch-all controls, but not apply the catch-all provision to all U.S. exports. Another option would be to expand the circumstances in which the catch-all provision applies, *e.g.*, to reduce the range requirement, but not apply the catch-all controls to all cruise missiles and UAVs regardless of range.

As stated above, we agree with the GAO that it would be useful to review whether the existing catch-all provision sufficiently protects U.S. national security interests. However, we do not agree with the GAO that there is a “gap” in U.S. export controls, if this term is intended to imply that U.S. export control regulations do not address some subset of transactions that clearly ought to be controlled. As discussed above, we do not believe that the draft report demonstrates this to be the case. A more accurate characterization would be to state that the limited scope of the catch-all provision raises the question of whether it ought to apply more broadly.

B. Review of Industry Compliance

The proposed report also recommends that “the Secretaries of State, Commerce and Defense, as a first step, each complete a comprehensive assessment of cruise missile, UAV, and related dual-use technology transfers to determine whether U.S. exporters and foreign end users are complying with the condition on the transfers. The departments should also conduct a greater number of post-shipment verification visits that could help provide them with critical information to know whether compliance is an issue that requires sustained investment in more monitoring.”

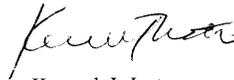
The Department suggests refining these recommendations in order to provide a basis for interagency action. Specifically, the terms “cruise missile, UAV, and related dual-use technology transfers” require more precise definition. Given the limited resources available for compliance monitoring, the U.S. government seeks to focus its attention on areas of greatest concern. Accordingly, greater precision is needed regarding the scope of transactions that the GAO believes may require increased scrutiny.

See comment 10

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We hope that these comments will prove useful to you as you proceed in finalizing your report. Please feel free to contact us if you would like to discuss any aspect of these comments.

Sincerely,



Kenneth I. Juster

The following are GAO's comments on the Department of Commerce letter dated November 14, 2003.

GAO Comments

1. Commerce said that our report does not distinguish among the varying threats posed by different types of cruise missiles and UAVs. Our report does make distinctions between the threats posed by anti-ship cruise missiles to U.S. naval forces, land-attack cruise missiles to the U.S. homeland and forces deployed overseas, and UAVs as potential delivery systems for chemical and biological weapons. As our report stated, the potential for terrorist groups to produce or acquire rudimentary cruise missiles or small UAVs using unlisted dual-use items is an emerging threat that needs to be better addressed.
2. Commerce said that agreement was finalized at the September 2003 MTCR Plenary to add a new category of UAVs to the MTCR control list. We have added information to the report to take this into account.
3. Commerce said that our report does not discuss action taken at the September 2003 MTCR Plenary to include a catch-all provision in the regime guidelines that could strengthen MTCR disciplines and address some of the concerns of our report. While helpful, the practical impact of this change is negligible. Nearly all MTCR members currently have catch-all controls in their national export control authority. Furthermore, as Commerce pointed out, the U.S. catch-all controls have limited scope and do not address the type of situation presented in the New Zealand example.
4. We believe that our explanation was clear as to how we applied Commerce's guidance to select licenses that met Commerce's listed criteria for receiving a PSV. As clearly noted in our report, we first started with the 2,490 dual-use licenses with commodity categories that Commerce had identified as relevant to cruise missile and UAV items. Second, we selected those licenses having only commodity categories identified in Commerce guidance as chokepoint technologies. Third, we matched these licenses to a recipient country identified as a country of missile proliferation concern or as a conduit country. This analysis resulted in 20 licenses. When we found that two of the 20 licenses we identified had been selected for a PSV, we asked Commerce officials to explain which of the other variables (information about the parties to the transaction, proposed end use, previous licensing history, etc.) mitigated the need for a PSV. As we reported, Commerce officials could not explain which factors lessened the need for a PSV for the remaining 18 licenses.

5. Commerce stated that there is ambiguity in our report as to whether the gap relates to items listed on the Commerce Control List or to items that are not listed because they are not considered as sensitive for missile proliferation reasons. Our references to the gap in the regulations refer to dual-use items that are not listed on the Commerce Control List. We have made changes to the draft to clarify this point.
6. Commerce stated that if it is GAO's position that noncontrolled items are sensitive and should be placed on the MTCR control list, then we should explain the basis for this position. We are not suggesting that unlisted items should be added to the MTCR control list to deal with the issue we identified in the New Zealand example. As indicated in our recommendation, the vehicle to address this gap would be an expansion of Commerce's catch-all provision whereby license reviews would be required when the exporter knows or has reason to know that items not on the Commerce Control List might be used by nonstate actors for missile proliferation purposes.
7. Commerce states that the United States and MTCR members effectively control the items of greatest significance for cruise missiles and UAVs that pose concerns for U.S. national security. We agree that MTCR covers items of greatest significance for cruise missiles and UAVs that pose concerns posed by national missile programs. However, Commerce needs to recognize the potential for nonstate actors, particularly terrorists, to legally acquire unlisted items for use in missile proliferation.
8. Commerce acknowledges that its enforcement authority is limited concerning items not listed on the Commerce Control List and entities not named on the terrorist lists. Nonetheless, it asserts that it could take specific actions if it learned that U.S. items had been shipped to proliferators or terrorists that were developing weapons with these components. However, it is not clear how this information would come to Commerce's attention because current regulations do not require, or inform, an exporter to seek a license review in this type of situation.
9. Commerce agrees to consider whether the catch-all provision sufficiently protects U.S. national security interests. We agree that such a review in consultation with the Technical Advisory Committees and interagency community would be an important first step in identifying the sufficiency of the provision to cover nonstate actors and ways to modify it to address the gap. Consequently, we have modified our recommendation accordingly.

10. The gap that we identified in our report is in the catch-all provisions. We are not suggesting that additional items be added to the control lists. Currently, the catch-all regulations require an exporter to submit a license application when he knows or has reason to know that an unlisted item would be used for missile proliferation purposes. However, this provision applies only to specific missile proliferation projects or countries identified on a narrow list in the regulations. The New Zealand citizen was not covered under the catch-all provisions.

Appendix III: Comments from the Department of Defense



INTERNATIONAL SECURITY
POLICY

ASSISTANT SECRETARY OF DEFENSE
2900 DEFENSE PENTAGON
WASHINGTON, DC 20301-2900

FEB 18

Mr. Joseph A. Cristoff
Director, International Affairs and Trade
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Cristoff:

This is the Department of Defense (DoD) response to the GAO draft report, "NONPROLIFERATION: Improvements Needed to Better Control Technology Exports for Cruise Missiles and Unmanned Aerial Vehicles," dated November 4, 2003 (GAO Code 320165/GAO-04-175).

DoD has carefully reviewed the draft report and partially concurs with the first recommendation and fully agrees with the second recommendation. Enclosed is DoD's response to the recommendations. Our technical comments were provided to GAO for review.

We appreciate the opportunity to comment. If you have any questions concerning this matter, please contact Mr. Clark Adams at 703-695-8124 or via e-mail [clark.adams@osd.mil].

A handwritten signature in black ink that reads "Mira R. Ricardel".

Mira R. Ricardel
Acting

Enclosure



GAO DRAFT REPORT – DATED NOVEMBER 4, 2003
GAO CODE 320165/GAO-04-175

“NONPROLIFERATION: Improvements Needed to Better Control Technology Exports for
Cruise Missiles and Unmanned Aerial Vehicles”

DEPARTMENT OF DEFENSE COMMENTS
TO THE RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommended that the Secretaries of State, Commerce, and Defense, as a first step, each complete a comprehensive assessment of cruise missile, unmanned aerial vehicles, and related dual-use technology transfers to determine whether U.S. exporters and foreign end users are complying with the conditions on the transfers. (Page 36/ GAO Draft Report)

DOD RESPONSE: DoD partially concurs with the recommendation. While DoD agrees that an assessment of U.S. exporter and foreign end-user compliance with transfer conditions is important, the resources involved to conduct a comprehensive review would be prohibitive and unlikely to produce results better than what could be accomplished with a random sample. Additionally, conducting a greater number of post-shipment verification visits per Recommendation 2 will, over time, provide the U.S. Government with a high-level of confidence that export license conditions are being complied with by exporters and foreign end-users. It will also allow the U.S. Government to determine whether or not adequate resources are devoted to license compliance issues.

RECOMMENDATION 2: The GAO recommended that the Secretaries of State, Commerce, and Defense conduct a greater number of post-shipment verification visits that could help provide them with critical information to know whether compliance is an issue that requires sustained investment in more monitoring. (Page 36/GAO Draft Report)

DOD RESPONSE: DoD concurs with the recommendation.

Appendix IV: Comments from the Department of State

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



United States Department of State

Washington, D.C. 20520

NOV 19 2004

Dear Ms. Westin:

We appreciate the opportunity to review your draft report, "NONPROLIFERATION: Improvements Needed to Better Control Technology Exports for Cruise Missiles and Unmanned Aerial Vehicles," GAO-04-175, GAO Job Code 320165.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

If you have any questions concerning this response, please contact Vann Van Diepen, Office Director, Bureau of Nonproliferation at (202) 647-1142.

Sincerely,

A handwritten signature in black ink, appearing to read "Christopher B. Burnham".

Christopher B. Burnham
Assistant Secretary for
Resource Management and
Chief Financial Officer

Enclosure:

As stated.

cc: GAO/IAT - Steve Lord
State/OIG - Luther Atkins
State/NP - Mark Fitzpatrick
State/H - Paul Kelly

Ms. Susan S. Westin,
Managing Director,
International Affairs and Trade,
U.S. General Accounting Office.

Department of State Comments on GAO Draft Report

NONPROLIFERATION: Improvements Needed to Better Control
Technology Exports for Cruise Missiles
and Unmanned Aerial Vehicles
GAO-04-175/GAO Code 320165

We appreciate the opportunity to comment on the GAO's draft report entitled "Nonproliferation: Improvements Needed to Better Control Technology Exports for Cruise Missiles and Unmanned Aerial Vehicles." The Department of State is pleased that the draft report did not find evidence of misuse or diversion of unmanned aerial vehicle (UAV) or missile-related technologies authorized for export by the Department. However, the report is misleading and inaccurate when it suggests that the Department does not monitor exports to verify compliance with export authorizations and suggests that the Department's Blue Lantern Program is not meeting its statutory requirements. Over the past three years, the Department's Blue Lantern Program has conducted over 1200 checks on exports of all types and developed derogatory information in almost 200 cases. The Blue Lantern Program has proven to be an effective means to verify the end-use and end-users of export applications when questions arise and has 1) deterred diversions, 2) aided in the disruption of illicit supply networks used by rogue governments and international criminal organizations, 3) helped the Department in making informed licensing decisions, and 4) ensured exporter compliance with the Arms Export Control Act (AECA) and the International Traffic in Arms Regulations (ITAR).

The most important restrictions placed on export authorizations involve controls over the end-user and the end-use of the article being exported. The Department of State, through the export licensing process, utilizes many tools to verify these critical elements, only one of which is the Blue Lantern Program of pre- and post- license checks. The Department, through the licensing process and in particular the Blue Lantern Program, is actively engaged in verifying the bona fides of end-users as well as the receipt and appropriate end-use of defense articles and services, including UAV- and missile-related technologies.

Establishing the appropriate end-use and end-users of a defense trade transaction are the fundamental elements of our export control regime. The licensing process as a whole assesses the risks and the bona fides of each transaction by

See comment 1.

See comment 2.

-2-

See comment 2.

allowing the Department to establish a track record with reliable foreign parties, whether foreign companies or governments. This historical context of assessing the parties to the export weighs into every licensing decision and its importance cannot be discounted. Thus the draft GAO report's analysis that took a snapshot of Blue Lantern activity without regard to past reviews of the parties to these exports and without regard to other checks performed during the license process is flawed.

See comment 3.

It is not clear why the report's analysis excluded mention of or reference to pre-license checks as part of the Department's efforts to ensure compliance with arms export regulations. Pre-license checks conducted under the Blue Lantern Program are critical to our efforts to ensure licenses are issued to legitimate, reliable entities and for specified programs or end-uses in accordance with national security and foreign policy goals. They are a crucial element in building the history of the reliability (or unreliability) of foreign parties, particularly those that appear in a variety of license transactions time after time. Pre-license checks augment the many controls and checks used during the course of the licensing process to verify the legitimacy of the parties involved and the end-use of the export. Because the draft GAO report does not articulate the criteria it used in determining what exports are UAV-related, we could not provide details on the relevant pre-license checks as part of this response.

See comment 4.

To illustrate the importance of pre-license checks, the Department conducted such a check on an export of missile-related technology that revealed that not all of the items requested on the license were actually destined for the stated end-user, but for another end-user located in a third country that was not identified on the license. The pre-license check helped to establish that the intermediary involved was not a reliable recipient of U.S. Munitions List articles.

Blue Lantern end-use checks are effective at verifying the end-use and end-user of an export. While such checks may not be sufficient to monitor highly technical provisos applied to certain transactions, the problems and risks identified in the GAO report, such as diversion to unauthorized entities or illegal retransfers of U.S. technologies, are detectable and more importantly, able to be deterred, by both pre- and post-license checks conducted under the Blue Lantern Program as it currently exists.

-3-

The Department of State disagrees with the recommendation that State, Commerce and Defense complete a comprehensive assessment of cruise missile, UAV, and related dual-use transfers to determine if U.S. exporters and foreign end-users are complying with the conditions on the transfers. There is nothing in the draft GAO report to indicate evidence of misuse or diversion that would warrant such an extensive effort. However, the Department of State, as part of its on-going efforts to improve its end-use check program and in response to recent Office of the Inspector General (OIG) recommendations, has already taken steps to improve the targeting of Blue Lantern checks as well as to increase the number of end-use checks conducted annually. As part of these overall efforts, we agree that UAV- and missile-related technologies are important, and we will pay special attention to the need for additional pre- and post-shipment checks for these kinds of transactions.

The following are GAO's comments on the Department of State letter dated November 19, 2003.

GAO Comments

1. State said that it has conducted over 1,200 Blue Lantern checks on exports of all types and developed derogatory information in almost 200 cases over the past 3 years. However, these checks and cases involved both pre-license checks and PSVs and included more than cruise missile or UAV items, according to State's most recent end-use monitoring report.¹ For example, 428 checks initiated by State in fiscal year 2002—of which 50 checks resulted in unfavorable determinations—included firearms and ammunition, electronics and communications equipment, aircraft spare parts, bombs, spare parts for tanks and military vehicles, and night vision equipment.
2. State also said that the Blue Lantern program (1) effectively verifies the end use and end users of export applications when questions arise, (2) has deterred diversions, (3) helped disrupt illicit supply networks, (4) helped State make informed licensing decisions, and (5) ensured exporter compliance with law and regulations. State added that the historical context of assessing the parties to the export weighs into every licensing decision and its importance cannot be discounted. We agree that the Blue Lantern program can have a positive impact when State has the information needed to allow it to act. This statement affirms our point that it is important to obtain such information through improved monitoring, particularly PSVs. However, given the limited number of either pre- or post-shipment Blue Lantern checks focused to date on cruise missile and UAV-related transfers, we question whether sufficient information has been obtained in this area.
3. State said that it was unclear why our report's analysis excluded pre-license checks as part of State's efforts to ensure compliance with arms export regulations. As noted above, we did ask for such information and learned that State conducted few pre-license checks for its cruise missile and UAV transfers. While we agree with State that pre-license checks are critical to providing assurances that licenses are issued to legitimate, reliable entities and for specified programs or end uses, they obviously cannot verify that exports are received by the legitimate end user or used in accordance with the terms of the license after shipment. We agree that seeking and receiving assurances prior

¹*End-Use Monitoring Report for FY 2002: Commercial Exports*, Department of State (Washington, D.C.: 2003)

to licensing and shipment is a critical function that might mitigate the need for a PSV check in many cases. However, State implies that pre-license and other actions of the licensing process mitigated the need to conduct PSV checks for all but 4 of its 786 licenses for cruise missile, UAV, or related technology. These included 129 licenses to non-MTCR countries, such as Egypt, Israel, and India.

4. State said that our report did not articulate the criteria we used to determine what exports are UAV-related. State provided the criteria we used to determine what State-licensed exports were cruise missile or UAV-related. State officials queried their licensing database to search for specific category codes and 12 keywords.² The resulting report that State provided to us contained 400 pages with 1,300 entries. We have added this information to our Scope and Methodology section to clarify that State provided us with these criteria, the data generated from applying the criteria, and information on Blue Lantern pre-license and PSV checks for these licenses.

²State reported that the keywords were (1) UAV, (2) RPV, (3) Cruise Missile, (4) Harpoon, (5) Tomahawk, (6) Slam, (7) Drone, (8) Prowler, (9) GNAT, (10) Predator, (11) Altus, and (12) *UNMAN* and *VEHIC*.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

David Maurer (202) 512-9627

Acknowledgments

In addition to the individual named above, Jeffrey D. Phillips, Stephen M. Lord, Claude Adrien, W. William Russell IV, Lynn Cothorn, and Richard Seldin made key contributions to this report.

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