

GAO

Report to the Chairman, Committee on
Governmental Affairs, U.S. Senate

October 1988

NUCLEAR NONPROLIFERATION

Major Weaknesses in Foreign Visitor Controls at Weapons Laboratories



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Resources, Community, and
Economic Development Division

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October 11, 1988

The Honorable John Glenn, Chairman
Committee on Governmental Affairs
United States Senate

Dear Mr. Chairman:

On July 10, 1987, you asked that we determine the extent to which foreign nationals participate in activities at the Department of Energy's weapons laboratories. You also asked us to assess the effectiveness of the Department's controls to identify foreign nationals that pose a security and/or proliferation risk. This report provides the information you requested.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies of this report to appropriate congressional committees, the Secretary of Energy, and the Director, Office of Management and Budget. We will also make copies available to others upon request.

This work was performed under the direction of Keith O. Fultz, Senior Associate Director. Other major contributors are listed in appendix IV.

Sincerely yours,

A handwritten signature in cursive script that reads 'J. Dexter Peach'.

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

This country's nuclear weapons program, conducted by the Department of Energy (DOE), presents an inviting target for foreign information gathering efforts. DOE owns a broad spectrum of facilities (most are contractor operated) to carry out its classified nuclear weapons activities as well as unclassified research in energy and other scientific areas. Thousands of foreign nationals annually visit and/or participate in unclassified research at DOE's facilities. However, unclassified visits are not without risk. Certain countries are known to be seeking U.S. weapons data, and DOE studies have shown that it is possible to derive classified and sensitive information from unclassified access to these facilities.

As a result of these risks, the Chairman, Senate Committee on Governmental Affairs, asked GAO to assess DOE's controls over foreign participation in unclassified activities at three weapons facilities: Lawrence Livermore National Laboratory, California, and Los Alamos National Laboratory and Sandia National Laboratories, New Mexico. (See ch. 1.)

Background

The Atomic Energy Act allows foreign participation in unclassified research at DOE laboratories to encourage international cooperation in energy. As a result, individuals from communist countries, most notably the Soviet Union and China, and countries identified as sensitive by DOE because they are a security and/or proliferation risk, such as Pakistan and Israel, visit the laboratories.

DOE Order 1240.2 establishes certain controls to limit the risk resulting from foreign access to its facilities. DOE requires background checks on certain individuals and headquarters review and approval of visits by citizens from communist countries. Further, DOE requires monitoring and post-visit reporting for some visits.

Foreign participation at the laboratories can either be for (1) a visit—up to 1 week to hold technical discussions, tour facilities, or collaborate on problems—or (2) an assignment—extended stays up to 2 years to carry out projects or research. Between January 1986 and September 1987, DOE allowed about 6,700 foreign nationals access to the weapons laboratories. Of these, 222 were from communist countries and 675 were from other sensitive nations. GAO randomly selected and reviewed the files for 181 communist country and 637 sensitive country visitors to the laboratories during this period. (See ch. 1.)

Results in Brief

Major weaknesses exist in DOE's foreign visitor program. As a result, suspected foreign agents and individuals from facilities suspected of conducting nuclear weapons activities have obtained access to the laboratories without prior DOE knowledge. Specifically,

- DOE generally does not follow its own requirements and obtain background information on foreign visitors and assignees from communist or sensitive countries. Further, DOE has, but does not use, other available data to prescreen visitors from foreign facilities suspected of nuclear weapons-related activities.
- DOE does not identify and review all visits that involve sensitive weapons-related subjects. Of 818 visits, DOE identified only 1 as involving a sensitive subject; GAO found at least 37 others. Further, DOE does not consider a number of other weapons-related activities as sensitive subjects. At least 14 visits involved these activities.
- DOE does not enforce various internal control requirements for approving, monitoring, and reporting foreign visits. Further, DOE does not have an integrated information system or conduct reviews of the foreign visitor program.

Principal Findings

Little Review of Foreign Visitors

DOE does not obtain timely and adequate information on foreign visitors before allowing them access to the laboratories. Of the 181 communist visitors or assignees that GAO reviewed, 176 required background checks. However, DOE did not obtain this data for 119. DOE requested data on the remaining 57 but received the results for 51 either during the visit or after it occurred. GAO found several cases where DOE allowed visitors with questionable backgrounds—including three suspected foreign agents—access to the laboratories.

In addition, DOE obtained even less background information on visitors and assignees from other sensitive countries. Of the 637 visitors from countries such as India, Israel, and Pakistan, DOE required background checks for only 77. Of these, DOE received information on 14; DOE did not receive background data for 46 because it would have taken too long, officials said. DOE received background data for the remaining 17 individuals after the visit began. Further, DOE has developed a classified "watch" list that identifies foreign organizations suspected of conducting nuclear weapons activities. GAO found that about 10 percent of

the 637 visitors were associated with these organizations, but DOE did not request background data for them.

DOE officials acknowledge that these problems exist. However, they stated that they are improving their procedures for obtaining background data. Because these procedures had not been fully implemented, GAO did not assess their effectiveness to correct the problems identified. (See ch. 2.)

Potentially Sensitive Subjects

DOE allows foreign nationals from communist and proliferation-risk countries into the laboratories to discuss subjects that could assist nuclear weapons programs. DOE has identified 18 sensitive subjects; DOE headquarters must approve any visit or assignment that involves them. During GAO's sample period, DOE identified only 1 of the 818 communist and other sensitive country visits as involving a sensitive subject. GAO found at least 37 visits related to subjects listed as sensitive by DOE, such as inertial confinement fusion and isotope separation. DOE headquarters reviewed 15 because the visitor was from a communist country, not because the visit involved a sensitive subject.

Further, DOE has not included other activities related to nuclear weapons research, development, and testing as sensitive subjects. These include special cameras, astrophysics, and high explosives. During the 21-month period that GAO reviewed, 14 foreign nationals visited the laboratories to discuss issues that could be related to nuclear weapons or other sensitive technologies that are not included on DOE's sensitive subject list. None of these visits received DOE headquarters review and approval. (See ch. 2.)

Internal Control Weaknesses

DOE has not enforced certain internal controls for managing the foreign visit and assignment program. For example, visit and assignment approvals were made at improper levels or were approved after access was granted. In addition, the field offices must provide a security plan prior to some visits and ensure that a post-visit report is submitted to DOE headquarters to assess the type of information provided. However, only 89 of 248 required security plans were provided and only about 25 percent of the post-visit reports. These problems could have been identified by internal reviews. However, neither DOE headquarters nor the field offices has conducted reviews of the visit and assignment program at the weapons laboratories.

In addition, DOE has no integrated system to obtain and disseminate foreign visitor information to its field offices. Consequently, these offices lack important data that may be relevant to their access approval decisions. GAO found that an individual denied access to one laboratory visited another without that laboratory knowing about certain derogatory information. Further, over 13 percent of the visitors from communist or sensitive nations were not in the DOE headquarters database. (See ch. 3).

Recommendations

To prevent security breaches concerning nuclear weapons-related information, GAO recommends that the Secretary of Energy

- Revise the foreign visits and assignments order to (1) require that background checks are completed prior to admitting a foreign national to a weapons laboratory, (2) require the use of additional criteria, such as the watch list, to identify potentially sensitive visitors, and (3) expand the sensitive subjects list to include additional areas that could be useful to adversary or proliferant nations.
- Establish an integrated system to provide DOE and the laboratories timely and pertinent information to use when approving foreign visits.
- Require periodic evaluations of field office and laboratory compliance with the requirements of DOE's foreign visit and assignment order.

Agency Comments

GAO discussed the facts presented in this report with DOE headquarters and field office officials. Generally, they agreed with the facts but did offer some clarifications that were incorporated where appropriate. As requested, GAO did not ask DOE to review and comment officially on this report.

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Abbreviations

CIA	Central Intelligence Agency
DOE	Department of Energy
FBI	Federal Bureau of Investigation
GAO	General Accounting Office

Introduction

Foreign intelligence efforts against the United States are becoming an increasing threat to national security. Events in recent years have revealed espionage activities not only from communist nations but also from friendly countries, such as Israel. The U.S. nuclear weapons program presents an inviting target for foreign intelligence efforts. In fact, knowledgeable federal officials generally believe that both communist countries and nations suspected of developing nuclear weapons attempt to obtain information on U.S. nuclear weapons activities.

The Department of Energy (DOE) is responsible for conducting the nuclear weapons program. DOE owns a broad spectrum of facilities (most are contractor operated) to carry out this mission. DOE facilities produce the special nuclear material—enriched uranium and plutonium—needed for nuclear weapons as well as other materials needed for the current generation of weapons. Other facilities design, develop, test, and manufacture the weapons for the U.S. nuclear arsenal. DOE facilities are also involved in other classified activities that involve national security issues, such as the Strategic Defense Initiative and conventional weapons development. In order to protect nuclear material and classified or otherwise sensitive information and deter acts of sabotage, DOE has a number of physical and information security measures to limit unauthorized access to these facilities.

However, DOE also conducts unclassified research in energy and other scientific areas, and some of its most sensitive facilities are involved in both classified and unclassified activities. In conjunction with its unclassified activities, thousands of foreign nationals visit DOE's facilities annually. DOE's policy is to encourage these visits as long as they are consistent with DOE's mission and do not unduly interfere with ongoing programs. Although exact figures on the number of foreign visitors are not available, DOE estimates that between 15,000 and 20,000 foreign nationals visit all DOE facilities each year.

Foreign nationals visiting or assigned to the weapons laboratories can pose a security risk. Various DOE and other documents identify foreign espionage and information gathering activities as a major concern and point out that sensitive information may have been lost to foreign countries. For example, a January 1987 Department of Defense security awareness bulletin states that communist and other countries pose a threat to the United States, and every kind of information is vulnerable, including classified government data and unclassified technology. Further, a 1983 DOE study concluded that a significant amount of important technology may have been lost to potential adversaries through visits

and assignments. More recently, DOE vulnerability assessments conducted at various laboratories in 1984 and 1985 concluded that information on classified programs could be derived from available unclassified data or observing activities at these facilities.

Overview of the Activities Conducted at DOE's Nuclear Weapons Laboratories

DOE has a number of missions in energy, defense, and scientific research and has an extensive field system of research, technical development, manufacturing, and administrative facilities. To accomplish its missions, DOE has 9 multiprogram laboratories and approximately 30 specialized laboratories that perform fundamental scientific work and applied research and development for the department. Although most of these facilities conduct unclassified, nonweapons activities, three laboratories—Lawrence Livermore National Laboratory, California; Los Alamos National Laboratory, New Mexico; and Sandia National Laboratories, New Mexico—perform a unique role for DOE. These laboratories conduct research and development functions for DOE's nuclear weapons program and conduct other classified activities related to defense and energy issues.

Lawrence Livermore National Laboratory

The Lawrence Livermore National Laboratory, established in 1952, is operated by the University of California for DOE. The laboratory carries out all phases of nuclear weapons research, development, design, and testing. In addition, Livermore conducts classified research associated with the Strategic Defense Initiative, including the nuclear pumped x-ray laser, free-electron laser, and particle beam technology. Livermore also is the lead laboratory for the development of the lasers for the inertial confinement fusion process and the atomic vapor laser isotope separation process for uranium enrichment.

Los Alamos National Laboratory

The federal government established the Los Alamos National Laboratory in 1943 to develop the nation's first nuclear weapon. The laboratory, also operated by the University of California, conducts both classified and unclassified programs. Los Alamos carries out activities related to all phases of nuclear weapons research, development, design, and testing and conducts defense-related research on particle beams, free-electron lasers, and electromagnetic rail guns. It also supports U.S. arms control measures through work on foreign technology assessments, technology transfer issues, and detection of nuclear explosions. Further,

Los Alamos conducts inertial confinement fusion research and plutonium processing and fabrication research for weapons production purposes.

Sandia National Laboratories

The Sandia National Laboratories, established in 1949, are operated by the American Telephone and Telegraph Company for DOE under a no-profit, no-fee contract, and work in conjunction with the Livermore and Los Alamos laboratories to design and develop weapons. The laboratories conduct research, development, and engineering on all facets of weapons design and development except the nuclear explosive components. For example, Sandia develops weapons structures, aerodynamic shapes, and delivery devices and conducts engineering activities related to the design of electrical arming and firing systems.

Although the three laboratories perform highly classified, highly sensitive weapons activities, they also conduct other energy programs. In this capacity, they perform a number of unclassified activities, such as nuclear waste management, geothermal and solar energy, and physics research.

Controls Over Foreign Access to the Laboratories

The Atomic Energy Act of 1954, as amended, establishes U.S. policy for controlling information and technology related to the development of nuclear weapons. The act requires DOE to classify and control weapons information and prohibits its dissemination to foreign countries unless authorized by the President. Further, the act requires strong federal oversight and controls over any U.S. assistance to foreign nations that may directly or indirectly assist in the production of special nuclear material or nuclear weapons.

However, the act also provides for a program of international cooperation to develop the peaceful uses of nuclear energy. Because of DOE's involvement in peaceful nuclear technology and the unclassified nature of many activities that it conducts, foreign visitors are permitted access to the three weapons laboratories. During the 21-month period from January 1986 through September 1987, about 6,700 foreign nationals visited or were assigned to one of these laboratories. About 900 of the visitors were from communist or other sensitive countries including those suspected of developing nuclear weapons, such as India, Israel, and Pakistan. Appendix I shows the number of foreign visitors from communist-controlled or other sensitive countries.

To ensure that foreign nationals do not pose a security or proliferation risk, DOE Order 1240.2 (Visits and Assignments by Foreign Nationals, Jan. 5, 1981) establishes procedures for controlling access for unclassified purposes. Although DOE allows some foreign nationals—primarily individuals from the United Kingdom—access to its facilities for classified purposes, we limited our work to the unclassified visits and assignments. In addition, in a previous report, we pointed out that in March 1985 an internal group recommended that DOE review order 1240.2 to determine whether it provided adequate controls.¹ DOE began to revise the order in October 1986. As of August 1988, DOE had not completed this effort. Therefore, we relied on the January 1981 order and supplements to it to conduct our work.

As defined in the order, foreign national access can be for a visit or an assignment. Visits—short-term stays of up to 1 week—allow foreign nationals to participate in technical discussions and orientation tours, observe projects or experiments, or collaborate on problems of mutual interest without extensive participation in the work of DOE facilities. Assignments—periods greater than 1 week but not exceeding 2 years—allow foreign nationals to gain experience or to carry out projects or research that are a part of, or consistent with, the specific facility's objectives. Assignees to DOE facilities include both regular and temporary employees, as well as guests and consultants.

DOE's visit and assignment order identifies the weapons laboratories as sensitive facilities but generally allows most foreign nationals to visit the laboratories with little DOE oversight and approval. However, DOE has recognized that some foreign visits and assignments represent a security risk. As a result, the order provides that foreign access to the laboratories may be of concern if it involves

- a sensitive country. The order identifies 68 sensitive countries, including communist-controlled nations, countries suspected of developing nuclear weapons, and other nations viewed as a national security risk. Appendix II shows these countries.
- a sensitive subject. The order contains 18 subject areas in which foreign involvement should be prohibited unless under an international agreement. The sensitive subjects include unclassified data related to special nuclear material production, inertial confinement fusion, and nuclear weapons-related technologies. Appendix III shows these subjects.

¹Nuclear Nonproliferation: Department of Energy Needs Tighter Controls Over Reprocessing Information (GAO/RCED-87-150, Aug. 17, 1987).

- a secure area. Each laboratory has designated areas where sensitive and classified information and equipment are located.

If a visit or assignment meets any of these criteria, the order provides that DOE must institute additional procedures. Although the procedures vary depending upon the individual circumstances, the order includes requirements for indices checks,² access approval by the responsible DOE field or headquarters office, security plans documenting the controls to be in place during the visit or assignment, and reports by the sponsoring organization (host reports) to document the events that occurred and information exchanged between laboratory officials and the foreign national.

Organization for Managing Visits and Assignments

To carry out its responsibilities, DOE uses a three-tiered management approach that includes DOE headquarters, field offices, and contractors. The Assistant Secretary for International Affairs and Energy Emergencies has overall responsibility for the foreign visitor and assignment program. This office develops policies and procedures, serves as DOE's central contact point, and approves certain types of visits and assignments, such as those involving sensitive countries to discuss sensitive subjects. In addition, the Assistant Secretary for Defense Programs is responsible for the security-related aspects of foreign visits and assignments. This office initiates indices checks, establishes procedures for the control of visits to secure areas, and reviews and concurs in any visit or assignment to the weapons laboratories involving access to secure areas or assignments by foreign nationals from communist countries.

DOE headquarters has also delegated significant aspects of program implementation to the field offices with oversight responsibility for the weapons laboratories. Both the San Francisco Operations Office—which is responsible for Livermore—and the Albuquerque Operations Office—which oversees both Los Alamos and Sandia—approve foreign visits and assignments under their jurisdiction, such as those involving non-sensitive countries to discuss nonsensitive subjects; develop security plans; and ensure that the host submits the required report. To carry out these responsibilities, each field office has established its own guidelines to implement DOE Order 1240.2. For example, San Francisco Management Directive 1240.2 and Albuquerque Order 1240.2 set out more stringent requirements for indices checks.

²Reviews of investigative and intelligence files of appropriate government agencies to determine whether a particular foreign national may endanger national security.

Further, the operations offices have delegated certain responsibilities to the contractors that operate the laboratories. For example, the contractors generally initiate the paperwork to request approval for a visit or assignment and can approve certain types of visits and assignments delegated to them by DOE's field offices. In addition, contractor staff hosting a foreign visitor or assignee must provide reports to DOE in certain instances. The contractors have also established procedures to carry out their responsibilities.

Objectives, Scope, and Methodology

On July 10, 1987, the Chairman, Senate Committee on Governmental Affairs, asked us to determine the extent to which foreign nationals participate in activities at DOE's weapons laboratories and assess the effectiveness of DOE's controls to identify those that pose a security and/or proliferation risk. On the basis of subsequent discussions with the Chairman's staff, we agreed to issue an unclassified report. As a result, some of the information we obtained cannot be presented in its entirety in this report.

To obtain an overall perspective on DOE's foreign visitor program, we met with DOE headquarters, field office, and contractor officials. At headquarters, we met with officials in the Office of International Affairs and Energy Emergencies and the Office of Defense Programs. At the San Francisco and Albuquerque offices, we met with officials in the Safeguards and Security Division responsible for managing foreign visit and assignment activities at their respective laboratories. At the laboratories, we met with officials responsible for processing requests for foreign visitor approvals and for laboratory security. We obtained information on the purpose of foreign visitor access to the weapons laboratories, the benefits derived, the potential risks inherent in the activity, and their viewpoints on the effectiveness of the current process. We obtained copies of the applicable DOE headquarters and field office orders—DOE Order 1240.2, Albuquerque Operations Office Order 1240.2, San Francisco Operations Office Management Directive 1240.2, DOE's July 1988 Internal Control Systems Manual, and contractor guidelines for controlling foreign visits and assignments. Using the information provided, we assessed the adequacy of DOE's internal controls for approving, monitoring, and reporting foreign visits and assignments. Further, we met with officials from the Federal Bureau of Investigation (FBI) and Defense Intelligence Agency to discuss their views on the risk associated with foreign nationals at the weapons laboratories.

We obtained and reviewed various safeguards and security studies prepared by DOE that addressed concerns about foreign visits and assignments. These studies included a September 1983 report on controls over foreign visits and assignments prepared by a contractor for DOE; the December 1986 Operation Cerberus report that addressed a number of security concerns regarding DOE facilities, including foreign visits; and a November 1987 analysis of visit and assignment requests prepared by the Office of Defense Programs. We also reviewed vulnerability assessments that DOE had performed at the weapons laboratories in 1984 and 1985. These assessments addressed the potential for foreign countries to obtain sensitive and classified information through unclassified sources.

In addition, to assess the effectiveness of DOE's controls over foreign visitors, we reviewed documentation supporting 1,118 of the 6,662 visitors to the three laboratories between January 1986 and September 1987. For Livermore and Sandia, we reviewed 100 percent of the communist and other sensitive country files; at Los Alamos we randomly selected about 78 percent of those files for review. In addition, we randomly selected 100 nonsensitive country visitor files at all three laboratories. Table 1.1 shows the total number of communist, other sensitive country, and nonsensitive country visitors (including assignees) and the number of files that we reviewed.

Table 1.1: Visitors to DOE Weapons Laboratories That GAO Reviewed — January 1, 1986 Through September 30, 1987

	Communist country visitors		Sensitive country visitors		Nonsensitive country visitors		Total	
	Total	Reviewed by GAO	Total	Reviewed by GAO	Total	Reviewed by GAO	All visitors	Reviewed by GAO
Livermore	60	60	313	313	2,354	100	2,727	473
Los Alamos	140	99	223	185	2,319	100	2,682	384
Sandia	22	22	139	139	1,092	100	1,253	261
Total	222	181	675	637	5,765	300	6,662	1,118

For each of the 1,118 cases, we obtained information on the (1) dates DOE requested and obtained the required indices checks from the FBI or the Central Intelligence Agency (CIA), (2) results of these checks, where available, and (3) number and scope of security plans and host reports prepared. In addition, where possible, we compared the purpose of the visits or assignments to DOE's sensitive subject list to determine the extent to which DOE and the contractors complied with the procedures established.

Further, to assess the impact of DOE's practices for obtaining indices checks, we asked the FBI to check the background of 151 foreign nationals for us. These visitors had been granted access to the laboratories between January 1986 and September 1987, but DOE did not have background checks for them. Where FBI officials had information, they provided the data to us. We also asked the CIA to perform background checks for us, but its officials would not agree to do so.

We also identified other sources of information that could provide a perspective on the backgrounds of individuals that DOE admitted to the laboratories. For example, we obtained the Nuclear Proliferation Watch List that identifies facilities and organizations in foreign countries that may be involved in nuclear weapons development activities. We compared the information in the watch list to the visitors and assignees to DOE's three laboratories during the 21-month period covered by our review.

Limitations on the Scope of Our Work

We encountered a number of limitations in conducting our work. As discussed below, these limitations may have prevented us from fully assessing the effectiveness of DOE's foreign visitor control program.

- Little documentation was available on problems that may have occurred as a result of foreign visits. DOE officials told us that visits and assignments that may involve criminal and/or espionage activities are referred to the FBI, and they could not discuss these with us. According to FBI officials, as a matter of policy they do not discuss ongoing investigations; consequently, we were unable to obtain data on criminal and/or espionage activities committed by foreign nationals at the weapons laboratories during our review period. In addition, we were unable to obtain any DOE reports of hostile contacts by foreign nationals. The November 1985 National Security Decision Directive 197 requires DOE and contractor employees to report such contacts.
- Complete data on the backgrounds of foreign visitors could not be obtained. Some indices check data provided by the FBI and CIA are classified and remain within their control. Although FBI officials agreed to our reviewing the classified data they provided to DOE, CIA's Office of Congressional Affairs staff would not allow us to review their information. CIA staff believed our doing so could reveal intelligence sources and methods. In an attempt to alleviate this concern, we asked the CIA to review the data to ensure that sources and methods information was removed before they provided the data to us. However, the CIA denied

this request as well as a request to perform indices checks on some foreign visitors for us.

- Our access to DOE files was limited because they contained classified CIA and FBI data. We requested the results of indices checks on all communist and other sensitive country visitors to the weapons laboratories. Since the files included classified CIA and FBI data, we were not granted direct access to this information. Instead, DOE pulled the files and removed the classified data. Because of this procedure, we could not independently verify that we obtained, or were made aware of, all pertinent information on the visitors we selected for review.

Because of these limitations, this report may only present a limited perspective of the problems that DOE has encountered in implementing its visitor control program.

We discussed the facts in this report with DOE officials in the Offices of Defense Programs and International Affairs and Energy Emergencies, the Albuquerque and San Francisco Operations Offices, and at the three laboratories. Although they generally agreed with the facts presented, they offered some clarifications that were incorporated where appropriate. As requested, we did not ask DOE or the contractors to review and comment officially on a draft of this report. Our work was performed between July 1987 and August 1988 in accordance with generally accepted government auditing standards.

DOE Does Not Have Effective Procedures to Identify High-Risk Visits and Assignments

Because DOE's weapons laboratories possess sensitive information that would be valuable to foreign nations, it is imperative that DOE have adequate assurance that foreign visits and assignments to the laboratories do not represent a security or proliferation risk. To do this, DOE needs to ensure that it identifies individuals who pose a security or proliferation risk before they obtain access to a weapons laboratory, and the individuals do not obtain information that could benefit a nuclear weapons program. In this regard, DOE has established procedures to review the backgrounds of certain individuals and to review visits and assignments that may involve potentially sensitive subjects.

Nevertheless, DOE's foreign visitor approval process does not provide adequate scrutiny of visitors and assignees to the weapons laboratories or to the subjects discussed. Specifically, DOE does not follow its own procedures for obtaining indices checks and identifying visits that involve sensitive subjects. Further, DOE's procedures, if followed, are not fully adequate because it does not use all available information to identify high-risk individuals and sensitive subjects. As a result

- suspected foreign agents and individuals associated with facilities believed to be involved in nuclear weapons activities have obtained access to the laboratories without prior DOE knowledge.
- foreign nationals—including those from countries suspected of developing nuclear weapons—have participated and/or discussed subjects related to nuclear weapons without appropriate DOE oversight.

DOE officials recognized that problems exist with the procedures for reviewing potentially high-risk visits and assignments to these laboratories. According to these officials, actions are being taken to improve the approval process.

DOE Does Not Adequately Review the Background of Visitors and Assignees

One method that DOE uses to determine if foreign nationals represent a security risk is to obtain indices checks from appropriate government intelligence and investigative agencies, such as the CIA and FBI. At DOE's request, these agencies review their files to determine whether any information exists that indicates a foreign individual may endanger national security. If information exists, these agencies provide it to DOE for use in the approval decision. DOE Order 1240.2 requires these checks for individuals from

- communist countries when they are to be assigned to the weapons laboratories or when they visit secure areas of these facilities and

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- other sensitive countries when they will be visiting secure areas.

The order also allows DOE field offices to request additional indices checks at their discretion. Both the Albuquerque and San Francisco Operations Offices have expanded their indices check requirements. These offices require laboratory officials to request indices checks for all visitors from communist countries. In addition, San Francisco requires indices checks on all assignees to Livermore regardless of country of origin. However, neither DOE headquarters' nor the field offices' procedures require that the indices check results be received before approving visits or assignments by foreign nationals.

We found, however, that DOE and the laboratories request and receive only a small number of the required indices checks for visitors and assignees from communist and other sensitive countries. In addition, the majority of the checks that are performed are completed after access to the weapons laboratory has occurred. Of the 181 individuals from communist-controlled countries we reviewed, 176 required indices checks.¹ For these individuals, DOE

- obtained only 6 completed indices checks before the initiation of the visit or assignment,
- received indices data for 51 individuals either during the visit or after it had been completed, and
- did not obtain indices checks for 119 individuals.

Similarly, DOE and the laboratories obtained few indices checks for individuals from other sensitive nations before granting access to a weapons laboratory. Of the 637 foreign nationals from other sensitive countries that we reviewed, only 77—about 12 percent—were required to have indices checks under DOE's order and the field offices' requirements. Of the 77, only 14 were completed prior to the visit or assignment. Table 2.1 shows the extent to which DOE obtained required indices checks for foreign nationals from communist and other sensitive countries that visited or were assigned to the three laboratories between January 1986 and September 1987.

¹Prior to July 1986, Yugoslavia was not listed as a communist-controlled country in DOE's order; consequently, indices checks were not required for these visitors. During our sample period, DOE allowed five Yugoslavians to visit the laboratories before it changed the order.

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Identify High-Risk Visits and Assignments

Table 2.1: Indices Checks Performed for Communist and Other Sensitive Country Visitors and Assignees - January 1986 to September 1987

	Visits			Assignments		
	Completed before	Completed during or after	Not completed	Completed before	Completed during or after	Not completed
Communist						
Livermore	3	40	17	•	•	•
Los Alamos	2	5	52	1	6	28
Sandia	•	•	19	•	•	3
Total	5	45	88	1	6	31
Other sensitive						
Livermore	•	•	1	14	17	4
Los Alamos	•	•	7	•	•	8
Sandia	•	•	24	•	•	2
Total	0	0	32	14	17	14

A number of reasons account for DOE's failure to obtain indices checks. For example,

- The field office did not request the required indices checks. Of the 143 checks required for Los Alamos and Sandia, 138 were not requested by the Albuquerque Operations Office for visits and assignments to these laboratories. The remaining five had been requested but were not completed at the time of our audit.
- Indices checks take a long time to complete, and many visits are conducted on short notice. As a result, insufficient time is available to obtain indices data. In some instances, the visit request was provided 2 to 3 months before the visit, but the intelligence agencies took over 6 months to provide the data to DOE. In other instances, visit requests were submitted less than 3 weeks before the visit, and indices data could not be obtained. Of the 22 checks required for Livermore but not completed, 20 had been requested but were not completed at the time of our work. The remaining two checks had not been requested.

DOE's San Francisco Office has recognized that problems exist in the performance of indices checks and has attempted to strengthen its requirements. In August 1986, this office directed that indices checks results must be received before foreign nationals from communist countries would be allowed access to Livermore. However, this requirement has not been successfully implemented. Of 30 communist visitors to the laboratory since the implementation of this requirement, the field office

received only two completed indices checks before access was granted. The field office granted a waiver from the indices check requirement in 15 instances and allowed access to the laboratory without a waiver for the remaining 13 communist visitors.

Impact of DOE's Not Obtaining Indices Checks

As a result of not obtaining indices data, DOE allowed foreign nationals into the laboratories who might have posed an unacceptable risk. Some examples are discussed below.

- An individual was allowed access to a weapons laboratory for a multi-day visit before the indices check was completed. However, data received by DOE 1-1/2 months after the visit indicated that the individual was known to be connected with a foreign intelligence service.
- An individual was allowed access to a laboratory for a 1-day visit, but no notification of the visit was given to DOE and no indices check was requested. However, a subsequent indices check showed that the individual was connected with a foreign intelligence service.
- An individual was granted access to two laboratories over a 1-week period. One laboratory granted the individual access for a visit without requesting the required indices check; the other did request an indices check, but the results were not completed until 2 months after the visit. The indices data showed that this individual was suspected of having connections with foreign intelligence activities. Further, at one laboratory the individual was granted access to a secure area under escort, even though the field office manager notified DOE headquarters prior to the visit that he intended to limit the visitor's access only to public areas.
- Three individuals that a federal agency official told us were obtaining U.S. nuclear weapons development and other sensitive information were allowed into laboratories on several occasions. DOE never obtained indices checks for one and received the checks for another 8 months after the visit occurred. DOE denied access to the third individual, but the person visited with laboratory officials off-site, obtained access to a federal (non-DOE) facility, and with the help of the laboratory host observed the operation of his program on a supercomputer.

Further, other information may exist on these and other individuals that we could not obtain. As discussed in chapter 1, we were not given the opportunity to review the data that CIA provides DOE. Of the 88 instances shown in table 2.1 where DOE obtained indices data, the CIA

provided data for 12 individuals. Without having access to CIA information, we could not verify all the results of indices checks provided to DOE.

For the most part, laboratory and field office records do not indicate that precautions above those normally required—such as security plans—were taken for these individuals. However, one individual was part of a high-level group and was subject to stringent escort requirements. Further, in the case where DOE denied a visit, Defense Programs officials said that they told appropriate laboratory officials their reasons for doing so. DOE officials also said that an investigation of one case discussed above determined that security had not been compromised.

DOE Recognizes Problems With Its Indices Check Procedures

Although foreign visitors have been allowed into the laboratories without complete indices check data, DOE officials in Defense Programs and International Affairs do not believe that this has resulted in significant security problems. They pointed out that indices checks are not a fool-proof method to identify individuals who are security risks, because the checks only provide known information on foreign visitors. Consequently, they assume that all foreign visitors pose a potential risk and implement other controls, such as escort requirements, to ensure that access to sensitive information is prevented. In fact, according to these officials, the security plans and host reports serve as their primary control method and the indices checks merely supplement these controls. They also said that persons with derogatory indices checks may still be allowed into a laboratory if DOE believes that the risks can be effectively managed and this country can benefit from the information obtained.

Nevertheless, in a 1987 memorandum a Defense Programs official noted that the practice of allowing individuals into the laboratories without indices check results represents a significant risk. According to the memorandum, this practice negates the purpose of the indices check and, because the indices data are not available, places DOE in a position whereby it does not take special precautions or deny a visit to an individual who represents some additional risk. Several other Defense Programs officials said that, because indices check practices have been lax and the indices checks provide limited data, DOE has identified few problems with foreign access and has been lulled into a false sense of security. Similarly, a November 1987 memorandum from the San Francisco Office noted that the lack of information seriously inhibits their ability to make sound recommendations to either approve or deny a foreign visit or assignment.

DOE officials in Defense Programs also stated that efforts are being made to improve the timeliness and completeness of the indices check process. They pointed out that they are currently working with the intelligence agencies to develop a more automated system to obtain indices data. The officials said that they expect to implement a system whereby the intelligence agencies would notify DOE within 48 hours about those individuals for whom the agencies do not have information. Since past experience has shown that the intelligence agencies do not have information on many foreign visitors, they believe that such a system would greatly expedite the indices check process on the vast majority of foreign visitors. However, indices checks showing that records on an individual exist would still require extensive, time-consuming manual searches. Further, Defense Programs officials stated that they are directing field offices to submit indices checks directly to the FBI and the CIA without going through headquarters and to submit the names as early as possible, even before plans for the visit have been finalized. They are hopeful that these measures will provide more timely completion of indices checks.

DOE Not Using Other Data to Identify High-Risk Visitors

DOE requires indices checks and headquarters approval of all individuals from communist countries; however, background checks and headquarters approval are not required for individuals from sensitive, proliferation-risk countries unless they are going to a secure area or are discussing a sensitive subject. Although field office officials have the authority to request additional indices checks, the foreign visitors program has no other criteria for additional scrutiny of foreign visitors' backgrounds. However, DOE has developed information for other agencies regarding proliferation-risk countries that it should make available to its field offices.

DOE's Office of Defense Programs has developed a classified Nuclear Proliferation Watch List that identifies facilities and organizations in certain countries suspected of conducting activities related to nuclear weapons development. DOE developed this list for the Commerce Department to use in referring export cases to DOE. DOE performs a detailed review of these requests to ensure they are not contrary to U.S. non-proliferation policy, do not contribute significantly to unsafeguarded nuclear activities in nonweapons states, and are not detrimental to the interests of the United States. All potentially high-risk exports—including technical information—to the facilities or organizations identified in the list are to be reviewed to ensure that they do not represent a proliferation risk.

However, a number of visits and assignments to the weapons laboratories involved individuals from facilities identified in the watch list. We found that 65 visitors and assignees to the laboratories were affiliated with these sensitive facilities. Some of the visits and assignments involved potentially sensitive subjects, such as isotope separation, behavior of explosives, nuclear modeling, and laser plasma experiments that could be related to weapons testing.

Under DOE Order 1240.2, indices checks and headquarters reviews were not required for any of these visits because the visitors were not from communist countries and the subjects were not identified as sensitive. Consequently, DOE headquarters officials responsible for nuclear non-proliferation were not required to ensure that the visitors' activities are consistent with U.S. policy. Of the 65 visitors and assignees affiliated with sensitive facilities or organizations, DOE headquarters reviewed 7 because they involved high-level foreign officials and were initiated by headquarters. According to DOE field office officials, they did not request indices checks or obtain headquarters review because they were not aware that these individuals were from facilities or organizations that may be connected with nuclear weapons development. Further, the officials were not even aware that the watch list existed.

Officials from DOE's Office of Defense Programs responsible for developing the list confirmed that they had not distributed it to the field offices. They pointed out, however, that the sensitive subject criteria in DOE's order should have alerted the field offices and laboratories to submit requests for headquarters review and indices checks. If these requests had been submitted, headquarters would have used the watch list in its evaluation, they said.

Defense Programs officials also stated that inclusion of a facility or organization on the watch list does not necessarily mean that it conducts nuclear weapons work or that the individual is involved in such activities. Rather the list is intended to alert the user that additional scrutiny is warranted for visitors from these facilities, they said. Nevertheless, the officials agreed that it was inconsistent to advise the Commerce Department to refer all export requests involving these facilities to DOE for review while at the same time allowing individuals from such facilities to participate in activities at the weapons laboratories without similar DOE oversight. They plan to provide copies of the watch list to the field offices to assist in identifying foreign visitors and assignees that may require additional review.

Some Visits May Have Involved Potentially Sensitive Subjects

DOE attempts to limit foreign national involvement in sensitive activities or subjects at the laboratories. DOE Order 1240.2 requires that headquarters officials review and approve those foreign nationals who want to participate in these activities. Of the 818 communist and sensitive visitor files we reviewed, DOE identified only 1 assignment as dealing with a sensitive subject. However, we found that foreign visitors from communist and other sensitive nations have been involved in activities that have been identified as sensitive by DOE's own criteria, such as lasers, nuclear physics, and particle beams, that could assist countries develop and produce nuclear weapons. In only a few cases, the field offices and laboratories sent the requests to DOE headquarters for review, but they did so because the prospective visitor was from a communist country, not because the visit involved a sensitive subject.

Visits Involved Sensitive Subjects

DOE Order 1240.2 identifies 18 sensitive subjects, such as nuclear fuel production and reprocessing, inertial confinement fusion, and other technologies related to nuclear and conventional weapons. These subjects are shown in appendix III. In order to protect national security interests and proprietary information or to further U.S. foreign policy, DOE requires that any foreign involvement in these subject areas receive special consideration, such as DOE headquarters review and approval. According to Defense Programs officials, the sensitivity of each subject varies to some degree, but for the most part the subjects identified in the order relate either to the production of special nuclear material or the development of weapons. According to DOE's order, all visits and assignments involving sensitive subjects must be approved by the Assistant Secretary for International Affairs and Energy Emergencies.

During our sample period, DOE's field offices and laboratories identified only 1 of the 818 communist and sensitive country visits as involving a sensitive subject. The visit involved a foreign national from India who attended a workshop on reprocessing-related activities at Los Alamos. DOE's Office of International Affairs and Energy Emergencies approved the visit because the individual is working on the design of a new extractant under a laboratory contract with the University of New Mexico.

However, we identified at least 37 other visits and assignments that either directly involved or had activities related to sensitive subjects listed in the DOE order. The sensitive subjects were inertial confinement fusion, uranium enrichment, and directed energy systems. These visits included the following:

- 11 Chinese visited Livermore and 3 Soviets visited Los Alamos to discuss inertial confinement fusion. The Soviets also visited Livermore to discuss the same subject and laser isotope separation, a technology being developed for uranium enrichment.
- 4 foreign visitors from Israel visited Livermore for activities associated with lasers, including those used in weapons-related applications.
- 3 foreign nationals from communist countries and 3 from Israel visited Los Alamos to discuss laser isotope separation.
- 4 Chinese, 1 Soviet, and 8 individuals from other sensitive nations (such as Korea, Taiwan, and Brazil) visited the three laboratories concerning rail guns, free electron lasers, and particle beams. These topics relate to directed energy technologies.

However, none of these visits were identified as involving sensitive subjects by the laboratories to alert DOE that additional scrutiny may be warranted. Consequently, the majority were not reviewed and approved by DOE headquarters as required by the DOE order. Of the 37 visits that related to sensitive subjects, only 15 were reviewed at DOE headquarters; however, these were reviewed because the prospective visitor was from a communist country. The other 22 visitors were not reviewed by DOE headquarters.

According to laboratory officials, the DOE sensitive subjects list is very broad and does not provide clear guidance as to what activities are to be covered. For example, Los Alamos officials point to the nuclear weapons supporting technologies category as a subject that is not clear in the order. They pointed out that DOE has issued no guidance concerning the types of subjects that are included in this category. Because of this confusion, the laboratory relies on its own classification officials to determine whether a proposed visit or assignment involves a sensitive subject. According to laboratory officials, if that office determines that the information is not classified, they generally regard the subject as nonsensitive and open to discussion with foreign visitors.

Some Visits Involved Other Potentially Sensitive Subjects

DOE's visits and assignment order does not include a number of potentially sensitive weapons-related technologies. For example, one classified DOE document identifies 33 areas (some with multiple subareas) of unclassified technology that relate to nuclear weapons. These items are not specifically delineated in the sensitive subject list in the order. Further, DOE officials stated that other technology areas, such as sophisticated atmospheric computer modeling and astrophysics, provide knowledge that could have nuclear weapons uses.

We found at least 14 visits or assignments that involved subjects listed either in DOE's classified document or considered sensitive by DOE officials. None were reviewed and approved by DOE headquarters. The subjects included special cameras, high explosives, and astrophysics. These visits included the following:

- Two foreign nationals from China visited Livermore to discuss the feasibility of their manufacturing components for special cameras that are used in nuclear weapons tests.
- Six foreign nationals from Israel and India visited or were assigned to various laboratories to conduct research or discuss theoretical astrophysics. DOE documents state that astrophysics is closely tied to understanding nuclear weapons phenomena and nuclear detonations.
- One foreign national from Israel assigned to Los Alamos collaborated in research related to high explosives. This research involved predicting the initiation and detonation behavior of a high-explosive specifically used in nuclear weapons applications. Further, four other visitors from Israel and one from India were involved in research related to explosives and shock waves.

DOE Recognizes Problems With the Identification of Sensitive Subjects

DOE officials recognize that they have not identified all foreign visits that involve sensitive subjects or included all sensitive technologies in Order 1240.2. For example, a November 1987 report by the Office of Defense Programs concluded that field office and laboratory officials did not identify all visits and assignments that dealt with sensitive subjects. According to the report, over a 4-week period several visit and assignment requests explicitly stated that sensitive subjects would not be discussed. However, the subjects listed on the request are clearly included in DOE's order. Office of Defense Programs concluded that a high probability exists that field office and laboratory officials do not correctly identify a visit or assignment that involves a sensitive subject.

DOE field office and laboratory officials acknowledged that problems exist in identifying visits and assignments that involve sensitive subjects. This occurs, according to these officials, because (1) the order lists general categories and DOE headquarters has not provided specifics applicable to them, (2) the order lists only a limited number of subjects, and (3) field office staff who process visit and assignment requests lack the technical expertise to determine that a subject is sensitive.

According to Defense Programs officials, DOE's foreign visitor controls have been directed more towards physical security than technology

security. They stated that because of this emphasis the sensitive subjects list does not encompass all activities that could benefit a foreign nuclear weapons program. They pointed out that most of these activities—such as astrophysics—have peaceful and beneficial purposes, but they could also pose a proliferation risk. In this regard, officials at Los Alamos stated that virtually all their activities have some nuclear weapons and basic science applications. Consequently, they believe it is very difficult to draw the line between weapons applications and basic science.

In addition, both DOE field office and laboratory officials responsible for approving foreign visit requests said that they have little technical background or training to identify sensitive subjects. Consequently, they rely on the laboratory initiating organization to properly identify sensitive subjects. Further, Defense Programs officials said that, although they do have technical experts to review requests, the requests must be referred to them by the Office of International Affairs. However, if subjects are not identified as sensitive by the initiating organization, they generally would not refer a request to Defense Programs for technical review.

According to Defense Programs and International Affairs officials, some efforts are being made to improve controls over sensitive subjects. They pointed out that recently they have denied visits concerning inertial confinement fusion that involve foreign nationals from China and the Soviet Union. Further, they plan to expand the sensitive subject list and clarify the activities to be included on it. As mentioned in chapter 1, DOE began revising Order 1240.2 in October 1986; DOE expects to issue the revised order in October 1988. According to International Affairs and Defense Programs officials, the revised order will incorporate clarifications for sensitive subjects and may delegate additional approval authority to the field offices. However, DOE does not plan to assign staff with greater technical expertise to the field offices to review foreign visit and assignment requests for sensitive subjects. DOE believes that ongoing training and proliferation awareness efforts—along with an expanded sensitive subject list—should improve the field office's capability to identify sensitive subjects.

Internal Control Improvements Needed

DOE's foreign visitor and assignment order contains requirements directed at ensuring that the agency carries out its programs consistent with laws, regulations, and policies in an efficient and effective manner. These internal controls are also intended to ensure that the agency obtains and maintains reliable information to enable it to evaluate ongoing activities and identify problem areas requiring management attention.

We found, however, that the laboratories have not always complied with existing controls. Specifically, the laboratories

- have allowed visitors access without properly authorized approvals.
- do not always prepare security plans.
- do not submit required host reports or submit them late.

In addition, DOE has not established an integrated data system to facilitate processing and analyzing visits and assignments and does not conduct audits of compliance with DOE's foreign visitor controls.

Improper Approvals of Foreign Visits

Because of the various factors that must be considered in allowing foreign access to the laboratories—such as program benefits, security risks, and proliferation concerns—separation of program and approval authority can best ensure that foreign visits are in the best interest of the government and do not conflict with other policies. DOE's order specifies certain officials that can approve access to the laboratories, with higher level approvals required for more sensitive visits. However, some visits and assignments are being approved at improper levels.

All visits to the laboratories must be approved by authorized DOE headquarters, field office, or laboratory officials. DOE headquarters must approve all visits and assignments involving sensitive subjects, sensitive or communist-controlled countries to secure areas, high-level foreign officials, and all communist-controlled country assignments. DOE field offices must approve all other visits and assignments unless the field office delegates this authority to the laboratory. The field offices have delegated the authority for approving all nonsensitive subject visits involving nonsensitive countries to the laboratories. However, in accordance with the order, this approval authority cannot be redelegated below the laboratory deputy director level.

Contrary to the requirements of the DOE order and the field office delegations, visits and assignments are approved at inappropriate levels. For example,

- Los Alamos officials in group and deputy group leader positions—at least five levels below that authorized by DOE's order—approve foreign visits. On the basis of a sample of 100 visitors from nonsensitive countries, we found that 62 were approved by such officials. We raised this discrepancy with Los Alamos officials, and on June 22, 1988, the laboratory director issued a memorandum that authorized some lower level officials to approve visits. In the memorandum, the director stated that this "is not a delegation of authority." In our view, however, this is not consistent with the requirements of DOE Order 1240.2.
- Sandia officials approved 11 of 22 visits by citizens from communist countries. However, Albuquerque did not delegate this approval authority to the laboratory and no DOE office approved them. Further, one of the visitors the laboratory approved is suspected of being affiliated with a foreign intelligence service.
- Livermore officials approved visits for sensitive country visitors. Eight visitors—including two from Israel and three from India—were approved by Livermore; the San Francisco office did not delegate approval authority to the laboratory for these types of visits.
- One visitor from Brazil to a secure area at Livermore was not approved by DOE headquarters as required; only field office approval was obtained. Further, DOE headquarters had no record of this visitor.

In addition, some visits and assignments were approved by DOE after they occurred. At Sandia, 4 communist and 16 sensitive country visitors or assignees were approved by Albuquerque after the visit had occurred. At Los Alamos, five foreign nationals from sensitive countries and three from nonsensitive countries were approved after the visit or assignment began.

Some Laboratories Are Not Developing Security Plans

Once foreign nationals have been granted access to a weapons laboratory, security concerns over their participation in laboratory activities does not end. In this regard, DOE requires that the responsible organization develop security plans to ensure that only approved activities take place during the visit and access to classified or otherwise sensitive information is prohibited. According to Defense Programs officials, these plans are a key mechanism to assess the risk involved in a visit or assignment and to prevent access to information or areas that cause a security concern.

DOE's order mandates that field office develop and institute security plans for proposed visits and assignments to sensitive facilities that involve foreign nationals from communist or sensitive countries to secure areas. In actuality, however, the laboratories prepare the plans and submit them to the field office with proposed visit requests. The security plans are to include, among other things, an inspection of the area to be visited, posting of signs cautioning employees that uncleared persons are in the area, and a review of escort responsibilities by employees involved in the visit or assignment.

Our review of DOE and laboratory files showed that Livermore prepared and submitted security plans as required. However, Los Alamos and Sandia did not submit all the required security plans. Los Alamos provided only 83 of 171 security plans to DOE; Sandia prepared 73 of 77 required but only provided 6 to DOE.

According to Albuquerque security officials, they have not been diligent in requesting security plans for foreign nationals visiting the laboratories. They added that, because of the laboratories' security controls and escort requirements, they do not believe that any harm has resulted from not having DOE-approved plans. Nevertheless, the officials stated that they intend to improve their followup efforts to ensure that the laboratories develop security plans before DOE approves the visit. Defense Programs officials said that, since GAO started its review, the laboratories have provided more of the required security plans.

Host Reports Not Prepared

In order to ascertain the events that occurred during a foreign visit or assignment and to document the benefits derived, DOE Order 1240.2 requires a post-visit, or host, report. A report that details the events that occurred during a visit or assignment can provide a basis for DOE and others to (1) evaluate if the visit was consistent with its stated purpose, (2) determine whether the visit resulted in a benefit (or loss) to the United States, and (3) assess the risk involved in continued participation by the visitor in U.S. programs.

The order provides that, within 30 days after a visit by a foreign national from a communist-controlled country or any visit involving a sensitive subject or a secure area, the host or principal escort must prepare and submit a report to DOE headquarters. In part, the report must contain information on

- subjects of major interest to the visitor, and any significant conclusions, observations, and opinions expressed concerning the discussions or the research performed.
- significant data obtained from the visitor concerning programs in his/her country.
- specific contributions of the assignee to the DOE program involved.
- documents or other materials furnished to or by the visitor or assignee.

Under DOE's policy, the field offices must ensure that host reports are prepared and submitted to DOE headquarters. However, few host reports are being prepared within the 30-day deadline, and some are not prepared at all. We found that 187 host reports should have been prepared during the 21-month period we reviewed; the laboratories prepared only 44—about 25 percent—within the required 30 days. Of the remainder, the laboratories prepared 85 as much as 496 days after the visit and did not prepare 55. Table 3.1 shows the laboratories' performance in providing required host reports.

Table 3.1: Laboratories' Performance in Submitting Host Reports

	Host reports required	Completed on time	Completed late	Not completed
Livermore	62	9	50	3
Los Alamos	77	27	38	12
Sandia	48	8	•	40
Total	187	44	88	55

DOE field office and laboratory officials acknowledged that their performance in meeting host report requirements was not adequate. According to Albuquerque officials, the host reports can show whether visits deviated from their stated purpose and ascertain the benefits obtained, but the lack of reports—particularly in the case of Sandia—prevents DOE from making such evaluations. Albuquerque officials said that they have not established a mechanism to followup on host reports and ensure they are completed; San Francisco officials said that host reports receive low priority and are provided to headquarters as time and workload permits.

No Integrated Data System on Foreign Visitors

DOE currently does not have an integrated, accessible system for maintaining data on foreign visits and assignments. The laboratories and DOE headquarters maintain their own data bases. In fact, DOE headquarters has three separate data bases—two in the Office of Defense Programs and one in the Office of International Affairs and Energy Emergencies—

on foreign visitors. According to officials in the respective offices, the International Affairs data base summarizes the visits and assignments that have been reported to DOE headquarters. The Defense Programs data bases provide historical information on foreign visits for that office to use in analyzing visit requests and determining trends in foreign information gathering activities.

In addition, all the laboratories maintain data bases on the visitors to their respective facilities, but the laboratory systems are not connected to the headquarters data bases. DOE headquarters only records foreign visits or assignments in the data bases when notified by the laboratory. However, DOE only requires this notification for communist visitors, visitors to secure areas of sensitive facilities, and visitors involved in sensitive subjects.

As a result, DOE headquarters does not have complete data on foreign visits to the weapons laboratories. We compared the data base maintained by the Office of International Affairs to the visits and assignments that occurred at the laboratories. We found that 106—or about 13 percent—of communist and sensitive visitors to the laboratories were not in the data base. These included

- a communist who visited a laboratory to discuss laser research. DOE denied this visitor access 6 months later on a similar visit to the same laboratory.
- a communist visit involving the Strategic Defense Initiative program.
- 31 individuals from India who visited or were assigned to various laboratories in areas related to lasers and undefined chemistry activities.
- 47 Israelis who visited or were assigned to various laboratories in areas related to astrophysics, explosives, and other potentially sensitive subjects.

Further, maintaining separate data bases prevents field offices and laboratories from obtaining access to information necessary for their approval decisions. According to field office and laboratory officials, they approve visits and assignments unless information is available that indicates the visit may pose a risk. However, such information may not be made available to the appropriate levels. In one instance an indices check on an assignee from a nonsensitive country (Austria) disclosed information that raised concerns about his participation in laboratory activities; the laboratory did not extend the assignment. However, this individual later was granted access to a different laboratory for a number of visits without the laboratory's knowledge of the problems in

his background. Although we cannot determine whether these visits would have been denied had this information been available, this data should be a factor in the approval decision.

DOE officials agreed that they do not have complete data on foreign visitors and assignees. Officials in the Office of International Affairs pointed out that they computerized their data base in 1986 in order to provide more accurate and complete information on foreign visits to the DOE complex, and they now believe that the data base more accurately reflects the individuals visiting the weapons laboratories. They pointed out that the laboratories and field offices are not required to notify headquarters of each visit—such as those from friendly countries. Consequently, they do not expect the data base to be complete. Defense Programs officials stated that they were aware that their data bases were not complete, but they have confidence that they are reasonably accurate.

Nevertheless, both Defense Programs and International Affairs officials agreed that a need exists for an integrated data entry and retrieval system that would allow headquarters and field organizations to input directly to the data base and obtain relevant information for approval decisions. They pointed out that since 1986 they have discussed developing a system that would fully integrate the field offices and headquarters information and would include software that would provide counterintelligence capability. However, they added that developing and implementing the system have been put on hold because of cost and other concerns. The officials could not estimate if or when such a system would be developed.

No Systematic Audit Function

DOE's internal control systems manual states that reviews and audits are necessary to provide reasonable assurance that controls are in place and working effectively. The manual further states that audits or reviews should be conducted at a minimum of every 5 years. However, we could not find any audits or reviews of the foreign visit and assignment program at the weapons laboratories by any DOE organization.

DOE has a multilayered program to assess the contractors' compliance with its visit and assignment requirements. Headquarters offices such as Defense Programs, operations offices, and contractors all have responsibilities to conduct reviews of this area. At the headquarters level, Defense Programs conducts periodic assessments of the security of all DOE facilities and selects various aspects of security for review during

each assessment. According to an official responsible for these reviews, foreign visits and assignments is one area that could be selected. However, he could identify only two instances—one at the Argonne National Laboratory, Illinois, in 1986 and one at DOE headquarters in 1987—where headquarters assessed foreign visit and assignment controls.

Similarly, DOE's field offices were unable to document any reviews of the foreign visit and assignment activities under their jurisdiction. Officials from the field offices said they have not performed any audits or reviews of foreign visits and assignments because they do not have adequate resources, and they do not believe that any significant problems exist in this area. However, if DOE headquarters or field offices had audited or reviewed the visit and assignment program, they might have found and resolved the weaknesses cited in this report. Further, DOE Order 1240.2 requires field office managers to ensure that DOE and laboratory personnel under their jurisdiction are informed of, and comply with, requirements and procedures. As we found, however, the field offices are not following the process established.

Conclusions and Recommendations

DOE's nuclear weapons laboratories possess sensitive information that would be valuable to foreign nations, and valid concerns exist regarding the technology security at these facilities. Studies conducted by DOE conclude that unclassified information at the laboratories may provide foreign countries details on sensitive—and even classified—activities that the United States conducts. It is also widely known, as pointed out by DOE and other federal officials, that some foreign countries try to obtain information and technology from the United States.

Although such concerns exist, DOE permits foreign nationals—including those from communist-controlled and other countries that DOE believes conduct nuclear weapons-related activities—to participate in unclassified activities at the weapons laboratories. DOE allows foreign visits and assignments as part of its policy to encourage international cooperation and technical exchange. As a result, DOE tries to strike a balance between security concerns and its foreign visitor policy and has instituted management controls to reduce the risks associated with these visits.

However, DOE's controls over foreign access to its nuclear weapons facilities do not provide adequate assurance that foreign visits and assignments do not pose a security and/or proliferation risk. Although we could not determine if sensitive or classified information has been lost to foreign countries as a result of these activities, weaknesses exist in three areas that affect DOE's ability to ensure the security of the weapons laboratories.

First, DOE's procedures to obtain and review background information on foreign nationals are not effective. For the most part, DOE headquarters and field office and laboratory officials do not follow the procedures established to obtain indices checks. In the cases where DOE requested the checks, the results were usually obtained after access was granted. In our view, allowing high-risk individuals access to these facilities without DOE's first obtaining available government information on their backgrounds runs contrary to the purpose of the indices check process. Further, other criteria, such as DOE's watch list that identifies potentially sensitive facilities in foreign countries, are not used to identify individuals who may be of concern.

Second, DOE has little assurance that visits and assignments do not provide sensitive information to communist or other sensitive nations. Foreign involvement in sensitive activities requires DOE headquarters review and approval, but the identification of these types of visits or assignments has been weak. Further, confusion exists over the activities

that should be considered sensitive, and DOE staff—particularly at the field office level—do not have the technical expertise to review foreign visit requests for sensitive subjects.

Third, DOE does not have effective internal controls over foreign visits and assignments. According to DOE's internal control systems manual, these controls are essential to achieve management objectives, serve as checks and balances against undesired actions, and prevent negative consequences from occurring. However, such controls are not fully in place. As a result, a number of problems exist such as improper delegations of approval authority, failure to provide DOE notification of visitors, and inadequate submission of required reports on the results of visits. Further, DOE has no procedures to systematically review the laboratories' compliance with the requirements of DOE Order 1240.2. Finally, DOE has no integrated system to obtain and provide data on visits and assignments. As a result, DOE does not have consolidated information to analyze foreign visits or a mechanism to make field offices aware of all information that may be relevant to their approval decisions.

When viewed in their totality, the effects of existing weaknesses cast considerable doubt on DOE's ability to prevent adversary or proliferant nations from obtaining sensitive weapons-related information and technology. The fact that foreign nationals with suspected intelligence connections have been granted access to the laboratories without prior DOE knowledge reflects a significant weakness in DOE's control procedures. Further, allowing foreign nationals suspected of conducting weapons development activities into the laboratories without DOE oversight raises questions about the consistency of DOE's actions with this country's non-proliferation policy. This policy prohibits direct or indirect assistance to countries in the development of nuclear weapons.

DOE needs to make changes in its foreign visitor control program for the weapons laboratories to better ensure that foreign access to the weapons laboratories does not pose a security and/or proliferation concern. We recognize that the majority of foreign visits and assignments represent little or no risk. However, the significant risk that some represent as well as DOE's lack of adequate controls highlight the need for DOE to make a number of changes to improve its visit and assignment program. To better ensure that foreign visits and assignments do not pose a security risk, DOE needs to undertake actions that would

- obtain all pertinent data on high-risk individuals visiting the laboratories before access is granted,

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- identify all laboratory activities with foreign nationals that could involve information or technology that could be of concern,
 - provide complete and accurate data on foreign visitors to appropriate officials in the DOE complex, and
 - establish procedures for monitoring compliance with DOE visitor control requirements.

Although DOE has recognized that it has a number of problems with its foreign visitor control program, we anticipate that DOE and the laboratories may raise concerns regarding stronger controls over foreign visits and assignments. Stronger controls may result in extra time to approve visits and assignments and in a greater burden on officials responsible for requesting, processing, and reporting on these activities. Nevertheless, the benefits far outweigh the time and effort required by stronger controls. A major benefit would be that high-risk visits and assignments would be identified before they occur, and DOE could take appropriate action to prevent or limit such access. In our view, only then will DOE have a mechanism to reduce the security and proliferation risks of foreign visits and assignments to its weapons laboratories while at the same time fulfilling its policy of international cooperation and technical exchange at these facilities.

Recommendations to the Secretary of Energy

In order to prevent security breaches concerning nuclear weapons-related information, DOE needs to improve its management of foreign visits and assignments to its weapons laboratories. Therefore, we recommend that the Secretary of Energy

- Revise the order controlling foreign visits and assignments to (1) require that indices checks are completed prior to admitting a foreign national to a weapons laboratory; (2) require the use of additional criteria, such as the watch list, to identify potentially sensitive visitors that require additional scrutiny; and (3) expand the sensitive subjects list to include additional areas that could be useful to adversary or proliferant nations.
- Establish an integrated data collection and dissemination system to provide DOE and the laboratories timely and pertinent information to use when approving foreign visits.
- Require periodic evaluations of field office and laboratory compliance with the requirements of DOE's foreign visit and assignment order.

Visitors and Assignees to DOE Weapons Laboratories From January 1986 Through September 1987

Communist countries	Lawrence Livermore	Los Alamos	Sandia	Total
Bulgaria	•	1	•	1
People's Republic of China	41	69	8	118
Czechoslovakia	•	1	•	1
East Germany	•	2	1	3
Hungary	2	9	•	11
Poland	2	10	3	15
Romania	1	•	•	1
Soviet Union	13	34	10	57
Yugoslavia	1	14	•	15
Total	60	140	22	222
Sensitive countries				
Algeria	2	1	•	3
Argentina	2	14	2	18
Brazil	13	19	•	32
Chile	14	2	•	16
Egypt	10	5	2	17
El Salvador	1	3	51	55
Ethiopia	•	1	•	1
Guyana	•	1	•	1
India	84	56	9	149
Iran	18	5	2	25
Iraq	•	2	•	2
Israel	75	60	53	188
Lebanon	4	•	•	4
Malawi	•	1	•	1
Nicaragua	1	•	•	1
Niger	•	1	•	1
Nigeria	5	2	•	7
Pakistan	7	4	•	11
Saudi Arabia	•	2	•	2
South Africa	9	7	1	17
South Korea	40	19	8	67
Syria	•	1	•	1
Taiwan	26	14	11	51
Tanzania	1	2	•	3
Zambia	1	1	•	2
Total	313	223	139	675
Total	373	363	161	897

Communist-Controlled and Other Sensitive Countries Identified in DOE Order 1240.2

Communist-Controlled	Afghanistan Albania Bulgaria Cuba Czechoslovakia Cambodia East Germany Hungary Laos Mongolia North Korea People's Republic of China Poland Rumania Soviet Union Vietnam Yemen Yugoslavia
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Other Sensitive	Algeria Andorra Angola Antigua Argentina Bahrain Belize Benin Brazil Burma Chad Chile Comoro Islands Congo Djibouti Egypt El Salvador Ethiopia Grenada Guyana India Iran Iraq
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**Appendix II
Communist-Controlled and Other Sensitive
Countries Identified in DOE Order 1240.2**

Israel
Kiribati
Kuwait
Lebanon
Libya
Malawi
Mauritania
Mozambique
Namibia
Nicaragua
Niger
Nigeria
Oman
Pakistan
Qatar
Saudi Arabia
Solomon Islands
South Africa
South Korea
Syria
Taiwan
Tanzania
United Arab Emirates
Vanuatu
Yemen Arab Republic
Zambia
Zimbabwe

Sensitive Technology Areas Identified by DOE Order 1240.2

Technology Area

Uranium Enrichment
Reprocessing Technology
Plutonium and Uranium-233 Production, Handling and Metallurgy
Heavy Water Production
Fuel Fabrication
Uranium Hexafluoride Production
Large-Scale Tritium Production Technology
Naval Nuclear Propulsion Information
Nuclear Reactors
Inertial Confinement Fusion
Advanced Seismic Detection
Radiation Detection and Hardening of Satellites
Physical Security Systems
Directed Energy Technologies
Nuclear Weapons Supporting Technologies
Superconducting Magnets Associated with Magnetohydrodynamics
Electronics - Semiconductor Manufacturing Technology
Items Controlled Under the Export Administration Act of 1979

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