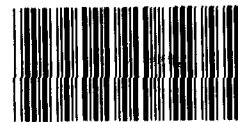


October 1990

NUCLEAR SAFETY

Potential Security Weaknesses at Los Alamos and Other DOE Facilities



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**Resources, Community, and
Economic Development Division**

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October 11, 1990

The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
Committee on Energy and Commerce
House of Representatives

The Honorable Pete V. Domenici
United States Senate

The Honorable Jeff Bingaman
United States Senate

At your request, we examined issues related to the adequacy of security at the Department of Energy's Los Alamos National Laboratory, New Mexico; the Department's security inspection process; and the feasibility of federalizing the Department's security forces. This report presents the results of our efforts.

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 to the 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 Victor S. Rezendes, Director, Energy Issues, who can be reached at (202) 275-1441. Other major contributors are listed in appendix III.

A handwritten signature in cursive script, appearing to read 'J. Dexter Peach'.

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

In March 1989 the contract security force at the Department of Energy's (DOE) Los Alamos National Laboratory began a 10-week strike, primarily because of quality of life issues. During the strike, DOE used temporary replacements from other facilities. Los Alamos carries out nuclear weapons research, development, design, and testing activities. Therefore, continuous, effective security is essential to protect nuclear materials, weapons, and information.

Concerned about the effect of the strike on site security, the Chairman, Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, and Senators Domenici and Bingaman asked GAO to evaluate (1) the adequacy of security at Los Alamos and other DOE facilities, (2) DOE's oversight of protective forces, and (3) the feasibility of establishing federal security forces at DOE facilities.

Background

DOE is responsible for the nation's nuclear weapons program and owns a broad spectrum of facilities to carry out research, development, and production activities. Contractors provide security services at all but one DOE facility—the Albuquerque Operations Office. For all facilities, DOE established 12 minimum skills that security force members must meet and the annual training they should receive. Periodically, DOE conducts inspections and/or performance tests to assess the effectiveness of the security forces. (See ch. 1.)

Results in Brief

GAO raises concerns about the adequacy of security at Los Alamos before, during, and after the strike. Before the strike, DOE could not demonstrate that the security force was properly trained to protect the facility because training records for some of the force were missing, incomplete, or inaccurate. During the strike, many replacements did not meet the 12 required skills. After the strike, an unannounced exercise showed that as late as April 1990 more than 75 percent of the regular force did not meet one or more of nine required skills.

GAO also raises concerns about security at some other DOE facilities that it reviewed. DOE inspections identified recurring and similar weaknesses; yet, DOE rated only one security program as unsatisfactory. GAO believes that this occurred because DOE lacks criteria specifying the severity and frequency of inspection findings that would result in a satisfactory or unsatisfactory rating. Also, DOE does not have an effective mechanism to ensure that corrective actions are taken on inspection findings. GAO

found that some inspection findings went uncorrected for as much as 5 years.

DOE believes that federal and contract security forces are equally capable of protecting its facilities, and the costs for both are similar. However, DOE does not have current cost data, and GAO estimates that annual labor and benefit costs could be about \$15 million less if DOE federalized the security forces at the nine facilities GAO reviewed.

Principal Findings

Potential Security Weaknesses at Los Alamos

DOE and Los Alamos officials believe that security before, during, and since the 1989 strike was adequate. GAO was unable to verify this assertion but did find indications that potential security weaknesses exist. Before the strike, training records for some security force members were missing, undated, incomplete, or inaccurate. Therefore, DOE could not demonstrate that Los Alamos' force was properly trained to protect the facility.

During the strike, DOE waived physical fitness and medical requirements for about half of the replacement force, and many were not certified in 1 or more of 12 skills required of the regular Los Alamos force. These situations may not have occurred if DOE had established skill requirements for replacements and required contractors to develop contingency plans specifying the methods to be used to meet the requirements during a strike. Further, although a facility is most vulnerable during the early stages of a strike, DOE did not conduct an inspection at Los Alamos until 2 weeks, nor test the replacements' proficiencies until 6 weeks, after the strike began. Also, DOE never conducted a force-on-force simulated attack test over the strike's duration even though such a test is the best measure of a security force's overall ability to protect life and property. Therefore, DOE had little assurance that the replacements could adequately protect Los Alamos.

Since the strike, GAO found that most of the regular security force lacked one or more of nine skills that DOE officials say are needed to ensure the minimum level of protection for the site. Over 75 percent of the regular security force lacked such skills during an unannounced April 1990 exercise that DOE conducted at GAO's request. (See ch. 2.)

Other Facilities Have Security Program Weaknesses

DOE periodically inspects its facilities to assess the effectiveness of security policies, procedures, operations, and force proficiencies. DOE inspections of Los Alamos and eight other facilities since 1985 found some weaknesses that were similar and recurring. For example, DOE found that some security force members at Los Alamos, Argonne, Sandia, and Savannah River could not appropriately handcuff, search, or arrest intruders and shoot accurately. DOE also found weaknesses in the training programs related to those programs. Despite finding similar problems at the nine facilities, DOE rated only Argonne as unsatisfactory over the 5-year period. GAO believes that the differences occurred because DOE does not have criteria specifying the severity and frequency of inspection findings that would result in a satisfactory or unsatisfactory rating. In the highly important area of security at sensitive nuclear weapons facilities, DOE should be conservative and consistent—if one situation warrants an unsatisfactory rating, then other facilities with similar weaknesses should be similarly rated.

Also, DOE has no systematic method to track or confirm the corrective actions taken on inspection findings. GAO found that deficiencies identified as early as October 1985 at six facilities had not been corrected as of May 1990. DOE's allowing this situation to occur could send a message to contractors that security is not important and could perpetuate an environment in which contractors have little incentive to take corrective actions. DOE has a mechanism to improve this situation—the awards fee process. For contractors with repeat security inspection weaknesses, DOE could vary the amount of fees awarded depending upon the timing and effectiveness of corrective actions taken. (See ch. 3.)

Some Contract Forces May No Longer Be Cost-Effective

DOE believes that the abilities of, and costs for, a federal and contract force are similar, but a critical factor is the force's ability to provide uninterrupted service. A major advantage of a federal force is that it cannot legally strike, whereas a major disadvantage of a contract force is that generally it can strike. The Los Alamos strike cost about \$1.6 million over and above the almost \$17 million contract cost. According to a DOE Office of General Counsel official, no legal obstacles exist to DOE's negotiating a never-strike provision in its security force contracts but estimated that it would be costly to do so. Also, turnover may be lower with a federal force. During the 26 months before the strike, Los Alamos experienced between 11- and 15-percent turnover; the Albuquerque Operations Office federal force experienced no turnover. In contrast, a contract force, according to DOE and Los Alamos officials, can more quickly be reduced or increased to meet changing work demands.

Generally, the advantages and disadvantages of both types of forces offset each other, and the primary issue becomes cost. DOE conducted cost studies in the early 1980s for four facilities but has not updated the studies or conducted additional analyses to determine whether it is still cost-effective to have contract forces at all its facilities. DOE officials said they have not done so because privatization was emphasized throughout the 1980s, and they could not obtain positions for federal forces. Since that time, contract employee costs have increased faster than federal employee costs. GAO estimates that federal labor and benefit costs could be at least \$15 million less each year than similar contract costs at 9 facilities, representing more than 60 percent of DOE's 5,500 security force members. (See ch. 4.)

Recommendations

To help ensure that security forces have the maximum capability to protect sensitive nuclear weapons facilities, GAO has made a number of recommendations to the Secretary of Energy to

- standardize skill requirements for all security force members including strike replacements,
- ensure that security force members receive all required training,
- withhold a portion of award fees when contractors do not take timely corrective actions on security inspection weaknesses, and
- evaluate the relative costs of federal and contract security services across the nuclear weapons complex and convert to federal forces at locations where it is cost-effective to do so.

Agency Comments

GAO discussed the facts presented in this report with DOE, Los Alamos, and the security force contractor. The officials generally agreed with the facts but offered some clarifications that were incorporated where appropriate. As requested, GAO did not ask DOE, Los Alamos, or the contractor to comment officially on this report.

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Abbreviations

DOE	Department of Energy
GAO	General Accounting Office
OMB	Office of Management and Budget
OSE	Office of Security Evaluations
OSS	Office of Safeguards and Security
SSIIS	Safeguards and Security Issues Information System

Introduction

In March 1989 the security force at the Department of Energy's (DOE) Los Alamos National Laboratory, New Mexico, began a strike that lasted 10 weeks. Los Alamos conducts both unclassified and classified activities related to all phases of nuclear weapons research, development, design, and testing. Therefore, a security force possessing the necessary skills is the first line of human defense against terrorist or other attacks, theft or misuse of classified information and materials, and sabotage at sensitive nuclear facilities and is a key factor in DOE's physical security program. Security force members who cannot individually or as a team successfully perform all assigned tasks raises serious questions about the adequacy of security at these facilities.

To provide security force protection, the University of California, which operates Los Alamos for DOE, has contracted with Mason and Hanger-Silas Mason Company, Inc., since 1981. The company employs several hundred security inspectors, including officers and a rapid response team, who are authorized to detain, arrest, and use force if necessary to protect the facility. Security inspectors must meet minimum competency levels in 12 basic skills and be physically fit to perform their duties.

Causes of the Strike

Mason and Hanger has a labor agreement with the International Guards Union of America, Local 69. In February 1989 the labor agreement expired, and on March 13, 1989, the security force began a 10-week strike, which ended on May 21, 1989. During the strike, DOE used temporary replacements from its other sites as well as the Department of Defense facilities. DOE and Los Alamos officials told us that the causes of the strike included longstanding, unresolved labor-management relations problems—primarily Mason and Hanger's overtime, disciplinary, and sick leave policies.

According to Mason and Hanger officials, the overtime occurred because they never had enough job applicants with DOE security clearances to fill positions left vacant by security force members who resigned, retired, or were fired. Applicants, they said, became discouraged by the long wait for clearances (up to 18 months), and many were no longer interested in, or available for, employment by the time DOE granted their clearances. About one out of every four applicants were not available to accept job vacancies once the clearances had been received.

Some security inspectors told us that the overtime would have been more bearable, and the attrition rate lower, if Mason and Hanger had instituted fairer and more sympathetic policies. Fourteen security

inspectors said that the mandatory overtime was excessive and that the company's disciplinary policy was harsh. For example, some said that employees had been disciplined for frivolous reasons (eating while on duty). Similarly, according to some of these individuals, the sick leave policy was arbitrary, and in some cases, the company overruled doctors' opinions and forced employees to use vacation in lieu of sick leave. According to these individuals, these policies caused security force members to quit or be fired.

Actions Taken Since the Strike

To minimize future labor problems, a Mason and Hanger official said that in May 1989 the company changed its policies to require less mandatory overtime. At the same time, the company removed all demerits that most security inspectors had accrued and modified its sick leave policy by allowing security inspectors to charge sick leave starting with the first day of absence, provided they obtain a note from their doctor.

In addition, the company hired a human relations manager to serve as a liaison with the security force, and officials believe that labor relations have improved. According to a DOE industrial relations specialist, the agency suggested that Los Alamos use the Federal Mediation and Conciliation Service to facilitate meetings between Mason Hanger and the union. Los Alamos did so through December 31, 1989. As of May 1990, according to several security inspectors, Mason and Hanger was not always responsive to inspectors' grievances, and the possibility existed that a wildcat strike might occur because labor relations had deteriorated. The industrial relations specialist told us that a wildcat strike has never occurred at a DOE facility.

Organization for Overseeing Security

The Assistant Secretary for Defense Programs is responsible for directing the activities conducted by DOE's nuclear weapons facilities. Within Defense Programs, the Office of Safeguards and Security (OSS) establishes policies pertaining to the skills and qualifications that security force applicants must meet, the type and amount of annual training they should receive, and the content of plans for emergencies and other contingencies. Also, the Office of Security Evaluations (OSE) under the Assistant Secretary for Environment, Safety, and Health periodically assesses the effectiveness of DOE safeguards and security policies, procedures, systems, and operations. In making these assessments, OSE is required to periodically conduct performance tests: a simulated

attack on specific DOE targets (force-on-force) or a limited-scope assessment of, for example, a force's response to a simulated crisis, emergency, or unplanned events, such as activation of security alarms. The limited-scope test can either be announced or unannounced.

DOE headquarters has delegated responsibility for significant aspects of the security program to eight field offices called operations offices that oversee the facilities. DOE's Albuquerque Operations Office, New Mexico, oversees Los Alamos and eight other nuclear weapons laboratories and production facilities. To carry out its responsibilities, Albuquerque conducts various types of security surveys to ensure that the facilities maintain effective safeguards and security programs. In an unusual event, such as a strike, Albuquerque may also conduct special surveys or performance tests.

In turn, the operations offices have delegated certain oversight responsibilities to the contractors that operate the facilities. For example, the University of California is responsible for overseeing Mason and Hanger's operations to ensure that they comply with DOE's policies and procedures. Finally, Mason and Hanger establishes additional skill requirements for the Los Alamos security force, provides training, and tests to ensure that the force meets DOE's and its requirements.

Objectives, Scope, and Methodology

Concerned about the security implications of the strike, the Chairman, Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, and Senators Domenici and Bingaman, asked us in May 1989 to evaluate (1) the adequacy of security at Los Alamos and eight other DOE facilities,¹ (2) DOE's oversight of the protective security forces at the nine nuclear weapons facilities, and (3) the feasibility of federalizing DOE security forces currently under contract. In subsequent discussions with congressional staff, we agreed to concentrate on Los Alamos and gather information on the other eight sites from DOE headquarters and operations offices. We did not conduct work at the eight other sites. Further, we did not assess other aspects of DOE's physical security requirements, such as adequacy of fences, barriers, and alarms. Since we agreed to issue an unclassified report, some of the information cannot be presented in its entirety.

¹Argonne National Laboratory, Illinois; Lawrence Livermore National Laboratory, California; Nevada Test Site, Nevada; Pantex, Texas; Rocky Flats, Colorado; Sandia National Laboratories, New Mexico; Savannah River Plant, South Carolina; and the Oak Ridge Y-12 plant, Tennessee.

To obtain an overall perspective on the three issues, we reviewed relevant provisions of the Atomic Energy Act of 1954, as amended, and DOE's security policies and procedures. Also, we met with the head of DOE's Safeguard and Security Task Force that was reviewing a broad range of safeguards and security issues at DOE facilities. A classified report of the task force's results is expected to be available during the fall of 1990. We also met with Nuclear Regulatory Commission staff about that agency's security program requirements.

Adequacy of Security

We met with DOE headquarters, Albuquerque Operations Office, Los Alamos, and Mason and Hanger security and procurement officials as well as 14 Los Alamos security force members about the causes of the strike; adequacy of security before, during, and after the strike; and adequacy of training. We judgmentally selected 11 security force members from Mason and Hanger's staff roster and invited others to meet with us. Three accepted the invitation, for a total of 14 (app. I contains the views expressed). The 11 individuals that we selected worked on the day, swing, and midnight shifts in all possible job categories and included union and nonunion members, females and males, and security inspectors and supervisors. Because of time constraints, we did not take a valid statistical sample; therefore, the results cannot be projected to all the Los Alamos security force.

In addition, we reviewed DOE's, Los Alamos', and Mason and Hanger's security force skill and qualification requirements and examined 1989 training records for about 330 regular security force members and the 391 strike replacements. To validate security force performance, we asked DOE to conduct a "no-notice" limited-scope performance test of the Los Alamos security force in 9 of 12 required basic skills—security operations, use of deadly force and limited arrest authority, communication procedures, firearms, tactics, physical conditioning, self-defense, nonlethal weapons, and site protection. The security force members were asked to shoot their handgun (firearms), demonstrate eight basic moves with a baton (nonlethal weapon similar to a billy club), run at least one-half mile (physical conditioning), and apprehend suspects demonstrating the six other required skills. We did not test the remaining three skills: vehicle safety, standards of conduct, and first aid/fire fighting.

For the test, we selected a statistical sample of security force members from those working the three primary shifts over a 24-hour period. Staff

from our Offices of Security and Special Investigations who are knowledgeable about apprehension, arrest, and baton procedures supplemented the audit team to observe and critique the tests. With the exception of the running exercise, the tests were conducted on April 3 and 4, 1990. Prior to a running test, DOE requires participants to receive a medical examination. To comply with this requirement, the running exercises were conducted on April 11 and 12, 1990. Our results can be projected with a 96-percent confidence level to the security force members from which the sample was taken.

We also reviewed contracts between DOE and the University of California, the University's subcontract with Mason and Hanger, and the company's agreement with the union. We limited our examination to provisions that pertain to the length of the contract, work stoppages, contingency requirements, oversight responsibilities, and termination.

DOE Oversight

To determine the actions that DOE takes to oversee the protection of its facilities, we reviewed the process used to inspect and rate facilities and the methods employed to ensure that the contractors take corrective actions on the deficiencies identified. In this regard, DOE headquarters and Albuquerque provided us with inspection reports for the period 1985-89 for the nine sites in our scope. We compared DOE's findings in these reports to identify trends or patterns, such as repeat deficiencies at a particular site. We also obtained DOE's contingency plan criteria, draft criteria that Albuquerque had developed, and six plans from contractors under Albuquerque's purview.² We compared the six plans with Albuquerque's draft criteria but did not evaluate the adequacy of the criteria. Using this and other information discussed above, we assessed DOE's internal controls for ensuring security at its facilities and work stoppage preparedness.

Federalization

To determine the advantages and disadvantages of federalizing the Los Alamos security force, we interviewed DOE headquarters, Albuquerque, Los Alamos, and the Office of Management and Budget (OMB) officials as well as Mason and Hanger security force members. We reviewed four cost analyses that DOE had prepared in the early 1980s. Also, we developed wage and benefit cost data for the nine facilities in our scope and a hypothetical federal force. We analyzed wages and benefits because (1)

²Pantex, Texas; Los Alamos, New Mexico; Pinellas, Florida; Kansas City plant, Missouri; Mound, Ohio; and Rocky Flats, Colorado.

they represented 60 to 76 percent of the costs in DOE's four analyses and (2) an OMB official said that labor costs normally represent about 85 to 90 percent of a contract guard force costs. The costs that we did not analyze included overtime and shift differential pay, operations overhead, general and administrative expenses, and contract administration that would normally be part of a full cost study. We also reviewed the Law Enforcement Pay Commission report. We determined that the Commission's findings were not applicable to the scope and nature of this review because the report addressed only specific law enforcement officers and jobs, such as the Federal Bureau of Investigation, and did not include federal security inspectors and guards.

We discussed the facts presented in this report with DOE, Albuquerque, Los Alamos, and Mason and Hanger officials. They generally agreed with the information but offered some clarifications, which we incorporated where appropriate. As requested, we did not ask these officials to comment officially on this report. Our work was conducted between July 1989 and May 1990 in accordance with generally accepted government auditing standards.

Concerns About the Adequacy of Security at Los Alamos

Although DOE and Los Alamos officials believe that security was adequate during the strike, we were unable to verify this assertion. However, we did find indications that potential weaknesses in overall security exist. During the strike, DOE did not conduct a force-on-force simulated attack to verify the replacement force's proficiencies. Also, 2 weeks elapsed before DOE conducted an inspection, and 6 weeks elapsed before DOE conducted a limited-scope test of the replacements' performance. In addition, DOE waived physical and medical requirements for almost 50 percent of the 391 replacements, and most were not certified in the minimum job skills required of the regular security force.

Throughout the 1980s, three strikes occurred at other DOE facilities; yet, neither DOE nor Los Alamos was prepared for the strike. For instance, DOE had not provided its contractors guidance on how to prepare for or deal with a strike. As a result, Los Alamos' contingency plan did not specify all the actions that should be taken during a strike. Los Alamos is not unique in this regard; we found similar weaknesses in the contingency plans of five other DOE facilities that we reviewed. As a result of the Los Alamos strike, in February 1990 DOE headquarters sent criteria to its operations offices and contractors to use for preparing strike contingency plans.

Aside from the strike situation, the regular Los Alamos security force may not be properly trained or proficient in protecting other employees, laboratory assets, or themselves. First, Mason and Hanger's training and certification records for 1989 were incomplete, inaccurate, or missing. Second, the results of the unannounced test that DOE conducted at our request in April 1990 showed that about 75 percent of the Los Alamos security force were not proficient in 1 or more of the 12 minimum required skills.

Was Security Adequate During the Strike?

DOE and Los Alamos officials contend that security was adequate during the strike. However, we identified several issues that raise questions about their position. For example, DOE did not conduct inspections during the early days of the strike, when the facility was the most vulnerable because not all replacements were on board and those that were on board were not familiar with their duties, weapons, or the uniqueness of the site and terrain. In addition, under its policies, DOE is required to periodically test security force performance, particularly when changes

occur in procedures, measures, or practices.¹ However, DOE did not test the proficiencies of the replacement force until 6 weeks after the strike began and then only on a limited basis and never conducted a force-on-force simulated attack—the best measure of a security force’s overall ability to effectively protect life and property at a nuclear weapons facility. According to DOE officials, a force-on-force performance test would have been impractical during the strike because the extra staff needed to simulate an attack were not available.

The strike began on March 13, 1989, but 2 weeks passed before DOE conducted its first inspection to determine whether the replacements were competent and capable of protecting Los Alamos. DOE found no problems during the inspection, which involved visits to guard posts and interviewing personnel, but the inspection did not include performance tests of any of the 12 minimum security force skills.

Then, in mid-April 1989 (about 4 weeks into the strike), staff from the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, notified DOE that they had received allegations of many instances of firearms “horseplay” by the replacement force. The following day, two Albuquerque officials conducted an inspection. Although they found no misuse of firearms, the officials did find that 12 of 30 replacements interviewed lacked proficiency with various weapons that they were required to use. In response, Mason and Hanger provided weapons training to the 12 individuals.

Even with this information, DOE did not conduct performance tests. Only in late April 1989, after another inquiry from the Subcommittee staff about the replacement force’s training and competency, did DOE conduct a limited-scope test. DOE conducted the test at two sensitive areas at Los Alamos using three scenarios: entry with (1) a pipe bomb, (2) an incorrect badge, and (3) illegal drugs. DOE found that the replacement force responded correctly during the test.

Later, DOE conducted two additional inspections and identified some security problems, such as failure to find drug equipment during a simulated entry attempt, but the reports stated that security was adequate, at a high state of readiness, or satisfactory. Albuquerque officials told us that about 5 weeks into the strike they assigned a security official to

¹DOE Order 5632.8, Protection Program Operations: Systems Performance Tests, Feb. 4, 1988, and DOE Order 5634.1A, Facility Approvals, Security Surveys, and Nuclear Materials Surveys, Feb. 3, 1988.

monitor, not test, the replacement force until May 16, 1990—1 week before the strike ended. The official's reports stated that no problems relating to excessive fatigue, incompetencies, or other security-related problems existed.

Many Replacements Did Not Meet Critical Skills

Many of the replacement force did not meet 1 or more of the 12 minimum skills required of the regular Los Alamos security force. This situation occurred because DOE's policies do not specify that temporary replacements should possess all such skills.

The several hundred replacements consisted of auxiliary and augmentee personnel. Mason and Hanger, the Department of Defense, and DOE's Pantex facility in Texas provided most of the auxiliary personnel. Auxiliary replacements normally work in scientific or engineering rather than security-related jobs and, in accordance with DOE's policies, fill security inspector positions on an "as-needed" basis upon request (usually in an emergency). On the other hand, the augmentees were full-time security inspectors from other DOE facilities, such as the Nevada Test Site, Savannah River plant, and the Oak Ridge Y-12 plant. As shown in table 2.1, many replacements were not certified in the minimum skills required of the regular Los Alamos force.

Table 2.1: Number of Replacement Force That Were Not Certified in Certain Skills

Skill	Replacement force	
	Auxiliary ^a	Augmentees ^a
Physical fitness	191	7
Arrest	38	35
Baton	191 ^b	66
Weapons:		
Pistol (day)	7	7
Pistol (night)	190	8
Shotgun (day)	7	14
Shotgun (night)	190	15
Rifle (day)	7	9
Rifle (night)	190	20

^aSome individuals lacked more than one skill.

^bNo auxiliary personnel were issued batons.

Also, 34 auxiliary personnel did not have the required medical certifications to show that they had the necessary mental, sensory, and motor

skills to perform their assigned duties safely and effectively. Albuquerque realized this about 2 weeks into the strike. Albuquerque also realized that none of the auxiliary personnel were certified in the physical fitness requirements of the regular force—run a 40-yard dash and at least a one-half mile distance run. DOE considers these requirements important because protective forces must perform normal and emergency duties without undue hazard to themselves, fellow employees, the site, or the public. Nevertheless, Albuquerque requested, and OSS granted, a waiver of the medical and physical fitness requirements for the auxiliary personnel.

In addition, DOE did not have qualification requirements for the auxiliary force even though sufficient time had elapsed since three prior strikes at other DOE nuclear weapons facilities.² Although the University of California required the replacement force to be qualified in weapons (pistol, shotgun, or rifle) needed to protect Los Alamos and capable of performing all Los Alamos protective force duties, some auxiliary personnel were not certified to use a pistol, shotgun, or rifle. Also, the auxiliary force were not trained on night use of weapons, even though some were assigned to the night shift during the strike. Finally, none of the auxiliaries were issued batons because they were not qualified to use them.

Although a scientist or engineer (auxiliary personnel) may not have all the required security force skills, the more perplexing issue is: Why would a regular security inspector from another DOE nuclear weapons facility (an augmentee) lack all the skills needed to protect Los Alamos? The simple answer, according to the Director, OSS, and other DOE officials is that each security force contractor establishes different competency requirements. For example, some contractors require proficiency in using a shotgun, rifle, or baton, while others do not. DOE officials also noted that each site is unique; therefore, if a contractor's security inspector augments another contractor's security force, the security inspector may not possess all the needed skills for a particular location. Also, the Director, OSS, told us that between 12 and 18 months are needed for new security staff to learn the tactics, geography, and targets at a particular facility.

Because of the lessons learned from the strike, DOE issued several memoranda concerning the use of replacements from other DOE sites. In January 1990 OSS issued a memorandum stating that allowing unqualified

²Oak Ridge in 1980, Pantex in 1981, and Oak Ridge in 1983.

individuals to use weapons raises questions about their ability to carry out routine and emergency duties and exposes DOE to unnecessary liability. A February 1990 memorandum stated that the Director, DOE's Central Training Academy, would collect and maintain a computerized data base of qualified security inspectors and special response team personnel throughout the DOE complex for use in extreme emergencies.

DOE Sites Were Not Prepared for Strikes

Neither DOE nor Los Alamos was prepared for the strike because DOE's policies pertaining to the content of plans for foreseeable contingencies do not require contractors to specifically address the actions that should be taken if a strike occurs.³ We found that contingency plans prepared for Los Alamos and five other DOE nuclear weapons facilities varied in detail and coverage. For example, four plans identified posts that could be shut down, curtailed, and/or consolidated while two did not.

Following the strike, both DOE headquarters and Albuquerque initiated actions to improve contingency planning for strikes. In June 1989 Albuquerque asked seven facilities, including Los Alamos, to submit their plans for review.⁴ Albuquerque wanted to determine whether the contractors could effectively deal with emergencies, especially security force strikes. Six contractors submitted their plans; the seventh (Sandia) did not have a plan because contractor officials believed that productive bargaining would prevent a strike.

On the basis of its review of the plans and lessons learned from the strike, Albuquerque's Security and Nuclear Safeguards Division drafted contingency plan criteria that included 18 elements. Our comparison of the six plans with Albuquerque's draft criteria showed that none met even 50 percent of the criteria (app. II shows our comparison of the six facilities compliance with Albuquerque's draft contingency plan criteria).

In August 1989 OSS sent a memorandum to the operations offices that included minimal contingency plan criteria. For example, the memorandum stated that the plans should identify those security functions that could be performed by other staff. The memorandum also requested each facility contractor to submit its contingency plan to OSS.

³DOE Order 5632.7, Protective Forces, Feb. 9, 1988.

⁴Los Alamos, New Mexico; Kansas City, Missouri; Mound, Ohio; Pantex, Texas; Pinellas, Florida; Rocky Flats, Colorado; and Sandia, New Mexico.

None did so, and the office did not follow up on its request to get the plans submitted.

In February 1990 oss sent another memorandum to the operations offices requesting them to submit a summary of their facility contractors' contingency plans by May 1990. The memorandum also instructed each operations office to incorporate a contingency plan section in its future Master Safeguards and Security Agreement.⁵ According to an oss official, the memorandum reminded the operations offices that contingency plans were now required for strikes and was intended to serve as guidance, rather than requirements, on preparing the plans. We noted that the memorandum identified only 4 of the 18 elements in Albuquerque's draft contingency plan criteria. Albuquerque officials told us that they required contractors under their purview to revise their plans by April 1990 in accordance with the memorandum. All did so. Because Albuquerque received these plans near the end of our work, we could not assess the information provided.

Security Force May Not Have Been Properly Trained

We found that many training and certification documents for the security force before the strike were missing, incomplete, undated, changed, or unsigned. Without accurate and complete documentation, neither Mason and Hanger nor DOE can demonstrate that the regular Los Alamos security force is properly trained to protect the facility.

DOE's policies specify the training and physical requirements that a security force must meet and require contractors to maintain records showing that they have complied with the policies.⁶ Although Mason and Hanger officials told us that they retain training records indefinitely, we found the opposite—records for training provided in 1989 to about 330 security inspectors were missing or had such deficiencies as being incomplete, inaccurate, unsigned, or undated. Table 2.2 shows our findings for arrest, baton, and physical fitness.

⁵An agreement between the Assistant Secretary for Defense Programs and an operations office concerning the types of security measures to be taken, risks to be considered, and ways to increase security effectiveness.

⁶DOE Order 5632.7, Protective Forces, Feb. 9, 1988.

Table 2.2: Incomplete, Missing, or Deficient Training Records

Skill	Number of employees	Number of records available	Number of records missing	Number with deficiencies
Arrest	333	244	89	121
Baton	333	306	27	^a
Physical Fitness	333	312	21	0

^aAlthough all records indicated a perfect score, we verified 21 randomly selected records and found that only 5 were signed, dated, and completely filled out. Further, 50 percent of the security inspectors that we interviewed said they needed additional training in this area.

Concerning weapons proficiencies, we cross-checked 14 randomly selected source documents to Mason and Hanger's computerized information and found one missing record. The remainder had no data entry errors. However, we noted three problems with the source documents: (1) the range master (firearms instructor) certified his own qualification record, (2) some records had been altered by erasures or correction fluid, and (3) all entries were in pencil instead of ink. In addition, security inspectors must be medically fit to perform their assigned duties. We found that Mason and Hanger's computerized medical records were not up to date, and 47 of 333 inspectors (about 14 percent) had missed part of their annual medical examination.

According to Mason and Hanger officials, the documentation problems occurred because they did not have sufficient resources (staff and funds) to properly maintain the documents. To correct these problems, Mason and Hanger officials said that the company (1) has sent three employees to recordkeeping classes, (2) is obtaining new computer hardware to provide greater recordkeeping capability, (3) is updating training records, and (4) is identifying and scheduling training for some of the security force. Mason and Hanger officials said they took these actions not only because of our findings but also because they were concerned that security inspectors might bring injury suits or otherwise hold the company liable for failing to train them as happened in a recent city government case.⁷ In such a situation, accurate and timely training documentation would be vital. A company official also said that, if employees won the suit, the costs would be passed on to the government because their subcontract with the University of California is cost reimbursable as is the University's contract with DOE.

According to the Director, OSS, DOE recognizes that these problems exist not only at Los Alamos but throughout the nuclear weapons complex. As

⁷City of Canton, Ohio, vs. Geraldine Harris, et. al., 489 US 378 (1989).

a result, DOE will require the Central Training Academy to assess the status and quality of training provided to all security forces. DOE also plans to ask the Central Training Academy to develop a standardized course for force members and certify the qualifications of those individuals who will provide the training.

Los Alamos' Security Force Did Not Perform Well During a Surprise Test

According to some DOE officials and Nuclear Regulatory Commission staff, a no-notice test is the best way to assess a security force's ability at any given time. DOE's policies allow for such tests, but DOE has not conducted unannounced tests in the past because, according to officials, they raise safety concerns, are difficult to plan, disrupt the work force, and create stress for all participants. Because of the training record problems that we found, DOE in April 1990 conducted an unannounced test at our request of the regular Los Alamos security force in 9 of 12 skills, including weapons, baton, running, and arrest or defense tactics. According to the Director, OSS, these skills are similar to those required of a police officer and are applicable to the majority of DOE's security force members. Table 2.3 shows the number of security force members that participated in the tests and those that did not meet the skill requirements.

Table 2.3: Results of an Unannounced Test

Skills ^a	Number tested	Number passed	Failed	
			Number	Percent
Weapons	54	52	2	4
Baton	54	51	3	6
Running	50 ^b	50	0	0
Apprehension	54	15	39	72
Test summary	54	12	42 ^c	78

^aThe apprehension test combines six skills: force and arrest, security operations, communications, tactics, self-defense, and site protection.

^bThree participants were not medically fit to run, and one was on sick leave the day of the test.

^cThe total does not add because some participants failed more than one test.

Although the security force had a basic understanding of selected skills and generally met the handgun, baton, and running requirements, only 12 (22 percent) of the 54 force members tested passed all 9 skills. The remaining 78 percent lacked one or more of the skills needed to arrest, apprehend, communicate, and survive in an adversarial situation; protect laboratory resources or staff; or defend themselves. For example, when the participants encountered an adversarial situation, many failed

to stay behind cover and assess the situation. Instead, they left their cover and walked up to the potential adversary to ask what they were doing. As a result, in many instances the adversary took a visible weapon, “killed” the participant or hostage, and left with the classified documents or government property. In total, 24 participants and hostages were “killed” during this testing.

If we project the test results to the 191 security force members sampled, 149 would lack one or more of the above skills. As discussed in chapter 3, security force performance weaknesses have been a longstanding problem at Los Alamos. DOE inspections conducted in 1986 and 1988 identified problems similar to those found in our unannounced test.

Conclusions

A security force must be able to protect DOE’s sensitive nuclear weapons facilities from such threats as terrorist attacks, unauthorized entry, and theft of classified documents. To minimize the potential for a security breach, the security force must meet certain employment qualifications and continually maintain its skills. When a security force—the first line of human defense—cannot perform its duties, is ineffective, or improperly trained, little assurance exists that sensitive facilities are appropriately safeguarded. Yet, this is the situation that we found at Los Alamos before, during, and since the 1989 strike.

First, the available evidence does not show that either the regular or replacement force was properly trained to protect Los Alamos. Training and proficiency records for the regular security force were missing, incomplete, or inaccurate. Second, many of the strike replacements did not meet all the skills required of the regular force. Finally, the results of our unannounced exercise showed that about 75 percent of the security force—as late as April 1990—did not have all the skills needed to protect the facility or defend themselves.

Also, about 50 percent of the replacements used during the strike normally worked in jobs other than protective services, and DOE waived some requirements for these replacements, thereby increasing the vulnerability of the site. Also, DOE did not test the proficiencies of the replacements until 6 weeks after the strike began—and then only on a limited basis—and never conducted a simulated, force-on-force, adversarial test over its duration. Instead, DOE relied on limited security inspections and the on-site observations of an Albuquerque official to ensure that Los Alamos was appropriately protected.

We believe that these situations occurred because neither DOE nor Los Alamos was prepared for the strike. DOE had no skill requirements for a temporary replacement force and did not require its contractors to develop contingency plans for strikes. Although three other strikes had occurred at DOE facilities throughout the 1980s, DOE did not take such threats serious enough and require all contractors to appropriately plan for work stoppages that could pose a security risk. In a February 1990 memorandum, DOE attempted to correct this oversight. The memorandum, however, provided only limited specifics on the plans contents, thereby increasing the potential that contractors will not address significant issues for dealing with strikes.

Recommendations to the Secretary of Energy

To continuously and completely protect sensitive and valuable documents, personnel, and government property, DOE needs trained and proficient security forces at its facilities. Therefore, we recommend that the Secretary of Energy

- expeditiously develop specific contingency plan criteria for strikes and require all contractors to prepare plans that meet the criteria;
- establish standardized qualification and skill requirements for all protective forces and ensure that strike replacements meet the requirements;
- ensure that security force members receive all required training and institute a mechanism to ensure that contractors document and retain this information; and
- conduct unannounced inspections and performance tests, particularly immediately upon the initiation of an unusual event, such as a strike, to obtain more realistic indications of security force competencies.

DOE's Security Inspection Process Can Be Improved

Weaknesses exist in DOE's security inspection and evaluation process. DOE lacks specific criteria for the types of deficiencies that would result in either a satisfactory or unsatisfactory rating for a facility's security force. As a result, DOE inspections between 1985 and 1989 identified similar and recurring problems at Los Alamos and eight other facilities, yet DOE rated six facilities satisfactory, two marginally satisfactory, and only the Argonne National Laboratory as unsatisfactory. Despite these longstanding inconsistencies, DOE has not developed specific rating criteria or performance incentives for security force contractors to minimize poor performance.

Further, DOE does not have appropriate controls to ensure that contractors take corrective actions on security program weaknesses identified during inspections. We found that some deficiencies went uncorrected for as much as 5 years even though DOE's computerized system showed that contractors had taken corrective actions. This situation may not have occurred if DOE had confirmed that contractors took the needed actions. In April 1990, Albuquerque took steps to ensure that corrective actions had actually been taken on inspection findings.

DOE Lacks Specific Criteria for Rating Facilities

DOE's policies do not specify the severity and frequency of inspection findings that would result in a satisfactory, marginal, or unsatisfactory performance rating. Therefore, inspection ratings can vary even though the results are similar and recurring. Further, DOE's reports did not indicate that the uniqueness of a site would cause variances in the inspection ratings assigned. Between 1985 and 1989, DOE inspections found some similar and recurring weaknesses at nine facilities including Los Alamos but only one received an unsatisfactory rating. Under DOE's policies, OSE, OSS, and operations offices, such as Albuquerque, are required to periodically inspect the security activities conducted by the contractors that operate nuclear weapons facilities.¹ On the basis of the inspection results, both headquarters and the operations offices assign a rating of satisfactory, marginal, or unsatisfactory to the contractor's program.

Within headquarters, OSS and OSE are responsible for periodically inspecting the weapons facilities. According to an OSE official, the inspection team provides an unrated draft of its findings to the operations offices for comments and then the report and the team's proposed

¹DOE Orders 5630.12, Safeguards and Security Inspection and Evaluation Program, Feb. 3, 1988; 5634.1A, Facility Approvals, Security Surveys, and Nuclear Materials Surveys, Feb. 3, 1988; and 5632.8 Protective Program Operations: System Performance Tests, Feb. 4, 1988.

rating are reviewed by inspection branch chiefs and division director and OSE's Director. These individuals either concur with the suggested rating or, with the team leader, adjust the rating, considering technical, management, and other issues, such as the contractor's performance in each topical area reviewed.

According to an official, OSE does not have clear-cut criteria specifying the values assigned to deficiencies that result in a facility being rated satisfactory or unsatisfactory. The official also noted that, although OSE strives for objectivity by involving more than one individual in the process and examining a number of parameters, the ratings will always be highly subjective. Also, an Albuquerque official, involved with inspections at OSE and the operations office, confirmed that no criteria exist for inspectors to consider the severity of findings when making rating recommendations.

Thus, we found that DOE assigned satisfactory ratings to facilities even though the inspection reports identified numerous deficiencies. Between 1985 and 1989, DOE identified similar and recurring inspection problems at nine facilities but rated six as satisfactory, two as marginally satisfactory, and one—Argonne National Laboratory—as unsatisfactory. Table 3.1 shows the types of findings at the nine facilities.

Chapter 3
DOE's Security Inspection Process Can
Be Improved

Table 3.1: Security Force Weaknesses Cited in DOE Inspection Reports, 1985-89

Type of finding	Number of inspections ^a									
	A	B	C	D	E	F	G	H	I ^b	
Not skilled on metal detector										1
Cannot find concealed weapon	1									
Cannot find drug equipment	1									
Unfamiliar with weapons	2								1	
Command/control weaknesses	1	1		1					1	
Handcuff/search/arrest weaknesses	3	3	1		3			1	1	
Cannot appropriately apprehend suspects	1	2								1
Failed to keep weapon from adversary	1									
Failed to search following handcuffing	1									
Not skilled in M16	1									
Unfamiliar with night vision devices	1									
Radio/communication weaknesses	1	2			3			1		
Patrol not reporting security condition	1									
Failed to control security situation	1									
Undocumented performance tests	1	1		1				1		
Lacked firearm skills	2	1		1	1			1	1	
No firearms training		1								
First aid program deficiencies		1								
Training program deficiencies	2	2	1	2	1				1	1
Security inspector missing from post						1				
Past-due medical examinations	1									
Hostile aircraft training weaknesses	1									
Patrols not conducted to procedures						1				
Lacked theft/diversion requirements						1				
Failed to assign weapons to post						1				
Supervisors lack knowledge						1				
Lack emergency warning signal knowledge									1	
Poor weapons inventory/maintenance	1			1			1			

^aNumber of inspections that identify the finding noted.

^bA = Los Alamos National Laboratory, New Mexico.

B = Argonne National Laboratory, Illinois.

C = Rocky Flats, Colorado.

D = Oak Ridge Y-12, Tennessee.

E = Savannah River, South Carolina.

F = Lawrence Livermore National Laboratory, California.

G = Nevada Test Site, Nevada.

H = Sandia National Laboratories, New Mexico.

I = Pantex, Texas.

As shown in table 3.1, DOE found that the security forces at Argonne (three inspections), Savannah River (three inspections), Sandia (one inspection), and Los Alamos (three inspections) could not appropriately

handcuff, search, or arrest intruders and lacked weapons skills and accuracy. DOE also found weaknesses in the training programs at the four facilities. Despite finding similar problems, DOE only rated the security program at Argonne as unsatisfactory. Because DOE lacks criteria concerning the extent to which severity is considered in rating a security force program, we could not determine—and DOE officials could not effectively explain—the rationale for assigning different ratings. According to the Director, OSS, training and headquarters oversight are more important than developing severity criteria. He said that DOE has attempted to develop severity models to overcome dissimilarities with ratings, but the attempts had not been successful. However, during the spring of 1990, DOE reorganized OSS to help improve rating consistency by, in part, increasing the training provided to inspection teams.

DOE Does Not Have an Effective System to Track Corrective Actions Taken

DOE does not have an effective system to monitor and follow up on actions taken as a result of its inspection findings. As a result, we found that security force performance weaknesses identified as much as 5 years ago had not been corrected as of May 1990. For example, in 1986 OSE found that the Los Alamos security force could not effectively detain and/or arrest intruders. In 1988, an Albuquerque inspection identified the same deficiencies. The University of California reported to Albuquerque that corrective actions had been taken to resolve these problems. We found that these problems still existed as of April 1990.

According to OSS officials, they developed a classified computerized information system, the Safeguards and Security Issues Information System (SSIIS), in June 1985 to help monitor inspection weaknesses found at all facilities and ensure that corrective actions were taken. In 1989 DOE found that the SSIIS data were not reliable or complete and took actions to update and correct the data. As of February 1990, the system contained information on DOE headquarters inspection findings from November 1988 and operations offices' findings from January 1989.

OSS officials say that SSIIS was used primarily to monitor the status of corrective actions and ensure that headquarters received complete, timely, and reliable data on operations offices' findings. An auxiliary benefit was to encourage operations offices to develop data bases to monitor inspection findings and corrective actions taken by the contractors under their jurisdiction. According to Albuquerque security officials, they do not use SSIIS because the data are not complete or reliable, and their staff could not access the data directly from their computers. To correct these situations, OSS officials told us that they are developing

a new data base to replace SSIS. The officials estimated that the system would be available to the operations offices after about a year.

In the interim, Albuquerque uses three data bases to track inspection findings and corrective actions taken. One provides a facility-specific summary of the number of findings, those requiring corrective actions, and their status. The second data base provides more detailed information on inspection findings and the status of corrective actions. According to an Albuquerque official, the office strives to keep the information current, but some backlogs have occurred because staff were not available to input the data. Albuquerque has also developed a data base to track OSE's inspection findings for contractors under its purview.

Despite having three systems to track their own and DOE headquarters inspection results, as late as March 1990, Albuquerque did not know the status of corrective actions taken on inspection weaknesses identified as early as 5 years ago. According to an official who tracks this data, Albuquerque did not have up-to-date information on DOE headquarters findings until 1989. The official subsequently found that six contractors under Albuquerque's jurisdiction had not corrected security program deficiencies identified as early as 1985.

As a result, Albuquerque plans to more closely monitor the contractors' activities. In April 1990 Albuquerque sent a memorandum to its area offices requiring officials to validate corrective actions taken as a result of internal—DOE headquarters and Office of Inspector General—and external—General Accounting Office—reviews and/or inspections. The area offices must certify in writing that the actions have been taken; Albuquerque security personnel will take a sample during subsequent inspections to validate the area offices' certification.

Other Options to Ensure Corrective Actions

Under DOE's policies, the operations offices are responsible for ensuring that contractors institute effective programs to protect and secure nuclear weapons facilities; the operations offices can curtail or suspend facility operations if an immediate and unacceptable national security or public health and safety risk exists.² Also, DOE's contracts with the University of California and others that operate nuclear weapons facilities

²DOE Order 5630.11, Safeguards & Security Program, January 22, 1988.

state that DOE can terminate a contract when DOE determines that termination is in the best interest of the government, such as for unsatisfactory performance.

Between 1985 and 1989 DOE had identified numerous weaknesses in contractors' security programs. Also, in three evaluations (one in 1986 and two in 1989), DOE had identified numerous, repeat security program deficiencies at Argonne that eventually resulted in one marginally satisfactory and two unsatisfactory ratings. In 1989 DOE curtailed the operations at Argonne until corrective actions could be taken and replaced the contractor in June 1990. According to officials, DOE prefers to work with contractors to correct security force weaknesses rather than terminate a contract for poor performance.

However, DOE has another mechanism that it could use to encourage contractors to take timely and effective corrective actions on security inspection deficiencies—the award fee process. DOE uses award fees, over and above reimbursing normal costs, to encourage effective contractor performance. We noted that in fiscal years 1987 and 1988 DOE had delineated security—including protective forces and systems—as a functional area for the award fee determination at Pantex and the Oak Ridge Y-12 plant but not at Rocky Flats. However, the weight—or importance given to security—varied between the facilities. At Oak Ridge, DOE consistently considered security as 10 percent of the total fee; at Pantex, the weight ranged from 10 to 20 percent.

In November 1989 DOE published in the Federal Register a final rule for withholding award fees if a contractor fails in one major functional area. For facilities with repeat security inspection deficiencies, DOE could include a functional area in the award fees process to specifically measure contractor performance, including the timing, and effectiveness of, corrective actions taken for inspection findings.

Conclusions

The security at other DOE facilities may be as questionable as the situation that we found at Los Alamos. DOE inspections at other facilities since 1985 have identified recurring and similar security force weaknesses that seem to justify a less than satisfactory rating. Yet, in only one instance—Argonne—did DOE determine that the security program was unsatisfactory. We believe that in the highly important areas of security and adequacy of protective services at facilities involved in the research, development, or production of nuclear weapons, DOE should take a conservative approach and should not allow security weaknesses

to persist. If DOE finds the same problems at more than one facility, then DOE should similarly assess the level of security. If one situation warrants an unsatisfactory rating, it seems reasonable that other facilities would be similarly rated.

Also, DOE's actions can send a message to contractors that security is not important and perpetuates an environment in which corrective actions are not taken on the problems identified. In this regard, DOE does not have an effective mechanism to ensure that actions are taken to correct inspection weaknesses. The ineffectiveness of DOE's process is best illustrated by the fact that inspections of the nine facilities over 5 years identified some of the same problems; therefore, many deficiencies did not get corrected. If DOE used the award fee or some other mechanism to affect the contractors' profits or instituted other punitive measures, such as terminating security force contracts for poor performance, the contractors may pay greater attention to quickly and effectively correcting weaknesses identified in security inspections.

Recommendations to the Secretary of Energy

To ensure consistency among inspection ratings and provide an incentive for security forces' contractors to correct inspection deficiencies, we recommend that the Secretary of Energy

- develop specific criteria to eliminate any inconsistency for rating facility's security as either satisfactory, marginal, or unsatisfactory and
- withhold a portion of award fees when contractors do not take timely corrective actions on security inspection weaknesses.

Some Contract Forces May No Longer Be Cost-Effective

We estimate that federal labor and benefit costs would be at least \$15 million less each year than similar contract costs at the nine DOE facilities we reviewed. Nearly all 5,500 security personnel that protect DOE's nuclear weapons facilities are contractor employees. In the early 1980s, DOE assessed the costs of contracting for security functions at four facilities and found that contract costs were less than federal costs. DOE has not updated the analyses or conducted additional ones to determine whether contract costs are still less than federal costs.

According to DOE officials, both contract and federal forces are equally capable of protecting sensitive nuclear facilities, but a critical factor is the force's ability to provide uninterrupted service. A major advantage of a federal force is that it cannot legally strike, whereas a major disadvantage of a contract force is that it generally can. The Los Alamos strike cost about \$1.6 million over and above the almost \$17 million contract cost. According to a DOE Office of General Counsel official, no legal obstacles exist to DOE's negotiating a never-strike provision in its security force contracts but estimated that it would be costly to do so. Also, turnover may be lower with a federal force. During the 26 months before the strike, Los Alamos experienced between 11- and 15-percent turnover; the Albuquerque Operations Office federal force experienced no turnover. In contrast, a contract force, according to DOE and Los Alamos officials, can more quickly be reduced or increased to meet changing work demands. Although both types of security forces offer advantages and disadvantages, they generally offset each other, and the primary issue becomes cost.

DOE believes that federalizing security force services may be more acceptable today than under previous administrations, which emphasized privatization of such activities. Also, OMB officials told us that they would work with DOE to prevent a recurrence of past budgetary problems that hindered the hiring of federal employees for security force positions.

Federal Security Force May Be More Cost- Effective at Some Locations

For nine DOE facilities we reviewed, we found that DOE could save about \$15 million annually in labor and benefit costs by converting to federal forces.¹ We estimated that contract labor and benefit costs ranged from 5 to 38 percent higher than similar federal costs at the facilities. Table 4.1 shows the contract and federal security force costs at the nine facilities.

Table 4.1: Contract Versus Federal Labor and Benefit Costs at Nine DOE Facilities^a

Facility	Security force costs		Difference	
	Contract	Federal	Dollars	Percent
Argonne	\$1,538,950	\$1,336,500	\$202,450	15
Lawrence Livermore	7,559,378	5,986,156	1,573,222	26
Los Alamos	11,782,093	9,556,950	2,225,143	23
Nevada Test Site	13,547,681	10,154,262	3,393,419	33
Oak Ridge (Y-12)	16,588,826	14,760,534	1,828,292	12
Pantex	10,933,211	10,040,871	892,340	9
Rocky Flats	9,867,181	7,146,206	2,720,975	38
Sandia	5,495,996	4,585,083	910,913	20
Savannah River	19,983,746	18,951,143	1,032,603	5
Total	\$97,297,062	\$82,517,705	\$14,779,357	

^aTotal number of employees at the nine facilities was over 3,000; total contract security force costs were \$193.1 million.

However, the estimated annual savings shown in table 4.1 could be even higher. First, we did not include overtime costs in this comparison. Contractor salaries are more than federal salaries; therefore, overtime, which is calculated as a multiple of base pay, would be higher for a contract than federal force. Second, the estimated federal salaries were developed using the salaries of DOE's federal nuclear materials courier force.² The courier force salaries would be higher than federal security inspector's because the couriers have higher skill and training requirements. For these reasons, our estimated annual labor and benefit savings of about \$15 million may be conservative.

Also, DOE's Inspector General Office is currently evaluating the cost-effectiveness of selected support service contracts. According to Inspector General officials, their analyses will include all costs and their

¹The nine facilities represented more than 60 percent of DOE's 5,500 total security force members for 1989.

²DOE has three federal courier forces. They are comparable to the Los Alamos security force because both are responsible for protecting sensitive material. However, specific emergency reactions are different because the security force protects a fixed site while the courier force protects nuclear material transported by truck between DOE facilities.

tentative findings indicate that significant cost savings could result from federalizing the services performed by these contractors.

DOE Has Not Updated Its Cost Comparisons

DOE officials believe that the costs for a contract or federal force would be similar. However, DOE has not updated four cost comparisons prepared in the early 1980s nor has it conducted additional analyses. On the basis of the earlier analyses, DOE converted three federal forces to contract forces (including Los Alamos); the Albuquerque Operations Office force remained as the only federal force. The 1980 Los Alamos study concluded that DOE could save about \$2 million over a 3-year period by replacing the federal force with a contract force.

In addition, a 1981 DOE cost study for Oak Ridge showed that the agency could save \$274,000 over a 3-year period by replacing the federal force with a contractor force. In 1982, we found that DOE's study was deficient and concluded that DOE's converting the Oak Ridge force may increase government costs by as much as \$1.2 million over the 3-year period.³ At that time, we recommended that the Secretary of Energy reassess the decision to contract for the Oak Ridge guard services. DOE did not terminate the contract. The cost results presented in table 4.1 show that the Oak Ridge contractor's 1989 wage and benefit costs exceeded federal force costs by more than \$1.8 million.

According to DOE officials, they have not updated or conducted additional cost comparisons because (1) the prior administration emphasized privatization throughout the 1980s, (2) the government's policy is to contract for security forces unless some "overwhelming" reason precludes doing so, and (3) DOE could not obtain OMB's approval for the number of federal positions needed. An OMB official told us that agencies should periodically conduct a cost analysis if the difference in contract and federal labor and benefits costs are close to, or exceed, 20 percent. According to OMB officials, a difference of less than 20 percent would likely be obliterated through (1) a process that allows contractors to resubmit lower bids and (2) the 10-percent conversion penalty for unforeseen costs that federal agencies must add to their estimated in-house costs.

For five of the nine facilities shown in table 4.1, the estimated costs of a contract force were at least 20 percent higher than a federal force; four

³Contracting of Guard Services At Oak Ridge Will Spiral Costs (GAO/PLRD-82-71, Apr. 30, 1982).

were less than 20 percent. Yet, DOE has not reanalyzed the cost differences between contract and federal forces since the early 1980s. According to the Chief, Management Systems Development/Evaluation Branch, DOE has not done so because the operations offices have more pressing problems, such as the billions of dollars of environmental cleanup, and do not have the staff to initiate multiple cost comparison studies.

Some Aspects of Contract and Federal Security Forces Offset Each Other

According to DOE officials and others with whom we met, either contract or federal security forces can protect DOE facilities. According to a 1976 Nuclear Regulatory Commission report, neither option offers an overall advantage over the other; therefore, the deciding issue is cost. One of the major disadvantages of a contract force is that it can strike, which generates security concerns and increases costs. The Los Alamos strike cost about \$1.6 million over and above the almost \$17 million fiscal year 1989 contract cost. On the other hand, a federal force would eliminate contract administration costs, which vary according to the force size.

Although several strike prevention mechanisms exist, they also carry a price tag. For example, a never-strike provision that extends beyond the contract expiration date and through renewal negotiations would provide DOE a mechanism to eliminate work stoppages. According to an Albuquerque Office of General Counsel official, no legal obstacles exist to DOE's negotiating a never-strike provision in its security force contracts, but the official believed that such a provision would be costly and estimated that the union might require a 25-percent increase in wages before agreeing not to strike.

A number of other differences exist between federal and contract forces. For example:

- Federal protective forces may experience less turnover. During the 26 months before the strike, Mason and Hanger experienced turnover rates of between 11 and 15 percent. Albuquerque's federal guard force experienced no turnover during the same period. Also, DOE's nuclear materials couriers experienced turnover rates as low as 8 and 10 percent during 1987 and 1988 even though the employees worked more overtime (about 75 percent) than the Los Alamos force (about 40 percent).
- A contract force can more rapidly respond to changes in workload demands. According to officials, one reason that DOE contracted for security services at Los Alamos was that OMB did not authorize additional personnel as security demands increased. Although the federal

personnel register included individuals wanting to be on the Los Alamos security force, DOE could not get additional positions approved in the early 1980s.

- A contract force can more easily terminate an employee who does not meet the required qualifications and skills. A member of DOE's security task force study said that a federal force has built-in protection and terminating an employee is a slow and cumbersome process.

Although costs and turnover rates may be lower for a federal force, DOE has never converted a contract force to a federal function. Some DOE and Los Alamos officials believe that federalizing the Los Alamos security force would traumatize employees and cause political turmoil in the local community but cited no specific examples to support their opinions. In addition, DOE noted that its operations offices do not have personnel slots to manage federal security forces, and OMB would require DOE to staff such positions from existing slots. OMB officials told us that they would work with DOE through the budget review process to help get the necessary positions if DOE can demonstrate that conversion is cost-effective. However, DOE officials said that the budget process is very time consuming and cumbersome and has not been responsive to their prior requests for additional federal personnel positions.

Conclusions

Contractors provide security services for all but one DOE facility. At nine facilities, we found that selected federal force costs may be at least \$15 million less costly than contract forces. Believing that little or no cost difference exists, DOE has not reexamined analyses conducted in the early 1980s nor conducted additional ones to determine whether using contract forces today is cost-effective and, therefore, still warranted.

DOE says that both a federal and contract force are equally capable of protecting its facilities. However, a federal force may offer financial and other unquantifiable benefits that are not, nor are they required to be, considered in weighing the costs and benefits of obtaining security services. For example, a federal force cannot legally strike—the Los Alamos strike cost about \$1.6 million over and above the almost \$17 million contract costs. Also, a federal force may be more stable. High turnover rates, such as the 11 to 15 percent that occurred at Los Alamos before the strike, increase hiring, training, and security clearance costs. DOE would have to weigh these benefits against other factors, such as its ability to terminate employees. Nevertheless, taken together, a federal force may be able to offer numerous advantages across the board for DOE.

**Recommendation to
the Secretary of
Energy**

In this era of scarce budget resources, DOE needs to obtain protective services in the most cost-effective manner. Because significant savings may be realized by having federal rather than contract employees provide security services, we recommend that the Secretary of Energy conduct an in-depth analysis of the relative costs of federal and contract security services across the nuclear weapons complex and convert to federal forces at locations where it is cost-effective to do so.

Views of Los Alamos Security Force Members

The following summarizes the views expressed by 14 Los Alamos security force members concerning the (1) causes of the strike; (2) adequacy of security before, during and after the strike; (3) actions that could improve security; (4) quality and quantity of training; (5) usefulness of DOE's inspections, and (6) advantages and disadvantages of federalizing the security force. The views of these individuals cannot be projected to all the Los Alamos security force.

Strike Causes

All said the strike was caused by a combination of excessive, mandatory overtime, a restrictive sick leave policy, and a punitive disciplinary policy that increased stress because demerits could result in job loss. A common complaint was that the company gave demerits for minor reasons (eating at a desk, picking up a newspaper, and minor vehicular damage). Some also said that sometimes the company required employees to take annual leave in lieu of sick leave, even if they had a doctor's statement and sick leave time was available. Some acknowledged that Mason and Hanger instituted such a policy because of reported past sick leave abuses by the Los Alamos force. All but one said that the strike could have been prevented if Mason and Hanger had been more flexible and understanding with its employees and exhibited better human relations skills.

Adequacy of Security Before, During, and After the Strike

- About half said that security was poor before the strike because of fatigue and low morale caused by excessive overtime; the other half said security was good to adequate.
- Twelve said that security was poor or marginal during the strike because the replacements did not meet the physical fitness and medical requirements and were not trained in using the same weapons as the regular Los Alamos force. Also, several said that the replacements were unfamiliar with the site, and some posts were not staffed because not enough replacements were available.
- Thirteen said that security has improved since the strike. Some security inspectors also noted that an "open campus" atmosphere prevents them from fully implementing DOE's requirements because laboratory personnel complain when security inspectors do their jobs correctly. Also, some claimed that Los Alamos allows its personnel to circumvent the policies established.

Actions That Could Improve Security

The security force members offered various suggestions to improve security. Some examples follow.

- Increase training, especially to qualify with new weapons, increase firing range time, and provide more communications training.
- Obtain better equipment, such as 4-wheel drive vehicles, clothing, and holsters.
- Improve safety and health conditions that will decrease sick leave and injuries. For example, when a security inspector fell from a guard tower, Los Alamos made changes to make it safer but did not take the same actions to improve other towers. Guard posts should be improved: concrete floors are cold and some traffic islands are “falling apart,” which allows exhaust fumes to enter the buildings and affect their health.
- Allow Mason and Hanger to manage security instead of Los Alamos and encourage labor relations training for Los Alamos, Mason and Hanger, and security force members.

Quality/Quantity of Training

Some security force members said that they were adequately trained to perform their jobs. One said that some members need more training on using weapons, but the firing range is seldom open. About 50 percent said that more training is needed on using the baton and arrest procedures. Some suggested that training classes should be smaller so the security force could receive more individual attention, and Mason and Hanger should use trained instructors rather than field supervisors. They also expressed concerns that training is often canceled, usually because of lack of funds.

Usefulness of DOE's Inspections

Eight said that DOE's inspections are useful because they help identify problems. On the other hand, some noted that the limited-scope performance tests do not represent real-life situations because DOE announces when the exercises will be held, training increases right before the tests, and some force members are preselected to participate. For these reasons, some force members did not believe that the tests appropriately assessed their competencies.

Federalizing

- Almost all said that they would like to be in the federal system because the benefits (sick and annual leave, health plan, and retirement) are better, and military service counts toward retirement. They also said that a federal force would take security more seriously, receive better training, and employee problems would be resolved in a timely manner.

Appendix I
Views of Los Alamos Security Force Members

-
- Many said that the major disadvantage would be a reduction in the salary received. However, some noted that the benefits were more important than salary.

Comparison of Six Facilities' Compliance With Albuquerque's Draft Contingency Plan Requirements

Requirements	1	2	3	4	5	6 ^a
1. Identify number of posts needed during emergencies.	N	Y	Y	Y	Y	Y ^b
2. Identify number of nonstriking protective force individuals that would be available during strike on all shifts.	N	Y	Y	Y	Y	Y
3. Identify posts that could be shut down, curtailed, and/or consolidated.	Y	Y	Y	N	Y	N
4. Determine the priority of site operations that can be shut down or curtailed.	N	N	N	N	Y	N
5. Identify functions that could be accomplished by other staff.	N	N	Y	Y	Y	N
6. Describe how auxiliary guard uniforms will be identified.	N	Y	N	N	N	N
7. Describe how nonstriking security inspectors would be identified.	N	N	N	Y	N	N
8. Identify inventories and inspections to be made upon departure of striking employees. ^c						
a. weapons	N	N	N	N	N	Y
b. keys	N	N	N	N	N	N
c. emergency response vehicles/equipment	N	N	N	N	N	Y
d. perimeter posts, radio, telephone, and alarms.	N	N	N	N	N	Y
9. Identify a plan to notify management and auxiliary guards in the event of a strike.	N	Y	Y	Y	N	N
10. Estimated amount of time required to implement the site contingency plan.	Y	N	N	N	N	N
11. Identify how, and for how long, local law enforcement agencies will provide assistance during a strike.	N	N	N	N	Y	N
12. Identify training to be held upon the arrival of augmentees.	N	N	N	N	N	N

(continued)

**Appendix II
Comparison of Six Facilities' Compliance
With Albuquerque's Draft Contingency
Plan Requirements**

Requirements	1	2	3	4	5	6^a
13. Identify training for auxiliary guards to be held prior to duty assignment.	Y	Y	N	Y	N	Y
14. Identify a point of contact to coordinate logistics, and explain how you will meet logistical needs.	N	Y	N	N	N	Y
15. Identify and discuss transition plans when the strike is terminated.	N	Y	N	N	N	N

^a1=Pantex, TX.
2=Los Alamos, NM.
3=Pinellas, FL.
4=Kansas City, MO.
5=Mound, OH.
6=Rocky Flats, CO.

^bY=yes; N=no.

^cCounting each of these items as separate topical areas results in a total of 18 requirements.

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