United States General Accounting Office

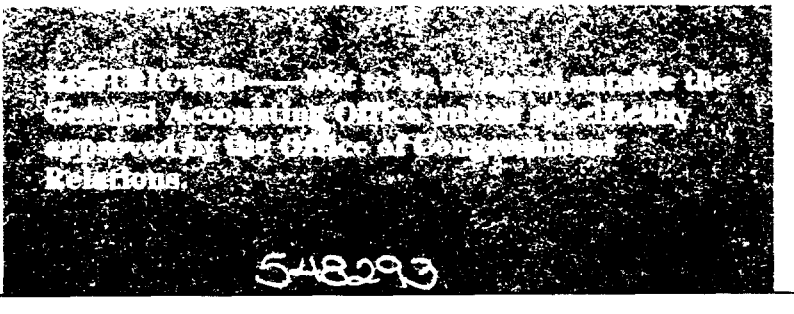
GAO

Report to the Chairman, Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, House of Representatives

April 1990

NUCLEAR SECURITY

DOE Oversight of Livermore's Property Management System Is Inadequate



GAO/RCED-90-122

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-232905

April 18, 1990

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

Dear Mr. Chairman:

This report responds to your request that we determine the extent of property losses at the Lawrence Livermore National Laboratory and assess the adequacy of the laboratory's controls over government-owned property in its custody. The laboratory is owned by the Department of Energy and is operated by the University of California at Livermore, California. We also assessed the adequacy of the Department's oversight of the laboratory's property management system for government-owned properties. As agreed with your office, we will report separately on the losses of and controls for special nuclear materials and classified documents.

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 Victor S. Rezendes, Director, Energy Issues, at (202) 275-1441. Major contributors to this report are listed in appendix II.

Sincerely yours,

Keith O. Fultz /for

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

Inventories of government-owned equipment at the Department of Energy's (DOE) Lawrence Livermore National Laboratory located in Livermore, California, were acquired for over $903 million. In June 1988, the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, held hearings to investigate, among other things, allegations that government-owned equipment at the laboratory was being stolen to finance the purchase of illegal drugs.

Following these hearings, the Subcommittee Chairman requested that GAO determine the extent of property losses at the laboratory and assess the adequacy of the laboratory's controls over government-owned property in its custody. The Chairman expressed particular interest in losses of selected items, including word processors and typewriters, video equipment, cordless hand tools, and highly explosive materials. In addition, GAO assessed the adequacy of DOE's oversight of the laboratory's property management system for government-owned properties.

Background

The laboratory is a nuclear weapons research and development facility. It is government-owned and contractor-operated by the University of California. Under the contract, due to expire September 30, 1992, the university is responsible for managing government-owned property at the laboratory. DOE's San Francisco Operations Office has oversight responsibility with respect to property management at the laboratory.

DOE property management regulations provide guidance on DOE standards, practices, and controls to be applied in the management of government-owned property. The regulations state, for example, that controls shall be established for (1) physically protecting property against loss, theft, or unauthorized use and (2) taking physical inventories of property, consistent with generally accepted accounting procedures.

Results in Brief

Laboratory management cannot account for a substantial amount of government-owned property in its custody. For example, as of mid-January 1990, laboratory managers could not locate 16 percent, or 27,528, of the items recorded in the laboratory's property management data base. On the basis of the results of an internal laboratory inventory, this missing property has an acquisition value of over $45 million. In addition, for the specific items of interest to the Subcommittee, GAO estimates that the laboratory has lost accountability for about 14 percent of them, worth about $2 million when acquired. Despite the substantial

number of missing items, the contract between DOE and the university generally protects the university against liability for such losses.

The laboratory does not have adequate accounting controls to ensure that property in its custody is safeguarded against theft, unauthorized use, or loss. In addition, there are insufficient physical controls to prevent laboratory employees and subcontractors from taking government property from the premises without proper authorization.

DOE has not provided adequate oversight of the laboratory's property management system and, in essence, has allowed the university to prescribe the terms of the contract. DOE has not required the laboratory to conform with departmental property management regulations, nor has it approved the laboratory's property management system, as required by regulation. Further, in lieu of the departmental property management regulations, DOE has not developed or provided guidance to the laboratory spelling out the criteria for performance of property management functions. Consequently, DOE cannot ensure that the laboratory is adequately safeguarding property in its custody.

Principal Findings

Substantial Number of Items Missing

A substantial number of government-owned items at the laboratory cannot be located. The results of the laboratory's comprehensive inventory of all the property contained in its management data base show that about 5 percent of the capital equipment items, 20 percent of the non-capital items, and 3 percent of the attractive items were missing as of mid-January 1990. (In general, capital equipment denotes property with an acquisition cost of $5,000 or more; non-capital equipment denotes property with an acquisition cost of between $500 and $5,000; and attractive items include those with an acquisition cost of at least $150 and judged by laboratory managers as prone to theft.) This missing property has an acquisition value of $20.6 million, $24 million, and $.8 million, respectively. The laboratory's inventory also shows that a substantial number of the specific items of interest to the Subcommittee cannot be located. For example, as of mid-January 1990, the laboratory was missing 205 typewriters/word processors, 841 items of video equipment, and 3,677 calculators. The results of GAO's independent statistical analysis verify that a substantial number of the items of interest to the Subcommittee cannot be located. On the basis of GAO's sample of 276

items of interest contained in the property management data base, GAO estimates that 5,858 items with an acquisition cost of about $2 million are missing.

GAO could not determine the extent of missing items for some property such as hand tools and video tapes. No consistent data are collected on acquisitions of these items, and tool acquisitions are made by numerous organizational units that use different control procedures. Similarly, GAO could not determine whether any highly explosive materials were missing because the data necessary to do so are not maintained.

Despite the fact that a substantial number of government-owned property items at the laboratory cannot be located, the contract between DOE and the university generally places the risk of such losses upon the government. According to the contract, the university is at risk only if the loss of government property is the result of willful misconduct or bad faith by corporate officers. To date, none of the missing items at the laboratory have been attributed to these reasons.

Inadequate Controls Over Property

Property controls at the laboratory do not ensure that government-owned property is adequately safeguarded. For example, the laboratory does not have laboratory-wide policies and procedures for controlling items with an acquisition cost below $1,000. Because control of these items is left up to individual user groups, no consistent data on their acquisition are collected. Consequently, it is difficult to identify how many of these items have been purchased. Similarly, GAO found that the laboratory does not independently verify government-owned inventories of precious metals such as gold and platinum that are in the custody of subcontractors. As a result, the laboratory cannot readily verify the reasonableness of reported consumption of these metals.

GAO also found that individuals leaving the laboratory site face little risk of having their vehicles searched. Consequently, the likelihood of detecting theft of government property also remains low. For example, in 1988 about 17 vehicle searches were conducted daily—a small number compared to the approximately 7,000 vehicles that enter and leave the laboratory daily.

Inadequate Oversight of the Laboratory

In order to retain the University of California's services, DOE did not require inclusion of its standard property management provision in the contract with the university. This provision, normally included in all DOE

management and operating contracts, requires contractors to operate in accordance with departmental property management regulations. In lieu of this provision, the contract provides for a "mutually approved system." The terms needed for approval of this system, however, were never developed nor agreed upon. Further, although the university was opposed in principle to the inclusion of federal property management procedures in the contract, it indicated its willingness to consider such procedures when developing and implementing its own procedures and manuals if guidance was provided by DOE. However, DOE never provided this guidance to the laboratory.

Because DOE has not developed or reached agreement on the terms for a "mutually approved system" nor approved the property management system that the laboratory is using, it has no clear criteria against which to judge and assess contractor performance. Consequently, it cannot ensure that the laboratory's system provides the same level of protection as that provided by federal and departmental regulations.

Recommendations

GAO makes a number of recommendations in chapters 2 and 4 to the Secretary of Energy on actions to strengthen DOE's oversight of the laboratory's property management system. These recommendations include (1) identifying areas in the laboratory's property management system that do not provide the same level of protection for government-owned property as that provided by federal and departmental regulations, (2) advising the laboratory of identified deficiencies and establishing a mutually agreed upon time frame for completing the corrective actions, and (3) clearly defining, with the agreement of the laboratory, the terms and provisions of the "mutually approved system."

Agency Comments

GAO discussed the factual information contained in a draft of this report with responsible DOE and laboratory officials. DOE officials generally agreed with the facts presented, noting that while the information was hard hitting, it was factually correct. Laboratory officials made a number of specific comments regarding the factual accuracy of the information presented. GAO reviewed these comments and made changes, as appropriate. Laboratory officials noted, in particular, that the reconciliation process is ongoing and that a number of capital and attractive items have been located since mid-January. GAO notes this in the body of the report but was not able to verify the updated figures before the report was issued. As requested, GAO did not obtain official agency comments on the report.

Contents

Appendixes

Tables

Chapter 1

Introduction

The Lawrence Livermore National Laboratory is a government-owned, contractor-operated nuclear weapons research and development facility. Government-owned equipment inventories at the laboratory have an acquisition cost of over $903 million. They are located in over 460 buildings and trailers on a one-square-mile site in Livermore, California, and at a nearby test site.

This large complex is operated by the regents of the University of California under a "cost plus a fixed management allowance" contract with the Department of Energy (DOE).[1] Under the contract, (1) the contractor is responsible for managing government-owned property at the laboratory and (2) DOE has the right to oversee and ensure the effective management of such property. In addition to the contract, federal and departmental regulations outline DOE's responsibilities with respect to management of government-owned property, including property managed by contractors.

We were asked by the Chairman of the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, to determine the adequacy of the laboratory's property controls and the extent of the property losses. The Subcommittee expressed particular interest in the losses of selected properties, including computers, word processors and typewriters, video equipment, cordless hand tools, precious metals, chemicals that can be used to manufacture illegal drugs, and highly explosive materials.

Background

The Lawrence Livermore National Laboratory was established in 1952 as a nuclear weapons research and development facility. Its overall mission is to serve as a scientific, technical, and engineering resource for the federal government, particularly as these functions relate to national security. Major programs at the laboratory include (1) research, development, and testing associated with nuclear weapons, (2) inertial confinement fusion directed at understanding weapons physics, (3) laser isotope separation, and (4) magnetic fusion energy and other energy research programs.

The laboratory has been operated since its establishment by the regents of the University of California. The contract is subject to renewal every

[1]Under a "cost plus a fixed management allowance" contract, the contractor is reimbursed for all costs and also receives an additional allowance for management purposes.

5 years. The current contract was signed on September 18, 1987, and expires September 30, 1992.

Federal Property Management Responsibilities and Requirements

Federal requirements for control and accountability of government-owned property are contained in the Federal Property Management Regulations (41 CFR Chapter 101) issued by the U.S. General Services Administration. The Department of Energy Property Management Regulations (41 CFR Chapter 109) are consistent with the federal regulations and serve to implement and supplement them. The regulations set forth the responsibilities and general policies that the Department must follow in managing government-owned property. They cover, among other things, DOE's property management program objectives and responsibilities, personal property management standards and practices, and contractors' personal property management programs.

Program Objectives and Responsibilities

The objectives of DOE's property management program are two-fold. They are (1) to provide a system for effectively managing government personal property in the custody or possession of DOE organizations and DOE contractors and (2) to provide uniform principles, policies, standards, and procedures for economical and efficient management of government personal property that are sufficiently broad in scope and flexible in nature to facilitate adaptation to local needs and various kinds of operations.

Responsibility for ensuring that these objectives are met is shared between DOE headquarters and its field offices. At headquarters, the Director, Property and Equipment Division, is responsible for, among other things, developing and maintaining departmental personal property policies, standards, and procedures and conducting reviews and appraisals of departmental personal property management functions.

The heads of DOE field offices,[2] in turn, are responsible for establishing and administering a personal property management program within their organizations which will provide for effective management of government personal property in the custody of DOE and DOE contractors, consistent with applicable laws and regulations. They are also responsible for developing and maintaining complete and accurate inventory

[2]"Heads of field offices," as defined by departmental regulation, are the heads of any DOE office located outside the Washington, D.C., metropolitan area.

control and accountability record systems and conducting periodic management reviews to ensure compliance with prescribed policies, regulations, standards, and procedures. In addition, contracting officers at the field offices are generally directed to ensure that all contracts that involve property contain the Department's standard property clause, which, among other things, requires a contractor to maintain and administer a property management system in accordance with sound business practice and in accordance with DOE property management regulations.

Personal Property Management Standards and Practices

Subpart 109-1.51 of DOE's regulations provides general guidance on DOE standards and practices to be applied in the management of government-owned personal property. This subpart covers, among other things, the identification and marking of government property, the physical protection of such property, and the physical inventorying of property, consistent with generally accepted accounting procedures. For example, the regulations state that controls shall be established for identifying and marking government property as such and that property susceptible to unauthorized personal use, such as hand tools, should be considered for marking as U.S. Government property, and by numbering for control purposes. The regulations also state that controls such as property pass systems and perimeter fencing shall be established to prevent loss, theft, or unauthorized movement of property from the premises on which such property is located.

Policy and Responsibilities for Contractors' Personal Property Management Programs

Subpart 109-1.52 of DOE's regulations prescribes policy and responsibilities for the establishment, maintenance, review, and appraisal of a contractor's program and system for the management of government personal property. Specifically, this subpart states that

"(a) Contractors shall establish, maintain, and administer a program for the effective management of government personal property consistent with the terms of the contract and directives for the contracting officer.

"(b) Contractors shall maintain their personal property management systems in writing on a current basis.

"(c) Contractors shall require those subcontractors provided government property under the prime contract to establish and maintain a system for the management of such property. Procedures for assuring effective property management shall be included in the contractor's property control system."

Both the contractors' and subcontractors' systems for property control are to provide for, at a minimum, adequate records, controls over acquisitions, identification as government property, physical inventories, and proper care, maintenance, and protection. The systems are also supposed to provide for reporting, redistributing, and disposing of excess and surplus property and a retirement work procedure to account for property that is worn out, lost, stolen, destroyed, abandoned, or damaged beyond economical repair. Periodic reporting of physical inventory results and of the total acquisition cost of government property is also required as is an internal surveillance system to ensure that property is being managed in accordance with established procedures.

Categories of Property and Property Management Controls

Property acquired at the laboratory is placed in one of several categories—capital equipment, non-capital equipment, attractive items, "other" equipment, and special materials items. For control purposes, these categories are either centrally controlled, user controlled, or specially controlled.

Categories of Property

The basic categories of property at the laboratory are defined as follows:

- Capital equipment denotes property or equipment items with an acquisition cost of $5,000 or more and a useful life of 2 years or more. Examples of items fitting this category include x-ray generators and oscilloscopes. As of mid-January 1990 the laboratory had an inventory of 30,362 capital items with a total acquisition cost of $681 million.
- Non-capital equipment generally denotes property or equipment items with an acquisition cost of $500 or more. The laboratory further divides this category into two sub-categories—low value equipment and minor equipment. In general, property costing between $1,000 and $5,000, with a useful life of 2 years or more, is referred to as low value equipment and includes such items as sophisticated photographic equipment and selected typewriters. In contrast, minor equipment generally has an acquisition cost of $500 to $999 and includes such items as personal computer software, printers, and modems. As of mid-January 1990 the laboratory had an inventory of 129,086 non-capital items with a total acquisition cost of $187 million.
- Attractive items, also known as sensitive items, include those that cost at least $150 (with no upper limit) and are judged by laboratory managers as prone to theft or misuse. As of mid-January 1990 the laboratory had an inventory of 14,638 attractive items with a total acquisition cost

of $35.3 million. The attractive items list changes periodically but currently includes binoculars, still cameras, cellular telephones, telescopes, video cameras, tape recorders and players, personal computers, and electronic balances.

- "Other" equipment includes property costing below $500 that is not labeled as "attractive." This equipment is not categorized, per se, by the laboratory. Examples of such property include cordless hand tools and video tapes. Because the laboratory does not inventory items costing below $500, other than the attractive items, the total acquisition cost of this property is not known.
- Special materials items include special nuclear materials such as plutonium, precious metals such as gold and silver, and chemicals that could be used to manufacture illegal drugs. Chemicals that can be used to manufacture illegal drugs are known as precursor chemicals. As of the end of fiscal year 1989, the laboratory had an inventory of approximately 1.5 million grams of precious metals with a market value of about $10.2 million. The laboratory maintains similar data on special nuclear materials but that information is classified. Comparable data on precursor chemicals are not maintained by the laboratory.

Property Management Controls

For control purposes, the various categories of property at the laboratory are either centrally controlled, user controlled, or specially controlled. In general, centrally controlled items include capital, non-capital, and attractive items. Minor equipment and property with an acquisition cost below $500 are user controlled. Special materials items are specially controlled.

Laboratory procedures require centrally controlled items to be tagged (labeled) with a DOE identification number and entered on the laboratory's property management data base, called the Movable Equipment Management Information Center. Items on the property management data base are inventoried every 2 years, except attractive items, which are inventoried annually. The laboratory reconciles and reports losses of capital and attractive items to DOE. Losses of these items are written off in the property management data base. Losses of non-capital items are neither reconciled nor written off in the property management data base.

Items that are user controlled differ from centrally controlled items largely in that they are neither tagged with a DOE identification number nor entered on the property management data base. Some of these items are engraved with "LLNL" (which stands for Lawrence Livermore

National Laboratory) or receive other permanent markings identifying them as government property.

Special controls exist for each of the special materials items. For example, special nuclear materials have specific physical and accounting controls outlined in DOE Orders. Further, controls for precious metals are specified by the laboratory's Materials Management Division and controls for precursor chemicals are specified by the laboratory's Chemical Tracking Committee.

Objectives, Scope, and Methodology

In a July 12, 1988, letter, the Chairman of the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, asked us to assess the adequacy of controls at the Lawrence Livermore National Laboratory to protect government property in its custody and to determine the extent of property losses at the laboratory. The Chairman expressed particular interest in losses of the following items:

- Computers and computer equipment, including hand-held computers and calculators.
- Specialized technical equipment, e.g., balance scales and measuring devices.
- Word processors and typewriters.
- Photographic equipment.
- Video equipment, including recorders, monitors, and tapes.
- Cordless hand tools.
- Precious metals.
- Chemicals that could be used to manufacture illegal drugs.
- Highly explosive materials.

The request was made following June 15, 1988, hearings on the laboratory's and DOE's termination of Operation Snowstorm, an undercover investigation of alleged drug activities at the laboratory. During the hearings, the Subcommittee Chairman expressed concern about allegations that equipment and other items was being stolen to finance the purchase of illegal drugs by laboratory employees. We also assessed the adequacy of DOE's oversight of the laboratory's property management system for government-owned properties. As subsequently agreed with your office, we plan to report separately on losses of and controls for special nuclear materials and classified documents.

We performed our work at DOE headquarters, the DOE San Francisco Operations Office in Oakland, California, and the Lawrence Livermore

Laboratory in Livermore, California, from December 1988 to January 1990. This work was done in accordance with generally accepted government auditing standards.

To determine the adequacy of controls and oversight for government-owned property at the laboratory, we reviewed, analyzed, and discussed with DOE and laboratory officials: (1) GAO standards for internal controls in the federal government,[3] federal property management regulations, and the current contract for management and operation of the laboratory and (2) written laboratory policies and procedures for management of government-owned property. In addition, we reviewed recent DOE property system appraisals, University of California internal audit reports, and DOE Inspector General reports as well as related reports by private consulting firms pertaining to property management at the laboratory. We also reviewed DOE's fiscal years 1986-88 annual statements and reports required by the Federal Managers' Financial Integrity Act (FIA) of 1982 to identify property management control weaknesses and actions taken or planned to resolve them. None of the FIA reports identified property management control weaknesses.

To determine the extent of laboratory property losses, we audited inventory data bases and analyzed theft statistics and procurement transactions. We used a statistical sample of the items of interest that are centrally controlled to determine the extent of losses. This sample allowed us to estimate losses for the universe of these items. Appendix I contains a more detailed discussion of the sampling methodology we used. Since the laboratory maintains no data base records for most property costing less than $1,000, we were unable to determine losses for such items as cordless hand tools and video tapes. We did, however, test the system of controls for these items at the user level by tracing individual procurements to the user level to confirm whether or not purchased items were on hand. For the special materials that are not managed as part of normal property management activities, we reviewed internal reports of losses and related controls.

[3]Standards for Internal Controls in the Federal Government (June 1983), U. S. General Accounting Office.

A Substantial Number of Items at the Laboratory Are Missing

A substantial percentage of government-owned property is missing from the laboratory. The results of the laboratory's comprehensive inventory of all the property contained in its property management data base show that about 5 percent of the capital equipment items, costing $20.6 million; 20 percent of the non-capital items, costing $24 million; and 3 percent of the attractive items, costing $.8 million, were missing as of mid-January 1990. Our independent statistical analysis also confirms that a substantial number of the items of interest to the Subcommittee cannot be located. These unaccounted-for items do not include potential losses of items that are not controlled on the laboratory's property management data base. For example, we could not determine the extent of missing items for some property such as hand tools, nor could we determine whether there were any video tapes missing. Despite the substantial number of missing items, the contract between DOE and the university generally protects the university against liability for such losses.

Results of Physical Inventory Show a Substantial Number of Missing Items

In November 1988, DOE recommended that the laboratory perform a comprehensive (wall-to-wall) inventory of all the property contained in the property management data base, the Movable Equipment Management Information Center (MEMIC), and reconcile all relevant property control and financial accounting records.[1] In May 1989, the laboratory began the physical inventory.

Table 2.1 summarizes the results of the laboratory's inventory as of mid-January 1990,[2] at which time the laboratory could not locate a total of 27,528 items, or 16 percent of the items recorded in the property management data base. This missing property has an acquisition value of over $45 million—5 percent of the total acquisition value of all the property in the data base—and consists of about 5 percent of the laboratory's capital equipment items, 20 percent of the non-capital items, and 3 percent of the attractive items. For capital and attractive equipment, these missing items have accumulated since 1987, when the last

[1]Reconciliation requires that an exhaustive search confirm that items are actually missing so that a loss can be recorded in property and financial accounting systems.

[2]The physical inventory of items in the property management data base was completed in May 1989. Following the inventory, reconciliation of the items began and is still ongoing. In March 1990, laboratory officials told us that since mid-January 1990 they had located some of the missing capital and attractive items. They maintain that the percent of missing capital items has decreased from 5 percent to about 1.9 percent, the percent of missing attractive items from 3 percent to 2.4 percent, and the percent of non-capital items from 20 percent to 18.2 percent. Because this report was in final processing at the time these figures were provided to us, we were unable to verify them before our report was issued.

inventory was completed.[3] Because losses of non-capital items have not been reconciled by the laboratory nor written off in the property management data base, missing non-capital items at the laboratory could include items that have been missing since the early days of the laboratory.

Table 2.1: Summary of Missing Equipment as of Mid-January 1990

Dollars in millions

	Inventory		Missing equipment			
Category	**Number**	**Value**	**Number**	**Percent**	**Value**	**Percent**
Capital	30,362	$680.7	1,605	5	$20.6	3
Non-capital	129,086	187.0	25,516	20	24.0	13
Attractive	14,638	35.3	407	3	.8	2
Total	**174,086**	**$903.0**	**27,528**		**$45.4**	

In November 1988, the laboratory agreed with DOE's San Francisco Operations Office to reconcile all capital, non-capital, and attractive equipment upon completion of the inventory. Subsequently, however, it decided not to reconcile non-capital equipment that is more than 5 years old. According to laboratory officials, this change was made because of the extensive resources that would be required to make a reconciliation of all non-capital equipment and because DOE regulations do not require reconciliation of non-capital items by management and operating contractors. DOE Operations Office officials told us, however, that the issue of non-capital reconciliation is not resolved; they continue to believe that all missing non-capital equipment should be reconciled. Consequently, they have not yet approved the laboratory's plan to reconcile only non-capital equipment that is less than 5 years old.

Unless all non-capital equipment is reconciled, there is no way to obtain an accurate picture of actual losses of such items and accounting records cannot be adjusted to accurately reflect the results of the inventory. Further, part of obtaining a more accurate picture of unlocated non-capital items during an inventory period is the establishment of an "acceptable" loss standard for non-capital equipment. Up until March 1990, the laboratory had not established such a standard. At that time, the laboratory established a loss standard of 2 percent for non-capital items purchased within the last 5 years; it did not establish a similar standard for non-capital items purchased before the 5-year period. (DOE has not yet

[3]According to laboratory officials, personal computers and electronic balances were added to the attractive item list in 1988. Before that time they were considered to be low value, non-capital items that were not subject to reconciliation.

approved this standard.) Because this standard does not apply to all non-capital items, an accurate picture of actual losses of such items cannot be obtained. Given that the laboratory cannot account for 20 percent (as of mid-January) of its non-capital equipment, reconciling such equipment and the establishment of a loss ratio standard for all such equipment would help to demonstrate the laboratory's commitment to managing government-owned property in accordance with good business practices.

Further, for comparison purposes, the laboratory's current acceptable loss standard for the number of capital equipment items that can be missing from inventory is .5 percent. The laboratory's inventory results as of mid-January 1990 show that the number of missing capital equipment items was 5 percent, or 10 times the acceptable standard, demonstrating that the laboratory's actual loss ratio for capital equipment was substantially higher than the acceptable level. According to laboratory officials, the number of missing capital items has decreased since that time to about 1.9 percent (as of March 16, 1990), largely as a result of ongoing reconciliation. However, even with such a decrease, the number of missing capital equipment items is still about three times the laboratory's prescribed loss ratio standard.

Inventory Also Shows a Substantial Number of Missing Special Interest Items

The laboratory's inventory of all the property contained in the property data base also shows that a substantial number of the specific items of interest to the Subcommittee cannot be located. Of the items of interest,[4] the following are contained in the data base:

- Computers and certain computer-related equipment.
- Specialized technical equipment (e.g., balance scales and measuring devices).
- Word processors and typewriters.
- Photographic equipment.
- Video equipment, including recorders and monitors.

Due largely to the fact that the laboratory does not maintain the inventory records needed to determine losses, we could not determine the

[4]Certain items of interest to the Subcommittee do not fit exclusively into a given category of property. For example, personal computers are designated as attractive items. However, other computers, depending on their cost and level of sophistication, are considered to be either capital or non-capital equipment. Similarly, word processors and photographic equipment may fall into different categories, depending on their cost. The majority of items of interest to the Subcommittee fit into either the non-capital or attractive property categories.

number of missing items for the remaining items of interest—video tapes, cordless hand tools, precious metals, chemicals that could be used to manufacture illegal drugs, and highly explosive materials.

Table 2.2 shows the results of the laboratory's inventory of items of interest to the Subcommittee, as of mid-January 1990.

Table 2.2: Summary of Items of Interest Missing Following the Laboratory's Inventory

Category	Number of missing items	Acquisition cost
Microcomputers	49	$86,055
Micro accessories	969	1,612,841
Video equipment	841	1,018,669
Typewriters/word processors	205	191,117
Balance scales	101	68,788
Cameras/related equipment	388	104,891
Calculators	3,677	224,915
Total	**6,230**	**$3,307,276[a]**

[a]Includes some capital equipment and other categories of equipment that were excluded from the universe from which our sample was taken; therefore, the results are not directly comparable with our sample results.

The results of our independent statistical analysis verify substantial losses of the items of interest to the Subcommittee. We statistically sampled 276 items of interest from the property management data base. Of these items, the laboratory could not locate 38 (14 percent) of them. Table 2.3 shows the results of our sample.

Table 2.3: Results of GAO Sample of Items of Interest

Category	Number of items in sample	Number of missing items	Acquisition cost
Microcomputers	81	1	$1,249
Micro accessories	69	4	2,848
Video equipment	36	5	4,557
Typewriters/word processors	21	3	1,195
Balance scales	7	0	•
Cameras/related equipment	10	2	512
Calculators	52	23	2,471
Other (binoculars, modular telephones)	0	0	0
Total	**276**	**38**	**$12,832**

On the basis of our sample of items of interest contained in the property management data base, we estimate that 5,858 items with an acquisition cost of about $2 million cannot be accounted for. Appendix I provides additional details on these estimates.

Amount of Some Missing Property Cannot Be Reliably Estimated

We could not determine the extent of missing items for some property such as cordless hand tools, nor could we determine whether there were any video tapes missing. No consistent data are collected on acquisitions of these items, and tool acquisitions are made by numerous organizational units that use different control procedures. For example, one type of cordless hand tool—a Makita cordless power drill—is acquired and stocked centrally at a laboratory store-type facility, but it has also been purchased by other organizational units using blanket purchase orders. Many items purchased under blanket purchase orders, as discussed in chapter 3, are not identified individually in the property management data base. Consequently, it is difficult to tell how many of these items have been purchased or lost. In essence, control over these items has been lost.

Similarly, we could not determine whether any highly explosive materials or precious metals were missing; the data necessary to determine if losses of highly explosive materials have occurred are not maintained.

Reported Losses of Precious Metals Are Low

Unexplained losses of precious metals—i.e., the difference between inventory and reported usage as determined by the Laboratory's Material Management Division—have been low. For fiscal years 1987-89, the laboratory's highest unexplained loss occurred in 1987. This loss, with a market value of about $13,000, was .13 percent. However, while documentation for the acquisition and consumption of precious metals is maintained and periodically verified by physical measurement of the quantities on-hand, reports of consumption of the metals are not independently verified. Without verification there is no way to ensure that the reported consumption is accurate.

No Losses of Precursor Chemicals Were Found

We did not identify any losses of chemicals that can be used to manufacture illegal drugs. These include barbituric acid, benzyl chloride, pentobarbital, and morpholine. They are tracked from ordering through delivery. In 1987, the laboratory formed a chemical tracking committee to control and monitor procurement, receipt, and delivery of chemicals that can be used to manufacture illegal drugs. The committee developed

controls for 27 chemicals that it identified as precursors. In September 1988, the laboratory further improved controls to prevent possible misuse of precursor chemicals by

- limiting procurement to special orders by five persons (designated by the procurement manager);
- issuing instructions to suppliers to provide these chemicals through special orders only;
- establishing procedures to hand-carry the chemicals to users, obtain signed receipts, and place the chemicals under lock and key;
- eliminating precursor chemicals as a stock item in laboratory stores; and
- quarterly reporting of precursor chemical purchases to the laboratory's security office for monitoring and investigating purchases that appear to be unusually large or otherwise suspicious.

According to the laboratory's procurement manager and the laboratory's chief investigator, the purchase of precursor chemicals is infrequent and the quantity ultimately purchased is small, largely because such items are seldom used at the laboratory. Most chemists use non-controlled substitute chemicals in their work, if needed. The laboratory's chief investigator told us that he is confident that existing controls are working as intended and that no illegal drug manufacturing is going on at the laboratory.

We reviewed two 1989 safeguards and security reports (January and June) for precursor chemical purchases and verified that the quantities purchased since the control system was implemented have been very small. We also verified that signature receipt records were maintained and matched with purchase reports for precursor chemicals.

The University Is Essentially Protected Against Liability for Losses

Although a substantial percentage of government-owned property is missing from the laboratory, the contract between DOE and the university generally places the risk of lost, damaged, or destroyed property upon the government. Specifically, the contract between DOE and the university states that

"The University shall not be liable for loss or destruction of or damage to Government Property in the University's possession or custody unless such loss, destruction or damage is caused directly by bad faith or willful misconduct on the part of some Corporate Officer or Officers of the University or of any person acting as Laboratory Director, or unless such loss, destruction or damage results from a willful failure on the part of some Corporate Office or Officers of the University or of any

person acting as Laboratory Director, to take reasonable steps to comply with any appropriate written directives of the Manager, San Francisco Operations . . . , to safeguard such property . . . ."

According to a September 1989 DOE Inspector General's report,[5] DOE's fundamental indemnification policy is, with few exceptions, to completely indemnify its management and operating contractors, bear substantially all risks, both nuclear and non-nuclear, and pay all costs associated with running its facilities. DOE's contract with the university is no exception to this fundamental policy. At the laboratory, none of the missing items have been attributed to bad faith or willful misconduct on the part of the university or laboratory directors. Consequently, the cost, accountability, and responsibility for these missing items is ultimately DOE's. Moreover, the San Francisco Operations Office has not provided written directives to safeguard government property in the university's possession or custody, as provided for in the contract.

On January 26, 1990, the Secretary of Energy proposed an amendment to the Department's acquisition regulations that would make management and operating contractors liable for certain costs, claims, and liabilities currently reimbursed by DOE. These proposed nonreimbursable costs include losses of government property resulting from theft, embezzlement, or unauthorized use. However, as written, this proposed rule would affect only those contractors that receive profits under their contracts. Consequently, according to DOE's Director, Office of Review and Analysis, even if this proposed rule becomes final, it will not affect property management at the laboratory since the university operates the laboratory on a nonprofit basis.

Conclusions

Because the contract between DOE and the university essentially protects the university against the risk of lost, damaged, or destroyed property, the university's accountability for missing items at the laboratory is minimal. Similarly, the incentive to limit abuse of such property is also minimal.

DOE has the authority to include in its management and operating contracts risk-of-loss provisions that would require a contractor to more closely manage government property in its custody. However, in the

[5]Indemnification of the Department of Energy's Management and Operating Contractors (Sept. 1989), DOE Inspector General.

case of the Lawrence Livermore National Laboratory, the contract language makes DOE liable for the loss of property almost without exception. The contractor is currently at risk only for willful misconduct by corporate officers. It is not at risk for lack of prudent business judgment. In our opinion, by negotiating and accepting the terms of the current contract's risk-of-loss provision, DOE forfeited a significant opportunity to enhance the accountability of the university with respect to government-owned property at the laboratory.

Recommendations

To enhance accountability over government-owned property at the laboratory, we recommend that the Secretary of Energy direct the San Francisco Operations Office Manager to

- provide appropriate written directives to the university to safeguard and protect government property in the university's possession or custody as provided for in the current contract and
- modify the contract with the university in 1992 by identifying additional circumstances under which the contractor will be held liable for the loss of government-owned property in its custody.

The Laboratory Does Not Have Adequate Property Controls

The Lawrence Livermore National Laboratory does not have adequate controls to ensure that property in its custody is safeguarded against theft, unauthorized use, or loss. For example, the laboratory has not tagged, marked, or otherwise identified as government property some of the items it has acquired for use in weapons and energy research and development. Further, there are no laboratory-wide policies and procedures for controlling items with an acquisition cost below $1,000; as a consequence, no consistent data are collected on their acquisition. The laboratory also does not independently verify the consumption of precious metals such as gold and platinum held by laboratory employees. Moreover, an audit trail does not exist by which losses of highly explosive materials can be detected and measured. In addition, there are insufficient physical controls to prevent laboratory employees and subcontractors from leaving the laboratory with government property without proper authorization. When such weaknesses are taken together, the likelihood of detecting theft of government property is low.

Criteria for Assessing Property Management Controls at the Laboratory

Clause 12 of the current contract between DOE and the University of California sets out the rights and responsibilities of the two parties with respect to property and property management. The language in the clause is general and the clause covers a number of topics, including the identification and protection of government property and property management. Although the contract between DOE and the University of California for managing and operating the laboratory states that the university shall take all reasonable precautions to safeguard and protect government property in the university's possession or custody—as directed by DOE, or in accordance with sound business practice—it does not further define what is meant by "reasonable precaution" or "sound business practice."

Criteria do exist, however, against which to assess whether government property is being adequately safeguarded and protected. In GAO's Standards for Internal Controls in the Federal Government, for example, we note that as part of safeguarding and protecting government property, adequate internal controls are needed to help prevent against waste, loss, unauthorized use, and misappropriation of assets. Internal control techniques include, but are not limited to, such things as specific policies, procedures, plans of organization (including separation of duties), and physical arrangements (such as locks and fire alarms). In addition, the DOE property management regulations discussed in chapter 1 provide a framework for assessing the adequacy of property controls. Further, in early September 1988, DOE's San Francisco Operations Office

requested the accounting firm of Deloitte, Haskins, and Sells to provide guidance on what constitutes an effectively functioning property control system. In its September 27, 1988, response to DOE's request, the firm stated that positive answers to the following questions, among others, would be an indication of an effectively functioning property control system.

- Are adequate accounting records maintained regarding the description, value, location, etc., of each item of property?
- Are physical controls adequate to keep property from being removed without authorization?
- Are accurate physical inventories of all property taken regularly, and are the accounting records adjusted to the results of the physical inventory?
- Is the loss/misplacement of property identified during physical inventories consistently negligible?

Property Management Manuals Are Not Adequate

The laboratory has two internal manuals that address property management—the Administrative Policies and Procedures Manual and the Office Procedures Manual. While both manuals provide broad statements of policies and procedures for property management, they are ambiguous and do not include the specific steps that users should follow in managing property. For example, the Administrative Manual includes a brief description of the property management data base. But it does not explain how the data base is to be used to support property controls, what types of equipment or property are to be recorded in the data base, or what controls are to be applied to property that is not recorded in the data base. We were told by laboratory property management office officials that, in addition to these manuals, a draft document entitled "LLNL [Lawrence Livermore National Laboratory] Property Management Task Procedures" is a source of guidance for property controls. Although this draft guidance contains more detailed property management functions than either of the two manuals, it is not comprehensive. For example, the task procedures contain a detailed description of how attractive property will be controlled and how physical inventories will be taken of attractive and capital equipment, but the draft does not establish controls for property that does not fall into these two categories.

Weaknesses in the laboratory's property management manuals were also found by the accounting firm of Coopers and Lybrand in 1988,[1] a review conducted at the request of laboratory management. While the firm's final report did not identify significant weaknesses in the substance of the laboratory's property management policies and procedures, it noted that neither of the laboratory's property management manuals presents the specific steps that a user must follow to conduct property management-related activities. To improve the existing policies and procedures, Coopers and Lybrand recommended that the laboratory consider (1) consolidating the property management-related sections of these manuals into a single volume so that the property management policies and procedures in both manuals provide exactly the same information and (2) strengthening the tone and format of the manuals to improve their effectiveness. Although laboratory officials agreed with these recommendations, they did not implement them. The reason given for not acting on the recommendations was inadequate staff and funds.

Property Management Controls Are Not Adequate or Effectively Implemented

Property controls at the laboratory are not adequate to ensure against theft, unauthorized use, or loss because policies and procedures either are not adequate or have not been effectively implemented. We found weaknesses in specific property controls for centrally controlled, user controlled, and some specially controlled items. For example, we found a 34 percent error rate in the laboratory's property management data base when we attempted to verify inventories of the items of interest to the Subcommittee. We also found weaknesses in physical controls in that individuals leaving the laboratory site face little risk of having their vehicles searched. When such weaknesses are taken together, the likelihood of detecting theft of government property is low.

Laboratory Controls for Centrally Controlled Items Are Not Followed

Laboratory controls for centrally controlled items—generally those with an acquisition cost greater than $1,000—are not adequate to protect government-owned property, as indicated by the large number of items included in our statistical sample which were not at the location indicated.

Centrally controlled items are supposed to be recorded in the laboratory's Movable Equipment Management Information Center data base. The system includes data on the type of item, location, and operating

[1]Lawrence Livermore National Laboratories: Review and Analysis of the Property Management Function (Nov. 2, 1988), Coopers and Lybrand.

condition. Procedures call for property expediters[2] to report property movement and other changes in status so that the system can be updated and used as a source for inventory.

Data accuracy is a necessary component of an effectively functioning property control system. Without accurate data, there is no assurance that property is being properly and effectively managed. However, we found a 34 percent error rate in the laboratory's property management data base when we attempted to verify inventories of the items of interest to the Subcommittee. (See app. I.) One in 3 of the 276 items included in our statistical sample was not in the location indicated in the data base. Further, it took laboratory property management personnel several months to locate over half of the 94 misplaced items; the remaining 38 missing items—14 percent of the 276 items included in our sample—have not been located.

Laboratory officials are aware that property expediters do not always report relocations of centrally controlled property as required. And, in their opinion, this is the most likely cause of the property not being at the location indicated in the data base. To help address this problem, laboratory property management officials told us that they are considering forwarding a proposal to laboratory management that would replace the current property expediters, who perform this function in addition to their regular duties, with about 30 full-time people. Although they would like these positions to be new positions, they said that budget constraints may not allow for this.

Laboratory Controls for User-Controlled Items Are Not Adequate

Laboratory controls for user-controlled items—generally those with an acquisition cost below $1,000—are not adequate. The laboratory has no laboratory-wide policies and procedures for controlling these items; control is left up to individual user groups.[3] Further, not all tools purchased through blanket purchase orders have been marked as government property.

Neither of the two property management manuals nor the task procedures manual provides guidance on how to control the majority of items

[2]Property expediters are individuals within the various program groups who are responsible for keeping the Property Management Group aware of the movement of property within their groups. This responsibility is in addition to their regular duties.

[3]User groups are the departments/divisions within the laboratory that have custody of the equipment/property.

costing below $1,000.[4] Because control of these items is left up to individual user groups, no consistent data are collected on acquisitions of these items. Therefore, it is difficult to tell how many of these items have been purchased by the laboratory. For example, cordless tool acquisitions are made by numerous organizational units that use different procurement procedures. To illustrate, one type of cordless hand tool—a Makita cordless power drill—is acquired, permanently marked as government property, and stocked centrally at a laboratory store-type facility. However, this tool has also been purchased by other organizational units using blanket purchase orders. Items purchased through blanket purchase orders may or may not be marked as government property, depending on the user group. Such orders expedite procurements from local sources outside the normal competitive procurement process, but the laboratory's procurement data base for managing blanket purchase orders does not identify the individual items purchased. The loss of accountability for items purchased with blanket purchase orders is potentially significant. The laboratory told us that it has approximately 1,700 materials and equipment purchase orders with a funding level of $40 million. (This excludes blanket purchase orders involving utilities and services.)

We also found that not all tools purchased through blanket purchase orders have been marked as government property. For example, of the 10 cordless hand tools that we attempted to trace from blanket purchase order transactions to the organizational unit that purchased them, we could verify only that 5 were on hand, and of these, only 1 was permanently marked as government property. Similarly, of the four items of computer equipment that we attempted to trace, only one was on hand and it was not marked as government property.

Laboratory Controls for Some Specially Controlled Items Are Not Adequate

Laboratory controls for some specially controlled items, including highly explosive materials and precious metals, are not adequate to ensure against loss or misuse. First, as with user-controlled items, there are no laboratory-wide policies and procedures for accounting for highly explosive materials. Consequently, different procedures have been developed by those laboratory organizations responsible for controlling such materials, resulting in the lack of full accountability.

[4]The exceptions are those items considered to be attractive items ($150 or more) and most electronic items valued at $500 or more.

While the laboratory has no record of losses of highly explosive materials, the control system for these materials is not adequate to ensure that losses have not occurred. Within the laboratory, controls and accountability for highly explosive materials are delegated to six different organizational units that use the materials. Each unit has different control procedures for storing and handling highly explosive materials. Further, five of the units do not require periodic verification of quantities on hand against inventory records. Moreover, one of the five units does not maintain records on the quantities of highly explosive materials that it receives and disburses. Without such information an audit trail cannot be established by which losses can be detected and measured.

With respect to precious metals, we found that weaknesses in the laboratory's controls for such metals may have allowed undetected losses. (Precious metals include platinum, gold, silver, rhodium, osmium, iridium, ruthenium, and palladium.) Specifically, we found that the laboratory does not independently verify government-owned inventories of precious metals in the custody of subcontractors nor does it require the 284 users of precious metals to maintain a log showing the individual user, type, and form of metal and the time, place, and purpose of each use. As a result, the laboratory cannot readily verify the reasonableness of reported consumption of these metals.

Records of a subcontractor with a large platinum inventory, for example, indicated no usage of the material for a 7-year period. The subcontractor subsequently reported that the entire inventory—with an acquisition cost of $76,000—was used during a 6-month period to make glass for lasers to be used at the laboratory. The laboratory's precious metals manager questioned this much usage in such a short period and told us that some of the platinum may have been used for customers other than the laboratory. While a subsequent investigation of this incident by the Defense Contract Audit Agency did not indicate that any of the platinum had been used for other customers, the Agency found that the contractor did not separately account for government-owned property in its possession during the period audited. Consequently, there was no way to readily verify the reported consumption of the government-owned platinum.

In addition, we observed an inventory verification procedure for precious metals to determine if it reasonably assured that such metals were appropriately used and consumed at the laboratory. At the conclusion of the weighing, the inventory technician told the user how much less precious metal was on hand than was indicated in inventory records. The

user replied that this missing quantity—four grams of rhodium—had been used in experiments. Given this statement, the inventory technician recorded the adjusted inventory by subtracting the "consumed" quantity and prepared a form to record this amount as a write-off.

We asked the user's superior, who signed the write-off document, if the signature certified the accuracy of the reported usage. This individual said that the procedure means that he has general knowledge of what the user is doing and that the reported usage seems to be reasonable; however, his signature is not a certification that the amount written off has actually been used as reported. We do not believe that this procedure provides a reasonable assurance that such metals have been appropriately used and consumed.

A 1988 study conducted by Vierra Investigations,[5] an investigative services firm, cautioned that the laboratory's system for controlling precious metals is based on a high degree of trust and noted that there is some vulnerability to theft due to the nature of precious metals use and the difficulty in verifying use. It concluded that this vulnerability is greatly reduced by supervisory/managerial review of precious metals use. In response to this study, the laboratory concluded that while this report was extremely candid and offered an independent third-party view of property management procedures at the laboratory, theft of property at the laboratory is "not at a level which would suggest a marked inadequacy of the current physical protection of [the] property system." Consequently, the laboratory did not change its procedures for controlling precious metals.

Physical Controls Over Exiting Vehicles Are Not Adequate

Physical controls over exiting vehicles at the laboratory are not adequate to ensure against theft. Specifically, individuals leaving the laboratory site in vehicles face little risk of having them searched. Consequently, the likelihood of detecting theft of government property also remains low.

Laboratory security statistics indicate, as shown in table 3.1, that while the number of vehicle searches has increased every year except one since 1986, the number has remained small relative to the number of vehicles that move through the laboratory daily. For example, in 1988, the year of the greatest number of searches, about 17 vehicle searches

[5]Lawrence Livermore National Laboratory: Theft/Loss Vulnerability Analysis (Nov. 1988), Vierra Investigations.

were conducted each day.[6] Approximately 7,000 vehicles enter and subsequently leave the laboratory daily. According to laboratory security officials, fewer gate searches were made in 1989 because of increased security requirements elsewhere in the laboratory, leaving fewer officers available for gate vehicle searches. Table 3.1 shows the number of searches for the last 4 years.

Table 3.1: Vehicle Searches at the Laboratory, 1986-89

Year	Searches
1986	1,211
1987	2,739
1988	4,321[a]
1989	1,379[a]

[a]Excludes searches for one facility within the laboratory complex where all vehicles are routinely searched. At this facility, 4,929 searches were conducted during 1988 and 4,219 during 1989.

Further, only about one-half of the searches made during each year (1986-89) were exit searches. Exit searches are supposed to deter theft of government property and classified materials. Entry searches, on the other hand, are aimed at preventing anyone from bringing in contraband—firearms, explosives, listening devices, cameras, and drugs. Given that only about one-half of the searches made during each year were exit searches, it is questionable how effective such searches are in deterring theft of government property and classified materials.

Conclusions

The laboratory does not have an effectively functioning property control system. Property controls are inadequate and a substantial number of items are missing, as discussed in chapter 2. Moreover, positive answers cannot be provided to the questions of:

- Are adequate accounting records maintained regarding the description, value, location, etc., of each item of property?
- Are physical controls adequate to keep property from being removed without authorization?
- Are accurate physical inventories of all property taken regularly, and are the accounting records adjusted to the results of the physical inventory?

[6]Based on the Vierra Investigations report data of 250 business days and the laboratory's vehicle search statistics. (The laboratory's statistics include searches for both the laboratory and Site 300.) The Vierra Investigations report recommended that of the approximately 7,000 vehicles entering and subsequently leaving the laboratory daily, at least 1 percent, or 70 vehicles, should be stopped and "screened" each day.

- Is the loss/misplacement of property identified during physical inventories consistently negligible?

While it is the university's responsibility to take all reasonable precautions to safeguard and protect government property in its custody, it is DOE's responsibility to ensure that the university does so. It is also DOE's responsibility to ensure that the laboratory's property control system is effective. In chapter 4, we discuss how DOE has fallen short of meeting these responsibilities and provide recommendations to DOE on ways to improve property controls at the laboratory.

DOE Has Not Provided Adequate Oversight of the Laboratory

DOE has not adequately overseen the laboratory's property management system. DOE did not require inclusion of its standard property management provision in the contract with the University of California. This provision, normally included in all DOE management and operating contracts, requires that a contractor maintain and administer a property management system in accordance with sound business practice and in accordance with DOE's property management regulations. Moreover, in lieu of this provision, DOE has not developed or provided guidance to the laboratory, spelling out alternative criteria for performing the laboratory's property management functions. Furthermore, even though the contract between DOE and the university provides for establishing a "mutually approved system" for property management, the terms of this system have not been developed nor agreed upon. In addition, the Operations Office has not ensured corrective action of deficiencies identified during its appraisals of the laboratory's property management system. As a result, DOE cannot provide assurance that government-owned property at the laboratory is being adequately safeguarded and protected.

DOE Did Not Require Inclusion of Its Standard Property Management Provision in the Contract

The DOE San Francisco Operations Office did not require inclusion of its standard property management provision in the contract with the University of California. The contract was signed on September 18, 1987, and expires September 30, 1992. This provision, which the regulations generally require DOE to include in its management and operating contracts, states that

"The contractor shall maintain and administer a property management system, subject to the approval of the contracting officer, of accounting for and control, utilization, maintenance, repair, protection and preservation of Government property in its possession under the contract. The contractor's property management system shall be maintained and administered in accordance with sound business practice, and in accordance with Department of Energy Property Management Regulations, and such directives or instructions which the contracting officer may from time to time prescribe."

Replacing this particular provision in the contract is the following language:

"The University shall take all reasonable precautions, as directed by the Manager, San Francisco Operations or his authorized alternate, or in the absence of such directions in accordance with sound business practice, to safeguard and protect Government Property in the University's possession or custody. . . . The University

shall keep up-to-date the mutually approved property management system [emphasis added], as it may be modified with the approval of the DOE contracting officer, of accounting for and control by the University of property owned by the government within the custody of the University."

According to DOE's Contracting Officer at the San Francisco Operations Office, DOE tried to insert its standard provision into the contract during the most recent negotiations (1987), but the university opposed its inclusion, arguing that such a requirement would impose a superior/subordinate relationship upon government and contractor rather than the historical relationship of mutuality and consent. DOE agreed to drop this as a negotiating point, stating in its negotiation summary report that

"Although DOE was concerned about the degree of its ability to exercise oversight and control and about the university's occasional lack of responsiveness to DOE's concerns [emphasis added], the Department recognized that administrative requirements are basically being complied with and determined that the Laboratory's performance . . . far outweighed the administrative problems."

Other excerpts from the negotiation summary report provide additional insight into DOE's reasoning for excluding the exact language of its standard property management provision in the contract. For example, the negotiations report states that the university rigidly insists "upon the principle that the government's role is to establish broad policy and provide general direction for the conduct of the work, and that the university's role is to manage the work as it believes appropriate . . . ."

In recommending the contract for approval, the report concluded that

"Although the contract differs substantially from what is prescribed as a standard for M&O [management and operating] contracts, the basic concepts and the relationship that this contract has historically represented have served the Department well in terms of accomplishing its mission. The omissions and deviations from what might be desired are administrative matters rather than statutorily material deficiencies."

Consequently, as acknowledged by DOE San Francisco Operations Office officials, rather than jeopardize retention of the university as the contractor, DOE decided not to insist on including the provision in the contract and stated that it would exercise its oversight responsibilities through management actions outside of the contract itself. What form these "management actions" would take, however, was not specified.

More importantly, in lieu of this provision, the contract gives DOE the right to direct—through guidance—the property management operations of the university. It did not do so, even though the university had indicated its willingness during contract negotiations to consider such guidance in developing and implementing laboratory procedures and manuals.

The Operations Office's property administrator made an effort in March 1988 to draft some property management guidelines, but these guidelines were never approved. The guidelines were returned unapproved to the property administrator by the Operations Office Contractor Management Division stating that "the contract property clause does not allow DOE the right to change the University's property management system without mutual agreement." Following this rejection, the Operations Office took no further action to develop property management guidelines for the laboratory.

Terms for the "Mutually Approved System" Have Not Been Agreed Upon

Even though the contract between DOE and the university provides for the establishment of a "mutually approved system" for property management, the terms of this system have not been developed nor agreed upon. When we asked laboratory managers about this "mutually approved system," they referred us to the laboratory's property management manuals—the Administrative Policies and Procedures Manual, the Office Procedures Manual, and the Lawrence Livermore National Property Management Task Procedures. The task procedures, however, have not been formally approved by DOE.

Also, DOE's headquarters Office of Review and Analysis for Procurement and Assistance Management noted in its May 1988 review[1] of property management functions at the San Francisco Operations Office that, although the contract references the establishment of a mutually approved property management system,

"Discussions with AIS [Administrative and Information System (sic) Division] property administrators and the Division Director indicate uncertainty regarding the existence of such systems or the terms of approval."

To address this problem, the report recommended that, "in the absence of the standard DOE property clause," the field office should

[1]Part II: Personal Property Management Review (PPMR) (May 1988), DOE.

- determine the status of the mutual agreements with the laboratory;
- review mutually agreed upon terms to ensure conformance with federal and departmental property management regulations; and
- identify those areas where discrepancies with the regulations exist which would affect the San Francisco Operations Office's ability to manage personal property effectively and include mutually agreed upon changes to areas so identified.

In response to these recommendations, the Operations Office stated that it reviews the laboratory's property management policies and procedures during its scheduled appraisals of the laboratory and that when deficiencies are identified, it makes recommendations for corrective action. However, while the Operations Office's November 1988 appraisal of the laboratory's property management system identified some deficiencies in the laboratory's system, it did not "determine the status of the mutual agreements with the laboratory," or "review mutually agreed upon terms to ensure conformance with federal and departmental property management regulations," as recommended. According to Operations Office officials, these recommendations were not implemented due to staff shortages.

Approval of a contractor's personal property system is required by regulation. Because DOE has not met this regulatory requirement, it cannot provide assurance that government-owned property at the laboratory is being adequately safeguarded and protected.

The Operations Office Has Not Ensured Corrective Action on All Identified Deficiencies

The San Francisco Operations Office has not ensured that corrective actions have been taken by the laboratory for all deficiencies noted during its appraisals of the laboratory's property management system. Correction of identified deficiencies is required by regulation.

Subpart 109-1.52 of DOE's implementing regulations requires the property administrator to appraise the contractor's property management operations at least every 2 years (with a maximum period of 3 years) after the execution date of the contract. The appraisal may be based on a formal, in-depth appraisal on site or a series of formal appraisals of the functional segments of the contractor's property management system to determine if the contractor is managing the government personal property in its custody in accordance with previously approved policies, procedures, and applicable regulations. Appropriate follow-up is required by the property administrator to ensure that corrective actions are taken.

In 1985, the San Francisco Operations Office appraised the laboratory's personal property management system.[2] This appraisal revealed deficiencies in the system, including a failure by employees and property expediters to (1) update the property management data base and (2) tag property delivered directly to users. To correct these deficiencies, the Operations Office recommended, respectively, (1) that management emphasize employee responsibilities for supporting the property management system and its importance for controlling DOE equipment and (2) that property management follow up on and tag all untagged equipment as soon as possible. These recommendations have yet to be satisfactorily implemented, even though the contract was renegotiated and approved again in 1987.

A subsequent appraisal of the laboratory's property management system, completed in November 1988,[3] again reported on the failure of employees and property expediters to keep the property management data base up to date regarding property movement. DOE recommended that (1) "laboratory staff and their supervisors should be made fully aware of their personal property responsibilities, held personally accountable for property in their custody and penalized for abuse" and (2) the current biennial inventory "should be a 100-percent inventory and reconciliation of laboratory equipment, including all capital, noncapital, and sensitive items." DOE made completion of the 100-percent inventory and reconciliation a condition for DOE approval of the laboratory's property management system.

Although the laboratory initially agreed to take corrective action on these deficiencies, the laboratory, as discussed earlier, no longer plans to reconcile non-capital equipment purchased over 5 years ago. The issue of reconciling non-capital equipment is still being discussed—14 months after the recommendation was made. The laboratory did issue, on December 12 1988, a memorandum to laboratory staff emphasizing the importance of personal property responsibilities. However, the Operations Office has not yet evaluated the effectiveness of the laboratory's actions in this area.

[2]Personal Property Management Review (PPMR) Report, Lawrence Livermore National Laboratory (Aug. 1985), DOE San Francisco Operations Office.

[3]Personal Property Management Review (PPMR) Report, Lawrence Livermore National Laboratory (Nov. 1988), DOE San Francisco Operations Office.

Conclusions

DOE has not provided adequate oversight of the laboratory's property management system. DOE's responsibility is to ensure that a contractor's system adequately safeguards and protects government property. DOE cannot provide these assurances—it has not approved the laboratory's existing system nor has it developed or provided guidance to the laboratory, spelling out the criteria for performance of property management functions. Without an approved system, DOE has no clear criteria against which to judge and assess contractor performance. And without such clear criteria, it cannot provide assurance that government personal property is being adequately managed.

As discussed in chapter 2, the number of missing items of government property at the laboratory has been substantial—the result, at least in part, of inadequate property controls at the laboratory. Had DOE provided adequate oversight of the laboratory's property management system, the internal control weaknesses leading to these losses should have been identified and corrective actions taken.

Further, DOE's willingness to allow the contractor to prescribe the terms of the contract raises questions about DOE's commitment to ensuring adequate oversight. The negotiations summary report prepared by the San Francisco Operations Office provides troublesome insights into DOE's approach for dealing with the contractor. In the report, DOE acknowledges that the contract differs substantially from what is prescribed as a standard for management and operating contracts and acknowledges that it accepted the contractor's refusal to include the standard federal property management clause in the contract in order to retain the services of the university. It is also troublesome to note that DOE accepted what was, in its own view, the contractor's insistence upon the principle that the government's role is to establish broad policy and provide general direction for the conduct of the work, and that the university's role is to manage the work as it believes appropriate. DOE's role, by federal and departmental regulation, is more than a policy maker and a provider of direction—the Department is ultimately responsible for assuring that government-owned property is adequately safeguarded and protected. In the case of the Lawrence Livermore National Laboratory, DOE has fallen short of meeting this responsibility.

Recommendations

To improve oversight of the laboratory's property management system, we recommend that the Secretary of Energy direct the San Francisco Operations Office Manager to:

- Identify areas, including internal control weaknesses, in the laboratory's current property management system that do not provide the same level of protection for government-owned property as that which is provided by federal and departmental regulation. Following identification of these weaknesses, the San Francisco Operations Office should, as required by regulation, advise the laboratory of the deficiencies that need to be corrected, and establish an agreed upon time frame for mutually resolving and completing the corrective actions.
- Develop and provide written guidance to the laboratory, spelling out the criteria for performance of property management functions.
- Clearly define, in conjunction with the laboratory, written terms and provisions of the agreed upon "mutually approved system."
- Correct the deficiencies identified during its appraisals of the laboratory's property management system as well as those internal control weaknesses GAO identified during this review. These include, among other things, the need to

  (1) tag, mark, or otherwise identify as government property all items of equipment that the laboratory acquires for use in its weapons and energy research and development programs;

  (2) independently verify the (a) consumption of precious metals such as gold and platinum held by laboratory employees and (b) precious metal inventories held by laboratory subcontractors;

  (3) establish and implement physical controls to prevent laboratory employees and subcontractors from removing government property from the laboratory without proper authorization; and

  (4) establish a loss ratio standard for all non-capital equipment.

- Include its standard property management provision in the contract with the University of California when the contract is renegotiated in 1992.

Methodology Used to Examine the Laboratory's Property Management Data Base and Procurement System

During our review, we estimated losses of centrally controlled equipment at the laboratory. Such losses result from (1) equipment listed on the property management data base that cannot be located or (2) purchases of accountable equipment that are not recorded on the property management data base. To estimate the extent of such losses, we used statistical sampling surveys to (1) evaluate the extent of losses of items recorded on the property management data base, the Movable Equipment Management Information Center (MEMIC), and (2) determine the extent to which items recorded on the Procurement-Accounting-Receiving Information System (PARIS) were not being recorded on the property management data base, when required. PARIS tracks equipment purchases by means of individual purchase orders. Equipment purchased using blanket purchase orders was reviewed using judgment samples from release orders because the Procurement Information Center, the laboratory's procurement data base used to control blanket purchase orders, does not contain a description of items purchased.

All sample surveys provide range estimates of the universe characteristics being estimated. Such ranges, called confidence intervals, are developed at stated confidence levels. The width of a confidence interval denotes the reliability of an estimate. Narrow confidence intervals denote high reliability and wide confidence intervals, low reliability. All estimates in this report were developed at the 95 percent confidence level. This means that the chances are 19 out of 20 that the equipment and dollar losses being estimated are within the confidence interval indicated. In the following pages we also define the universes sampled in our survey. Because these universes are unique to this survey, sample results are not directly comparable with results from other laboratory studies.

The Property Management Data Base

We identified the universe of equipment items on the laboratory's property management data base by manually screening a list of all nomenclatures on the data base and selecting those of interest to the Subcommittee. As of February 28, 1989, the overall data base contained over 179,000 items valued at about $941 million.[1]

Using the property management data base nomenclature, we identified a universe of about 43,000 items as being in the categories of interest to

[1]Includes items from the laboratory, Site 300, and the Nevada Test Site.

Table I.2: Results of GAO Sample of Items of Interest

Category	Number in sample	Number not found	Acquisition cost of missing items
Micro computers	81	1	$1,249
Micro accessories	69	4	2,848
Video equipment	36	5	4,557
Typewriters/word processors	21	3	1,195
Balance scales	7	0	0
Cameras/related equipment	10	2	512
Calculators	52	23	2,471
Other (binoculars, modular telephones)	0	0	0
Total	**276**	**38**	**$12,832**

In addition to the above 276 items, all of which were either non-capital or attractive equipment, we randomly selected 31 capital equipment items, each valued at over $5,000. These items consisted primarily of mini-computers and computer mainframe-related equipment.

Accompanied by property management personnel, we were able to physically locate 182, or 66 percent (60 to 72)[2], of the 276 sample items and 24 of the 31 capital items. To verify the property management system data base, we checked the DOE property number, the location, and, where feasible, the manufacturer's serial number. We found that all of the site 300 items included in our sample were physically located at the place designated by the data base. In contrast, 94 of the 276 non-capital items, or 34 percent (28 to 40), included in our sample were not at the locations indicated on the property management data base. In addition, 7 of the 31 capital items were at locations other than shown on the property management data base. Even though the laboratory had updated the locations shown in our copy of the data base the week before we began our inventory, these items could not be located during our physical inventory. The results of our initial efforts to locate items based on the data base were consistent with other inventory efforts at the laboratory.

Following our inventory, we provided the laboratory with a list of the items not found, all of which were supposed to be at the laboratory. A Property Management representative was assigned to locate the items.

[2]Numbers in parenthesis refer to the associated confidence interval computed at the 95 percent confidence level.

the Subcommittee. Of this number, we selected a statistically simple random sample of 276 items. Table I.1 shows the universe of items of interest to the Subcommittee from which we selected our sample.

Table I.1: GAO Universe of Items of Acquisition cost

Category	Number of items listed on MEMIC	Acquisition cost
Micro computers[a]	12,199	$29,933,899
Micro accessories[b]	11,086	19,672,898
Video equipment[c]	5,925	6,679,965
Typewriters/word processors	2,808	3,315,292
Balance scales[d]	882	1,212,011
Cameras/related equipment[e]	2,214	1,183,738
Calculators	7,345	612,145
Other (binoculars, modular telephones)[f]	87	108,416
Total	**42,546**	**$62,718,364**

[a]Includes primarily personal computers and computer workstations.

[b]Includes primarily disk drives, keyboards, modems, printers, monitors, and other types of related equipment.

[c]Includes primarily TV cameras and monitors and video cassette recorders.

[d]Includes primarily all types of balance scales except floor, triple beam, and weight scales.

[e]Includes primarily cameras and camera-associated equipment, except for specialized equipment such as oscilloscope cameras, microscope cameras, and 8 x 10 portrait cameras.

[f]Includes only equipment items designated as attractive by LLNL, other than those included in the above categories.

Before finalizing our sample, we discussed it with laboratory property management personnel. On the basis of their comments and those of officials from the laboratory's Safeguards and Security Division, we excluded certain oscilloscope and other highly technical cameras that were not among the items of special interest to the Subcommittee Chairman. Table I.2 shows our sample of the items of interest to the Subcommittee.

As of October 31, 1989, after considerable time and effort on the part of laboratory property management personnel, an additional 56 of the 94 missing items were located. Also, the seven missing capital items were found. Thirty-six items were located during the laboratory's 100-percent inventory. Thirty-eight, or 14 percent (9 to 18), of the 276 non-capital and attractive items could not be located. While we do not know if these items are still at the laboratory, accountability of these items has been lost. Twenty-three of the 38 items yet to be found are calculators. Excluding the 52 calculators, 15, or 6.7 percent (3.4 to 10), of the 224 items are still missing. Reviews of item descriptions for the remaining 15 items indicate that 2 were designated as attractive items—one personal computer valued at $1,249 and a video cassette player valued at $925.

On the basis of our sample, we estimate that, of the items in the data base, 5,858 items of interest to the Subcommittee are missing. These items cost about $2 million. Most of the missing items are calculators. Other items consist of micro-computers; micro-computer accessories such as modems, disk drives, and printers; video-associated equipment such as TV cameras and monitors; and office equipment such as typewriters. Tables I.3 and I.4 show the estimated number of missing items and their acquisition and cost, respectively.

Table I.3: Estimated Missing Non-Capital and Attractive Items

	Estimated number missing	Confidence interval at the 95 percent level		
		Lower limit		Upper limit
Micro computers	154[a]	4	to	826
Micro accessories	617[a]	184	to	1,466
Video equipment	771[a]	275	to	1,662
Typewriters/word processors	462[a]	103	to	1,264
Balance scales	0[a]	0	to	360
Cameras/related equipment	308[a]	40	to	1,052
Calculators	3,546	2,523	to	4,813
Total	**5,858**	**4,125**	**to**	**7,590**

[a]The sample was designed to provide an overall estimate of the loss of equipment items of interest to the Subcommittee. Using post stratification, we separated the overall sample into its subcomponents to determine the degree of losses at those levels. Losses for the subcomponents are much less reliable than the overall sample.

Table I.4: Estimated Acquisition Cost of Missing Non-Capital and Attractive Items

Category	Estimated acquisition cost	Confidence interval at the 95 percent level		
		Lower limit		Upper limit
Micro computers	$193,000[a]	$1,249	to	$570,000
Micro accessories	439,000[a]	2,847	to	893,000
Video equipment	702,000[a]	81,000	to	1,320,000
Typewriters/word processors	184,000[a]	1,195	to	444,000
Balance scales	0[a]			
Cameras/related equipment	79,000[a]	512	to	234,000
Calculators	381,000	174,000	to	588,000
Total	**$1,978,000**	**$1,100,000**	**to**	**$2,900,000**

[a]The sample was designed to provide an overall estimate of the loss of equipment items of interest to the Subcommittee. Using post stratification, we separated the overall sample into its subcomponents to determine the degree of losses at those levels. Losses for the subcomponents are much less reliable than the overall sample.

Tracing Equipment Acquisitions to the Property Management Data Base

We also made tests to determine whether equipment that should be listed on the property management data base, as required by laboratory criteria, is in fact being listed.

Three major procurement processes can be used by laboratory staff to acquire new equipment. Equipment entering the laboratory through any one of these processes should be recorded on the property management data base if laboratory criteria specify such monitoring. The three procurement processes are purchasing equipment through (1) the laboratory's automated Procurement-Accounting-Receiving Information System, (2) blanket purchase orders, and (3) laboratory stores. We did not test stores, since most items acquired in this manner are below the criteria for recording on the property management data base.

In tracing equipment acquisitions from PARIS to the property management data base, we restricted the universe to include fiscal year 1988 purchases of items of interest to the Subcommittee that, according to laboratory criteria, required recording on the laboratory's property management data base. PARIS records procurements by purchase order number. A purchase order can include more than one line item, each of which corresponds to ordering one or more units of identical equipment. Our sampling unit was the purchase order line item. We selected a universe of line items from PARIS by manually screening a list of the nomenclatures on the data base for purchases in equipment groupings of interest to the Subcommittee. Because the nomenclature used by PARIS could mislead us as to whether the item was one of actual interest to the

Subcommittee, a determination to include the item in the universe was made during the sample evaluation phase. Consequently, the number of equipment items in the universe and the associated acquisition costs had to be estimated from sample results. Table I.5 shows the number of line items in the universe and the sample.

Table I.5: Number of Line Items in the Universe and the Sample

Equipment type	Number of line items in the universe	Number of line items in the sample	Number of line items of interest included in the sample
Micro-computers	268	106	72
Computer equipment	1,088	189	44[a]
Video equipment	253	132	74[a]
Balance scales	63	63	38[b]
Cameras equipment	142	69	10[b]

[a]The samples were selected on the basis of unit costs of $150 or higher for attractive items. For other items, the sample evaluation process included only equipment with a unit cost of $1,000 but less than $5,000

[b]Only line items corresponding to equipment with unit costs of more than $1,000 but less than $5,000 were used in the sample evaluation process.

The estimated number of equipment items in the universe and the associated acquisition cost are shown in Table I.6.

Table I.6: Number of Estimated Equipment Items and Acquisition Cost in PARIS Universe

Dollars in millions

	Equipment		Acquisition cost	
Equipment type	Items	Confidence interval[a]	Point estimate	Confidence interval[a]
Micro-computers	245	159 - 331	$1.11	$0.46 - $1.77
Computer equipment	443	314 - 572	0.98	0.68 - 1.28
Video equipment	276	212 - 340	0.43	0.34 - 0.53
Balance scales	39	[b]	0.08	[b]
Cameras equipment	21	20 - 22	0.03	0.03 - 0.04
Total	**1,024**	**856 - 1,192**	**$2.63**	**$1.91 - $3.35**

[a]Confidence interval at the 95 percent confidence level.

[b]All line items were evaluated in these equipment types.

Overall sample results were developed using a combination stratified/cluster sample. Each major equipment category constituted a strata from which a proportional random sample of line items was selected. The proportion and unit cost selection criteria varied for each strata. For attractive items, such as personal computers, a lower unit cost limit of $150 was used. All other equipment was included only if unit costs

were in the range of greater than $1,000 but less than $5,000. The number of equipment items, the associated acquisition costs, and the number of items missing and their costs are shown in table I.7 below.

Table I.7: Equipment Items and Associated Acquisition Cost in the PARIS Sample

Equipment type	Number of equipment items	Total acquisition cost	Number of items missing[a]	Acquisition cost of missing items[a]
Micro-computers	97	$439,738	5	13,457
Computer equipment	77	170,209	4	8,715
Video and equipment	144	226,495	4	8,507
Balance scales	39	77,617	3	5,599
Cameras and equipment	10	16,570	0	0
Total	**367**	**$930,629**	**b**	**b**

[a]As of February 28, 1989.

[b]Only weighted totals are meaningful.

Using automated techniques, we compared the equipment items in the sample with items listed on the laboratory's property management data base as of February 28, 1989. Items purchased in fiscal year 1988 that were not listed by that time were counted as not having been recorded on the data base. A list of missing items was provided to the laboratory for verification that the items were missing from the data base. On August 31, 1989, after the laboratory's 100-percent inventory, we again checked the property management data base for these items.

The number of items missing, the associated acquisition cost, and the corresponding statistical confidence intervals at the 95 percent confidence level are shown in tables I.8 and I.9 as of February 28 and August 31, 1989.

Table I.8: Estimated Number and Percent of Items Not Recorded on the Data Base

Date	Estimated number of items not recorded	Percent	Confidence interval at the 95 percent confidence level
Feb. 28, 1989	46	4.50	24 to 68
Aug. 31, 1989	34	3.32	15 to 53

Table I.9: Estimated Acquisition Cost of Items Not Recorded on the Data Base

Dollars in thousands

Date	Estimated acquisition cost	Percent	Confidence interval at the 95 percent confidence level
Feb. 28, 1989	$110	4.17	$50 to $160
Aug. 31, 1989	$70	2.65	$30 to $120

Overall, statistically weighted sample results indicate that of the sampled equipment items purchased in fiscal year 1988 that should have been listed on the laboratory's property management data base (1) about 4 percent costing about $110,000 were not recorded as of February 28, 1989, and (2) about 3 percent valued at about $70,000 were still not recorded as of August 31, 1989, following the laboratory's 100-percent inventory. This applies to all types of equipment sampled, except still cameras, because none of the 10 still cameras and related items in our sample was missing.

Blanket Purchase Orders

Because the laboratory's Procurement Information and Control system does not identify individual items, acquisitions through blanket purchase orders were extremely difficult to access using random sampling techniques. For blanket purchase orders, we used a case study approach to demonstrate, by example, how laboratory staff can by-pass central laboratory controls.

Major Contributors to This Report

Resources, Community, and Economic Development Division, Washington, D.C.	Carl J. Bannerman, Assistant Director Doris E. L. Cannon, Assignment Manager Beverly A. Daniel, Advisor William M. Seay, Staff Evaluator Molly W. MacLeod, Reports Analyst
San Francisco Regional Office	Robert W. Brown, Evaluator-in-Charge David Moreno, Staff Evaluator Ira B. Carter, Staff Evaluator Terrence T. Shenks, Advisor Hans R. Bredfeldt, Advisor