



U.S. Department of Energy
Office of Inspector General
Office of Audit Services

Audit Report

Management of the Department's
Desktop Computer Software
Enterprise License Agreements




Department of Energy

Washington, DC 20585

January 30, 2006

MEMORANDUM FOR THE SECRETARY

FROM:


Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Audit Report on "Management of the Department's Desktop Computer Software Enterprise License Agreements"

BACKGROUND

The Department of Energy and its facility contractors operate more than 110,000 desktop computers that utilize numerous types of commercial off-the-shelf software, including office automation, records management, document imaging and antivirus products. These computers, located at Headquarters and at the Department's field sites, are used to satisfy both general support and mission requirements.

In March 2000, an Office of Inspector General report on the Department's *Commercial Off-The-Shelf Software Acquisition Framework* (DOE/IG-0463) determined that the Department could have achieved significant savings through adoption of common software standards and the use of enterprise-wide contracts through which all organizations could acquire software at a prenegotiated price. In June 2003, citing similar issues across the Federal Government, the Office of Management and Budget encouraged agencies to achieve additional economies by obtaining volume discounts for commonly used software. Given the substantial expenditures involved and the potential for savings, we initiated this audit to determine whether the Department was effectively managing the acquisition and maintenance of desktop software across its complex.

RESULTS OF AUDIT

Although the Department had established several enterprise software agreements, we found that it had not adequately managed the acquisition and maintenance of desktop computer software licenses. We noted that the Department spent about \$4.1 million more than necessary over the last five years at the sites reviewed to acquire and maintain desktop software. In particular, we observed that:

- Seven of the 16 organizations we reviewed acquired software through locally established agreements or contracts at prices that were as much as 300 percent higher than those available through Department-level agreements;
- Despite the potential for significant savings, enterprise agreements for common products such as security and antivirus software had not been established; and,



- Various sites and organizations acquired 14,000 encryption software licenses, paid the required annual maintenance fees for a number of years, but never used the licenses.

These problems occurred because the Department had not established a complex-wide desktop software acquisition and maintenance strategy. Despite pressure from the Office of Management and Budget and known best practices of other organizations, the Department had not developed complex-wide standards for desktop software, implemented a common method for acquiring such software, and did not require organizations to actively manage their inventory of existing licenses.

In light of current budget constraints and the Department's nearly \$2.4 billion in annual expenditures on information technology, it is important that management focus on methods to increase the effectiveness of software acquisition and utilization. As noted in this and prior Inspector General reports, significant savings can be achieved by leveraging purchasing power through (i) the utilization of enterprise agreements and (ii) eliminating maintenance costs for excess software licenses. The scope of our review was limited to only a sample of software products and Departmental sites. Thus, the potential savings associated with an aggressive, Department-wide software licensing effort would be even greater than those disclosed in this report. Further, such a program has the additional benefit of enhancing cyber security – an issue which you and the Deputy Secretary have designated as a priority for the Department of Energy.

To its credit, the Office of the Chief Information Officer is currently working to replace an existing enterprise license agreement for common office automation software. If effectively implemented, this agreement could, as noted previously, reduce software costs and improve cyber security. In addition, an initiative to address asset management that the Department expects will also improve cyber security is in the early stages of development. While these efforts are positive steps, additional action is required. As such, we made several recommendations designed to increase the efficiency of the Department's desktop software management practices.

MANAGEMENT REACTION

Management concurred with the report's findings and recommendations. Management indicated that steps had been taken relative to our recommendations and strongly agreed that an enterprise-wide asset management system must be implemented to identify an accurate accounting of software used across the complex. Management's comments are included in Appendix 4.

Attachment

cc: Deputy Secretary
Chief of Staff
Administrator, National Nuclear Security Administration
Under Secretary for Energy, Science and Environment
Assistant Secretary for Environmental Management
Principal Deputy Assistant Secretary for Fossil Energy

Director, Office of Management
Director, Office of Science
Chief Financial Officer
Chief Information Officer

**REPORT ON THE DEPARTMENT'S DESKTOP COMPUTER
SOFTWARE ENTERPRISE LICENSING AGREEMENTS**

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SOFTWARE LICENSE MANAGEMENT

Software Acquisition and Management

Enterprise license agreements had not been effectively used by the Department of Energy (Department) for managing the acquisition and maintenance of desktop software across the complex. Specifically, the Department had not taken full advantage of existing software agreements and had not established new agreements for commonly used applications. In addition, five of the sites we reviewed acquired and paid annual maintenance fees for software that was never used. Other sites could not always track and document the extent to which they used acquired software licenses.

Use of Existing Agreements

We observed that, in many cases, sites were not taking advantage of existing enterprise-wide software agreements. Although the Department established several enterprise agreements in response to our prior report on its *Commercial Off-The-Shelf Software Acquisition Framework*, a number of sites did not use those agreements. In particular, 7 of the 16 sites we reviewed established their own agreements for a common office automation software suite, which required them to pay as much as 325 percent more for products than the prices available by using the existing Department-wide agreement. For example, Brookhaven National Laboratory (Brookhaven) paid from \$248 to \$573 per license for two separate versions of the same office automation product even though it was available through a Department-level agreement at a price of \$176.

We also noted that eight of the sites we reviewed had established separate agreements for document imaging software even though an enterprise-wide agreement existed. At Sandia National Laboratories (Sandia), we identified an agreement that required it to pay over 300 percent more (\$292 versus \$90) for a particular version of a popular imaging package. Similarly, a contractor at Idaho National Laboratory had acquired a related imaging product at \$265 per license, versus the \$154 per license fee available from the Department's agreement.

Establishment of New Agreements

The Department did not take action to negotiate enterprise agreements for products such as antivirus, security, and project management software despite the potential for

significant savings and their widespread use across the complex. Absent action by Headquarters, sites directly negotiated with software providers to establish local agreements or simply purchased software through various retail venues. As might be expected, these purchasing practices were not consistent with one another and prices for the same software varied significantly both between and within the same site. For example, at two of the sites reviewed, prices ranged from \$12 to \$70 per license for a common antivirus product.

For the encryption software most commonly used across the Department, we noted that sites had negotiated 11 separate purchase agreements and that prices specified by those agreements ranged from \$70 to \$208 per license. As noted by the vendor for this encryption product, savings of about \$630,000 per year in maintenance costs alone could be realized by negotiating a Department-level enterprise agreement. Such an agreement could also likely match or exceed the lowest price observed, potentially saving \$138 per license. When applied to the existing universe of desktops in use across the Department, such savings could be significant.

License Utilization and Tracking

Most of the organizations included in our review did not effectively manage their inventories of software licenses. Of the nine field sites visited, only two had fully implemented an effective system to track software licenses and related usage. While most of these sites had some type of desktop management system in place, they were not able to provide accurate information regarding the number of licenses maintained or the usage of such licenses. For example, Lawrence Livermore National Laboratory could only document that about 65 percent of its licenses for antivirus software were being utilized. In addition, officials at Los Alamos National Laboratory (Los Alamos) acknowledged that the site had tracking problems and estimated that at least \$800,000 in cost savings could be realized by more effectively managing software acquisition and maintenance. Documentation provided by Sandia also disclosed that it was difficult, if not impossible, for the site to know how many licenses existed at the site.

Problems with tracking acquisition, utilization, and maintenance of software licenses made it difficult to control costs and have complicated the effort to negotiate new enterprise agreements. For example, at five of the sites reviewed, we found that approximately 38,000 encryption software licenses had been procured, but 37 percent (14,000) of the licenses had never been used. Some of these sites, including Headquarters, paid maintenance fees of more than \$625,000 on the unused licenses over a five year period. The lack of a complex-wide asset management system may also impact the Department's ability to effectively implement plans to replace an existing enterprise agreement. We learned that after nearly four months of effort, the Department was unable to compile data on the number of office automation products being used across the complex – information needed to determine whether enough licenses are maintained or if new ones must be acquired.

Acquisition and Software Management Approach

These problems occurred because the Department had not established a complex-wide desktop software acquisition and maintenance strategy. Despite pressure from the Office of Management and Budget (OMB) and known best practices of other organizations, the Department had not developed complex-wide standards for desktop software, implemented a common method for acquiring such software, and did not require organizations to actively manage their inventory of existing licenses.

Coordinated Approach

Despite emphasis from the OMB that an uncoordinated approach to acquiring common software was wasteful and ineffective, the Department had not established a formal policy to support coordination of software purchases among Headquarters and field sites. Although the Department had established directives and guidance relevant to managing information technology investments, such policies did not specifically address a coordinated approach to software acquisition and maintenance. In addition to the lack of specific policy, the Department had not established a central source of information, or clearinghouse, to allow sites and programs to identify the best available contracts or agreements.

Numerous officials we spoke with during our review emphasized the potential benefits of implementing a central source of such information. Such a mechanism could have included information about all Department contracts available for use by sites, as well as current Government-wide Acquisition Contracts. The Department of Defense (Defense) also recognized as a best practice the importance of communicating the existence and benefits of enterprise agreements across an organization. Although the best practices identified by Defense were discussed in our prior report, the Department had not fully implemented similar practices.

Software Standards

The Department also had not developed complex-wide standards for desktop software or instituted a common method for acquiring such software. As we noted in our recent report on *Development and Implementation of the Department's Enterprise Architecture* (DOE/IG-0686, April 2005), the Department had not completely defined current or future information technology requirements, including desired application standards. Although the Department had attempted to implement software standards through the Extended Common Integrated Technology Environment initiative, it did not include all Headquarters programs and had not applied those standards to facility contractors. Had the Department established software standards, it could have leveraged its buying power by establishing enterprise-wide, standards-compliant software contracts.

In addition, Department organizations had not implemented common methods for acquiring software. Specifically, we noted a lack of consistency in the processes used to acquire software at the sites reviewed. While a limited number of sites, such as Headquarters, implemented a mostly centralized approach to acquiring software, the acquisition process at other sites, including Brookhaven and Los Alamos, was highly decentralized. At Los Alamos, we found that purchasers could have obtained software through six different approved methods, many without set or negotiated pricing. Brookhaven also used similar, less structured purchasing techniques, and paid at least

27 different prices for two versions of an office automation product. Without a centralized acquisition process, Department organizations are unable to effectively control prices paid for software or project future software needs.

Inventory Management

The Department also had not fully utilized or designed effective systems to manage its inventory of software licenses, or to track the usage of existing licenses. As previously noted, sites visited were not able to provide accurate information regarding software maintenance and usage due to the lack of effective systems for tracking such information. We found that the Department had begun development of an asset management initiative during our review. While this positive step should assist the Department with identifying an inventory of software installed on desktops, this system is not expected to compare installed software to the number of licenses acquired. Unless progress is made in this area, the Department will continue to have difficulty assessing software needs and usage trends, ensuring effective utilization of existing licenses, and ensuring that enough licenses exist to support software installed on desktops.

Opportunities for Savings

The Department has expended over \$4 million more than necessary by underutilizing existing software agreements or purchasing software at higher prices, and acquiring unneeded licenses. Specifically, the Department could have saved about \$2.1 million at the sites reviewed over the past five years by effectively utilizing existing software agreements or establishing new ones where possible. In addition, another \$2 million could have been saved at five sites by optimizing utilization of the number of licenses acquired and maintained for encryption software. If improvements focusing on increasing the effectiveness of software management are not made, the Department will be unable to realize savings of at least \$3.2 million that could be achieved by leveraging its purchasing power through utilization of volume discounts and eliminating maintenance costs on excess software licenses (see Appendix 2 for details). With the potential for such significant cost savings, we believe it is vital that the Department act to more effectively manage its software acquisition and maintenance process across the complex.

RECOMMENDATIONS

To address the issues identified in this report, we recommend that the Department's Chief Information Officer, in coordination with the Administrator, National Nuclear Security Administration and other Lead Program Secretarial Officers:

1. Develop and implement a formal policy for ensuring that software purchases are coordinated between Headquarters and field sites, to include consideration of enterprise license agreements with vendors, where appropriate, and establishment of a central source of information to allow sites and programs to identify the best available contracts or agreements;
2. Develop and implement complex-wide desktop software standards and consistent processes for acquiring such software; and,
3. Ensure that sites/programs design and implement asset management systems to effectively track software license inventories and utilization of existing licenses.

MANAGEMENT REACTION

Management concurred with the report's findings and recommendations and indicated that proactive steps had been taken relative to our recommendations. Specifically, the Department recently established an initiative to renegotiate/consolidate software license agreements for a common office automation suite. The initiative resulted in recommendations to establish a policy for common acquisition of products, as well as improving related cyber security. Management strongly agreed that an enterprise-wide asset management system must be implemented to identify an accurate accounting of software used across the complex. Officials noted that the lack of a complete inventory was no longer on the critical path of current enterprise license negotiations, but that such information was critical for completing a license "true-up."

The National Nuclear Security Administration indicated that it had no comments on the report and would work with the Office of the Chief Information Officer to resolve issues identified in the report.

AUDITOR COMMENTS

Management's comments are responsive to our recommendations. Where appropriate, we made changes to the body of our report to address management's comments. In particular, we modified our report to reflect the change in current negotiation strategies that ameliorated the impact of the lack of complete inventory information on current enterprise-license negotiations.

Management's comments are included in their entirety in Appendix 4.

Appendix 1

OBJECTIVE

To determine whether the Department was effectively managing the acquisition and maintenance of desktop software across the complex.

SCOPE

The audit was performed between October 2004 and January 2006 at Departmental Headquarters in Washington, DC, and Germantown, MD; the Lawrence Livermore National Laboratory, Livermore, CA; the Lawrence Berkeley National Laboratory, Berkeley, CA; the Oak Ridge Reservation, Oak Ridge, TN; the Los Alamos National Laboratory, Los Alamos, NM; and the Sandia National Laboratories and National Nuclear Security Administration Service Center, Albuquerque, NM.

We also obtained information from the Argonne National Laboratory, Argonne, IL; the Brookhaven National Laboratory, Upton, NY; the Fernald Closure Project, Springdale, OH; the Idaho National Laboratory, Idaho Falls, ID; the Kansas City Plant, Kansas City, MO; the National Energy Technology Laboratory, Morgantown, WV, and Pittsburgh, PA; the Pacific Northwest National Laboratory, Richland, WA; the Pantex Plant, Amarillo, TX; the Rocky Flats Environmental Technology Site, Golden, CO; the Savannah River Site, Aiken, SC; and the Strategic Petroleum Reserve, New Orleans, LA.

METHODOLOGY

To accomplish our audit objective, we:

- Reviewed applicable laws and regulations pertaining to acquisition and maintenance of software licenses. We also reviewed guidance issued by the Office of Management and Budget;
- Reviewed reports issued by the Office of Inspector General;
- Reviewed numerous documents related to the Department's management of software acquisition and maintenance activities;
- Held discussions with program officials and personnel from Department of Energy Headquarters and field sites reviewed, including representatives from the Offices of the Chief

Information Officer, Environmental Management, Science, and Fossil Energy, as well as the National Nuclear Security Administration; and,

- Reviewed the *Government Performance and Results Act of 1993* and determined if performance measures had been established for managing software acquisition and maintenance.

The audit was conducted in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Accordingly, we assessed internal controls regarding the acquisition and maintenance of software licenses across the Department. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We also assessed performance measures in accordance with the *Government Performance and Results Act of 1993* regarding acquisition and maintenance of software. We found that none of the nine field sites visited had established measures specific to achieving cost savings associated with software acquisition or for ensuring effective utilization of existing licenses. While we did not rely solely on computer-processed data to satisfy our audit objective, we confirmed the validity of such data, when appropriate, by reviewing supporting source documents such as contracts, purchase orders, and invoices.

Management waived an exit conference.

Appendix 2

POTENTIAL SAVINGS

In order to determine potential savings relevant to leveraging the Department's purchasing power, we compared prices paid at Sandia, Brookhaven, and the East Tennessee Technology Park for certain common software products to the lowest prices available through other existing agreements. Based on our calculations, we determined that those sites could save about \$2.3 million over the next five years.

In addition, we calculated the savings that could be realized from effectively utilizing existing licenses at certain sites. We multiplied the number of excess licenses identified for encryption software by the unit maintenance cost. Using this methodology, we determined that the Department could save about \$937,000 over the next five years by eliminating maintenance costs from excess licenses of just this product.

The table below details the possible savings the Department could realize over the next five years.

Product	Identified Annual Savings	Potential Savings (5 years)
Enterprise Agreement Utilization		
Office Automation/Project Management	\$353,600	\$1,768,000
Document Imaging Software	101,000	505,000
Subtotal		2,273,000
Encryption Software Licenses		
Excess encryption license maintenance	187,400	937,000
TOTAL		*\$3,210,000

** Reflects only potential savings at a limited number of the sites reviewed. We were unable to calculate Department-wide savings.*

PRIOR AUDIT REPORTS

- *Development and Implementation of the Department's Enterprise Architecture* (DOE/IG-0686, April 2005). The Department of Energy (Department) had not completely defined its current or future requirements, such as desired systems, supporting applications and hardware, and technology standards. Additionally, the lack of common elements in program architectures, such as complete system inventories and planned future information technology (IT) requirements, made it difficult to identify and eliminate duplicative investments. Without improvements, the Department may be unable to implement an effective corporate approach for managing IT investments.
- *Special Report - Management Challenges at the Department of Energy* (DOE/IG-0667, November 2004). The Department continued to experience challenges in a number of important areas including IT management. While the Department continues to improve its IT management, it still had not fully satisfied the requirements of the Clinger-Cohen Act of 1996. Economy and efficiency issues continued to exist in various IT arenas.
- *Special Report - The Department of Energy's Implementation of the Clinger-Cohen Act of 1996* (DOE/IG-0507, June 2001). The Department had not satisfied major requirements of the *Clinger-Cohen Act* to develop and implement an integrated, enterprise-wide IT architecture and acquire IT related assets in an effective and efficient manner. Despite many years of effort and significant expenditures, the Department had yet to deploy an integrated, enterprise-wide IT architecture. Because of its decentralized approach to IT management, the Department has been unable to constrain duplicative information systems development and effectively deploy corporate-level systems.
- *Commercial Off-The-Shelf Software Acquisition Framework* (DOE/IG-0463, March 2000). Without a framework, the Department had been unable to take advantage of enterprise-wide software contracts that could have resulted in savings of \$38 million. Specifically, the Department had not developed and implemented software standards or effectively used enterprise-wide contracts, key components of a commercial off-the-shelf framework. The Department's inability to establish a framework was due to its decentralized IT strategy and lack of organizational support.





Department of Energy

Washington, DC 20585

December 23, 2005

MEMORANDUM FOR RICKEY R. HASS
ASSISTANT INSPECTOR GENERAL
FOR FINANCIAL, TECHNOLOGY, AND CORPORATE
AUDITS
OFFICE OF THE INSPECTOR GENERAL

FROM:  ADRIAN R. GARDNER
DEPUTY ASSOCIATE CHIEF INFORMATION OFFICER
OFFICE OF THE CHIEF INFORMATION OFFICER
CYBER SECURITY

THROUGH: THOMAS N. PYKE, JR. 
CHIEF INFORMATION OFFICER

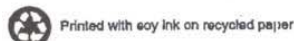
SUBJECT: Management Reaction to Draft Audit Report on "Management
of the Department's Desktop Computer Software Enterprise
License Agreements"

This memorandum provides the Office of the Chief Information Officer's (OCIO) Management Reaction to the Inspector General's Draft Audit Report on "Management of the Department's Desktop Computer Software Enterprise License Agreements."

Management Reaction

The OCIO agrees with the report's recommendations and provides the following summary of proactive steps taken by the OCIO in coordination with Departmental Elements.

Commencing in the second quarter of Fiscal Year 2005, the OCIO established an initiative to evaluate solutions for improving security, management and investment performance through renegotiation/consolidation of Departmental software enterprise license agreements (ELAs). As Microsoft software represented the most ubiquitous deployment of enterprise software, the first phase of the initiative involved the creation of a Microsoft Enterprise License Agreement Integrated Process Team. The team's goal was to establish a formal policy and standards for the procurement of Microsoft products. The team consisted of high-level representatives, including legal counsel from the Department's Program Offices. The team used surveys and other means to identify a baseline for existing Microsoft ELAs. The team met regularly, reached consensus on



Appendix 4 (continued)

findings and corrective actions, and prepared a final report that recommended the following:

1. A mandatory policy on acquisition of Microsoft products through the ELA with allowances for exceptions based on mission requirements, appropriately documented justification and acceptance of risk;
2. Expanding the current ELA to include a wider array of Microsoft products and services and to target the mission needs of DOE field sites;
3. Expanding the ELA initiative to include security products and services; and
4. Expanding service contracts to include support for security and configuration management.

With respect to the “License Utilization and Tracking” section (page 2, last paragraph) the OCIO has the following comments for clarification.

- It is not accurate to characterize the IPT effort as being blocked by lack of information. If the OCIO had decided to negotiate a new agreement with Microsoft, the effort would have been impeded by the lack of an accurate, enterprise-wide inventory of Microsoft license agreements. This inventory is critical for completing a licensing “true-up.” As the Department is simply expanding the contract, the requirement for the inventory is no longer on the project’s critical path.
- The OCIO strongly agrees that an enterprise wide asset management system must be implemented to obtain current and accurate information for the software in use. Such a system would provide current versioning and patch information. Such a system would improve security and reduce operational costs.

At the conclusion of the IPT’s activities, the IPT reached a tentative agreement to put the ELA policy in place. As the U.S. Air Force Microsoft agreement is currently the benchmark for federal Microsoft ELAs, the IPT compared the Department’s current Microsoft ELA with the new Air Force agreement to ensure the Department’s terms are competitive. The IPT also determined that the Department’s current ELA is approximately 20% lower than current GSA pricing.

If there are questions regarding our response, please contact Mr. Adrian R. Gardner, Deputy Associate Chief Information Officer for Cyber Security at (202)-586-6596.

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4. What additional actions could the Office of Inspector General have taken on the issues discussed in this report which would have been helpful?
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