DOE/IG-0494

AUDIT
REPORT

THE
U.S. DEPARTMENT OF ENERGY'S
CORPORATE HUMAN RESOURCE
INFORMATION SYSTEM

FEBRUARY 2001

U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
OFFICE OF AUDIT SERVICES

February 13, 2001

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman (Signed)
                    Inspector General

SUBJECT: INFORMATION: Audit Report on "The U.S. Department of Energy's Corporate
                    Human Resource Information System"

BACKGROUND

The Department of Energy maintains integrated human resource (HR) information systems that serve about 13,000 Federal employees and 22 personnel offices. In 1994, the Department determined that its legacy HR information system no longer met its business information needs and embarked on a project to update and/ or replace the system. The Department initiated action to replace its legacy system with the Corporate Human Resources Information System (CHRIS) in 1996.

The Department envisioned that CHRIS would be fully integrated and would serve as its primary HR information system. It expected that savings of about $9.6 million over six years would accrue as a result of implementing CHRIS. During 1998, the Department implemented the personnel portion of CHRIS and amended the project to include integration of payroll functions. The training portion of CHRIS became operational during 1999. The currently deployed modules of the CHRIS system are based on an extensively modified commercial-off-the-shelf application. Through September 2000, the Department had spent about $11.6 million for CHRIS development.

Under existing Federal mandates, Department elements are required to follow a structured approach when developing and implementing automated systems. This includes building effective security safeguards and internal controls into the system, accurately tracking project costs, and examining opportunities to reengineer inefficient business processes. In addition, HR and payroll systems are subject to system design requirements imposed by the Joint Financial Management Improvement Program.

The objective of our audit was to determine whether CHRIS, as currently structured, satisfies the Department's goals and objectives and whether Federal and Departmental requirements are being met as part of this process.

RESULTS OF AUDIT

Despite a number of operational improvements, CHRIS had not satisfied all Federal and Departmental requirements and had not met certain Departmental goals and objectives. For example,

- Several system development activities were inadequate or had not been completed;

- Departmental initiatives to reengineer certain HR processes and eliminate over 50 redundant systems had not been satisfied; and

- CHRIS had computer security weaknesses that increased the risk of unauthorized access or malicious damage to the system.

The audit disclosed that the Department did not adhere to project planning requirements for system development projects. As a consequence, full implementation of CHRIS is not anticipated until Fiscal Year 2005, six years after the original forecast. Further, as currently projected, the final total cost of CHRIS will be about $20.4 million or 155 percent greater than originally estimated. Because of implementation delays and projected cost overruns, it is unlikely that the Department will achieve the project's original estimate of approximately $9.6 million in savings over six years.

In developing and implementing CHRIS, the Department has been successful in implementing a number of improvements over the previous HR system. It had, for example, reduced paperwork; improved operational efficiencies; and, provided both management and staff with improved reporting capability by allowing them to generate more timely reports and data queries. Under CHRIS, users have direct access to real-time HR information, rather than having to submit information requests for batch processing, thus providing managers with the information necessary to make sound HR decisions. The Department also developed the Employee Self Service system that allowed users to view and update some personnel information online.

The Office of Inspector General supports the use of commercial off-the-shelf software applications as a cost effective alternative to custom software development. While we recognize that there are many challenges associated with the implementation of such applications, adherence to systems development requirements and best practices is essential for successful deployment. The audit report included recommendations designed to aid the Department in satisfying its objective of deploying a fully integrated human resources/ payroll system. The lessons learned from the development of a system as important as CHRIS should be used to avoid future problems in software development.

MANAGEMENT REACTION

Management generally concurred with our findings and recommendations and identified a number of corrective actions.

Attachment

cc: Under Secretary for Nuclear Security/Administrator for Nuclear Security
        Acting Director, Office of Security and Emergency Operations
        Acting Chief Information Officer
        Chief Financial Officer
        Acting Director, Office of Management and Administration
        Acting Director, Office of Human Resources Management

CORPORATE HUMAN RESOURCE INFORMATION SYSTEM

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Overview

INTRODUCTION AND OBJECTIVE

The Department of Energy (Department) is required to maintain integrated human resource (HR) information systems that serve about 13,000 employees and 22 personnel offices. In 1994, the Department determined that its legacy human resources information system no longer met its business information needs and conducted an analysis of alternatives to update and/or replace the system. The Corporate Human Resource Information System (CHRIS) project, implemented in 1996, initially sought to replace the personnel portion of the legacy centralized payroll/personnel system and over 80 separate stand-alone systems with a Year 2000 compliant, single integrated human resources management information system. Subsequently, in 1998, the project was amended to include the replacement of the legacy payroll system to create an integrated HR/payroll system.

The Department's primary goal for CHRIS was that it would be fully integrated and would serve as its corporate HR information system for Federal personnel. The Department envisioned that development efforts would include a number of reengineering initiatives that would result in various business process improvements. Integrated system functions were to include personnel, training, time and attendance, payroll, and labor distribution. The Department projected savings of approximately $9.6 million over six years as a result of implementing CHRIS. Specifically, the CHRIS project was to accomplish the following objectives:

- enhance operational efficiencies,
- reduce paperwork,
- eliminate redundant information systems,
- eliminate non-value-added work by human resource professionals, and
- provide the information necessary to make sound human resource decisions.

The currently deployed modules of the CHRIS system are based on an extensively modified commercial-off-the-shelf (COTS) application. The Department elected to phase in CHRIS by first implementing the personnel related portion of the system in 1998, which replaced the Department's legacy personnel system. The CHRIS training module replaced the Department's training system in October 1999. In its first phase, the personnel portion of the system performed a number of functions, including capturing information for personnel actions and initiating changes in employee payroll information and thrift savings

plans. The system also processed workforce information used for reporting to the Office of Personnel Management (OPM). The system database was located at the National Energy Technology Laboratory in Morgantown, West Virginia, and was accessible to Federal employees at all Departmental sites through client/server technology. The Department invested an estimated $11.6 million through September 2000 for CHRIS development.

Generally, Departmental elements are required to follow a structured approach, consistent with Federal and Departmental requirements, when developing and implementing automated systems. They are also required to build effective security safeguards and internal controls into systems, accurately track project costs, and examine opportunities to reengineer inefficient business processes. In addition, HR and payroll systems are subject to system design requirements imposed by the Joint Financial Management Improvement Program.

The objective of our audit was to determine whether CHRIS satisfied Federal and Departmental requirements and was meeting Departmental goals and objectives.

CONCLUSION AND OBSERVATIONS

Despite a number of operational improvements, CHRIS had not satisfied all Federal and Departmental requirements and had not met certain Departmental goals and objectives. For example, system development activities such as the evaluation of selected COTS products and tracking of development and implementation costs were inadequate or had not been completed. Departmental goals to reengineer certain HR processes and eliminate redundant systems had also not been satisfied. For instance, a number of processes had not been completely automated as planned, anticipated levels of system integration had not been achieved, and many redundant systems remained in use. Furthermore, CHRIS had computer security weaknesses that increased the risk of unauthorized access or malicious damage to data, programs or system software. CHRIS development and implementation efforts have been adversely affected because the Department did not adhere to project planning requirements and best practices for system development projects. As a consequence, full implementation of CHRIS is not anticipated until Fiscal Year 2005, six years after the original forecast. The total cost to fully implement CHRIS is also expected to be about $20.4 million, 155 percent greater than originally estimated. Because of implementation delays and projected cost overruns, it is unlikely that the Department will achieve the project's original estimate of approximately $9.6 million in savings over six years.

To its credit, the Department has been successful in implementing a number of improvements over the previous HR system that have reduced paperwork and improved operational efficiencies. The Department's development efforts have provided both management and staff with improved reporting capability by allowing them to generate more timely reports and data queries. Users have direct access to real-time HR information, rather than having to submit information requests for batch processing, thus providing managers with the information necessary to make sound HR decisions. The Department had also developed the Employee Self Service system that allowed users to access some personnel information online. Employees can view personal and employment information, identify and register for certain training courses, and update some personnel data. Employees can also view their earnings statement and personal benefits and make updates to certain payroll data online.

As indicated in our recent report on corporate-level systems, we support the deployment of such systems as a method of promoting efficiencies and eliminating duplicative, site-specific information systems. While we recognize that there are many challenges associated with the implementation of major commercial off-the-shelf applications, adherence to systems development requirements and best practices is essential for successful deployment. We have proposed recommendations that we believe will aid the Department in satisfying its objective of deploying a fully integrated human resources/payroll system.

This audit identified issues that management should consider when preparing its year-end assurance memorandum on internal controls.

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(Signed)

Office of Inspector General

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Conclusions and
Observations

CHRIS Did Not Meet Certain Requirements and Goals

CHRIS had not satisfied all Federal and Departmental requirements for corporate HR/payroll systems and had not met certain Departmental goals and objectives. For example, required system development activities such as the evaluation of selected COTS products and tracking of development and implementation costs were inadequate or had not been completed. Departmental goals to reengineer certain HR processes and eliminate redundant systems had also not been satisfied. For instance, a number of processes had not been completely automated as planned, anticipated levels of system integration had not been achieved, and many redundant systems remained in use. Furthermore, CHRIS had computer security weaknesses that increased the risk of unauthorized access or malicious damage to data, programs or systems software.

<u>Development and Implementation Activities</u>

The Department began the development of CHRIS without completely evaluating the COTS product selected for the project. While certain product evaluations were conducted, the Department did not perform a detailed analysis of the selected software's shortcomings or gaps in meeting its business process requirements. These analyses can be done by testing pilot software or conducting software simulations or prototype implementations and are required to ensure that the organization can accept the gaps without degrading performance. Despite the fact that the version of the selected COTS product had not been successfully implemented in other Federal settings, Departmental officials proceeded with development efforts without fully understanding the extent of modifications required for Federal sector applicability. For example, extensive and costly modifications and supplemental software were required to make the application acceptable for Departmental use. These modifications and supplemental software cost over $6 million.

The Department also purchased the payroll module, which includes payroll, time and attendance, and labor distribution, of the same COTS product without first determining whether the product would meet its needs. Following the decision to incorporate payroll in the CHRIS project rather than outsourcing that function, the Department acquired the payroll module in 1998 to replace its legacy payroll application. The Department did not complete the required analysis of the payroll module's features and capabilities until approximately one year after the date of acquisition. Had the results of that study been available prior to acquisition, the Department would have learned that this COTS product would not support its payroll requirements without extensive

modification. Based on that analysis, Departmental officials informed us that they are considering foregoing implementation of the payroll module in favor of outsourcing payroll operations to a Federal cross service provider.

The Department was also unable to maintain required visibility and control over the financial impact of CHRIS investment decisions because it did not accurately track development and implementation costs. Management officials indicated that cost data may have been incomplete and were difficult to track for a number of different reasons. For example, initial project funding was voluntary and sometimes consisted of financial contributions and donated services from various Departmental components. Furthermore, management confirmed that project costs were not tracked in a centralized manner and initially reflected only contract costs. Staffing resources expended in the early stages of the project were not tracked. Without accurate, up-to-date cost information, management could not update the project's cost/ benefit analysis and lacked the information essential for evaluating whether additional CHRIS related investments were cost-effective.

<u>Meeting Goals and Objectives</u>

While the Department had made progress in satisfying a number of its original goals and objectives, it had not completed its initiative of reengineering its HR workflow process. For example, the CHRIS project had not implemented automated workflow processing such as electronic routing and approval of personnel and training related actions. While certain aspects of these processes had been automated, manual intervention was still required in certain areas. For instance, the system did not have electronic signature capability; hence, individuals were required to manually certify personnel actions. Furthermore, requests for personnel actions and employee training requests could not be routed and tracked electronically. Moreover, individual development plans were prepared manually rather than electronically.

The Department also had not achieved its goal of establishing CHRIS as a Departmentwide, fully integrated HR/payroll system as specified in its 1998 Integrated Project Plan. Although certain links with other systems existed, CHRIS was not fully integrated with the Department's payroll system or its other financial management systems. In addition, the Department had not integrated CHRIS with collateral or supporting systems, such as time and attendance, labor distribution, reduction-in-force, and security clearance systems. The absence of integrated systems inhibited the Department's ability to access, analyze and report

data from different and diverse systems. For instance, agency officials told us that considerable time was expended compiling data from the various HR related systems for reporting to OPM.

Despite CHRIS implementation, a number of redundant HR related information systems remained in use.[1] As indicated in our report on *Corporate and Stand-Alone Information Systems Development (DOE/IG-0485, September 2000),* and as recognized in the Department's study of the CHRIS project's return on investment, various Department elements continued to develop and maintain many redundant, stand-alone systems even though efforts were in progress to develop corporate level systems. At the time of our audit, Departmental components reported that they continued to use about 50 separate systems to store, retrieve, and manipulate HR data. These systems were used for such purposes as maintaining training information, processing personnel actions, and tracking awards and grievances. The systems ranged in size from small, personal computer databases to large client/server databases that serve the entire office or Departmental element.

Information Security

CHRIS had computer security weaknesses that increased the risk of unauthorized access or malicious damage to data, programs or system software. Based on discussions and tests, we identified a number of implementation or design deficiencies that may render CHRIS vulnerable to compromise. Specific problems and the possible consequences are outlined below:

- Personnel specialists, training coordinators, programmers and others with access to CHRIS were not required to change their passwords or prevented from using identical passwords and commonly used names. Because of their sensitivity, additional password weaknesses were reported directly to project management, but are not reported here. During our review, the Department informed us that they were in the process of acquiring software to strengthen password security.

- Security software had not been installed or procedures established to regularly review system access and suspend access for users that had not used the system within a specified period of time.

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[1] The OIG, Office of Inspections, is conducting a separate inspection of Savannah River's development of a human resource and training system that duplicated planned CHRIS features.

Details of Finding

- Authorization forms were not always available to support the need for users to access sensitive data and programs. Based on a sample of user authorization forms, we determined that 8 of the 41 users (approximately 20 percent) did not have forms on file. Without formal access authorization forms, there was no assurance that access granted was consistent with established policies and procedures and that such access was needed to perform the duties and responsibilities of the user. Subsequent to our review of authorization forms, the Department moved to suspend access for approximately 200 users that did not have approved access authorizations and now specifically requires that access requests be approved in writing.

- The Department did not require background investigations on contract personnel who had access to personal and sensitive data in CHRIS.

- Access or accountability over system and backup media containing sensitive data was not adequately controlled. Accountability records were not maintained and the media were stored in an unlocked cabinet available to anyone with access to the computer facility.

Requirements for Application Systems Development

The Paperwork Reduction Act of 1995, the Clinger-Cohen Act of 1996, the Federal Financial Management Improvement Act of 1996, and related Federal guidance lay out a number of requirements and guidelines designed to help Federal agencies manage their investments in information technology (IT), including systems development. The Paperwork Reduction Act is the "umbrella" IT legislation for the Federal government, while the Clinger-Cohen Act requires that Federal agencies establish a disciplined approach to managing and investing in IT resources. The Paperwork Reduction Act, the Clinger-Cohen Act, and related Federal guidance require the head of the executive agency to design and implement a process for maximizing the value and assessing and managing the risks of IT acquisitions. In general, Departmental regulations and guidance incorporate, amplify and supplement Federal systems development requirements. Among other things, the requirements cited above and the Computer Security Act of 1987 require the Federal agencies to:

- Establish a rigorous planning and investment process for managing information system projects throughout their lifecycle, that includes:

o developing a multi-year plan to provide a roadmap for major information systems investments,

o conducting a cost/benefit analysis that demonstrates a projected return on investment that is clearly equal to or better than alternatives,

o reducing risk by avoiding or isolating the use of custom-designed components,

o using fully tested pilots, simulations, or prototype implementations before going to production,

o establishing clear measures and accountability for project progress, and

o revisiting and revising the project's planning documents and cost/benefit analysis, as necessary, when significant scope changes occur.

- Implement and maintain systems that comply substantially with Federal financial management system requirements. Specifically, systems are to be integrated with existing systems and should automate HR management activities, such as position management and classification, recruitment and staffing, and work force deployment.

- Implement security measures to protect confidential and sensitive data in computer systems. Agencies are required to prepare risk assessments to estimate the potential losses to which systems are exposed, evaluate the threats, and select from safeguard alternatives on the basis of cost justification.

Planning and System Development Issues

CHRIS development and implementation efforts have been adversely affected because the Department did not adhere to certain project planning requirements and generally accepted best practices for system development projects as required by the Clinger-Cohen Act of 1996. For example, while the Department had developed high-level project plans, the supporting schedules necessary to manage and direct project implementation were insufficiently detailed. The schedules did not consistently define the goals and key deliverables for each phase of the project, the necessary resources, and the intermediate project milestones, including management and technical reviews. The Department also had not performed a risk assessment to identify vulnerabilities and mitigate risks prior to preparing the CHRIS security plan. Despite project delays, cost increases and substantial project scope changes, the CHRIS cost/benefit analysis and its strategic project plan were never revised.

In addition, a lack of specific performance measures for each phase of the CHRIS project also impacted the Department's implementation effort. While the Department had established certain performance measures related to CHRIS as required by the Government Performance and Results Act (GPRA) of 1993, such measures addressed high-level goals such as the elimination of paper processes and were not specifically directed to development and implementation activities. The lack of specific, quantifiable goals related to key deliverables for each phase of the project deprived management of the ability to adequately monitor progress. Without such goals, project management and high-level management officials could not maintain visibility over the substantial schedule slippages and cost increases associated with the project.

CHRIS Implementation Status

Despite the investment of about $11.6 million in development and acquisition costs and over four years of effort, the Department had not fully implemented CHRIS. Key components such as payroll, time and attendance, and labor distribution had not been implemented. In addition, the Department had no immediate plans to implement other planned system features such as awards tracking and appraisal processing. The Department anticipates that the full implementation of CHRIS, consisting of an integrated HR/Payroll system, will not be completed until fiscal year 2005, six years later than originally forecasted. Total cost estimates have also increased substantially, from $8 million to $20.4 million, an increase of 155 percent over original estimates. Because of implementation delays and projected cost overruns, it is unlikely that the Department will achieve its original estimate of approximately $9.6 million in savings over six years.

As indicated in our recent report on corporate-level systems, we support the deployment of such systems as a method of promoting efficiencies and eliminating duplicative, site-specific information systems. While we recognize that there are many challenges associated with the implementation of major commercial off-the-shelf applications, adherence to systems development requirements and best practices is essential for successful deployment. We have proposed recommendations that we believe will aid the Department in satisfying its objective of deploying a fully integrated human resources/payroll system.

RECOMMENDATIONS

To help ensure successful completion of the CHRIS project, we recommend that the Chairperson for the Executive Committee for Information Management require the:

1. Completion of systems development and implementation activities necessary to ensure project completion, including:

   - Preparation of an updated strategic project plan establishing specific performance measures, with associated deliverables, for completion of all remaining CHRIS development and implementation tasks;

   - Preparation of an updated cost/benefit analysis;

   - Accurate accounting of all project costs; and

   - Correction of the various computer security weaknesses identified.

2. Establishment of specific, quantifiable goals for key deliverables in all project phases, as required by GPRA.

MANAGEMENT REACTION

Management generally concurred with the findings and recommendations, and described corrective actions designed to address the conditions described in the report. Management's comments have been included in their entirety in Appendix 3.

AUDITOR COMMENTS

Management's comments are generally responsive to our recommendations.

Appendix 1

SCOPE

The audit was performed between February and November 2000 at Departmental Headquarters in Washington, D.C. and Germantown, Maryland; the National Energy Technology Laboratory in Morgantown, West Virginia and Pittsburgh, Pennsylvania; the Office of Personnel Management; and the National Institutes of Health. We evaluated the project's goals and objectives, examined how the CHRIS system development and implementation project was carried out, and examined opportunities for improving the planning and implementation of the project. We also reviewed system security and measured data accuracy by examining CHRIS data from December 1999 and February 2000.

METHODOLOGY

To accomplish our objective, we:

- Reviewed applicable laws and regulations pertaining to system development, including system requirements published by the Joint Financial Management Improvement Program. We also reviewed reports by the Office of Inspector General, the General Accounting Office, and various task forces and advisory groups.

- Reviewed best practices contained in guidance issued by the Office of Management and Budget, the National Institute of Standards and Technology, the General Accounting Office, the Carnegie Mellon University Software Engineering Institute, and others.

- Reviewed numerous documents related to the development and implementation of CHRIS, including the Strategic Information Management Project Results and Business Case Analysis and the Project Plans.

- Held discussions with program officials and personnel from numerous Departmental offices, including the Office of Chief Information Officer, the Office of Chief Financial Officer, and the Office of Management and Administration.

- Held discussions with various officials, staff, and contract personnel at the National Energy Technology Laboratory.

- Held discussions with officials of the Office of Personnel Management and reviewed the automated time and attendance system used by the National Institutes of Health.

We used advanced audit techniques to assess data reliability and network security. We obtained CHRIS data in electronic form and used computer assisted audit techniques to identify anomalies. We also compared selected CHRIS data elements to source documents at Departmental Headquarters in Washington, D.C. and Germantown, Maryland. While we did note some data inaccuracies, we determined that the data was sufficiently reliable for the purposes of our audit. Scanning software was used to determine whether the networks on which CHRIS operated were vulnerable to penetration by malicious or unauthorized users. Our limited tests determined that the networks had some minor vulnerabilities and we shared this information with the CHRIS project team.

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 development and implementation of automated systems. 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. Management officials waived a formal exit conference.

**RELATED OFFICE OF INSPECTOR GENERAL,
GENERAL ACCOUNTING OFFICE, AND OTHER REPORTS**

This review concerned the Department's efforts to design and implement the CHRIS system.
Prior related Office of Inspector General, General Accounting Office, and other reviews include:

- *Corporate and Stand-Alone Systems Development,* (DOE/IG-0485, September 2000).
  Duplicative and redundant information systems existed or were under development at
  virtually all organizational levels within the Department. Despite efforts to implement
  several corporate level applications, such as CHRIS, many organizations continued to
  invest in custom or site-specific development efforts that duplicated corporate
  functionality. The Department has been unable to control development and eliminate
  duplicative systems because it has not fully developed and implemented an application
  software investment strategy. As a result, the Department has spent at least
  $38 million on duplicative information systems.

- *Unclassified Computer Network Security at Selected Field Sites*, (DOE/IG-0459,
  February 2000). Six Departmental sites had significant internal or external
  weaknesses that increased the risk that their unclassified computer networks could be
  damaged by malicious attack. The OIG pointed out the need for correcting
  vulnerabilities found and establishing specific goals and performance measures for
  improving the level of unclassified computer security relating to network operations.

- *Audit of the Department's Integrated Payroll/Personnel System*, (AP-FS-97-01,
  May 1997). The report noted that there were limitations in the controls over the storage
  of magnetic media and that access to the system was not sufficiently monitored. Based
  on known deficiencies in the system, the Department planned to obtain human
  resources information services from another Federal agency via cross-servicing
  agreements.

- *Audit of Selected Aspects of the Unclassified Computer Security Program at a DOE
  Headquarters Computing Facility*, (AP-B-95-02, July 1995). The report stated that
  weaknesses in the computer security program at Headquarters increased the risk of
  unauthorized disclosure or loss of sensitive data, including data residing on
  PAY/ PERS. These weaknesses occurred because a risk assessment had not been
  performed on the facility and security officials had not adequately monitored activities on
  the systems within the facility.

- *Information Technology: Selected Agencies' Use of Commercial Off-the-Shelf Software
  for Human Resources Functions*, (GAO/AIMD-00-270, July 2000). The report examined
  five agencies' projects in implementing commercial off-the-shelf software to improve
  their HR functions. The report cited expected quantifiable and non-quantifiable benefits
  reported by the agencies. However, four of the five agencies' projects have encountered
  delays and three agencies have increased their project cost estimates.

- *Information Security: Software Change Controls at the Department of Energy*, (GAO/AIMD-00-189R, June 2000). GAO's letter stated that, among other things, contractor personnel involved in the Department's software change control process did not routinely receive background screenings at all Departmental components. GAO recommended that the Department review its software change control process and implement any needed changes.

- *Department of Energy: Need to Address Longstanding Management Weaknesses*, (GAO/T-RCED-99-255, July 1999). GAO highlighted systemic problems with respect to project management in the Department. For example, GAO testified that the Department conducted 80 projects from 1980 through 1996 that were designated as "major system acquisitions." GAO pointed out that 31 of the projects had been terminated before completion after expenditures of over $10 billion. Only 15 of the projects were completed and most of them were finished behind schedule and with cost overruns.

- *Department of Energy: Better Information Resources Management Needed to Accomplish Missions*, (GAO/IMTEC-92-53, September 1992). GAO stated that the Department wasted resources developing and operating systems that overlapped or duplicated existing information systems. This practice is wasteful because the agency spends funds to develop and operate systems that perform the same or similar functions.

- *Improving Project Management in the Department of Energy, National Research Council* (1999). The study stated that the Department had extensive project management weaknesses primarily attributable to the Department's culture, which fostered a decentralized organization structure. The study cited, among other things, a general lack of accountability and unclear lines of authority in the Department's project management. The study also noted that major projects require consistent and focused management attention.

Department of Energy
Washington, DC 20585

February 1, 2001

MEMORANDUM FOR DEPUTY INSPECTOR GENERAL FOR AUDIT SERVICES
OFFICE OF INSPECTOR GENERAL

FROM: CHIEF INFORMATION OFFICER

SUBJECT: DRAFT AUDIT REPORT ON "THE U.S. DEPARTMENT
                         OF ENERGY'S CORPORATE HUMAN RESOURCE
                         INFORMATION SYSTEM"

We have reviewed the draft report on the CHRIS program and the recommendations provided. The management comments below were prepared in coordination with officials from the Office of the Chief Financial Officer and the Office of Management and Administration.

The Department's senior level management is committed to reengineering and automating the Federal human resources (HR) business processes through CHRIS to provide the highest possible quality integrated HR/payroll information and services for the Department. We recently took action to cease the continued development of stand-alone HR systems and to devise a process for offices to transition to the corporate system as functionalities are implemented within CHRIS that support the various HR business needs.

We are encouraged by the IG's support of corporate-level systems and recognition that the Department must continue to leverage its information technology (IT) resources by completing crosscutting, corporate level information systems such as CHRIS that serve organizations across the DOE complex and improve mission performance. The Department can ill-afford to continue to invest IT dollars and resources in the duplication of information systems. CHRIS is DOE's first corporate system for Federal employees applying a commercial-off-the-shelf (COTS) product, and we are working to ensure that the investment in CHRIS provides value to DOE. The lessons learned and knowledge gained from this deployment effort will be transferred to other projects to help DOE continue to improve its corporate endeavors.

However, there are facts related to the development process and the planning and management of CHRIS that were not adequately addressed in the report and have a bearing on the goals and objectives and the activities that have been accomplished.

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1 - <u>Development and Implementation Activities</u>

The IG report indicates that the Department did not perform an indepth analysis of the Payroll and Time/Labor modules prior to acquisition. The Department's decision to purchase these modules was based on several considerations: the products met top-level system requirements; no other commercial or Federal application existed at the time that could have provided a cost-effective integrated HR/Payroll cross-servicing solution; and custom building an integrated payroll system to replace an aging system would have been costly, time consuming and an unacceptable risk. The findings from the initial review performed of the PeopleSoft Payroll product indicated it would reasonably satisfy the primary Federal payroll requirements. The proprietary nature of a COTS product limits the level of detailed evaluation and analysis that are permissible unless the product is purchased.

After the Payroll product was purchased, a detailed evaluation was conducted by performing an indepth fit/gap or analysis of the supporting documentation, system requirements, program language code and logic, the panels or screens, fields, table layout, and file structure against specific Federal as well as DOE payroll requirements. Several processing and procedural gaps were identified that made the cost of implementing the Payroll module higher than originally planned. Currently, members of the Federal community have provided the specific programming requirements to the product vendor for incorporation in the software to reduce or eliminate the need for individualized agency customizations.

2 - <u>Meeting Goals and Objectives</u>

The inconsistency in the technological infrastructure and architecture within the Department has presented challenges to the rapid implementation of CHRIS. Factors such as different hardware and software configurations of servers, firewalls, and telecommunications lines as well as the new cyber security requirements had to be overcome in implementing CHRIS throughout the Department for more than 12,000 employees in 45 Headquarters and Field offices.

3 - <u>Information Security</u>

Computer security weaknesses are being addressed. The CHRIS Program Office has conducted risk assessments and directed improvements to the CHRIS system to address the findings. Future plans include working with the CIO staff to implement an electronic signature pilot.

4 - <u>Planning and System Development Issues</u>

The PeopleSoft COTS product provides several advantages, such as the savings of time and money to design and build a totally new system, incorporation of various industry best practices, and cost-effective methods to keep pace with rapidly changing technology. However, the software required more customizations than anticipated due to the need to satisfy complex Federal requirements, improve data integrity by preventing user errors, and provide enhancements requested by our stakeholders and expand functionality to satisfy their business needs and optimize work processes. These factors resulted in additional costs and time and

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needs and optimize work processes. These factors resulted in additional costs and time and impacted the CHRIS implementation schedule, goals and objectives. CHRIS program review and oversight of project goals, deliverables and costs were conducted by senior management at quarterly reviews with the CIO and semiannual briefings to the Corporate Management Information Program Steering Group (CIO, CFO, and MA).

5 - CHRIS Implementation Status

The costs of fully implementing CHRIS were underestimated due to the enhanced functionalities desired by the HR community and stakeholders, increased system architecture, infrastructure and security requirements, and the lack of maturity of the Federalized functions within the COTS product. Although CHRIS may cost more than originally planned, we expect the benefits to be larger than originally envisioned. For example, a new Federal requirement allowing employees to claim pre-tax parking is being incorporated in CHRIS/ESS. This new feature will eliminate developing a new form, disseminating and reproducing a form, the employee completing and submitting a form, and the Payroll Office processing and filing the hardcopy form. Expanding CHRIS/ESS to incorporate this new regulatory requirement will streamline administration of the program, eliminate paperwork, and provide efficient reporting.

Response to Recommendations

We support the successful completion of the CHRIS project and will continue to provide oversight to project activities during the quarterly CIO reviews conducted. We endorse the two recommendations contained in the report addressed to the Chairperson for the Executive Committee for Information Management. Specifically:

Under Recommendation #1, the specific items will be addressed as follows:

- Preparation of an updated strategic project plan establishing specific performance measures, with associated deliverables, for completion of all remaining CHRIS development and implementation tasks is targeted for April 16 with updates to the project plan to be done on an annual basis.
- Preparation of an updated cost/benefit analysis for the next phase of the CHRIS system development, which is workflow implementation, is targeted for April 16. Also, action is being taken to arrange for an independent evaluation of the payroll business case and the costs and risks associated with the proposed alternatives. The anticipated completion date of the payroll development evaluation is the end of April 2001.
- Costs are currently being tracked and reported on an annual basis by a central source in the CHRIS project office and, beginning in FY 2001, will include the full cost of Federal salaries incurred in developmental activities in accordance with the requirements of the Federal Accounting Standards Advisory Board's Statement of Federal Financial Accounting Standards (SFFAS) Number 10, "Accounting for Internal Use Software."

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Management Comments

- Many of the security weaknesses identified have been corrected and work will continue on an on-going basis to enhance security.

As provided in Recommendation #2, there will be specific, quantifiable goals established annually for key deliverables in all project phases, as required by GPRA.

In addition to these recommendations, we will update the return on investment for CHRIS to include cost and resource savings attributable to the reduction of paperwork and improved business processes and conduct a followup by the end of the year on the status of the elimination of redundant systems.

If you have any questions or requests for additional information, please contact either Howard Landon 202-586-6344 or Carolyn Collins at 202-586-1194.

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