DOE/IG-0512

AUDIT REPORT

RECRUITMENT AND RETENTION OF SCIENTIFIC AND TECHNICAL PERSONNEL

JULY 2001

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

Department of Energy
Washington, DC 20585

July 10, 2001

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman (Signed)
Inspector General

SUBJECT: INFORMATION: Audit Report on "Recruitment and Retention of Scientific and Technical Personnel"

BACKGROUND

The Department of Energy (Department), as a result of budget reduction and Government-wide downsizing goals, reduced Federal staff by about 24 percent between 1995 and 1998. This massive downsizing created mission-critical staffing needs in a number of technical areas. As of May 2001, the Department's Federal workforce consisted of about 9,900 permanent employees, including about 4,600 scientific and technical staff. In a November 2000 report, the Office of Inspector General identified Human Capital as one of the most significant challenges facing the Department.

The purpose of this audit was to determine whether the Department has been able to recruit and retain scientific and technical personnel.

RESULTS OF AUDIT

The Department has been unable to recruit and retain critical scientific and technical staff in a manner sufficient to meet identified mission requirements. Based on our analysis of attrition and hiring since 1999, we determined that, as of January 2001, the Department faced an immediate need for as many as 577 scientific and technical specialists. Further, if this trend continues, the Department could face a shortage of nearly 40 percent in these classifications within five years. Despite its 1998 *Workforce for the 21st Century Initiative,* the Department had not developed a comprehensive workforce plan, nor had it fully exploited available tools to recruit and retain staff. As a result, the Department may not have the Federal scientific and technical expertise to effectively administer the work of its contractors. In such an environment, there is an increased risk of a variety of management problems.

To its credit, the Department has recognized the seriousness of its human capital problem; however, the scope of its corrective actions, including new and innovative approaches, needs to be broadened, and the pace of implementation of these actions needs to be accelerated. We, therefore, recommended that the Department develop and implement a comprehensive, multi-year workforce planning program, including performance measures, that emphasizes the aggressive and creative use of available human resource tools to attract and retain a highly skilled scientific and technical workforce.

Our recommendations are consistent with and complementary to the Office of Management and Budget (OMB) bulletin on workforce planning and restructuring and the Department's response. The bulletin required agencies to submit a workforce analysis to OMB and develop restructuring plans based on that analysis. The Department, in response, is convening a Human Capital Summit to initiate its Human Capital Management Plan. This plan is designed to rebuild the Department's workforce and make the Department an employer of choice.

MANAGEMENT REACTION

Management generally concurred with the findings and recommendations.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science, and Environment
Administrator, National Nuclear Security Administration
Acting Director, Office of Management and Administration

RECRUITMENT AND RETENTION OF SCIENTIFIC AND TECHNICAL PERSONNEL

TABLE OF CONTENTS

Overview

INTRODUCTION AND OBJECTIVE

The Department of Energy (Department) manages a large array of science-based and technology-dependent programs and activities in support of its missions in energy resources, national security, environmental quality, and science. Much of the Department's work is conducted by major contractors, which employ over 100,000 workers at production facilities, environmental cleanup sites, and national laboratories across the nation. As of May 2001, the Department's Federal workforce consisted of about 9,900[1] permanent employees, including about 4,600 scientific and technical staff.[2] The Federal workforce -- particularly those employees who possess specialized skills in engineering, physics, information technology, and other technical fields -- performs a critical contract management role in assuring the quality, timeliness, and cost-effectiveness of contractor-provided goods and services.

Consistent with Government-wide reinvention initiatives and budget reductions that began in the 1990s, the Department achieved substantial downsizing goals, reducing Federal staff by about 24 percent between 1995 and 1998. In so doing, however, the Department began to identify mission-critical staffing needs in a number of technical areas. In addition, oversight groups including the Office of Inspector General (OIG), the Defense Nuclear Facilities Safety Board (DNFSB), and the General Accounting Office (GAO) began to associate management problems with the Department's inability to hire quality technical and management personnel.

In November 1998, the Secretary of Energy announced a "Workforce for the 21st Century Initiative" (Workforce 21) designed to alleviate critical skills and technical expertise shortages through targeted hiring, career development, and workforce planning. Workforce 21 required Department components to specifically identify critical staffing needs and to engage in "rigorous workforce analysis and planning for the future."

The objective of this audit was to determine whether the Department has been able to recruit and retain scientific and technical personnel.

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[1] Total number of employees excludes the Department's Power Marketing Administration and the Federal Energy Regulatory Commission staff.
[2] Appendix 1 contains a listing of the 57 job classifications considered to be scientific and technical.

CONCLUSIONS AND OBSERVATIONS

The Department has been unable to recruit and retain critical scientific and technical staff in a manner sufficient to meet identified mission requirements. Our analysis showed that, as of January 1999, the Department had an immediate need for about 300 additional experts in such areas as cyber security, nuclear engineering, health physics, and material engineering. Based on our analysis of attrition and hiring since 1999, we determined that as of January 2001, the Department faced a potential need for 577 scientific and technical specialists. If this trend continues, the Department could face a shortage of nearly 40 percent in these classifications within 5 years. Despite its Workforce 21 initiative, the Department had not developed a comprehensive workforce plan, nor had it fully exploited available tools to recruit and retain staff. As a result, the Department's ability to effectively oversee the work of its contractors may continue to be hampered. Further, the risk that additional management problems will occur may be increased.

To its credit, the Department has recognized the seriousness of its recruitment and retention problems. "Human Capital Management" has been identified as one of the Department's major challenge areas and is described in the Fiscal Year 2000 *Performance and Accountability Report*. However, the resolution of human capital issues has not yet been addressed in a comprehensive fashion that includes specific, measurable goals for closing critical skill gaps. We, therefore, recommended that the Department develop and implement a comprehensive, multi-year workforce plan to improve the recruitment and retention of scientific and technical personnel.

On May 8, 2001, the Office of Management and Budget (OMB) issued Bulletin 01-07, *Workforce Planning and Restructuring*. The bulletin required agencies to submit a workforce analysis to OMB addressing such issues as the skills vital to accomplish agency goals, skills imbalances, and challenges to the recruiting and retention of a high-quality and diverse workforce. Based on the analysis, agencies are to develop 5-year restructuring plans that will, among other things, reduce the number of managers, reduce organizational layers, and ensure the largest number of employees possible are in direct service delivery positions. We believe our recommendations are consistent with, and complementary to, OMB's direction.

The audit identified issues that management should consider when preparing its yearend assurance memorandum on internal controls.

(Signed)
Office of Inspector General

EFFORTS TO RECRUIT AND RETAIN SCIENTIFIC AND TECHNICAL PERSONNEL

Shortfalls in Critical Needs

The Department has been unable to recruit and retain critical scientific and technical staff in a manner sufficient to meet identified mission requirements. As of January 1999, the Department had identified an immediate need for 311 additional scientific and technical personnel. Our analysis showed that, as of January 2001, the Department experienced a net loss of an additional 266 personnel in technical job categories. Moreover, given historical rates of hiring and attrition, the Department may face a shortage of over 1,800 scientific and technical specialists in less than 5 years' time.

Identified Needs

Our analysis of 1999 data submitted to Department Headquarters by program and field offices showed that, among the 57 job classifications we deemed to be scientific or technical, the Department's identified need at the time was for 311 additional personnel. For example:

- The Office of Defense Programs at Headquarters identified a critical need for 24 additional scientific and technical positions. Some specifically targeted positions were physicists, physical scientists, computer scientists and computer engineers who were expected to improve significantly the ability of the Federal staff to oversee the highly technical stewardship activities at the contractor sites. We identified during our audit that 15 of these positions were still vacant.

- The Richland Operations Office specified a critical need for 62 additional science and technical positions including 23 engineers, physicists, hygienists, and scientists to provide oversight and direction for over 120 facilities and the spent nuclear fuel and radiological programs.

- The Albuquerque Operations Office identified a critical need for 39 additional scientific and technical specialists including engineers, scientists, and safety specialists. During the audit, our analysis indicated that their Workforce 21 needs had grown by 56 percent.

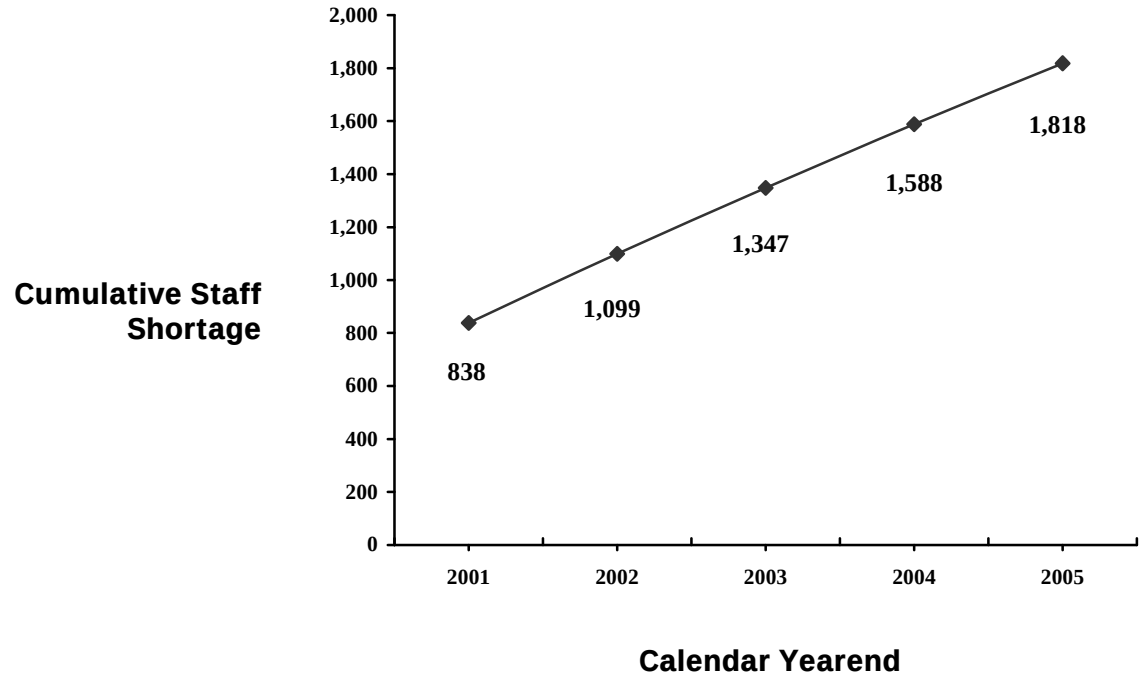
In total, 39 Department program and field offices identified critical hiring needs for scientific and technical staff. Since the 1999 data was assembled, the Department has hired 272 personnel in the 57 specialty areas but has lost 538 through attrition. Thus, as of January 2001, the

Department faced a need to hire up to 577 additional staff with specialized expertise.

Continuing Shortfalls

While exact needs may be difficult to identify, an analysis of historical attrition and hiring rates between Calendar Years 1996 and 2000 indicated that, absent significant changes to the Department's recruitment and retention activities, the gap in available scientific and technical talent will grow more severe in future years. Since 1995, the Department has lost an average of 320 employees per year in the 57 job series we examined. During the same period, the Department hired an average of only 97 new employees with these specialties each year. The following chart illustrates that, if the prior 5-year attrition and hiring remain constant over the next 5 years coupled with the critical needs identified through Workforce 21, the Department could face a need to hire as many as 1,818 specialists by the end of 2005.[3]

Cumulative Scientific and Technical Staff Needs
Projected Over a Five-Year Period



[3] The OIG used the Workforce 21 Initiative as a baseline because it represented the best available data at that time.

Workforce Requirements

Several policy directives recognizing the importance of recruitment and retention of human resources have been established by the Department and the Executive Branch.

As part of the Workforce 21 initiative, the Secretary of Energy specifically acknowledged shortages of skilled technical personnel and tasked Department components to address their critical skills needs. In response to a January 8, 1999, deadline, Department offices submitted analyses to the Director, Office of Management and Administration, enumerating their critical requirements. In total, program offices identified the need for about 300 additional personnel among 57 scientific and technical job classifications.

In June 2000, the President directed the heads of Executive departments and agencies to take actions necessary to improve the management of Federal human resources critical to accomplish agency missions in the most effective manner. Each Department and Agency was directed to:

- Fully integrate human resources management into the planning, budgeting, and mission evaluation processes, and clearly state specific human resources management goals and objectives in the strategic and annual performance plans;

- Renew the commitment to recruit, develop, and manage the workforce to ensure high performance; and

- Provide for the continued development of a highly competent corps of human resource management professionals to assist agency line managers.

In January 2001, the Office of Personnel Management (OPM) developed a workforce planning model to assist agencies in assessing their human resource needs. OPM decided to develop the model to help agencies better align their personnel with their missions in light of the wave of upcoming retirements, and the need for new skills in the Federal workforce.

Further, under the requirements of the Government Performance and Results Act of 1993, managers are required to establish goals and performance measures for program activities. In keeping with this requirement, the Department's Strategic Plan should provide useful

performance measures to help assess the progress toward meeting organizational needs including the recruitment and retention of technical and scientific staff.

Need for a Comprehensive Workforce Plan

Although Department management used the Workforce 21 initiative to specifically identify and document critical hiring needs, it had not developed a comprehensive workforce plan based on those needs, nor had it developed measurable performance standards by which to judge the success of its human capital management. Further, the Department had not fully exploited available tools to recruit and retain staff with specialized skills.

Comprehensive Plan

By its own assessment, the Department achieved only "mixed" success with its Workforce 21 initiative. Summary reports, including a report by the Office of Human Resources and the Department's September 2000 *Strategic Plan*, indicated that funding was not available to carry out the proposed hiring. In our judgment, however, the extensive data gathered during this effort could have formed the basis for a Department-wide, multi-year plan that would help prioritize critical needs on a corporate basis and detail strategies for addressing those needs within available funding limits. Nevertheless, more than 2 years after the data was gathered, no such plan had been developed. Further, Department management acknowledged the need for such a plan in the most recent *Performance and Accountability Report*, which called for a "comprehensive and integrated human capital investment strategy." While this recognition is a positive first step, the need for action has become critical.

Performance Measures

The Department has not established quantifiable performance goals and measures for implementing the recruitment and retention efforts. The OIG urged the development of such measures for each of the Department's major challenges including Human Capital, in our November 2000 report on *Management Challenges at the Department of Energy* (DOE/IG-0491). The OIG also commented on the need for specific measures addressing human capital issues in our special report on *Performance Measures at the Department of Energy* (DOE/IG-0504). In the OIG's judgment, additional performance measures

associated with the recruiting and retention of technical personnel would help focus Department planning efforts in these areas.

Available Tools

Even without a comprehensive workforce plan or performance measures, certain tools developed to assist Federal agencies' recruitment and retention efforts were available to the Department. In general, the Department had not made full use of these tools. For example:

- Recruitment and relocation bonuses and retention allowances. During a 3-year period ending in 2000, the Department issued only 157 bonuses and allowances for an average 4,862 technical and scientific personnel. Of these, only 28 recruitment bonuses were awarded. In discussing these matters with Headquarters Program and Field Office officials, we were advised that the limited use of these tools was primarily due to concerns that the morale of on-board employees who did not receive such bonuses would suffer.

- Excepted service. The Department was granted excepted service[4] authority for 200 positions in its enabling legislation in 1977. However, it did not begin to use this authority until 1995 when it received an additional 200 positions. Since then, the Department has made only 99 excepted service appointments involving scientific and technical personnel. For all job classifications, there were 700 excepted service positions, and as of June 22, 2001, 140 such employees were on board.

  Headquarters and Field Office officials we spoke to believed the process required to obtain approval for use of an excepted service position was long and laborious. However, according to Human Resource officials, in August 2000 the Department removed the requirement that excepted service appointments below the Senior Executive Service be approved by its Executive Resources Board thus removing a previously time-consuming step. We also learned during our audit that the National Nuclear Security Administration (NNSA), through its own enabling legislation, had planned to use up to 300 excepted service appointments. These appointments, according to NNSA officials, would provide managers the flexibility to attract and retain key personnel needed to meet their mission requirements.

[4] The "excepted service" consists of all positions in the Executive Branch that by statute, the President, or the Office of Personnel Management has specifically excepted from competitive service or the Senior Executive Service.

- Demonstration project. In April 2000, an internal Research & Development Technical Capability Panel report recommended the development of a personnel demonstration project to create more flexible compensation and performance systems for the Department's research and development positions. This approach was encouraged by OPM, which expressed a willingness to recommend models for a demonstration project that would be appropriate for the Department. OPM also offered staff to work with the Department to establish the project. However, according to the Department, the use of demonstration project authority requires documentation of a well-defined problem, along with a detailed plan for addressing the problem through use of alternative personnel authorities. According to sources at OPM, this developmental and approval process (which includes congressional oversight, union consultation, and OPM review of the experimental design), entails an 18-24 month period, plus additional time at the agency level for implementation planning. This lengthy process has discouraged many agencies with immediate needs from pursuing demonstration project authority.

  Rather than embark on such a long and uncertain journey, the Human Resources Director and other individuals familiar with the scientific and technical recruitment challenge felt that a more effective approach would be to make better use of existing tools and flexibilities as well as to consider special legislative authorities for the Department (such as the recently-enacted NNSA Act personnel authorities and successfully obtained legislation for retention incentives at Departmental closure sites). At this juncture, the Department believed that it would be most prudent for any further decisions on the pursuit of demonstration project authority, new legislation, and/or other major corporate human resources efforts to flow from the Department's human capital management and workforce restructuring initiatives.

For comparison purposes, we discussed recruitment and retention strategies with representatives from the Department of Defense (DOD), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF) and the National Institutes of Health (NIH). Each of these agencies had implemented various programs and practices to alleviate difficulties in recruiting and retaining scientific and technical personnel. For example, NIH made much greater use of its excepted service appointment authorities.

Officials there liked excepted service's broad hiring and pay flexibilities. Two agencies, NIST and DOD, participated successfully in alternative personnel demonstration initiatives. The initiatives included such components as direct hire authority, pay banding, greater use of excepted service positions, recruitment and relocation bonuses, and retention allowances. In the opinion of the agency representatives we spoke to, these initiatives helped alleviate difficulties in recruiting and retaining scientific and technical staff. Similar successes were also experienced at NSF.

Essential Resources Not Available

Without a more comprehensive and proactive approach to human capital issues, the Department cannot ensure that scientific and technical resources needed will be available to meet its mission requirements. For example, if current trends continue, the Department may not be in a position to provide essential Federal contract management activities at its contractor-operated facilities. Based on past experience, this could lead to ineffective, inefficient and unresponsive contractor operations.

Officials at several sites we visited expressed concern about their ability to perform adequate contract management without additional technical staff. Oakland Operations Office officials told us that responsibility for emergency management, laser safety, seismology, high explosives safety, and nuclear weapons at seven sites rested with only one employee for each area. Such circumstances have contributed to a number of avoidable incidents at two laboratories monitored by Oakland and Albuquerque. For example:

- A two-year shutdown at Livermore's plutonium facility was partly attributed to the high turnover of Federal facility representatives. Oakland's site manager asserted that Department facility representatives' presence at contractor sites would have helped ensure that approved procedures were followed.

- At Building T-35 in Los Alamos where a 6,000 gallon mineral oil leak destroyed over $1 million worth of laser equipment, no Federal officials were present. A Los Alamos Area Office official asserted that a more frequent presence could have contributed to the contractor being more attentive to operating procedures.

Operations Office officials at Chicago and Oakland also expressed concern with the inability to obtain cyber security expertise. Both offices have employees with extensive knowledge of physical security but little cyber security expertise. These officials were concerned

that without qualified cyber security staff, the Department has an increased risk for intrusion and espionage.

Additionally, cost overruns and schedule slippages have occurred over the past decade on Department projects. Some external oversight groups, including GAO and the DNFSB, have attributed such issues, in part, to inadequate contract management and insufficient attention to technical, institutional, and management issues. A recent GAO report, for example, stated that the National Ignition Facility project, originally expected to cost $2.1 billion and be completed in 2002, was likely to cost $3.9 billion and be delayed 6 years. The report attributed part of the responsibility for the increase and delay to staff oversight roles that were diluted by other competing responsibilities. In a February 1998 Annual Report, the DNFSB made a similar observation. The DNSFB stated it was not clear the Department fully understood the importance of sufficient management attention and commitment to ensuring that the Department hired and retained a technical workforce to accomplish present and future missions.

RECOMMENDATIONS

We recommend that the Acting Director, Office of Management and Administration, in conjunction with Departmental managers:

1. Develop and implement a comprehensive multi-year workforce planning program by establishing a Department-wide human capital management strategy and preparing and submitting a 5-year workforce restructuring plan for the Department with its Fiscal Year 2003 budget as required under OMB Bulletin 01-07;

2. Develop quantifiable recruitment and retention performance measures that will form a basis to monitor the Department's progress in solving the human capital resource problem regarding scientific and technical personnel; and

3. Aggressively and creatively utilize available human resources tools and flexibilities, as well as other means to rebuild and retain a highly skilled scientific and technical workforce at the Department of Energy in accordance with its multi-year workforce planning program.

MANAGEMENT REACTION Management generally concurred with the findings and recommendations.

SCIENTIFIC AND TECHNICAL PERSONNEL SERIES INCLUDED IN REVIEW

Job Series	Job Title	# of Staff	Job Series	Job Title	# of Staff
018	Safety and Occupational Health Manager	58	830	Mechanical Engineer	50
028	Environmental Protection Specialist	97	840	Nuclear Engineer	284
029	Environmental Protection Assistant	1	850	Electrical Engineer	21
080	Security Administrator	289	854	Computer Engineer	13
081	Fire Protection and Prevention Specialist	1	855	Electronics Engineer	18
334	Computer Specialist	285	856	Electronics Technician	4
340	Program Manager	278	880	Mining Engineer	0
401	Environmental Scientist	40	881	Petroleum Engineer	29
403	Microbiologist	2	892	Ceramics Engineer	4
404	Biological Science Technician	0	893	Chemical Engineer	40
408	Ecologist	1	896	Industrial Engineer	1
415	Toxicologist	1	899	Engineer Trainee	6
430	Botanist	1	1301	General Physical Scientist	740
440	Geneticist	0	1306	Health Physicist	78
601	Health Scientist	12	1310	Physicist	60
602	Medical Officer	4	1311	Physical Science Technician	21
610	Nurse	5	1313	Geophysicist	3
670	Health System Administrator	1	1320	Chemist	79
671	Health System Specialist	5	1321	Metallurgist	9
690	Industrial Hygienist	51	1340	Meteorologist	1
801	General Engineer	1623	1350	Geologist	11
802	Engineering Technician	44	1399	Science Trainee	2
803	Safety Engineer	48	1510	Actuary	2
804	Fire Protection Engineer	14	1515	Operations Research Analyst	64
806	Materials Engineer	11	1520	Mathematician	2
808	Architect	6	1529	Mathematical Statistician	27
809	Construction Representative	3	1530	Statistician	30
810	Civil Engineer	14	1550	Computer Scientist	8
819	Environmental Engineer	117			
				Total	4619

Appendix 2

PRIOR AUDIT REPORTS

Office of Inspector General Reports:

- *Performance Measures at the Department of Energy,* (DOE/IG-0504, May 2001). The Department did not have any agency-wide performance measures in the Accountability Report that would address the considerable challenge associated with the loss of a skilled workforce. Since 1995, the Department has experienced a substantial downsizing of its Federal staff. Also, the fraction of staff eligible for retirement has increased from 6 to 11 percent and will increase to 34 percent in the next 5 years. The Department's major contractors have experienced similar losses. The decline in staffing has left the Department with the challenge of reinvesting in its human capital to ensure that there are enough of the right-skilled people necessary to successfully meet its missions. Developing a comprehensive and integrated Departmentwide human capital investment strategy with appropriate performance measures is, in our judgment, key to resolving this complex issue.

- *Management Challenges at the Department of Energy,* (DOE/IG-0491, November 2000). While it is evident that management recognizes the seriousness of its human capital problem, the need for action to ensure that the Department has the technical, scientific, and management resources it needs to meet mission requirements has become critical.

- *The U.S. Department of Energy's Efforts to Preserve the Knowledge Base Needed to Operate a Downsized Nuclear Weapons Complex,* (DOE/IG-0428, October 1998). The Department has not developed a coordinated, integrated program to preserve the knowledge base of the downsized nuclear weapons complex. Without such a program, the Department risks not identifying and using all information that would provide continued high confidence in the nuclear stockpile.

General Accounting Office Reports:

- *Federal Employee Retirements: Expected Increase Over the Next 5 Years Illustrates Need for Workforce Planning,* (GAO-01-509, April 2001). GAO concluded that a substantial portion of the federal workforce will become eligible to retire, and many who are eligible will retire between Fiscal Years 1999 and 2006.

- *Major Management Challenges and Program Risks: Department of Energy,* (GAO-01-246, January 2001). GAO concluded that several studies have pointed to the Department's need to deal comprehensively with the challenge of recruiting and training the next generation of technical and managerial staff before it reaches crisis proportions by the end of this decade.

- *GAO High-Risk Series: An Update,* (GAO-01-263, January 2001). GAO reported in the area of strategic human capital management that, after a decade of Government downsizing and curtailed investments in human capital, it is becoming increasingly clear that today's federal human capital strategies are not appropriately constituted to adequately meet current and emerging needs of Government and its citizens in the most effective, efficient, and economical manner possible.

- *National Ignition Facility: Management and Oversight Failures Caused Major Cost Overruns and Schedule Delays,* (GAO/RCED-00-271, August 2000). GAO reported that DOE acknowledged that its managers in Headquarters and at the Laboratory site office did not properly oversee NIF and, as a result, remained unaware of major cost and schedule problems until several months after Laboratory managers had first documented them.

Other Related Reports:

- *Commission on Maintaining United States Nuclear Weapons Expertise: Report to the Congress and Secretary of Energy, Pursuant to the National Defense Authorization Acts of 1997 and 1998.* (March 1, 1999). The Commission found that (1) the nuclear weapons workforce is aging and, indeed, is considerably older than the national average of scientific, engineering, and technical personnel engaged in other endeavors; (2) the marketplace for hiring new scientific, engineering, and technical talent is highly competitive; (3) the number of college students in many of the scientific and engineering fields relevant to nuclear weapons work is shrinking while the overall needs in the economy for such graduates continue to grow; and, (4) DOE continues to have a number of management and program planning practices, which hinder recruiting and retention.

- *Defense Nuclear Facilities Safety Board: Eighth Annual Report to Congress,* (February 1998). The accomplishment of DOE's present and future missions in a manner that protects the health and safety of workers and the public depends heavily on the technical qualification of DOE personnel who are assigned safety-related responsibilities. It is not clear that DOE has fully understood the importance of this message or that sufficient senior management attention and commitment are being applied to this issue.

Appendix 3

SCOPE

The audit was conducted from June 2000 to May 2001 at Department of Energy Headquarters and the Oakland, Chicago, Albuquerque, and Oak Ridge Operations Offices. We also interviewed officials at the Department of Defense (DOD), National Aeronautics and Space Administration (NASA), National Institute of Standards and Technology (NIST), National Science Foundation (NSF), National Institutes of Health (NIH), and Office of Personnel Management (OPM).

METHODOLOGY

To accomplish the audit objective we:

- Reviewed regulations relating to recruiting and retaining personnel;
- Held discussions with Department Headquarters and field personnel to determine the status of recruitment and retention of scientific and technical personnel in their organizations, recruitment and retention techniques currently being employed, and problems being encountered in the recruitment and retention area;
- Analyzed data from the Department's automated personnel tracking system to determine the length of time it took to hire scientific and technical personnel;
- Analyzed Workforce 21 plans from Headquarters and Field Offices to determine their critical staffing needs for scientific and technical personnel;
- Used historical information from Calendar Year 1996 through Calendar Year 2000, from the DOE INFO database, a Departmental data repository for workforce and payroll transactions, to project the number of staff needed to replace departing scientific and technical staff over the next five years;
- Held discussions with DOD, NASA, NIST, NIH, and NSF officials to determine how they were managing recruitment and retention of their scientific and technical personnel; and
- Held a discussion with an OPM official to determine recruiting and retention tools currently available to agencies and tools that OPM is envisioning in the future.

We used advanced audit techniques to assess data reliability. We obtained DOE INFO data in electronic form and used computer-assisted techniques to identify anomalies. While we did note some data inaccuracies, we discussed these with a Department official and determined that the data was sufficiently reliable for the purposes of our audit. 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. 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 concurred with our recommendations and waived the exit conference.

IG Report No. DOE/IG-0512

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