U.S. Department of the Interior
Office of Inspector General

EVALUATION REPORT

YEAR 2000 READINESS OF AUTOMATED INFORMATION SYSTEMS AT THE BUREAU OF LAND MANAGEMENT

REPORT NO. 99-I-231
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United States Department of the Interior

OFFICE OF INSPECTOR GENERAL
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EVALUATION REPORT

Memorandum

To: Director, Bureau of Land Management

From: Robert J. Williams
Assistant Inspector General for Audits

Subject: Evaluation Report on Year 2000 Readiness of Automated Information Systems at the Bureau of Land Management (No. 99-I-231)

INTRODUCTION

This report presents the results of our evaluation of year 2000 (Y2K) readiness of automated information systems at the Bureau of Land Management. The objective of our review was to determine whether the Bureau (1) inventoried its automated information systems and identified those systems that were mission critical and were not Y2K compliant; (2) developed auditable cost estimates for renovating systems to be Y2K compliant; (3) identified, by name, individuals responsible for ensuring that the Bureau is Y2K compliant; (4) ensured that responsible individuals' personnel performance evaluation plans included critical elements related to identifying and remedying Y2K problems; (5) developed a credible plan that included milestones and a critical path to ensure that the Bureau is Y2K compliant; and (6) developed a contingency plan that would address the failure of any part of the systems not being Y2K ready. We also reviewed the Bureau's progress in inventorying automated information systems components, including computer software and hardware; telecommunications systems; facilities; and data exchanges between the Bureau and other Department of the Interior agencies or external entities for Y2K problems. This review was conducted at the request of the Department of the Interior's Chief Information Officer to assist the Information Officer in monitoring the progress of Departmental agencies in ensuring Y2K readiness, implementing Y2K compliant systems, and validating the accuracy of the information reported by the Departmental agencies to the Chief Information Officer.

BACKGROUND

The "Y2K problem" is the term used to describe the potential failure of information technology systems, applications, and hardware related to the change to the year 2000. Many computer systems that use two digits to keep track of the date will, on January 1, 2000, recognize "double zero" not as 2000 but as 1900. This could cause computer systems to stop running or to start generating erroneous data. The problem has been recognized as nationally significant by the President in Executive Order 13073, issued in February 1998. The Secretary of the Interior, in a December 1997 memorandum, stated that the Y2K problem was critical to the Department in meeting its mission and that resolution of the problem was one of his highest priorities. Further, Office of Management and Budget Memorandum 98-02, "Progress Reports on Fixing Year 2000 Difficulties," issued on January 20, 1998, requires all Federal executive branch agencies to ensure that Federal Government systems do not fail because of the change to the year 2000 and to have all systems, applications, and hardware renovated by September 1998; validated by January 1999; and implemented (that is, "fixes to all systems--both mission critical and non-mission critical") by March 31, 1999. The Office of Management and Budget states in Memorandum 98-02 that it is to provide "information to the Congress and the public as part of its [Office of Management and Budget's] quarterly summary reports on agency progress... [and] to report on the status of agency validation and contingency planning efforts and on the progress in fixing ... equipment that is date sensitive."

The Department has developed the "Department of the Interior Year 2000 Management Plan," which focuses on the resolution of the Y2K problem and provides an overall strategy for managing Departmental mission-critical systems and infrastructure. The Department has a multitiered approach to managing the Y2K problem that includes a top tier, which comprises the Secretary of the Interior; the Information Technology Steering Committee, which consists of the Chief of Staff and the Assistant Secretaries; and the Chief Information Officer, who is responsible for the Department's Y2K issues. This tier, which represents senior-level Departmental managers, provides the Y2K project's direction and resources and ensures accurate reporting to external organizations, such as the Office of Management and Budget and the Congress. A Departmentwide Y2K project team, which reports to the Chief Information Officer and comprises representatives from each agency and the Office of the Secretary, is tasked with developing the Department's Year 2000 Management Plan, refining inventory data on the Department's mission-critical and information technology portfolio systems,[1] and monitoring and reporting on the progress of each conversion. In addition, a Y2K Embedded Microchip[2] Coordinators Team has been established to inventory and

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[1] The portfolio is an inventory listing of 13 crosscutting or sensitive systems that are receiving attention at the Secretarial level.

[2] Embedded microchips are "integrated circuits (miniature circuit boards)" that control "electronic devices," which include "elevators, heating, ventilation and air conditioning (HVAC), water and gas flow controllers; aircraft navigational systems; and ... medical equipment" and office devices such as telephones, facsimile machines, pagers, and cellular telephones. (Department of the Interior's Office of Managing Risk and Public Safety "Year 2000 Embedded Microchip Hazards" [Web site])

monitor embedded microchip technology Y2K problems. The team is led by the Office of Managing Risk and Public Safety and comprises representatives of the eight Departmental agencies, the Denver Administrative Service Center, and various Departmental offices.

The Department's August 1998 "Quarterly Progress Report," which was submitted to the Office of Management and Budget, reported that the Department had 91 mission-critical systems, of which the Bureau had 13 systems (see Appendix 1). The Bureau has a project management team that comprises a Y2K executive who is the Acting Assistant Director for Business and Fiscal Resources; a Y2K coordinator; Y2K managers at the Washington office, the 12 state offices, and the 6 centers;[3] and individual project managers for mission-critical systems, telecommunications, and embedded microchip technology efforts.

SCOPE OF EVALUATION

To accomplish our objective, we reviewed the documentation available that supported the Bureau's information submitted to the Department's Chief Information Officer for the August 1998 "Quarterly Progress Report." We performed our evaluation during June through September 1998 at the Bureau's Office of Information Resources Management Office, located in Washington, D.C., and the National Information Resources Management Center, located in Denver, Colorado. We interviewed personnel responsible for project coordination to identify the Bureau's plans and progress. We also interviewed, either in person, by telephone, or by electronic mail, personnel involved in various aspects of the Y2K project, including coordination, compliance identification, software remediation, and project management.

The evaluation was conducted in accordance with the "Quality Standards for Inspections," issued by the President's Council on Integrity and Efficiency, and included such tests and inspection procedures considered necessary to accomplish the objective. Our conclusions on the status of the progress made by the Bureau in addressing and remediating Y2K problems were based on reviews of documentation maintained by the Bureau's Information Resources Management, state, program, and center offices and on discussions with the various Y2K coordinators throughout the Bureau and with individuals performing remediation or replacement of noncompliant applications or hardware. As specifically agreed to in our discussions with the Department's Chief Information Officer, we did not validate or certify that the Bureau's infrastructure or systems were Y2K compliant.

RESULTS OF EVALUATION

Of the six areas that the Chief Information Officer requested us to evaluate, we concluded that the Bureau of Land Management, at the end of our fieldwork, had completed actions on

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'The 12 state offices are the Alaska, Arizona, California. Colorado, Eastern States, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, and Wyoming State Offices. The six centers are the National Business Center, the National Human Resources Center, the National Information Resource Management Center. the National Interagency Fire Center, the National Applied Resource Sciences Center. and the National Training Center.

two areas but had not completed actions on four areas. Specifically, the Bureau had designated responsible individuals and developed contingency plans for its mission-critical systems. However, the Bureau had not reported all of its mission-critical systems to the Department's Chief Information Officer, developed auditable cost estimates, updated annual personnel performance evaluation plans, and developed credible plans that included milestones.

During our January 5, 1999, exit conference with Bureau of Land Management Y2K officials on the preliminary draft of this report, the officials provided updated documentation that would resolve the conditions identified in the preliminary draft report. Based on the documentation provided, we considered the actions on all six areas of the objective to be completed, and we have changed the report accordingly. The specific actions taken by the Bureau related to each area and other issues affecting the Bureau's progress are discussed in the paragraphs that follow.

Automated Information Systems Inventory

At the time of our review, the Bureau had not performed an inventory of all of its automated information systems. According to the Department's milestone dates, agencies were required to have mission-critical systems inventoried and systems that were not compliant identified by June 1997. Additionally, Memorandum 98-02 requires agencies to report on their total number of mission-critical systems. In the Department's August 1998 "Quarterly Progress Report," the Bureau reported that it had 13 mission-critical systems (see Appendix 1). Although the Bureau identified and reported 13 mission-critical systems, a complete inventory of its automated systems was not conducted and reported because the Bureau only inventoried and reported on its Bureauwide systems. We found that the Bureau had at least 11 additional systems which were critical to the Bureau's mission (see Appendix 2). For example, Oregon State Office Y2K project management identified eight mission-critical systems, of which three were related to the Bureau's mission of managing forests and wildlife habitat. Thus, there was a risk that all mission-critical systems had not been identified.

During the January 5, 1999, exit conference, Bureau Y2K officials provided documentation that resolved the identification of systems. While we believe that the mission-critical systems identified in Appendix 2 should have been reported to the Department as part of the Bureau's mission-critical systems, we also believe that the Bureau has adequately identified and implemented procedures which should ensure Y2K compliancy for all of the Bureau's systems. Therefore, the Bureau has completed this action.

The Department's Chief Information Officer requested that we determine the progress of the Bureau in addressing the Y2K problem regarding telecommunications and embedded microchips in information systems and facilities. We found, at the time of our review, that the Bureau's telecommunications coordinator had received inventory data from the 12 state offices and the 6 centers and that the Bureau's embedded microchip coordinator had received

complete inventory data from 6 of the 12 state offices and the 6 centers to construct a national database of mission-critical embedded microchip inventory data.

Auditable Cost Estimates

At the time of our review, we found that the cost estimates the Bureau reported to the Department's Chief Information Officer in the August 1998 "Quarterly Progress Report" were unauditable. The Bureau had not identified any costs for remedying the Y2K problem for seven of its mission-critical systems. Since these systems were to be repaired or redesigned, we believe that there should have been costs associated with these actions. The Bureau reported total estimated costs of $250,000 to correct Y2K problems in the six other mission-critical systems. However, the Bureau could not provide documentation to support its cost estimates for correcting the Y2K problems for these six systems. Therefore, the cost estimates were not supported or auditable.

In addition, the Bureau may have underestimated the costs to correct Y2K problems in embedded microchip technology. The Bureau reported costs of $400,000 to correct embedded microchip technology Y2K problems to the Department's Chief Information Officer. However, we found that the estimated costs to correct embedded microchip technology in the Nevada State Office were estimated at more than $540,000 and that, at the time of our review, only 6 of the 12 state offices and all 6 of the centers had completed inventories of embedded microchips.

During the January 5, 1999, exit conference, Bureau Y2K officials provided documentation that supported cost estimates for remedying the Bureau's mission-critical systems and correcting Y2K problems in its embedded microchip technology. Therefore, the Bureau has completed this action.

Designation of Responsible Individuals

We found that the Bureau had specifically designated, by name, the Y2K executive, the Bureau Y2K coordinator,. Y2K managers in each of the Bureau's 12 state offices and 6 centers, and Y2K coordinators for embedded microchips and telecommunications. Therefore, the Bureau has completed this action.

Annual Personnel Performance Evaluation Plans

The Secretary of the Interior's December 1997 memorandum required that "a critical performance element for identifying and remedying" the Y2K problem be included as part of each responsible official's annual performance evaluation plan. Responsible officials are defined in the memorandum as agency directors, agency Y2K executives, agency information resources management coordinators, safety officials, and all others as determined by the Y2K executives. In addition, the Bureau Director issued Instruction Memorandum No. 98-127, "Year 2000 Critical Element for Employee Performance Appraisals," dated June 25, 1998, which required that a Y2K critical element be included in

the 1998 Employee Performance Plan and Results Reports for all responsible officials. These individuals included deputy directors and assistant directors, state directors, field and district office managers, center directors, state information resources management coordinators, official Y2K points-of-contact, and state safety officials. At the time of our review, we found that the Bureau Y2K coordinator and all responsible officials from the Idaho and Nevada State Offices and the National Interagency Fire Center, as well as some officials from the National Information Resources Management Center, had elements addressing Y2K objectives in their annual Employee Performance Plan and Results Reports. However, no documentation was provided to support that other Bureau Y2K responsible officials, such as the Y2K executive, the embedded microchip coordinator, the telecommunications coordinator, and the mission-critical systems coordinator, had such elements in their annual Employee Performance Plan and Results Reports.

During the January 5, 1999, exit conference, Bureau Y2K officials provided documentation to support that the Bureau's Y2K executive, embedded microchip coordinator, telecommunications coordinator, and mission-critical systems coordinator had a critical performance element for identifying and remedying the Y2K problem in their annual performance evaluation plans. Therefore, the Bureau has completed this action.

Plan for Milestones

At the time of our review, we found that the Bureau had not developed credible plans which included milestones with critical paths for the 13 mission-critical systems reported as part of the Bureau's Y2K project. A Y2K Master Plan, dated January 1998, existed for 8 of the 13 mission-critical systems that included tasks, start and finish dates, and statuses, but the Plan did not contain procedures and milestones for each task to ensure that finish dates were met. In addition, the Bureau developed a draft Y2K Management Plan[4] dated July 1998 that included milestones for completing various Y2K phases, such as assessment, renovation, validation, and implementation, for its mission-critical systems, embedded microchip technology, and telecommunications. However, the draft plan did not contain detailed steps for ensuring Y2K compliance for each of the Bureau's mission-critical systems. Further, the Bureau had not developed credible plans for the other 11 mission-critical systems (see section "Automated Information Systems Inventory").

During the January 5, 1999 exit conference, Bureau Y2K officials provided documentation to ensure that credible plans were developed for its mission-critical systems. In addition, Bureau officials provided us a copy of an updated Y2K Management Plan dated October 19, 1998, which included steps to ensure that its systems, hardware, software, telecommunications, embedded microchip technology, and data sharing arrangements would be Y2K compliant by the milestone date. Further, Y2K project management stated that certification documentation of Y2K compliancy for 11 of the Bureau's 13 mission-critical systems had been submitted to the Department's Chief Information Officer. The Bureau

[4]The draft Y2K Management Plan provides guidance to Bureau management and staff for ensuring Y2K readiness.

developed contingency plans for the other two mission-critical systems. Therefore, the Bureau has completed this action.

Contingency Plans

We found that the Bureau had a draft contingency plan dated July 1998 for the Automated Land and Mineral Record (ALMRS) and the Case Recordation and Mining Claims Recordation systems. The plan addressed contingencies in the event that ALMRS is not implemented by March 1999. The plan would require the Case Recordation and Mining Claims Recordation systems, which would be retired upon implementation of ALMRS, to continue operating. However, the hardware and the software to operate these systems need to be repaired to be Y2K compliant. The Bureau did not have contingency plans for any other mission-critical systems because the systems are scheduled to be compliant prior to March 1999. Therefore, the Bureau has completed this action.

Other Issues

We found other issues that affect the Bureau's readiness efforts which should be addressed as follows:

- Contract Language. Department of the Interior Acquisition Policy Release 1997-6, "Year 2000 Contract Specification," issued in April 1997, requires appropriate contract language to be included in all acquisitions that would pertain to Y2K compliance issues. However, the Bureau's contract for the ALMRS Modernization Project did not contain an amendment that included the appropriate contract language required by the policy release to ensure that the system would "either be year 2000 compliant as delivered or if noncompliant at that time be upgraded to be year 2000 compliant at no additional cost to the government." The Bureau initiated action to amend the ALMRS contract that was to have become effective beginning in fiscal year 1999.

- Independent Verification and Validation. According to the Bureau's Y2K project management, independent verification and validation testing of mission-critical and nonmission-critical systems are to be performed by an independent contractor. However, the costs associated with acquiring a contractor to perform the independent verification and the validation testing had not been estimated and reported at the time of our review (see section "Auditable Cost Estimates").

- Data Exchange. The Department of the Interior and the Office of Management and Budget required that an inventory of all data exchanges with outside parties be completed by February 1, 1998, and that coordination with these parties to determine a transition plan occur by March 1, 1998. We found that the Bureau had identified its data exchange partners and that the partners had been contacted by Y2K coordinators. The National Information Resources Management Center had identified five interfaces with systems external to the Bureau, and we verified that the inventory of data exchange partners was complete. The interfaces were with the Department's Minerals Management Service (three interfaces), the

Department's Office of Aircraft Services (one interface), and the Department of Agriculture's U.S. Forest Service (one interface). Bureau Y2K project management had contacted these entities and determined the appropriate actions to take to ensure that the exchanged data will process correctly after the year 2000.

Since this report does not contain any recommendations, a response is not required.

The legislation, as amended, creating the Office of Inspector General requires semiannual reporting to the Congress on all audit reports issued, the monetary impact of audit findings, actions taken to implement audit recommendations, and identification of each significant recommendation on which corrective action has not been taken.

We appreciate the assistance of the Bureau of Land Management's Y2K coordinator, the Y2K coordinators at the state offices and centers, the mission-critical system coordinator, and other Bureau personnel in the conduct of this evaluation.

BUREAU OF LAND MANAGEMENT
MISSION-CRITICAL SYSTEMS INVENTORY'

System Name or Acronym	Description	Estimated Cost for Compliance
Initial Attack Management System	A system for tracking costs and resources for wildlife suppression.	0
Automated Land and Minerals Reporting System (ALMRS)	A system that tracks original land title information and mine leasing activities.	0
Case Recordation	A system that tracks land transfers, leases, and permitted uses of Federal lands. System will be replaced by ALMRS.	$42,000
Mining Claims Recordation	A system that tracks unpatented mining claims, mill sites, and tunnels on Federal lands. System will be replaced by ALMRS.	0
Lease Management	A system that accounts for rents and fees associated with mineral leases and land use permits.	**0**
Aircraft Monitoring System	A system that tracks aircraft parts inventory and aircraft used by the Bureau of Land Management.	42,000
Cadastral Survey System	A system that tracks survey information related to public land surveys.	42,000
Inventory Data System	The system provides soil and vegetative data for analyzing and determining the best use of Federal lands.	40,000

*Cost information is from the "Department of the Interior Year 2000 Management Plan," issued in February 1998. All other information is from the Bureau's Y2K Program Coordinator as of August 1998.

System Name or Acronym	Description	Estimated Cost for Compliance
Library Reference System	The system catalogs central library material.	0
Wildlife Inventory System	A system that tracks wildlife habitats, concentrating on endangered species.	42,000
Master Name System	The system provides a central repository of the Bureau's customer names and addresses.	0
Bond and Surety System	A system that tracks the status of companies authorized to issue bonds and sureties covering activities by operators on Federal lands.	0
Wild Horse and Burro System	A system that tracks the adoption and compliancy of adoptees of wild horses and burros.	42.000
Total		$250,000

BUREAU OF LAND MANAGEMENT
MISSION-CRITICAL SYSTEMS INVENTORY
NOT BEING REPORTED TO THE DEPARTMENT

System Name and Acronym	Organization Identifying Svstems as Mission Critical
Automated Casefile Tracking System	Oregon State Office
Micro*Storms (Forest Operations Unit Information)	Oregon State Office
Procurement Information Network	Oregon State Office
Road Appraisal System	Oregon State Office
Spotted Owl Database	Oregon State Office
Transportation Information Management System	Oregon State Office
Timber Sale Information System	Oregon State Office
Timber Volume and Value System	Oregon State Office
Funds Accounting Control System (FACS)	Idaho State Office
National Automated Cache System (NACS)	National Interagency Fire Center
Automated Storage Conversion Distribution System (ASCADS)	National Interagency Fire Center

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