

GAO

Report to the Chairman, Subcommittee  
on Oversight and Investigations,  
Committee on Veterans' Affairs, House  
of Representatives

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August 1998

# YEAR 2000 COMPUTING CRISIS

## Progress Made in Compliance of VA Systems, But Concerns Remain



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

Accounting and Information  
Management Division

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The Honorable Terry Everett  
Chairman, Subcommittee on Oversight  
and Investigations  
Committee on Veterans' Affairs  
House of Representatives

Dear Mr. Chairman:

We have reported in the past that unless timely corrective action is taken, the Department of Veterans Affairs (VA) could face widespread computer system failures at the turn of the century due to incorrect information processing relating to dates.<sup>1</sup> The reason for this is that in many systems, the year 2000 is indistinguishable from the year 1900,<sup>2</sup> which could make veterans who are due to receive benefits and medical care appear ineligible. If this happens, the issuance of benefits and the provision of medical care that veterans rely on could be delayed or interrupted.

As you requested, we have assessed the status of (1) the Veterans Benefits Administration's (VBA) Year 2000 program and (2) the Veterans Health Administration's (VHA) Year 2000 program. This report provides the results of our review.

## Results in Brief

VBA has made progress in addressing the recommendations in our May 1997 report<sup>3</sup> and making its information systems Year 2000 compliant. It has changed its Year 2000 strategy from developing new applications to fixing the current ones and established a Year 2000 project office to oversee and coordinate all VBA Year 2000 projects. It has also reportedly renovated 75 percent of its mission-critical applications as of June 1998,

<sup>1</sup>Veterans Affairs Computer Systems: Action Underway Yet Much Work Remains to Resolve Year 2000 Crisis ([GAO/T-AIMD-97-174](#), September 25, 1997); Veterans Benefits Computer Systems: Uninterrupted Delivery of Benefits Depends on Timely Correction of Year-2000 Problems ([GAO/T-AIMD-97-114](#), June 26, 1997); Veterans Benefits Computer Systems: Risks of VBA's Year 2000 Efforts ([GAO/AIMD-97-79](#), May 30, 1997); and Veterans Benefits Modernization: Management and Technical Weaknesses Must Be Overcome if Modernization Is to Succeed ([GAO/AIMD-96-103](#), June 19, 1996).

<sup>2</sup>The Year 2000 problem is rooted in how dates are recorded and computed. For the past several decades, many existing systems have used a two-digit date field to represent the current year—such as “97” for 1997. However, such a format does not distinguish between 2000 and 1900. Computer programs that are not corrected to accommodate the 2000 date could process information incorrectly, affecting the payment of benefits and provision of services.

<sup>3</sup>[GAO/AIMD-97-79](#), May 30, 1997.

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and completed renovation of two specific mission-critical systems—vocational rehabilitation and insurance.

Despite this progress, concerns remain. For example, VBA has made limited progress in renovating two key mission-critical software applications—(1) compensation and pension online, which processes claims benefits and updates benefit information, and (2) the Beneficiary Identification and Record Locator Sub-System. VBA also has to reassess its commercial-off-the-shelf (COTS) products because one of its largest vendors, who initially informed VBA that its products were Year 2000 compliant, recently informed VBA that some of its products were not compliant and that others were being assessed and tested. This problem is not unique to VBA—it applies to all consumers of these products. Finally, except for its Insurance Service, VBA has not developed Year 2000 business continuity and contingency plans for its core business processes. These issues, if not adequately addressed, could affect the timely processing of benefits to veterans and their dependents.

VHA has also made progress in addressing the Year 2000 problem. Since September 1997, it has reported having assessed all and renovated the vast majority of its mission-critical information systems and having completed 98 percent of its renovation by June 1998. However, concerns also remain. For example, VHA does not know the full extent of its Year 2000 problem because it has not yet completed its assessment of (1) locally developed software applications or customized versions of national applications used by its medical facilities, (2) COTS products, such as software applications and operating systems, (3) facility systems, such as heating, ventilating, and air conditioning equipment, and (4) biomedical devices. VHA's efforts on several of these issues are complicated by the fact that it, like other consumers of these products, has to receive compliance information from the manufacturers, some of whom have been slow to respond to VHA's requests for compliance information. Like VBA, VHA has not developed Year 2000 business continuity and contingency plans. Failure to adequately address these issues could result in disruptions in patient care at VHA medical facilities.

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## Background

VA comprises three major components: VBA, which provides benefits to veterans and their dependents; VHA, which provides health care services through the nation's largest health care system; and the National Cemetery System, which provides burial services in 115 national cemeteries.

In fiscal year 1997, VBA reported that it paid about \$23 billion in benefits to about 4.4 million veterans and their dependents. VBA distributes these benefits through five programs: compensation and pension (the largest), educational assistance, housing loan guaranty, vocational rehabilitation and counseling, and insurance. VBA administers its benefits programs through one or more of 58 regional offices supported by three data processing centers.

During this same period, VHA reported that it spent \$17 billion providing medical care to about 3 million veterans. Such care is managed through 22 Veterans Integrated Service Networks (VISN) which are geographically dispersed throughout the country. VISNs manage 711 separate facilities: 172 VHA medical centers, 376 outpatient clinics, 133 nursing homes, and 30 domiciliaries.

VA has 11 mission-critical system areas. As shown in table 1, VBA has six of these areas and VHA has two. About two-thirds of the VBA software applications—95 of the 151—are considered business priorities, essential to the department’s mission. Over one third of VHA’s applications—104 of the 283—are business priorities critical to the department.

**Table 1: VA’s Mission-Critical Computer System Areas and Their Applications**

Component/office (Number of systems)	Systems	Number of applications
Veterans Benefit Administration (6)	<ul style="list-style-type: none"> <li>• Compensation and Pension</li> <li>• Education</li> <li>• Insurance</li> <li>• Loan Guaranty</li> <li>• Vocational Rehabilitation</li> <li>• Administrative</li> </ul>	151
Veterans Health Administration (2)	<ul style="list-style-type: none"> <li>• Veterans Health Information Systems and Technology Architecture</li> <li>• Veterans Health Administration Corporate Systems</li> </ul>	145
National Cemetery System (1) <sup>a</sup>	<ul style="list-style-type: none"> <li>• Burial Operations Support System/Automated Monument Application System</li> <li>• Reengineer</li> </ul>	2
Office of Financial Management (2)	<ul style="list-style-type: none"> <li>• Personnel and Accounting Integrated Data</li> <li>• Financial Management System<sup>b</sup></li> </ul>	1

<sup>a</sup>This was the first VA system to become Year 2000 compliant.

<sup>b</sup>This system became compliant in February 1998.

Source: VA. We have not independently verified this information.

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## Objective, Scope, and Methodology

The objective of this review was to assess the status of VBA's and VHA's Year 2000 programs. In conducting this review, we applied criteria from our Year 2000 Assessment Guide,<sup>4</sup> and our Year 2000 Business Continuity and Contingency Planning Guide.<sup>5</sup> We reviewed Year 2000 documents developed by VA, including its June 1997 Year 2000 Solutions document; its January 13, 1997, Year 2000 Readiness Review; and its quarterly Year 2000 reports to OMB for May 1997, August 1997, November 1997, February 1998, and May 1998.

In assessing the status of VBA's Year 2000 program, we reviewed and analyzed numerous VBA documents, including its October 1997 Year 2000 Risk Assessment; its January 1998 response to our May 1997 report,<sup>6</sup> and monthly Year 2000 progress reports to VA. We also reviewed and analyzed VBA project plans, schedules, and progress reports for its replacement and conversion initiatives. In addition, we met with and/or interviewed project teams, including contractor support, in Washington, D.C., and Roanoke, Virginia, as well as computer personnel at VBA's data centers at Hines, Illinois, and Philadelphia, Pennsylvania, and its Austin Systems Development Center to discuss their Year 2000 activities. We also discussed VBA's Year 2000 efforts with VBA headquarters officials in Washington, D.C.; VBA regional office officials in Baltimore, Maryland; Chicago, Illinois; Roanoke, Virginia; Philadelphia, Pennsylvania; Waco, Texas; St. Paul, Minnesota; St. Petersburg, Florida; and representatives from VA's Office of Information Resources Management.

In assessing the status of VHA's Year 2000 program, we reviewed and analyzed numerous VHA documents, including its April 30, 1997, Year 2000 Plan; its July 1997 Year 2000 Product Risk Program; its January 30, 1998, Assessment Phase Report; its strategic plan; and monthly reports to VA. We also reviewed the Year 2000 plan prepared by each of VHA's 22 VISNS. We also reviewed and analyzed the backup and contingency plans prepared by the VISNS and VISN cost estimates. In addition, we met with and/or interviewed VISN project team members in Pittsburgh, Pennsylvania; Philadelphia, Pennsylvania; Wilmington, Delaware; Washington, D.C.; Baltimore, Maryland; Martinsburg, West Virginia; and Chicago, Illinois. We also met with VHA software development staff at Silver Spring, Maryland, and Hines, Illinois, to discuss progress and problems involved with their

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<sup>4</sup>Year 2000 Computing Crisis: An Assessment Guide (GAO/AIMD-10.1.14, September 1997).

<sup>5</sup>Year 2000 Computing Crisis: Business Continuity and Contingency Planning (GAO/AIMD-10.1.19, August 1998).

<sup>6</sup>GAO/AIMD-97-79, May 30, 1997.

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Year 2000 activities. We also discussed vHA's Year 2000 efforts with vHA headquarters officials in Washington, D.C., and a representative from VA's Office of Information Resources Management.

We performed our work from July 1997 through June 1998, in accordance with generally accepted government auditing standards. We requested comments on a draft of this report from the Secretary of Veterans Affairs or his designee. The Assistant Secretary for Policy and Planning provided us with written comments that are discussed in the "Agency Comments and Our Evaluation" section and are reprinted in appendix I.

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## Progress Made in VBA Yet Concerns Remain Regarding Applications, COTS Products, and Contingency Planning

VBA has made progress in addressing the recommendations in our May 1997 report<sup>7</sup> and in making its information systems Year 2000 compliant. However, concerns remain surrounding the renovation of two key mission-critical applications, assessment of COTS software products, and contingency planning.<sup>8</sup> Unless these issues are addressed, the issuance of benefits to veterans and their dependents could be delayed or interrupted.

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## Progress Made in Addressing the Year 2000 Problem

In May 1997, we made numerous recommendations designed to correct weaknesses in vBA's Year 2000 efforts. These were in the areas of program management, systems assessment and prioritization, completion of inventories and development of plans for addressing internal and external software interfaces, prioritizing information technology projects to make the best use of limited resources, and developing contingency plans for critical business processes.

Additionally, in September 1997,<sup>9</sup> we expressed concern about the compressed schedules of key software developments and renovations, especially for vBA's largest and most critical payment system, compensation and pension. The schedule for this system was compressed because computer analysts responsible for it were not available and were working on legislatively mandated changes and cost-of-living increases. In

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<sup>7</sup>GAO/AIMD-97-79, May 30, 1997.

<sup>8</sup>Our Year 2000 Computing Crisis: Business Continuity and Contingency Planning (GAO/AIMD-10.1.19, August 1998) describes a planning process that safeguards an agency's ability to produce a minimally acceptable level of services in the event of failures of mission-critical systems.

<sup>9</sup>GAO/T-AIMD-97-174, September 25, 1997.

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addition, VBA had not completed assessments of its internal and external data interfaces.

In concurring with all our recommendations and addressing other concerns, VBA has taken several actions. For example, it changed its Year 2000 strategy from developing new systems to converting existing ones. Second, a single VBA Year 2000 project office now oversees and coordinates all VBA Year 2000 activities. Third, VBA has completed inventories for its mission-critical systems, data interfaces, and third-party products, and assessed the products in these inventories for Year 2000 compliance. Finally, VBA has developed a schedule for replacing and/or converting all noncompliant systems or products.

VBA has also made progress in renovating its noncompliant software applications. Since July 1997, it has reported increasing from 50 to 75 the percentage of renovated mission-critical applications. It also has reported completing renovation for its vocational rehabilitation and insurance systems, and making significant progress in its education system. VBA has also recently completed inventories and assessed Year 2000 compliance for applications developed at its regional offices.

In addition, to address our recommendations and concerns regarding its data interfaces, VBA has developed Year 2000-related agreements with its external trading partners for 278 of 287 interfaces. According to VBA's Year 2000 Project Manager, VBA has developed a bridge<sup>10</sup> for five of the nine interfaces remaining without agreements so that information from these partners can be converted into an acceptable format. VBA must still work out agreements with the Department of Defense on the remaining four interfaces, which deal with payment systems. In these cases, the external partner has not determined the data format for the interfaces so VBA can ensure that the data are acceptable to its systems. The Project Manager informed us that VBA will continue to work with Defense in resolving this problem.

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<sup>10</sup>Bridging involves receiving information in one format, modifying it, and outputting it in another format, such as receiving the year in a two-digit format, adding century information through the use of an algorithm, and writing the output with a four-digit year.



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Risks Remain Regarding  
Renovation of  
Mission-Critical  
Applications, COTS  
Products, and Contingency  
Planning

Despite VBA's progress in addressing the Year 2000 problem, areas of risk remain. These include (1) limited progress in making two key mission-critical applications compliant, (2) the unexpected need to reassess its COTS software products that VBA was previously assured were fully Year 2000 compliant, and (3) the lack of business continuity and contingency plans for core business processes. If these issues are not adequately addressed, benefits to veterans could be delayed or interrupted.

Making Mission-Critical  
Applications Compliant

VBA has made limited progress in renovating its compensation and pension online application.<sup>11</sup> Specifically, the level of reported renovation has remained at 18 percent for several months. As we pointed out in our September 1997 testimony,<sup>12</sup> one factor for this slow pace has been that computer analysts responsible for Year 2000 renovations have been working on legislative mandates, special projects, and yearly changes, such as cost-of-living increases and clothing allowances.

To address this problem, VBA contracted for additional Year 2000 support. The contractor was tasked with analyzing the software code using a software conversion tool, providing the tool's recommendations to VBA analysts, and making renovations, once approved by VBA analysts. However, the Project Manager informed us that only 35 percent of the renovations could be made using the tool. The remaining 65 percent must be made by the analysts because they involve benefit calculations or other issues that the tool cannot handle. These same analysts must also review and test all Year 2000 changes, including those made by the contractor, as well as continue to work on legislative mandates,<sup>13</sup> special projects,<sup>14</sup> and other changes before 2000. In commenting on a draft of this report, VA stated that VBA's compensation and pension online application is now 59 percent compliant, up from the 18 percent noted in our report. VBA's Year 2000 Project Manager told us that the progress was due to use of a software development tool and that additional resources had been assigned to this project, as we recommended. The milestones for the

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<sup>11</sup>This application is used to process new claims benefits and update current claims benefit information. According to a 1996 VBA estimate, if this application fails to work, about 10 percent or 300,000 VBA payments might be adversely affected.

<sup>12</sup>GAO/T-AIMD-97-174, September 25, 1997.

<sup>13</sup>According to VBA, legislative mandates include a minimum income for widows benefit, which was previously provided by the Department of Defense and is now the responsibility of VA.

<sup>14</sup>These include initiatives to develop databases to assist VBA management in data analysis and an interface to the Department of the Treasury's payment system for VBA's systems modernization effort known as VETSNET.

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compensation and pension online application include completion of renovation by September 4, 1998, and implementation by October 5, 1998.

VBA is also having problems renovating the Beneficiary Identification and Record Locator Sub-System,<sup>15</sup> a software application in its mission-critical administrative system. VBA hired a contractor to modernize and renovate the system to ensure Year 2000 compliance. The contractor, however, had difficulty meeting its deliverable dates. For example, it did not complete renovation in April 1998, as originally planned, or in June 1998, as rescheduled. According to VBA's Year 2000 Project Manager, the contractor did not assign sufficient staff to the project and did not have the expertise to perform the work on time. She informed us that the contractor and VBA have agreed to a third schedule, with specific contract deliverables scheduled in July and August 1998. If these dates are not met, VBA plans to invoke a contingency plan to fix this system using in-house resources currently working on non-Year 2000 work, such as VBA's common security project.

### Reassessing COTS Products

VBA, along with other consumers, will have to reassess some of its COTS products. According to VBA's Year 2000 Project Manager, one of its largest vendors, which initially informed VBA that its products were Year 2000 compliant, recently told VBA that some of its products were not compliant and announced that it was beginning to assess and test its product line for Year 2000 compliance. Because this vendor accounts for about 30 percent of VBA's COTS products—including a database management system used by many VBA software developers and VBA's electronic mail software, which is used to communicate between its regional offices, VBA headquarters, and the data centers—VBA will have to replace and/or upgrade these products. Because of this reassessment by one vendor, VBA now plans to review and reassess all of its COTS products.

### Developing Business Continuity and Contingency Plans

In May 1997, we reported that VBA should develop contingency plans for its core mission-critical business processes and assess the impact of Year 2000 failures on its mission-critical program services. To assist agencies with this, we have prepared a guide<sup>16</sup> that discusses the scope of the Year 2000 challenge and offers a step-by-step approach for reviewing an agency's risks and threats as well as how to develop backup strategies to minimize these risks. The business continuity planning and contingency planning process outlined in the guide safeguards the agency's ability to produce a minimally acceptable output if internal or external

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<sup>15</sup>This system contains veterans' names, addresses, service histories, and claims folder locations.

<sup>16</sup>GAO/AIMD-10.1.19, August 1998.

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mission-critical information systems and services fail. The guide also states that an agency should develop business continuity and contingency plans for each core business process or program service and that the plans should provide a description of resources, staff roles, procedures, and timetables needed for implementation.

VBA has generally not developed business continuity and contingency plans for its program services to ensure that they would continue to operate if Year 2000 failures occur. Only VBA's Insurance Service has developed such a plan. The insurance plan addresses potential business impact, contingencies and alternatives, and triggers for activating contingencies and contains a high-level plan for the December 31, 1999, weekend.

According to the VBA Year 2000 Project Manager, VBA is aware of the need for Year 2000 business continuity and contingency plans and has hired a contractor to develop a framework for developing plans to address all aspects of business operations, not just information systems. This framework is to be used to assist VBA in preparing a Year 2000 business continuity plan that would allow it to maintain a minimal acceptable level of service. VBA currently does not have a date for when this framework will be completed, but it plans to have business continuity and contingency plans completed for each of its program services by January 1, 1999.

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## VHA Has Made Progress in Renovating Mission-Critical Systems, but Concerns Remain

VHA has made progress in assessing and renovating its two mission-critical systems for Year 2000 compliance. Since our September testimony,<sup>17</sup> it has reportedly completed assessment and 98 percent of renovation. However, despite this progress, concerns remain about the Year 2000 compliance status of VHA's locally developed software applications, COTS products, facility systems, and biomedical devices. Also, VHA's medical facilities have not completed Year 2000 business continuity and contingency plans. Until its local software applications, COTS products, facility systems, and biomedical devices are determined to be Year 2000 compliant, VHA lacks assurance that its delivery of medical care to veterans will not be delayed or interrupted at the turn of the century.

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## Reported Progress Made in Assessing and Renovating Mission-Critical Systems

VHA has progressed in assessing and renovating its mission-critical systems. It reportedly completed the assessment of the Veterans Health Information Systems Architecture (VISTA) and VHA corporate systems<sup>18</sup> at

<sup>17</sup>GAO/T-AIMD-97-174, September 25, 1997.

<sup>18</sup>These corporate systems are a set of computers and databases intended to gather information from more than one field facility to support the VHA CIO's office.

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the end of January 1998. VHA reported at that time that about half of the 147 VISTA software applications would have to be renovated, as would about 10 percent of the VHA corporate systems applications. It also completed assessment of related data interfaces and reported that 6 percent of these interfaces would have to be renovated.

In addition, according to its June 1998 Year 2000 Status Report to VA, VHA renovated 100 percent of its VISTA software applications and 95 percent of the VHA corporate systems by the end of May 1998. Further, VHA reports that 93 percent of the VISTA and 90 percent of the VHA corporate software applications have been validated. For the VISTA software applications, validation includes (1) testing by programmers and systems development groups, (2) testing by medical facility staff, (3) quality assurance testing, and (4) final testing by the customer services unit prior to release. Testing for the VHA corporate systems is similar to the process for the VISTA applications. VHA also plans to conduct end-to-end testing along with VBA in July 1999.

The VHA Year 2000 Project Manager told us that as an added precaution, VHA has decided to hire a contractor to conduct an independent verification and validation of VHA's compliance process for mission-critical systems, especially its corporate systems. VHA will be developing the requirements and a statement of work for this effort and expects to award a contract by the end of September 1998. It also expects to have the independent verification and validation completed by the end of December 1998.

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## Remaining Concerns About VHA's Year 2000 Program

In our September 1997 testimony,<sup>19</sup> we expressed concern that some of the medical facilities have customized<sup>20</sup> the national VISTA software applications and/or purchased software add-ons to work with the national applications, and these have not been assessed for Year 2000 compliance. Further, we expressed concerns that VHA had not completed an inventory of its COTS products, facility-related systems and equipment, and biomedical devices.

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<sup>19</sup>GAO/T-AIMD-97-174, September 25, 1997.

<sup>20</sup>Such customization includes special purpose programs written by local information resources management staff or other system users on-site or exported from other VA medical facilities. These programs generally meet a specific local need or extend the functionality of nationally released software.

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The medical facilities still have not completed their assessment of locally developed and/or modified VISTA applications. The most recent information shows that about 76 percent of these applications had been assessed as of May 31, 1998. Of the applications assessed, 16 percent are noncompliant. All medical facilities were scheduled to complete renovations by July 1998. According to the VHA Year 2000 Project Manager, the facilities did not meet this date. He also added that the project office is not aware of any modifications by the medical facilities to the VISTA applications involving mission-critical functions. Recognizing that the medical facilities are behind schedule, VHA's Year 2000 Project Manager has told us that the medical facilities have been informed that if they cannot assess or renovate their locally developed or modified VISTA software applications in time—as yet unspecified—they will have to replace them with unmodified national versions. This appears to be a viable solution since VHA has reportedly renovated 100 percent of its VISTA applications, and 93 percent of these have been validated.

A second area of concern relates to the Year 2000 compliance status of VHA's COTS software. VHA has over 3,000 such products,<sup>21</sup> supplied by nearly 1,000 vendors, for use in its offices and medical facilities nationwide. Its strategy for determining the Year 2000 compliance status of these products is to request the information from the manufacturers. VHA, however, has had difficulty in obtaining this information. Since November 1997, it has sent letters to 566 manufacturers requesting compliance information; as of June 1998, 260 responses had been received, leaving over 300 outstanding. The Year 2000 Project Manager informed us that they will continue to send follow-up letters to nonresponding manufacturers.

The reliability of the information received from COTS vendors may also be an issue. For example, one large COTS software manufacturer that initially provided documentation stating that all its products were compliant, recently published “more detailed” information stating that some of its products were, in fact, not fully compliant. VHA is now reviewing this additional information to determine what needs to be done at the headquarters and field levels to ensure Year 2000 compliance.

A third area of risk involves the Year 2000 compliance status of VHA's facility-related systems and equipment, such as heating, ventilating, and air conditioning equipment. As with its Year 2000 strategy for COTS products, VHA relies on the manufacturers for compliance information on their products. It sent a letter to over 200 facility systems/equipment

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<sup>21</sup>These include software applications, operating systems, and system software.

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manufacturers requesting Year 2000 compliance information. In March 1998, VHA sent follow-up letters to 127 nonrespondents. To date, it has received responses from 93 of the over 200 manufacturers, and most of the 93 manufacturers have indicated that their systems are compliant. The slow response rate is a concern because of its potential impact on the ability of facilities to ensure continued delivery of essential services. For example, heating, ventilating and air conditioning equipment are utilized by hospitals to ensure that contaminated air is confined to a specified area of the facility, such as an isolation room or patient ward. If computer systems used to maintain these systems were to fail, any resulting climate fluctuations could adversely affect patient safety.

The facility-related systems area is difficult to gauge because many of these systems involve a combination of items made by different manufacturers. Year 2000 compliance must be determined for each element. Accordingly, the manufacturer must contact all of its suppliers to determine whether each of the applicable parts of the facility system is compliant. This process can take a long time to complete, and VHA is concerned that it may not have sufficient lead time to replace the product or have it made compliant. The VHA Year 2000 Project Manager informed us that VHA will continue to send follow-up letters to nonresponding manufacturers, as well as work with the Year 2000 Subcommittee on Facilities of the federal government's CIO Council Committee to increase manufacturer response.

A fourth area of concern relates to the Year 2000 compliance status of VHA's biomedical device inventory. Because VHA relies on the manufacturers for compliance information on their products, it has sent a series of letters to the manufacturers requesting information on the compliance status of their devices. About 70 percent of the manufacturers on its list of suppliers have responded with information on their devices; but some high-profile manufacturers<sup>22</sup> have yet to respond. Until the remaining manufacturers respond, VHA will not know the extent to which its current biomedical device inventory is Year 2000 compliant and the cost associated with making its devices compliant. Also, the Food and Drug Administration (FDA) has sent letters to 16,000 biomedical equipment manufacturers. To date, about 10 percent of these manufacturers have responded. The detailed results of our review of VA's and FDA's Year 2000 biomedical device programs will be provided in a separate report.

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<sup>22</sup>A high-profile manufacturer is one whose products are (1) high cost (more than \$250,000 per unit), (2) high volume (multiple units at each VHA medical center) or (3) used to provide critical care or life support functions.

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Lastly, although VHA medical facilities have prepared hospital contingency plans, as required by the Joint Commission on Accreditation of Healthcare Organizations, our review showed that these plans do not specifically address Year 2000-related failures. Because VHA medical facilities, like other health care facilities in the public and private sectors, are highly dependent upon information technology to carry on their business, Year 2000-induced failures of one or more mission-critical systems can have a severe impact on their ability to deliver patient care. This risk of failure is not limited to the medical facilities' internal information systems, but includes information and data provided by their business partners—other federal, state, and local agencies as well as local and international private entities—and services provided by the public infrastructure, including power, water, transportation, and voice and data communications companies. VHA also relies on information provided by the manufacturers. VHA cannot, by itself, ensure that its systems-related software applications and/or products are Year 2000 compliant. Accordingly, it is critical that VHA develop business continuity and contingency plans to address the potential Year 2000 failures induced by its business partners and infrastructure service providers, especially those manufacturers who have not provided compliance information to VHA on their products.

VHA's Year 2000 Project Manager has acknowledged the need for Year 2000 business continuity and contingency plans. He told us that the Year 2000 Project Office has informed VISNS and medical facilities that they need to address Year 2000-induced failures in their business continuity and contingency plans. Furthermore, VHA also plans to develop a contingency planning guidebook that will assist the medical facilities in preparing Year 2000 business continuity and contingency plans to address all VHA systems and products that may affect patient safety. However, he did not know when the guidebook will be finalized and distributed to the medical facilities for implementation.

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## Conclusions

VBA has made progress in responding to the Year 2000 computer crisis. However, it faces risks in several areas. It has made limited progress in making two key mission-critical applications compliant. For example, computer analysts responsible for renovating the compensation and pension online application have been working on other information technology initiatives, including special projects. VBA also has to reassess some of the COTS products that the vendor previously stated were fully Year 2000 compliant. In addition to these risks, except for the Insurance Service, VBA has not developed business continuity and contingency plans

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for its program services to ensure that they would continue to operate if Year 2000 failures occur. Not adequately addressing these concerns could delay or interrupt benefits to veterans.

VHA also has made progress on the Year 2000 problem. However, it also faces several remaining risks because it has not completed Year 2000 assessments of software applications developed or modified by its medical facilities. Furthermore, it still lacks a great deal of compliance information from manufacturers that provide it with COTS products, facility-related systems and equipment, and biomedical devices. These uncertainties are all the more worrisome in light of VHA's lack of Year 2000 business continuity and contingency plans. Until these concerns are addressed, VHA lacks assurance that its delivery of medical care to veterans will not be delayed or interrupted by Year 2000 failures.

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## Recommendations

To reduce the likelihood of delayed or interrupted benefits, we recommend that the Secretary of Veterans Affairs, with support from VBA's Chief Information Officer (CIO), ensure that VBA:

- Reassesses its Year 2000 mission-critical efforts for the compensation and pension online application and the Beneficiary Identification and Record Location Sub-System, as well as other information technology initiatives, such as special projects, to ensure that the Year 2000 efforts have adequate resources, including contract support, to achieve compliance in time.
- Establishes a milestone for the contractor-developed business continuity framework and subsequent critical dates for the preparation of business continuity and contingency plans for each core business process or program service so that mission-critical functions affecting benefits delivery can be carried out if software applications and COTS products fail. These plans should provide a description of resources, staff roles, procedures, and timetables needed for implementation.

We also recommend that the Secretary, with support from the VHA CIO, ensure the rapid development of business continuity and contingency plans for each medical facility so that mission-critical functions affecting patient care can be carried out if software applications, COTS products, and/or facility-related systems and equipment do not function properly. These plans should address issues such as when to invoke alternative solutions and/or options if the manufacturer, who VHA depends on for compliance information, does not submit any. The plans also should



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describe resources, staff roles, procedures, and timetables needed for implementation.

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## Agency Comments and Our Evaluation

In commenting on a draft of this report, VA concurred with all three of our recommendations. VA stated that it is committed to ensuring that its benefit and health care services to veterans will not be adversely affected by the Year 2000 problem and it has applied dedicated resources to address these issues.

However, VA stated that although this report recognizes the progress it has made in mitigating Year 2000 problems, VA does not believe that statements in the report adequately reflect its efforts. VA was concerned that statements in the report could be taken out of context and unnecessarily alarm veterans. We believe, however, that the report accurately reflects VA's Year 2000 efforts and our resulting concerns. The report raises concerns surrounding the renovation of two key VBA mission-critical applications, COTS software products, and contingency planning, and the Year 2000 compliance status of VHA's locally developed software applications, COTS products, facility-related systems, and biomedical devices. Failure to address these concerns may delay or interrupt the issuance of benefits and the provision of medical care to veterans.

In addition, VA stated that it was concerned that the report portrayed issues, such as COTS products, facility-related systems, and biomedical equipment, as unique to VA. VA stated that, like any other consumer of these products, it is dependent upon manufacturers' disclosure of their Year 2000 compliance, and some manufacturers are reluctant to supply compliance information on their products despite VA's attempts to obtain it. We have revised the report to reflect that these issues are not unique to VA.

Further, VA stated that since some manufacturers indicated that compliance information will not be available until late 1998, it will not spend what it termed unnecessary time developing continuity of business plans based on unrealistic assumptions. VA also stated that the expectation of its having compliance plans in place today is unrealistic considering that we just issued our Business Continuity and Contingency Planning Guide exposure draft in March 1998. We disagree with VA on these issues. First, our February 1997 exposure draft of the Year 2000 Assessment Guide called for agencies to develop realistic contingency plans to ensure

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the continuity of their core business processes. Second, our May 1997 report reiterates the need for agencies, including VA, to develop contingency plans for their major mission-critical business processes. Since our May 1997 report, only VA's Insurance Service has developed such a plan. Third, because VA is dependent upon information from service providers and/or manufacturers who have yet to report on the compliance status of their services and/or products, it is critical that VA develop business continuity plans and contingency plans to address these services and/or products in the event that VA does not receive the information on the date promised. Further, if service providers and/or manufacturers provide assurance that their services and/or products are compliant, VA still needs to develop business continuity and contingency plans in the event that these services and/or products do not operate or do not function properly when processing data related to the Year 2000.

Lastly, VA described actions it has taken and planned to implement our recommendations, as well as a number of technical suggestions to this report. These comments have been incorporated into the report as appropriate and are reprinted in appendix I.


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As agreed with your office, unless you publicly announce the contents of this report earlier, we will not distribute it until 30 days from its date. At that time, we will send copies to the Ranking Minority Member of the Subcommittee on Oversight and Investigations, House Committee on Veterans' Affairs, the Chairmen and Ranking Minority Members of the Subcommittee on Benefits, House Committee on Veterans' Affairs, and the Subcommittee on Health, House Committee on Veterans' Affairs. We will also provide copies to the Chairmen and Ranking Minority Members of the Senate and House Committees on Veterans' Affairs and the Senate and House Committees on Appropriations, the Secretary of Veterans Affairs, and the Director of the Office of Management and Budget. Copies will also be made available to others upon request.

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Please contact me at (202) 512-6253 or by e-mail at *willemsenj.aimd@gao.gov* if you have any questions concerning this report. Major contributors to this report are listed in appendix II.

Sincerely yours,

A handwritten signature in cursive script that reads "Joel Willemsen". The signature is written in black ink and is positioned below the text "Sincerely yours,".

Joel C. Willemsen  
Director, Civil Agencies Information Systems

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## Abbreviations

CIO	chief information officer
COTS	commercial-off-the-shelf
FDA	Food and Drug Administration
OMB	Office of Management and Budget
VA	Department of Veterans Affairs
VBA	Veterans Benefits Administration
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VISTA	Veterans Health Information Systems Architecture

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# Comments From the Department of Veterans Affairs

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



DEPARTMENT OF VETERANS AFFAIRS  
ASSISTANT SECRETARY FOR POLICY AND PLANNING  
WASHINGTON DC 20420

JUL 31 1998

Mr. Gene Dodaro  
Assistant Comptroller General  
Accounting and Information Management Division  
U. S. General Accounting Office  
441 G Street, NW  
Washington, DC 20548

Dear Mr. Dodaro:

This is in response to your draft report, **YEAR 2000 COMPUTING CRISIS: Progress Made in Compliance of VA Systems, But Concerns Remain** (GAO/AIMD-98-237). Although GAO's draft report recognizes the progress VA has made in mitigating Year 2000 (Y2K) problems, we do not believe that the statements in the report adequately reflect VA's efforts. Additionally, we are concerned that some of the statements in the draft report could be taken out of context and unnecessarily alarm our veterans.

The Department of Veterans Affairs is committed to assuring that its benefit and health care services to our nations veterans will not be deterred by the Y2K problem. Accordingly, we have applied dedicated resources to address the issues that Y2K raises. We find your recommendations helpful and concur in them.

We are concerned, however, that the report portrays issues with commercial-off-the-shelf (COTS) products, facility-related systems, and biomedical equipment as unique to VA. Like any other consumer of these products, VA is dependent on manufacturers' disclosure of their Y2K compliance. However, some vendors have become reluctant to supply compliance information on their products and services despite VA's extensive attempts to obtain it. In fact, in an independent Y2K review, Booz, Allen and Hamilton cited VA's handling of the assessment and mitigation of Y2K impacts on biomedical equipment as an industry best practice.

In his July 14, 1998, Y2K address, the President cited business's reluctance to disclose compliance information. He proposed a "Good Samaritan" law to encourage the disclosure of vendor compliance activities. In addition, the President's Council on Y2K Conversion is taking efforts to foster vendor compliance disclosure. Hopefully, the President's efforts, in conjunction with those of the Y2K Conversion Council, will encourage factual disclosure by these service providers as soon as possible. Since many service providers have indicated that compliance information will not be available

See comment 1.

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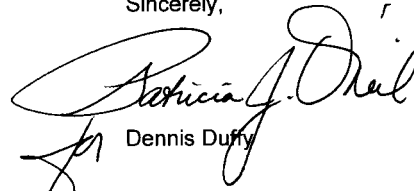
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2. Mr. Gene Dodaro

until late 1998, VA will not spend unnecessary time developing continuity of business plans based on unrealistic assumptions.

The enclosure describes our actions taken and planned to implement your recommendations. It also contains recommended corrections to the draft. I appreciate the opportunity to review the draft of your report.

Sincerely,



Patricia J. O'Neil  
for Dennis Duffy

Enclosure

Enclosure

DEPARTMENT OF VETERANS AFFAIRS COMMENTS  
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**To reduce the likelihood of delayed or interrupted benefits, GAO recommends that the Secretary of Veterans Affairs, with the support from VBA's Chief Information Officer (CIO), ensure that the department:**

- **reassesses VBA's Year 2000 mission-critical efforts for the compensation and pension online application and the Beneficiary Identification and Record Location Sub-System, as well as other information technology initiatives, such as special projects, to ensure that the Year 2000 efforts have adequate resources, including contract support, to achieve compliance in time; and**

Concur in Principle - The VBA Year 2000 effort has been the subject of several project assessments, including the recent VA Inspector General's review, and the review by Booz-Allen Hamilton. In addition, VBA's Year 2000 Project Manager and Oversight team, including SRA International, have been continually involved in monitoring the efforts of the Compensation and Pension and BIRLS renovations. Finally, VBA's Information Technology Investment Board (ITIB) is in place to approve information technology requests, including special projects.

We are pleased to report the Compensation and Pension online application is 59% compliant, up significantly from the 18% cited in GAO's draft report. This increase reflects the precision at which the plan for the Compensation and Pension renovation is being executed. This plan, initially developed in the Fall of 1997, is virtually on schedule with the C&P on-line in the renovation process now. The remaining milestones for the Compensation and Pension on-line application include:

all code through toolset by 8/20/98  
renovation complete by 9/4/98  
unit testing complete by 9/29/98  
certification of modules by 10/2/98  
installation by 10/5/98

- **establishes a milestone for contractor-developed business continuity framework and subsequent critical dates for preparation of business continuity and contingency plans for each core business process or program service so that mission-critical functions affecting benefits**



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**delivery can be carried out in the event that software applications and COTS products do not function properly. These plans should provide a description of resources, staff roles, procedures and timetables needed for implementation.**

Concur - A Project Plan with milestones has been established. This project plan is a living document, and will be updated during the life of the project.

**Also to enhance VA's ability to provide medical care to veterans without major delays or interruptions by the Year 2000 problem, GAO recommends that the Secretary, with the support from the VHA CIO, ensure the expeditious development of business continuity and contingency plans for each medical facility so that mission-critical functions affecting patient care can be carried out in the event that soft ware applications, COTS products, and/or facility-related systems and equipment do not function properly. These plans should address issues such as when to invoke alternative solutions and/or options if the manufacturer, who VHA is dependent upon for compliance information, is not forthcoming with needed information. The plans also should provide a description of resources, staff roles, procedures and timetables needed for information.**

Concur - Contingency plans are required by the Joint Commission on Accreditation of Healthcare Organizations, and VHA medical facilities have such plans in place. These plans ensure the continuation of medical care delivery, including biomedical equipment, patient scheduling and heating, ventilation and air-conditioning. VHA is developing additional guidance for medical facilities to ensure that potential Year 2000 problems will be addressed and mitigated to assure continued functioning, such as supply lines, pharmaceutical availability, staffing resources, electricity, water, telecommunications and elevator service.

General Comments:

1. Throughout the report, GAO uses the terms contingency planning and business continuity interchangeably. GAO also refers to the development of business continuity plans either for program services (page 3), mission critical functions (page 11) or core

See comment 2.

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business process (page 24). GAO's "Year 2000 Computing Crisis: Business Continuity and Contingency Planning" guide refers to providing safeguards for core business processes. For consistency, we suggest that GAO refer to business continuity of core business processes throughout the report.

See comment 1.

2. As stated in our cover memo, we are also concerned that GAO portrays the lack of business continuity plans in place today as negatively impacting the veteran. As GAO has indicated in its report, VA has committed to having in place business continuity plans for our mission critical business processes consistent with GAO's and the Office of Management and Budget's guidelines. However, the expectation of having plans in place today is unrealistic considering that GAO just issued its guide in March 1998 and very few actual business continuity plans exists today.

See comment 1.

3. It would also be premature to have all business continuity plans in place today until we have factual information concerning the availability of such services as electricity, water and telecommunications. In addition, at the time this report was drafted, only two completed business continuity plans existed in the federal government: 1) the Social Security Administration and 2) VBA's Insurance Service. GAO should recognize that VBA was one of the first agencies in developing business continuity plans within the Federal government.

See comment 3.

4. The reluctance by some business entities to disclose compliance information and VHA's efforts to obtain it is lightly cited in the report. (While we recognize that GAO will issue a separate report on biomedical equipment, we are providing these comments for the sake of a reader who may not see the other report.) GAO is critical of VHA's efforts to address issues with biomedical equipment and medical devices. The results of VHA's assessment of this area show that at this time, out of 125, 000 models of medical devices and equipment over the entire system, there are 855 models that are not compliant. About 20 percent of these will not be made compliant by the manufacturer. We have not been able to obtain responses from about 30 percent of manufacturers of the noncompliant equipment. At least 201 manufacturers have returned VHA inquiries "Return to Sender." In some of these cases VHA made up to four attempts to get a response over a 10-month period. Another 233 manufacturers have not responded at all, despite repeated inquiry on our part. We continue to try to resolve Year 2000 issues with manufacturers. In fact, VHA's handling of the Year 2000 impact on biomedical equipment was recognized in an independent Year 2000 review by Booz-Allen Hamilton as an industry best practice. Positive action on the part of

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manufacturers of this equipment and other commercial products is critical to VHA's ability to avert a Year 2000 crisis.

5. VHA is working closely with the Department of Defense (DoD) healthcare system to optimize sharing of information. We are also working with the National Institutes of Health, Centers for Disease Control and Prevention and the Food and Drug Administration to address common problems with biomedical, clinical and laboratory equipment and facilities. We have also been working with the National Patient Safety Partnership to increase awareness of compliance problems within the healthcare industry. Only a few weeks ago VHA joined the American Hospital Association, the American Medical Association, the American Nurses Association and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) in calling for a joint effort between business and industry organizations to identify and address potential safety problems resulting from Year 2000 problems and to create a single national clearinghouse for Year 2000 information that can be readily accessible to anyone.

Technical Comments/Corrections:

Page 2, Paragraphs 1 and 2

The wording that VBA has made "important progress" should be added to the first sentence to be consistent with page 8. The statement that VBA has "made little progress" in renovating two mission-critical applications is misleading and will be taken out of context to reflect VBA's overall progress. In GAO's June 25th briefing before the Senate Committee on Veterans Affairs, GAO stated that "limited progress" had been made renovating these two key applications. VBA has put substantial effort into renovating these two applications; however, they have not completed the renovation phase. Recommend changing to "VBA has not yet completed the renovation of two key mission-critical...".

Page 2, Paragraph 3

We are concerned about the negative wording in the second sentence. The fact is that VBA has not yet completed renovation of these two key mission-critical software applications. As of 30 June 1998, 86% of the entire Compensation and Pension

See comment 3.

Now on p. 1.

See comment 4.

See comment 5.

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application modules are compliant. Most of these modules must be compliant to pay our veterans and their beneficiaries, not just the on-line modules. Regarding the Beneficiary Identification and Record Locator Sub-System (BIRLS), the contractor has renovated this application and it is in testing, which is more than "little progress".

Recommend rewording the sentence to: "For example, VBA has not yet completed renovation of the Compensation and Pension system, and has had contractual problems with the renovation of BIRLS."

The COTS problem referred to by GAO is not unique to VBA. This vendor's announcement affects customers worldwide. In addition, the vendor has not announced that its products were non-compliant. They announced that they were assessing and testing their product line for Year 2000 compliance. VA is a leader in reassessing this particular vendor's product line. For example, since this impacts customers worldwide, VA and VBA's year 2000 Project Managers immediately presented their concerns and findings about this vendor's recent announcement to the CIO Council Committee on Year 2000.

Recommend changing the sentence to: "VBA also has to reassess some of the commercial-off-the-shelf (COTS) products because one of the worlds largest COTS providers, who initially informed VBA in writing that its products were Year 2000 compliant, recently announced that it was assessing and testing its product line for compliance."

Page 3, Paragraph 2

The wording that VHA has "made major progress" should be added to the first sentence to be consistent with page 15 of the draft report. The statement that VHA has not completed its assessment and that VHA does not know the full extent of the problem is not accurate and inconsistent with GAO's findings on page 15. VHA is fully aware of the extent of the problem and it is the lack of vendor disclosure about the compliance of vendor provided products that has created the uncertainty.

We recommend that the GAO concerns be addressed as two separate thoughts: 1) those areas within VHA's control (non-mission critical local applications, and 2) vendor provided products and services in which VHA must rely on vendor disclosures.

Now on p. 2.

See comment 6.

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VHA has completed its inventory of locally developed applications and has assessed 75% of these applications. So far, only 16% are noncompliant. In addition, VHA has declared all local applications as non-mission critical since they deal only with routine local needs such as tracking parking lot assignments and customized management reports.

VHA has also completed its inventory of COTS products, facility systems and biomedical devices nationwide. The problem VA has encountered is the lack of vendor supplied information for COTS products, facility system and biomedical devices. GAO has not made it clear that VHA has taken every step to secure vendor-supplied compliance information. VHA is in the same predicament as any other consumer of these products. We recommend that GAO recognize this fact and cite that VHA's handling of the assessment and mitigation of Year 2000 impacts on biomedical equipment was recognized in an independent Year 2000 review by Booz-Allen Hamilton as an industry best practice.

Now on p. 3.

Page 4, Paragraph 3

See comment 7.

VA has categorized our applications in 11 mission-critical system areas.

Now on p. 6.

Page 8, Paragraph 1

See comment 8.

For consistency, change sentence to read "However, concerns remain surrounding the renovation of two key mission-critical applications, reassessment of COTS software products, and business continuity planning."

Now on p. 7.

Page 11, Paragraph 1

See comments 2 and 8.

Change to "Despite VBA's progress in addressing the Year 2000 problem, areas of risk remain. These include (1) not yet completing the renovation of two key mission-critical applications, (2) the unexpected need to reassess its COTS software products that VBA was previously assured by a major vendor in writing as fully Year 2000 compliant, and (3) the lack of business continuity plans for core business processes."

Now on p. 7.  
See comment 9.

Page 11, Paragraph 2, second sentence. The word applications should be made singular; there is one Compensation and Pension online application. However, the above comments apply. All of the Compensation and Pension modules are required to

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be compliant so that our entire population may be paid. In addition, the milestones for the renovation of Compensation and Pension and current renovation status should be included, so that the reader will understand that the renovation of Compensation and Pension is progressing well at the present time. These milestones were provided in the response to the first recommendation.

Page 12, Paragraph 1 The contractors tasks are misstated. The contractor has always been tasked with making renovations in addition to analyzing the software code. It is correct that we have found that only approximately 35 percent of the renovations can be made using the tool. This is because our code contains dates with prefixes from three centuries (19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup>) and no tool on the market can handle three centuries.

Recommend correcting the wording for this paragraph to: "To address this problem, VBA contracted for additional Year 2000 support. The contractor was tasked with analyzing the software code using a software conversion tool, providing the tool's recommendations to VBA analysts, and making renovations, once approved by VBA analysts. However, the Project Manager informed us that only 35 percent of the renovations could be made using the tool. The remaining 65 percent must be made by the analysts because they involve dates with prefixes from three centuries (19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup>) that the tool cannot handle."

Page 12, Paragraph 2

Change applications to application in first sentence and end of the first sentence to read "...specifically the Beneficiary Identification and Record Locator Sub-System."

Page 13, Paragraph 2

Change to " VBA will have to reassess some of its COTS products, because one of the world's largest COTS vendors, who initially informed VBA in writing that its products were complaint, recently announced that they were beginning to assess and test their product line for Year 2000 compliance." Add to end of paragraph, "VBA also proactively briefed the CIO Council Committee on year 2000 on its findings and recommendations concerning this particular vendors products and Year 2000 compliance strategy."

Now on p. 8.  
See comment 10.

Now on p. 8.  
See comment 11.

Now on p. 9.

See comment 12.

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Now on p. 9.  
See comment 2.

Page 13, Paragraph 3

First sentence should refer to core mission critical business processes (see previous comments and paragraph 1, page 14 of GAO draft report).

Now on pp. 10 and 13.

Page 15, Paragraph 2 and Page 21, Paragraph 2

See comment 1.

VHA medical facilities already have contingency plans in place. Contingency plans are required by the Joint Commission on Accreditation of Healthcare Organizations and are in place at each medical center to deal with potential Year 2000 problems. These plans ensure the continuation of medical care delivery, including biomedical equipment, patient scheduling, and heating, ventilation and air conditioning. Additional guidance is being developed to provide medical facilities guidance for maintaining operations on January 1, 2000, such as providing supply lines, pharmaceutical availability, staffing resources, electricity, water, telecommunications and elevator service.

Now on p. 10.  
See comment 13.

Page 16, Paragraph 1. "VHA reported at that time that about half of the 147 VISTA software applications would have to be renovated, as would about 10 percent of the VHA corporate systems applications."

VHA requests that this statement be re-written to read – "VHA reported at that time that about 8 percent of the VISTA software applications would have to be renovated, as would about 10 percent of the VHA corporate systems applications."

Quoting the percentage of VISTA needing renovation, rather than using the number of applications, provides consistency with the VHA corporate systems. The February 2, 1998, OIRM report that VHA submitted to reflect its status as of the end of January, 1998, quoted the Project Office as saying the VISTA inventory of 147 applications is 100% assessed for Year 2000 compliance. Currently, 57% of VISTA applications are Year 2000 compliant. The results of assessment show that approximately eight percent of the total VISTA code, within 73 applications, will require renovation (re-coding) to achieve compliance.

Now on p. 11.  
See comment 14.

Page 17. "The VHA Year 2000 project manager told us that VHA has decided to hire a contractor to conduct an independent verification and validation of VHA's mission-critical systems as an added precaution. VHA is currently developing the requirements

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and a statement of work for this effort and expects to award a contract by the end of September 1998. It is also expected to have independent verification and validation completed by the end of December 1998. These efforts are consistent with our April 1998 recommendation to the Chairman of the President's Council on Year 2000 Conversion that agencies develop an independent verification strategy to assess their Year 2000 activities."

VHA requests that this statement be re-written to read – "The VHA Year 2000 project manager told us that as an added precaution, VHA has decided to hire a contractor to conduct an independent verification and validation of VHA's compliance process for mission-critical systems (especially VHA Corporate Systems). VHA will be developing the requirements and a statement of work for this effort and expects to award a contract by the end of September 1998. It also hopes to have independent verification and validation completed by the end of December 1998."

VHA wants to define quality monitoring processes to assess the organization's ability to achieve compliance. The contractor will define and set in place quality monitors, assess the Year 2000 work being done, or that which has been done, and serve to corroborate or to certify that the quality monitors were indeed being met by both HQ and field facilities.

Now on p. 11.

Page 18, Paragraph 2

See comment 15.

Change sentence to read "The most recent information shows about 76 percent of these non-mission critical applications were assessed as of May 31, 1998. So far, 16% of these applications are noncompliant."

Now on p. 13.

Page 20, Paragraph 2

See comment 11.

Change name of Building Systems Subgroup to the CIO Council Committee on Year 2000 Subcommittee on Facilities.

Now on p. 13.

Page 21, Paragraph 1

See comment 11.

Delete last sentence.



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Now on p. 14.

Page 22, Paragraph 3

See comment 8.

Change sentence to read " It has not completed the renovation of two key mission-critical applications, including the compensation and pension online application...".

Now on p. 14.

Page 23, Paragraph 1

See comment 16.

Change to "Aside from these risks, with the exception of the Insurance Service, VBA has not developed business continuity plans for core business processes to ensure..."

Now on p. 14.

Page 23, Paragraph 2

See comment 17.

Now on p. 14.

As noted in previous comments, VHA has contingency plans in place for each medical center (see page 15 and page 21 comments).

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The following are GAO's comments on the Department of Veterans Affairs' letter dated July 31, 1998.

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## GAO Comments

1. Discussed in "Agency Comments and Our Evaluation" section of report.
2. Our report now refers to "core business processes" as used in our Business Continuity and Contingency Planning Guide.
3. As we stated in our report, the detailed results of our review of VA's and FDA's Year 2000 biomedical devices will be provided in a separate report.
4. We modified the report to reflect "limited progress" as communicated during our briefing before the Senate Committee on Veterans' Affairs staff.
5. Our report now refers to "limited progress" when discussing VBA's efforts in renovating two of its key mission-critical software applications—compensation and pension online, and the Beneficiary Identification and Record Locator Sub-System. Regarding COTS products, we have clarified the report to indicate that this problem is not unique to VBA. We also replaced "announced" with "told" and added information to point out that a particular vendor is still assessing and testing its products for compliance.
6. We modified the report to delete the word "considerable." Our statement that VHA has not completed its assessment and that it does not know the full extent of the Year 2000 problem at its medical facilities is accurate and consistent with the findings in the report. For example, because VHA is relying on the manufacturers of COTS products, facility-related systems, and biomedical devices to determine the compliance status of their products, it is critical that VHA obtain this information from the manufacturers. It should also consider contacting the manufacturers of COTS products and facility-related systems, who have yet to provide VHA with compliance information, by telephone and/or meet with them. Moreover, given the uncertainties surrounding the compliance status of its local software applications, COTS products, facility-related systems, and biomedical devices, VHA needs to develop business continuity and contingency plans to ensure that core business processes can be carried out in the event that its systems and products do not function properly on and after January 1, 2000.
7. Report revised to reflect agency comments.

8. The report now states that our concerns relate to renovation of two key mission-critical applications.

9. Report revised to say “application” and reflect milestones for compensation and pension online application.

10. We have added information to clarify the role of the contractor in renovating VBA’s compensation and pension online application.

11. Report changed to reflect agency comments.

12. We added language explaining that according to VBA’s Year 2000 Project Manager, one of VBA’s largest vendors told VBA that some of its products were not compliant and it was beginning to assess and test its product line for Year 2000 compliance.

13. As stated in VA’s comments to our draft report, 73 (about half) of the 147 VISTA software applications require renovation to achieve compliance, as would about 10 percent of the VHA corporate systems applications.

14. We added information to explain VHA’s plans to hire a contractor to conduct an independent verification and validation of VHA’s compliance process for mission-critical systems, especially its corporate systems.

15. Added the percentage of noncompliant applications within the number of locally developed and/or modified VISTA applications assessed as of May 31, 1998.

16. Report modified to include “with the exception of the Insurance Service.”

17. Report modified to include “Year 2000” in discussion of business continuity and contingency plans.

# Major Contributors to This Report

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Accounting and  
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## Ordering Information

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