



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D.C. 20410-4500

OFFICE OF THE INSPECTOR GENERAL

August 27, 1999

99-DP-166-0003
Audit-related Memorandum

MEMORANDUM FOR: Saul Ramirez, Deputy Secretary, SD

FROM: Benjamin K. Hsiao, Director, Information Systems Audit Division, GAA

SUBJECT: Review of the Department's Overall "Year 2000 Business Process Continuity Contingency Plan and Supporting Year 2000 Contingency Plans."

Our office has completed our review of the Department's overall "Year 2000 Business Process Continuity Contingency Plan and Supporting Year 2000 Contingency Plans." The overall plan includes 30 supporting plans for core business functions. We found that the Department did not follow the General Accounting Office's (GAO) and industry accepted standards in developing the plans. We also found that many of the plans lack clarity and detail and show no evidence of coordination with the other program areas or operations staff. Additionally, a review of HUD's contingency plan testing efforts disclosed that over a third of the supporting plans will not be tested. Several contingency plans either did not meet their scheduled test completion dates or do not have a test completion date. Also, approximately a third of the plans have not been updated since April 26, 1999 although updates are required quarterly. Lastly, we noted that the current testing schedule for those plans to be tested showed completion dates may not provide enough time for HUD to correct and revalidate their contingency plans before the Year 2000 (Y2K).

The GAO's "Year 2000 Computing Crisis: Business Continuity and Contingency Planning" guide requires that every federal agency ensure the continuity of its core business processes by identifying, assessing, managing, and mitigating its Y2K risks. To mitigate these risks, each agency must have business continuity and contingency plans in an effort to reduce the risk of Year 2000 business failures. A Y2K contingency plan can be defined as a plan for responding to the loss or degradation of essential services due to a Y2K problem in an automated system. In general, a contingency describes the steps the enterprise would take, including the activation of manual or contract processes, to ensure the continuity of its core business processes in the event of a Y2K induced system failure. In addition, GAO requires that test plans be developed. Test plans should address the following: test objectives; test approach; required equipment and resources; necessary personnel; schedules and locations; test procedures; expected results; and exit criteria. GAO's guidelines and industry accepted business practices require that detailed business contingency plans be developed and tested well before the failure date, especially when the failure date is as well known and publicized as the Year 2000.

Finding #1: Y2K Contingency Plans Lack Clarity and Details to Successfully Continue HUD Operations Should Y2K Disruptions Occur.

Our review found that many of the supporting Y2K contingency plans lack the clarity and details necessary to produce a minimum acceptable level of outputs and services in the event of failures of internal or external mission critical information systems and services. Similar issues were also found by the PriceWaterhouseCoopers IV&V team contracted by the Department to review the plans. Some examples of deficiencies found are presented below.

- There were insufficient details developed for the Housing plans (4.1.1, 4.1.2, 4.2.1, 4.3.1, 4.3.2, 4.4.1, 4.4.2, 4.7.1). The objective statements for each of the plans set the expectation that the plan detail will contain the following: 1) outlines for actions necessary to occur prior to January 1, 2000, 2) methods for aborting functions quickly and safely, 3) detailed actions needed to operate in degraded mode, and 4) the list of actions to be taken when failure has been resolved and prior to resuming normal business. Our review found that the plans do not satisfy the stated objectives in these areas. It appears that while one template was used for the various program areas, the details were not fully developed and customized for each system. For example, Section V of each plan provides the criteria for invoking the plan. However, for each of the plans, no criteria was given except for the statement that "This contingency plan will be invoked in November 1999 because it deals with assuring a smooth conversion and mitigating the impact of Year 2000 failures." There were no explanations given as to the events that would occur in November to trigger invoking the plans. Also, we found that the plans do not address the possibility of single system or partial failures where some, but not all, of the critical applications and/or functions will fail. Additionally, customized details are needed to address steps to be taken if the automated systems and support are not available. Further details are also needed to address steps to be taken by the staff to offset the potential of corrupt data transactions with business partners. Finally, task assignments and responsibilities cannot be determined because the accountable individuals or organizations are not identified in the plans. Similar deficiencies were also found in other plans.
- At least two of the plans (4.1.2 and 4.7.4) state that the business function will be aborted if supporting functions fail. However, the plan does not address alternatives for operating during the period of failure. The implication is that the business function will cease to operate until such time as the system failure is fixed. Contingency plans should be developed to address how to continue those business functions in the event of Y2K system failures.
- The PriceWaterhouseCoopers IV&V team found that the Fair Housing/Equal Opportunity (FHEO) Investigations plan (4.8.2) did not detail all the risks and threats that may occur to all business partners should the system fail. For instance, the plan excluded details as to how the FHEO function affects the Office of the General Counsel and Computer Services Group. In turn, these organizations are not represented on the Business Resumption Team.
- The Commercial Credit Card plan (4.10.6) stated there were no systems internal to HUD that support this business function. However, the HUDCAPS system is an integral part of this function in providing both disbursement and accounting processes for recording transaction obligations and expenses. We found no detailed discussions of this in the plan.

Recommendations:

We recommend the Deputy Secretary direct the Chief Information Officer to ensure that the Y2K contingency plans contain the details necessary for HUD to successfully continue operations in the event of Y2K failures by ensuring all plans:

- 1A. Contain contingencies customized to fit each system and to the level of detail needed to ensure instructions can be followed in a Y2K emergency by addressing the following Departmental objectives:
 - Outlines for actions necessary to occur prior to January 1, 2000;
 - Methods for aborting functions quickly and safely;
 - Detailed actions needed to operate in degraded mode; and
 - A list of actions to be taken when failure has been resolved and prior to resuming normal business.
- 1B. Consider the following:
 - Single point of failure contingencies;
 - Actions taken to offset the potential of corrupt data transactions with business partners; and
 - Identification of individuals and organizations that are assigned tasks and responsibilities.
- 1C. Address alternatives for operating during the period of failure.
- 1D. Include representation from the affected program offices on the Business Resumption Team.
- 1E. Address all the risks and threats that may occur to internal and external business partners should the system fail.

Finding #2: More Coordination Needed Between the Program Areas and the Operations Offices Named in the Plans for Providing Alternative Processing.

Our review of the supporting Y2K contingency plans found that more than half (17 out of 30) of the plans showed little evidence of coordination among the various program areas or between the operations offices to ensure plans can be deployed when needed. Some examples of deficiencies found are presented below.

- The plan written by the Office of the Chief Financial Officer (CFO) for the Public and Indian Housing, Community Planning and Development, Housing, and the Office of Purchasing and Contracting (4.5.1), addresses actions under four different core business functions. However, the Administer Grants and Subsidies, and Administrative and Management Information Systems functions address only the CFO's responsibilities and do not encompass planning responsibilities of the programs areas. For example, the Risk/Threat statement in the plan 4.5.1 refers to the timely Section 8 Tenant-based payments to Public Housing Authorities, landlords, or agents. However, check production is only one element of the business process. Although the plan indicates that checks will be produced, it does not address how recipients

will be notified of payment delays. In addition, the plan does not describe the process for handling Section 8 Housing payments which involve the submission of an invoice before a payment can be sent.

- The PriceWaterhouseCoopers IV&V team found that detailed plans have not been coordinated to ensure solutions to contingencies do not conflict. For example, the Voice and Data Communications (4.11.5) plan developed by the Office of Administrative Management Services (OAMS) addresses contingencies related to failures of utilities, voice telecommunications, mail and packaging services. However, the OAMS plan appears to have been written without knowledge of potential increased workload requirements that may result from invoking other contingency plans. For example, the subsidies, grants, loans and administrative payments (4.5.1) plan developed by the Office of Procurement and Contracts (OPC) includes increased use of voice telecommunications and mail. OAMS may experience an unexpected workload increase if the OPC contingency plans have to be invoked.
- We found no evidence of coordination with the Department's Field Accounting Center in Fort Worth, Texas. The Grants and Subsidies plans (4.5.1, 4.5.3, 4.7.1, 4.7.2, 4.7.3, 4.7.4) place great reliance on the Field Accounting Center to manually process payments through the Treasury Electronic Certification System (ECS) terminals should their systems fail. However, the plans show no evidence that consideration was made for the additional work load at the Center. Thus, there is no assurance the increased workload could be handled by the manual processing of payments through the ECS terminals.
- The plans may not have been disseminated to all applicable operations offices which are responsible for providing the alternative means for operating during the period of failure. For example, the Director of Administrative Accounting at the Department's Field Accounting Center in Fort Worth, Texas has not received a copy of the applicable Y2K contingency plans that may affect his operations. It is critical that these offices receive copies of all applicable contingency plans that may affect their operations as additional resources may be required if system failures occur.
- The plan for Payroll and Management Information System (MIS) functions (4.10.1) with the National Finance Center (NFC) did not adequately address the possibility of a Y2K failure at the NFC. In the event of the failure of the NFC systems, all HUD employees may not receive their payroll. However, the plan only indicates that if the NFC is down, HUD would be subject to direction from NFC regarding its contingency plans. No details were provided as to what actions HUD will take if such a failure occurred. A more detailed coordinated plan should be requested from the NFC and mitigating actions be addressed in the supporting plan. We also found that the resource plan for operating in the contingency mode was weak. The options ranged from use of current processing resources outside of HUD to temporarily leasing facilities, hardware, software, and communications until the problem is resolved. However, the plan does not go into enough detail and lacks a coordinated decision process. For example, although the plan states that HUD may exercise its option of temporarily leasing facilities such as hardware, software, and communications, there are no details provided for such arrangements. There was no mention of what hardware, software, and communication requirements will be needed and whether such requirements were coordinated with the lessor and/or other vendors to ensure their availability.

Recommendations:

We recommend the Deputy Secretary direct the Chief Information Officer to ensure the plans:

- 2A. Provide sufficient coordination among the various program areas and the operations offices affected by the Y2K contingency plans to ensure proper planning is performed and that solutions to contingencies do not conflict.
- 2B. Consider the burden of additional workloads to alternative sites, such as the Department's Field Accounting Center in Fort Worth, Texas.
- 2C. Are disseminated to all applicable operations offices which are responsible for providing the alternative means for operating during the period of failure. It is critical that these offices receive copies of all applicable contingency plans that may affect their operations. Additional resources may be required if system failures occur.
- 2D. Include contingency measures related to external business partners, such as the NFC, which are critical to HUD's business operations. Whenever possible, external business partners' contingency plans should be obtained so that mitigating actions can be adequately addressed in the Department's contingency plans.
- 2E. Provide more details on the resource requirements for those contingency situations that may require external resources, such as leasing arrangements, to ensure that the required resources will be available if needed.

Finding #3: HUD's Current and Planned Testing of the Supporting Contingency Plans is Inadequate and Places the Department at Risk for the Year 2000.

Our review of the 30 supporting contingency plans found that HUD's current and planned testing efforts are inadequate to ensure that HUD will be able to effectively mitigate the risk of Year 2000 failures. Specifically we found:

- Only one of the 30 supporting contingency plans (4.11.5) has been tested with 11 of the remaining 29 (38 percent) plans indicating that testing was unnecessary (4.1.3, 4.5.1/4.5.2/4.10.2/4.10.3*, 4.7.2, 4.7.3, 4.7.4, 4.8.2, 4.10.6, 4.10.8, 4.10.9, 4.11.1, and 4.11.4);
- Eight of the plans (4.1.1, 4.1.2, 4.2.1, 4.3.1, 4.3.2, 4.4.1, 4.4.2, and 4.7.1) have missed their planned test schedule completion date of June 30, 1999 with no evidence that the plans have been updated to reflect the rescheduled testing dates. We also noted that approximately a third of the plans had not been updated since April 26, 1999 although they are required by HUD's Business Process Continuity Contingency Plan (BPCCP) to be updated quarterly.
- Two of the plans (4.11.2 and 4.11.3) indicated that tests are being performed on an ongoing or periodic basis but there was no scheduled completion date for these tests.

Additionally, five of the plans (4.5.3, 4.8.1/4.8.3*, 4.10.2, 4.10.4, and 4.10.5) are scheduled to be completed by the end of October or November 1999 with two plans (4.6.1, and 4.9.1) scheduled to have the testing completed by December 1999. It is our opinion that this will not allow enough time before the Year 2000 to make the necessary corrections and to revalidate the plans, particularly those plans where testing is scheduled to be completed by December 1999.

Testing of the contingency plans is an essential component of any contingency efforts. Testing determines the adequacy of the plan and the recovery team's ability to react effectively during an emergency. GAO's guidelines for business continuity and contingency planning explains that the objective of business continuity testing is to evaluate whether individual contingency plans are capable of providing the desired level of support to the agency's core business processes and whether the plans can be implemented within a specified period of time. Also, in instances where a full scale test may be too costly, the agency may consider end-to-end testing of key contingency plan components.

HUD's BPCCP requires each responsible party to comprehensively test their plan or plans and that all plans will be sufficiently tested to demonstrate their ability to allow business to be conducted during a Y2K failure. The BPCCP also provides guidelines on the two rehearsal or testing type of methods, i.e. the Desktop Exercise and the Simulation, that the responsible parties should consider when performing their tests. The Desktop Exercise method is a conceptual walkthrough of the contingency plan procedures which would be used to validate the plan. Using this method, questions related to such issues as availability of resources, both internal and external, adequacy of facilities, etc. would be raised and subsequent adjustments made to the plan if necessary. Under the Simulation method, an actual test would be performed on a component or office (or part of the office) of the plan that will simulate a real business contingency situation that would occur.

However, as indicated above, over a third of the contingency plans will not be tested including plans related to critical business functions, key supporting processes, and major infrastructure systems. We believe this places HUD's contingency plans at risk of not being adequately validated to mitigate any Y2K failures. At particular risk are those plans that rely on multiple internal and external interfaces as well as extensive coordination between various program offices. For example, under one plan (4.5.1/4.5.2/4.10.2/4.10.3*) the critical business function entails providing funds to HUD recipients of subsidies, grants, loans, and administrative payments. This plan indicated that testing was not necessary since if a payment system fails and the estimated time the system will not be functional is greater than 30 days, the CFO will begin using manual payments and workarounds. The plan also indicated that upon failure, the grantees will be notified by the applicable program office, mostly through the Voice Response System or a computer interface. Additionally, the contingency response also requires HUD to coordinate with and transmit manually prepared payment data to Treasury via ECS terminals. We believe that only through testing will HUD be able to validate whether sufficient resources will be available and that the manual workarounds will be effective given the extensive coordination required and the reliance on multiple internal and external interfaces.

Also, without validating the capability of contingency plans through testing, HUD may not be able to determine whether certain work around plans are practical or even possible. For instance, one of the work around options under the IDIS contingency plan (4.7.2) requires that on December 30, 1999, operations personnel perform a print screen of most records in order to perform a cross check on December 30, 1999. In our opinion, this may not be a practical option considering this involves approximately 38,000 grantees and 130,000 transactions processed during the fiscal year.

* Note: These plans combined under one contingency plan

Recommendations:

We recommend the Deputy Secretary direct the Chief Information Officer to:

- 3A. Ensure all supporting contingency plans are tested in accordance with the guidelines provided in the BPCCP.
- 3B. Ensure that the supporting plans are revised and updated at least quarterly and that the scheduled test completion dates are identified and included in the supporting contingency plans.
- 3C. Consider accelerating the testing schedule of the plans so that the necessary corrections and revalidation can be made before the Year 2000.

Given the limited time left until the millennium date change, we are requesting a response to this report's recommendations by September 17, 1999 on: (1) action taken; (2) the proposed action and date to be completed; or (3) why action is considered unnecessary. Should you have any questions, or require additional information, please call me or Hanh Do at 708-3444, extension 149 and 147 respectively.

Distribution

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