

---

**REVIEW OF NCES's YEAR 2000  
READINESS PLANS**

---

**FINAL AUDIT REPORT**



**Audit Control Number ED-OIG/A11-90014  
November 1999**

---

Our mission is to promote the efficient  
and effective use of taxpayer dollars  
in support of American education



U.S. Department of Education  
Office of Inspector General  
Washington DC Field Office

---

## **NOTICE**

**Statements that management practices need improvement, as well as other conclusions and recommendations in this report, represent the opinions of the Office of Inspector General. Determination of corrective action to be taken will be made by appropriate Department of Education officials.**

**In accordance with the Freedom of Information Act (U.S.C. § 552), reports issued by the Office of Inspector General are available, if requested, to members of the press and general public to the extent information contained therein is not subject to exemptions in the Act.**

# TABLE OF CONTENTS

<b>Executive Summary</b> .....	1
<b>Audit Results</b> .....	4
NCES Recently Assessed the Effects of Potential Y2K Failures on its Core Business Processes.....	4
NCES Recently Updated and Validated its Hardware and Software Inventory.....	6
NCES is Participating in ED's Y2K Readiness Assessment Survey of Contractors .....	9
NCES Recently Completed Contingency Plans for its Seven Core Business Processes.....	10
The Project Team Needs to Assess Department-wide Effects of Y2K Issues Identified at NCES.....	12
<b>Background</b> .....	13
<b>Objective, Scope and Methodology</b> .....	15
<b>Statement on Management Controls</b> .....	16
<b>Appendix A: NCES's Management Comments</b> .....	17
<b>Appendix B: Project Team's Response</b> .....	25

## EXECUTIVE SUMMARY

As part of the U.S. Department of Education's (ED) Office of Educational Research and Improvement (OERI), the National Center for Educational Statistics (NCES), is the primary Federal agency responsible for the collection, analysis and reporting of data related to education in the United States. To fulfill its responsibilities, NCES has created a series of databases on a wide variety of topics at the national, state, and local levels addressing elementary and secondary, and postsecondary education.

We reviewed NCES's Year 2000 (Y2K) Readiness Plans to assess the adequacy of its preparations. NCES systems are classified as mission supportive in ED's Y2K project. This report is the Office of Inspector General's (OIG) first review of the Y2K readiness of one of ED's mission supportive systems.

To date, we have focused our attention on the status of ED's mission critical systems. The ED Y2K Project Team (Project Team) conducted an initial assessment and prioritized the individual systems and devices as mission critical, mission important and mission supportive. During the past year, OIG has completed Y2K-related work in the areas of student financial assistance and guaranty agencies, for example. In July 1999, we issued Management Information Report, "*Review of Year 2000 Compliance for Processing, Delivery and Administration of Student Financial Assistance Programs (Control Number S11-90016)*." The purpose of our July report was to assess the status of 13 systems critical to the delivery of student financial assistance (SFA). Given their classification as mission supportive, NCES's systems have been determined to be lower risk to ED's mission than the systems we have previously reported upon.

At the time of our review, we identified areas that needed improvement. Since the issuance of our August 1999 draft report, NCES has initiated corrective action in each of the finding areas discussed below.

### **NCES Recently Assessed the Effects of Potential Y2K Failures on its Core Business Processes.**

In our draft report we recommended that NCES determine how potential Y2K failures could affect its core business processes. We believe that NCES's ability to carry out its mission could be affected by failures of its systems or those of its contractors or data sources. In response to our recommendations in the draft report, NCES identified seven core business processes, and developed Y2K assessments and contingency plans.

### **NCES Recently Updated and Validated its Hardware and Software Inventory.**

In our draft report, we recommended that NCES complete and validate its hardware and software inventory. In response to our draft report, NCES has completed a software inventory, a server assessment and ensured the Y2K compliance of its historical databases. We believe NCES still needs to work with the Project Team to ensure that its hardware and software inventory are

complete and that all vendor certifications have been obtained. An incomplete inventory and validation of hardware and software could result in a Y2K failure affecting NCEs operations.

### **NCEs is Participating in ED's Y2K Readiness Assessment Survey of Contractors.**

In April 1999, we visited two major NCEs contractors and noted that one was still in the renovation phase of its Y2K project. In August 1999, we were informed that this contractor had made progress and planned to complete implementation by September 1999. The other major contractor we visited had reported significant progress earlier, but also planned to perform testing and implementation through September 1999. A contractor Y2K failure could delay the production of NCEs reports and surveys, some of which are congressionally mandated. In response to our draft report, NCEs took action and has obtained documentation to assess the Y2K status of its contractors. NCEs is currently updating information on the Y2K status of the contractors mentioned above. This assessment is being completed in conjunction with the Project Team and Contracts and Purchasing Operations. Based upon this action we recommend that NCEs continue to work with the Project Team and Contracts and Purchasing Operations to monitor its contractors and external data sources.

### **NCEs Recently Completed Contingency Plans for its Seven Core Business Processes.**

In response to our draft report, NCEs took action to identify its seven core business processes and develop contingency plans for each area. We recommend that NCEs submit these plans to the Project Team for review.

### **The Project Team Needs to Assess Department-wide Effects of Y2K Issues Identified at NCEs.**

Although our work was limited to NCEs, we believe that the issues we identified could be applicable to other ED offices. This is because the Project Team requested that progress be tracked by system, rather than by core business process. Other ED offices may also have business processes that involve software and hardware that are not directly linked to any of the systems ED has inventoried and tracked for Y2K compliance. For example, the NCEs contractor who planned to complete implementation by September 1999, holds approximately \$70 million in contracts with other ED offices. In response to our draft report, the Project Team stated that it is currently working with individual ED offices to determine if Y2K issues identified in the draft report are applicable. The Project Team is also seeking progress reports from ED's critical contractors.

### ***Recommendations:***

To address the above issues and reduce the risk of a Y2K failure, we recommend that the NCEs Commissioner and Y2K liaisons:

- submit NCEs core business process assessments and Y2K contingency plans to the Project Team and continue to work with the Project Team to identify potential Y2K failures.

- work with the Project Team to ensure that NCES has completed and validated its hardware and software inventory, identified all of its administrative systems and assessed the readiness of its contractors and external data sources.

We also recommend that the Project Team Director:

- work with ED Y2K liaisons to determine if the NCES findings are applicable to other ED offices.
- provide guidance to ED offices regarding the appropriate action to take to resolve identified issues.

## AUDIT RESULTS

At the time of our review, we identified areas that needed improvement in NCES's Y2K readiness plans. We reached this conclusion based upon our reviews of NCES contractors, contingency plans, hardware and software inventories, and our interviews of NCES staff. In response to our August 1999 draft report, NCES took corrective actions, which are noted in the findings below. As a result, we have changed our recommendations from the draft report to reflect action taken. NCES's complete response to our draft report is included in Appendix A and the Project Team's complete response is included in Appendix B.

### **Finding No. 1 NCES Recently Assessed the Effects of Potential Y2K Failures on its Core Business Processes.**

Our draft report stated that NCES needed to assess the effects of potential Y2K failures on its core business processes. In response to the draft report, NCES took steps to further assess the effects of potential failures. We have changed our recommendations to reflect action taken. The results of our audit and NCES subsequent actions are presented below.

Our audit found that NCES needed to perform a comprehensive assessment of potential Y2K failures and their effects on its operations. Without performing such an assessment, NCES would be unable to ensure that it had adequately prepared for Y2K. NCES needed to identify and mitigate Y2K risks that affected its core business processes. These processes include the collection, analysis and reporting of data on elementary, secondary and postsecondary education. These core business processes could be disrupted unless NCES addressed Y2K issues. For example, NCES would be unable to:

- publish congressionally mandated reports like the National Assessment of Educational Progress and the Condition of Education Report;
- calculate the Title I allocation prepared for ED's budget; and
- produce data supporting ED's reporting of performance indicators for compliance with the Government Performance and Results Act.

NCES management and staff stated that Y2K would not affect operations because its products are not "date sensitive." NCES stated that it was already positioned as Y2K compliant, because it did not have systems that use year values in computations. This belief demonstrated that NCES needed to develop a complete awareness of all aspects of the Y2K issue and the potential failures that could occur. For example, NCES needed to assess the risks that hardware failures or Y2K-related failures at its contractors or data sources might affect its ability to perform its mission.

In “Year 2000 Computing Crisis: An Assessment Guide [GAO/AIMD-10.1.14],” GAO recommended that agencies assess the severity of potential Y2K failures for each core business process. However, ED’s Y2K Project Management Plan required ED offices to report progress by system rather than by business process. Assessing Y2K risks by system does not promote the consideration of the risks related to business processes not directly linked and integrated into an existing IT system.

In our draft report, we recommended that NCEs identify core business processes and assess the effect of potential Y2K failures with input from the NCEs associate commissioners and managers. In addition, we recommended that NCEs establish an awareness program with the associate commissioners and other management to ensure they have an understanding of the Y2K issue and its potential effect on operations.

### **NCEs Response**

In response to our draft report, NCEs identified seven core business processes and developed Y2K contingency plans. These plans included an assessment of the effect of potential failures. To address our awareness concerns, NCEs associate commissioners and other NCEs managers were involved in the development of contingency plans, the identification of the seven core business processes and Y2K failure assessments.

### **OIG Analysis**

NCEs has taken the appropriate action in response to our draft report recommendations. However, to be consistent with action taken by other ED offices, we recommend that they submit their contingency plans and Y2K assessments to the Project Team for review.

---

### ***Recommendations:***

We recommend that the NCEs Commissioner and Y2K liaisons:

1. Submit core business process assessments to the Project Team and continue to work with the team to identify potential NCEs Y2K failures.



## **Finding No. 2 NCEs Recently Updated and Validated its Hardware and Software Inventory.**

Our draft report stated that NCEs needed to complete and validate its hardware and software inventory. In response to the draft report, NCEs took steps to update and validate its hardware and software inventory. We have changed our recommendations to reflect action taken. The results of our audit and NCEs subsequent actions are presented below.

Our audit found that NCEs needed to ensure that it had a complete hardware and software inventory and that all items inventoried were validated and verified for Y2K compliance. We found that NCEs was tracking progress on only one of four systems originally identified for the Y2K project. NCEs stated that responsibility for the remaining three systems had been transferred to other ED offices. We were unable to verify that Y2K issues related to these systems were being addressed. Additionally, we found that NCEs needed to complete its inventory of other hardware and software and take steps to ensure that they are Y2K compliant.

### **NCEs had Not Tracked Progress on Three Identified Systems**

ED's Y2K Project Management Plan requested each ED office to identify its systems and provide information about each system using a common information template. NCEs originally identified and completed templates for the following four systems:

System	Description
Major Data Collections	Project management, data editing, imputations, documentation and a host of other activities associated with national administrative and sample surveys.
Maintenance of Historical Databases	Maintenance of about 500 historical data files in a variety of electronic formats, including computer tapes, diskettes and CD-ROM products.
Administrative Systems	Internal recordkeeping/administrative systems, including NCEs internal budget planning and monitoring tools.
Desktop Software and Computing	Desktop computing through Windows 95, the Statistical Analysis System (SAS) and the Statistical Package for Social Sciences (SPSS).

NCEs officials stated that responsibility for three of the four systems were transferred to other ED offices, including the Office of Postsecondary Education (OPE), Office of Chief Financial Officer (OCFO), and Office of Chief Information Officer (OCIO). ED's current Y2K systems inventory no longer reported these systems separately under any ED office. We could not find evidence that the NCEs compliance issues were being tracked through these other offices. We noted the following issues for two of the three systems originally identified by NCEs:

- **Maintenance of Historical Databases:** In its system template, NCES identified Y2K issues for the historical databases that needed to be addressed. Additionally, NCES informed us that it now maintains a contract with the Inter-University Consortium Political and Social Research (ICPSR) at the University of Michigan for archiving, researching data anomalies and making the files available to researchers. NCES needed to take steps to ensure that ICPSR was Y2K compliant and that the current maintenance of the historical databases was not affected by Y2K issues.
- **Administrative Systems:** In its administrative systems template, NCES stated that it maintained a number of internal recordkeeping/administrative systems like its budget planning and monitoring tools. NCES expected some of these systems to be replaced by Y2K compliant modules of Education's Central Automated Processing System (EDCAPS). NCES needed to document the systems that were replaced by EDCAPS. In addition, NCES needed to document the systems not being replaced by EDCAPS so it can track their Y2K compliance.

### **Hardware and Software Inventory Incomplete**

During our review, NCES provided OIG with an inventory of its hardware and software. This inventory was not complete and not all items included on the inventory had been validated as Y2K compliant. Without a complete inventory, NCES could not ensure that all items were Y2K compliant. Noncompliant items could cause failures affecting NCES operations.

NCES needed to take steps to validate its software products. We identified several products in use at NCES that were not included in OCIO's current Product Support Plan. At least one software item, a program written in Fortran for Title I Allocations, could have been affected by the Y2K problem.

NCES needed to take steps to validate NCES servers and personal computers. We found that seven of NCES's eight servers were not connected to ED's network (EDNET) and therefore were not included in OCIO's validation efforts for EDNET. NCES officials stated that Y2K readiness was not an issue because they replace a third of their personal computers every year. Y2K experts have cautioned that non-Y2K ready products have been sold within the past year and that the compliance of all hardware and software should be established. At the time of our review, we learned that OCIO was planning to use a software audit tool to test for potential Y2K problems. The tool is designed to sample a cross section of servers connected to EDNET and identify what Y2K software updates and patches are needed. Since the majority of NCES servers were not connected to EDNET, they were not covered by the OCIO test plan.

Through its Y2K inventory process, ED maintained technical information such as hardware platform, criticality, type of technology, software release level, application name, and application identification for all mission critical, important and supportive systems. Each ED office is responsible for ensuring the successful assessment, renovation and validation of its systems, including, software applications, local area networks, wide area networks, hardware, embedded technology devices and facility infrastructure.

In our draft report, we recommended that NCES identify Y2K issues related to maintenance of historical databases, administrative systems and desktop software and computing and ensure that

these issues are resolved. In addition, we recommended that NCEs develop a complete inventory of hardware and software it uses and ensure that all items are validated for Y2K compliance.

### **NCEs Response**

In response to our draft report, NCEs provided a historical perspective on its systems initially identified for the Y2K project. To ensure that Y2K issues are resolved for historical databases, NCEs contacted the ICPSR and obtained assurance that they are Y2K compliant. For desktop software and computing, NCEs completed an inventory of its software purchases and has provided Y2K certifications. For administrative systems, NCEs stated that NCEs no longer has separate administrative systems.

### **OIG Analysis**

NCEs has taken appropriate steps in response to our draft report by contacting ICPSR to assess Y2K compliance and resolving issues related to desktop software and computing. However, OIG continues to recommend that NCEs further verify that administrative systems will not be affected by a Y2K failure. During our audit, under the administrative systems Y2K template, we identified an internal budget planning and monitoring system. NCEs still needs to determine if this system has been retired or if there are still Y2K issues that require resolution. NCEs will also need to continue to monitor these areas in preparation for the Year 2000.

---

### ***Recommendations:***

We recommend that the NCEs Commissioner and Y2K liaisons:

1. Work with the Project Team to ensure that it has completed and validated its hardware and software inventory, including the identification of all administrative systems.

<b>Finding No. 3</b>	<b>NCEs is Participating in ED's Y2K Readiness Assessment of Contractors.</b>
----------------------	---

Our draft report stated that NCES needed to assess the readiness of its contractors and external data sources. In response to the draft report, NCES took steps to further assess the readiness of its contractors and external data sources. NCES is currently participating in a contractor readiness assessment in conjunction with the Project Team and Contracts and Purchasing Operations. We have changed our recommendations to reflect action taken. The results of our audit and NCES subsequent actions are presented below.

Our audit found that NCES relied extensively on contractors for the majority of its surveys and reports. While NCES had ensured that its contracts included ED's standard Y2K clause, it still needed to take steps to actively monitor the readiness of the majority of contractors upon which it relied to complete its mission. Additionally, because NCES relied extensively on so many outside sources for data, it needed to take steps to ensure that its data sources would be able to provide critical data in the Year 2000.

NCES officials stated that a contractor failure would not affect NCES because their contractors do not provide "systems," just files. The GAO assessment guide states that during the assessment phase, entities should "address interface and data exchange issues, including: ... the validation process for incoming external data." NCES officials stated that they were requested by the Project Team to contact their two largest contractors to assess their Y2K compliance. Those contractors were contacted and NCES received compliance certifications.

We conducted on-site visits at two additional NCES contractors in April 1999. At that time, we found that one of the two contractors was still in the assessment and renovation phases. Through a follow-up contact in August 1999, we were informed that the contractor had made progress and was presently performing some tests in the validation and implementation phases. The contractor's plans called for completion of its Y2K efforts by September 1999. This contractor informed us that it was following the Y2K guidelines that were applicable to the Federal Government. The other major contractor we visited had reported significant progress earlier, but also planned to complete implementation by September 1999. However, OMB guidelines required Federal agencies to complete their Y2K renovation work by January 1999, and have all systems validated and implemented by March 31, 1999.

Additional efforts to ascertain the readiness of other NCES contractors and outside data sources appeared warranted. NCES planned to contact its contractors on the first work day of year 2000 to assess the status of their systems. However, we believe that communication with contractors should occur earlier to alert NCES to potential failures. Systems failures at these contractors could prevent them from compiling, analyzing and reporting on important educational survey data.

We also found that NCES needed to assess how failures at survey data providers might affect their ability to effectively participate in NCES surveys. NCES officials had indicated that NCES surveys should not be affected by the Y2K issue. Although the surveys are completed on paper, it is likely that the information will be extracted from the survey participant's systems. A Y2K-related failure could prevent survey participants from responding, or could affect the quality of data that they submit. NCES needed to take steps to understand the potential effects these failures could have on its ability to publish its reports.

In our draft report, we recommended that NCES assess the readiness status of key contractors, assess potential effects of contractor failures on NCES operations and develop resolution plans for contractors not making adequate progress in addressing Y2K issues. In addition, we recommended that NCES determine what key contractors have done to assess the Y2K status of their survey data sources. NCES contractors should have plans in place to determine how they will identify erroneous and incomplete data, and what they will do if a Y2K failure affects their ability to receive, analyze or transmit data through their normal processes.

### **NCES Response**

NCES has already taken action in response to our draft report. NCES is currently updating information on the Y2K status of the contractors visited by the OIG, and its other major contractors. This assessment is being completed in conjunction with the Project Team and Contracts and Purchasing Operations. In addition, NCES has included steps in its contingency plans for addressing Y2K failures at contractors external data sources.

### **OIG Analysis**

NCES has taken appropriate steps in response to our recommendations. We continue to recommend that NCES work with the Project Team to monitor its contractors and external data sources.

---

### ***Recommendations:***

We recommend that the NCES Commissioner and Y2K liaisons:

1. Continue to work with the Project Team and Contracts and Purchasing Operations to assess the readiness of its contractors and external data sources.

<b>Finding No. 4</b>	<b>NCES Recently Completed Contingency Plans for its Seven Core Business Processes.</b>
----------------------	---

Our August 1999 draft report stated that NCES needed to further develop its Y2K contingency plans. In response to our draft report, NCES developed Y2K contingency plans for its seven core business processes. We have changed our recommendations to reflect action taken by NCES. The results of our audit and NCES subsequent actions are presented below.

NCES had prepared a contingency plan for Major Data Collections. The plan stated that NCES would contact its contractors on the first workday of the Year 2000 to assess the status of their survey systems. If a failure is identified, the only alternative process was to require the contractor to reset the system clock to a date before January 1, 2000 and continue processing surveys. We believed that alternatives were needed to mitigate failures at contractors. Additionally, the NCES

contingency plan did not address other potential risks and their alternative processes. For example, the plan:

- did not include all of the applicable surveys and reports produced by NCEs, such as the Condition of Education report or the Title I Assessment process;
- did not provide alternative plans in the event that external sources cannot provide data or provide erroneous data; and
- did not address the effect of and cost applicable to a potential failure.

Since the NCEs contingency plan did not include sufficient information, NCEs may not have been in a position to mitigate potential failures effectively.

ED's Y2K Project Management Plan requires principal offices to prepare contingency plans for all non-mission critical systems that:

- provides a brief description of system functions, transaction volume, and perceived risk;
- describes alternative process(es);
- estimates costs of alternative process(es); and
- addresses data exchanges associated with the systems.

In our draft report, we recommended that NCEs further develop their Y2K contingency plans to address its specific business continuity needs. The plans should address each critical core business process and include steps to minimize the impact of failures at contractors and at state agencies.

### **NCEs Response**

NCEs has taken action on our recommendations by creating Y2K contingency plans for its seven core business areas that were identified as a result of our recommendation for finding number one.

### **OIG Analysis**

NCEs has taken the appropriate action to address OIG's recommendation and should submit the new contingency plans to the Project Team for review.

## ***Recommendations:***

We recommend that the NCES Commissioner and Y2K liaisons:

1. Submit Y2K contingency plans for its seven core business processes to the Project Team for review.

<b>Finding No. 5      The Project Team Needs to Assess Department-wide Effects of Y2K Issues Identified at NCES.</b>
--

While the scope of our review was limited to NCES, the issues identified in the findings above could affect other ED offices. For example, one of the NCES contractors who informed us it planned to complete Y2K implementation by September 1999 holds approximately \$70 million in contracts with ED offices other than NCES. Other ED offices may need to increase their awareness of how Y2K could affect their operations and take steps to:

- assess the Y2K risks of business processes that involve software and hardware not directly linked to any of the systems ED has inventoried and tracked for Y2K compliance;
- evaluate the readiness of contractors and external data sources not addressed as part of mission critical, mission important and mission supportive systems; and
- develop more detailed contingency plans to address their specific business continuity needs.

### **NCES and Project Team Response**

The Project Team and its management consultant partner are working with individual ED offices to determine the extent to which issues identified in OIG's report apply to other offices, and to help address issues identified. In addition, ED is seeking progress reports from all of its contractors. Information from this effort will be used to focus and improve contingency plans for individual business processes across all ED offices. NCES responded that it has taken action to work with the Project Team.

### **OIG Analysis**

The Project Team and NCES have taken the appropriate steps in response to our recommendations. We continue to recommend that NCES and the Project Team continue to work together to monitor issues identified in this report.

## ***Recommendations:***

We recommend that the Project Team Director:

1. Work with the ED Y2K liaisons to determine if the NCES findings are applicable to other ED offices.
2. Provide guidance to ED offices regarding the appropriate action to take to resolve identified issues.

## **BACKGROUND**

We reviewed NCES's Year 2000 Readiness Plans to assess the adequacy of NCES's preparations for Y2K. NCES systems are classified as mission supportive systems in ED's Y2K project. This report is OIG's first review of the Y2K readiness of one of ED's mission supportive systems. To date, OIG has focused its attention on the status of ED's mission critical systems.

The Project Team conducted an initial assessment and prioritized the individual systems and devices as mission critical, mission important and mission supportive. During the past year, OIG has completed Y2K-related work in the areas of student financial assistance and guaranty agencies, for example. In July 1999, OIG issued Management Information Report "*Review of Year 2000 Compliance for Processing, Delivery and Administration of Student Financial Assistance Programs (Control Number S11-90016)*." The purpose of the report was to assess the status of 13 systems critical to the delivery of student financial assistance. Given their classification as mission supportive, NCES's systems have been determined to be lower risk to ED's mission than the systems we have previously reported upon.

The Y2K issue arises from the inability of computer systems to store or process dates beyond December 31, 1999. Computer systems that use a two-digit date field (i.e., "99" for the year 1999) may not be able to recognize "00" as the year 2000. Without renovation, these systems may fail or produce erroneous results. ED is currently taking steps to mitigate the risk of the Y2K issue affecting its computer systems and programs. Y2K is being managed at ED under its *Year 2000 Project Management Plan*. This plan provides ED with the guidance and organization required for the Y2K project and is based on the General Accounting Office's (GAO) "*Year 2000 Computing Crisis: An Assessment Guide*," (GAO/AIMD – 10.1.14).

NCES is an office under the Office of Educational Research and Improvement (OERI). NCES collects statistics on the condition of education in the United States, analyzes and reports the meaning and significance of these statistics and assists states, local education agencies, and postsecondary institutions in improving their statistical systems. NCES supports a wide range of activities, providing policy-relevant data on issues as diverse as enrollment trends, access of minorities to postsecondary education, the academic achievement of students, comparisons of U.S.



education with systems in other countries and the impact of education on employment and economic productivity.

Education statistics are used for a variety of purposes from research to policy formation. Congress uses data to study education issues, to plan federal education programs, to apportion federal funds among the states, and to serve the needs of constituents. Federal agencies and state and local officials use NCEs statistics to make staffing and financing decisions. Other users of NCEs statistics include the media, educational organizations and the general public.

Some examples of NCEs's work include the following:

- National Assessment of Educational Progress (NAEP) – NAEP, also known as “The Nation’s Report Card,” is the only ongoing and nationally representative assessment that measures student achievement. The goal of the program is to provide objective information about student achievement to policymakers at the Federal, state and local levels, education researchers, principals, parents and the general public. It is a Congressionally mandated project implemented by NCEs. Data for NAEP is currently collected on an annual basis and involves volunteer arrangements with the states to administer the assessment.
- Title I Assessment – NCEs is responsible for the software program that calculates the allocations of Title I funds. NCEs uses a formula to arrive at Title I funding decisions. ED uses this information to provide funding to the local education agencies.
- The Condition of Education – The National Education Statistics Act of 1994 (20 U.S.C. §9005), mandates an annual statistical report from the Commissioner of Education Statistics. The Condition of Education is an indicator report, analyzing key data that measures the health of education, monitors important developments and shows trends in major aspects of education. These issues are important and relevant to today’s national education policy debate.
- Common Core of Data (CCD) - The CCD is the primary database on elementary and secondary public education in the United States. The annual CCD is a comprehensive national statistical database of all public elementary and secondary schools, and school districts that contains comparable data across all states. The CCD is an important resource for policymakers at the state and local levels. The CCD collects information on state per pupil expenditures. This information is used to calculate the Title I Assessment.
- Integrated Postsecondary Education Data System (IPEDS) - IPEDS is an annual series of surveys conducted by NCEs that provide a variety of data on the nation’s public and private postsecondary institutions. Federal program staff have used IPEDS and student aid survey data to address policy issues on financial aid programs. Policymakers at the state and institutional level have used IPEDS data for planning purposes. Government commissions have used this data to monitor compliance with federal legislation.
- Government Performance and Results Act of 1993 (GPRA) - GPRA was enacted as the centerpiece of a statutory framework that Congress put in place to improve federal management and provide a greater focus on results. GPRA requires that agencies submit an annual performance plan to Congress with established performance indicators. NCEs is a key player

in ED's GPRA process. Data used to measure progress toward achievement of the performance indicators come from several sources, including surveys conducted by NCES.

## OBJECTIVE, SCOPE AND METHODOLOGY

The objective of our audit was to determine if NCES has adequately prepared for the Year 2000. To accomplish our objective, we conducted interviews with key NCES personnel and Project Team members to obtain an understanding of NCES programs and operations, as well as to determine the following:

- Status of NCES Y2K readiness;
- NCES procedures/plans for the Y2K project;
- ED's requirements/plans for the Y2K project; and
- Y2K status of selected NCES contractors.

We also reviewed five NCES contracts. We selected a judgmental sample of contractors from an NCES listing of 60 active contracts. The contracts selected for review included those of the highest dollar volume contractors at NCES. We reviewed general contract information, including award amount, obligated amount, purpose and Y2K modifications. We also verified that a Y2K clause was included in the contract file or a subsequent contract modification.

In addition to reviewing the contract files, we identified the two contractors with the largest dollar volume of contracts at NCES and conducted on-site visits. We prepared a questionnaire for the on-site visits that enabled us to gain a preliminary understanding of the contractor's Y2K status.

We reviewed documentation NCES completed as required for the Project Team under ED's *Year 2000 Project Management Plan*. This documentation included, but was not limited to, the following items:

- Y2K risk assessment
- Analysis of hardware and software
- Contingency plans
- Validation plans
- Renovation plans
- Y2K cost estimates
- Identification of data exchange issues

We performed fieldwork at applicable ED offices and selected NCES contractor offices between March 1999 and August 1999. We updated certain information in October 1999. We performed our audit in accordance with government auditing standards applicable to the scope of the review described above.

---

## STATEMENT ON MANAGEMENT CONTROLS

---

As part of our audit, we assessed the management controls applicable to NCEs's Y2K process, including policies, procedures and practices applicable to the scope of the audit. Our assessment was performed to determine the level of control risk for determining the nature, extent and timing of our substantive tests to accomplish the audit objectives.

For the purpose of this report, we assessed the significant controls and classified them into the following categories (note that our review was limited to NCEs and its preparations for Y2K):

- Program Operations
- Compliance with Laws and Regulations

Because of inherent limitations, a study and evaluation made for the limited purposes described above would not necessarily disclose all material weaknesses in the above areas. However, we identified that NCEs could not demonstrate that it had adequately prepared for Y2K, which is discussed in the Audit Results section of this report. In response to our draft report, NCEs took corrective actions, which we also noted in the Audit Results section.

# APPENDIX A: NCES's MANAGEMENT COMMENTS

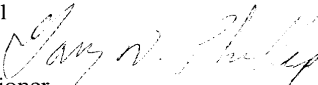


U.S. DEPARTMENT OF EDUCATION  
OFFICE OF EDUCATIONAL RESEARCH AND IMPROVEMENT

NATIONAL CENTER FOR EDUCATION STATISTICS

October 1, 1999

TO: Lorraine Lewis  
Inspector General

FROM: Gary W. Phillips   
Acting Commissioner  
National Center for Education Statistics (NCES)

SUBJECT: Response to Draft Report  
*Review of NCES's Year 2000 Readiness Plans*  
Audit Control Number: ED-OIG/A11-90014

I appreciate the opportunity to review the above draft report and provide you with a response to the findings and recommendations prior to the publication of the report. NCES appreciates the frank assessment of its Y2K readiness by the Office of the Inspector General (OIG). We understand the vital role that NCES programs have for the Department and for the Nation in knowing the status of education both in the United States and internationally. It is very important for the Department and the Nation to know that NCES has taken steps to mitigate any disruptions that might occur as a result of the potential Y2K failures in its core business processes.

In responding to the OIG draft report, we have taken several steps to further ensure that NCES systems are Y2K ready. We have reviewed and tested programs and software. Using a form developed by Contract Services, NCES contractors have been surveyed to ascertain the degree to which Y2K computer problems could potentially impact the work being performed under contract. For each type of data collection carried out by NCES, such as institutional surveys, we have developed contingency plans for detecting problems in data.

These efforts are further described in the following responses to each finding in the draft report and supporting documentation is included with this memo. We believe that these efforts and documentation have strengthened NCES Y2K readiness and hope that they will demonstrate to the OIG that we are taking the steps necessary to prevent possible Y2K disruptions at NCES.

Each finding in the OIG draft report is stated below along with the related recommendations and the NCES response.

WASHINGTON, D.C. 20208-\_\_\_\_\_

**Finding No. 1 NCES needs to assess the effects of potential Y2K failures on its core business processes.**

*Recommendations*

- 1. Identify core business processes and assess the effect of potential Y2K failures. This assessment should be developed with input from the NCES associate commissioners and other NCES management.*
- 2. Establish an awareness program with the NCES associate commissioners and other NCES management to ensure they have an understanding of the Y2K issue and its potential effect on NCES operations.*

In response to this finding and accompanying recommendations, NCES identified the following set of seven core NCES business processes:

- Institutional surveys,
- Cross-sectional surveys,
- Longitudinal surveys,
- Secondary analysis,
- Annual reports,
- Title I allocations, and
- Historical data files.

Y2K contingency plans were developed for each core business process based on standard statistical procedures that NCES already has in place for ascertaining the validity of data collected and entered into databases. These contingency plans go beyond the standard statistical procedures and reflect the heightened awareness that will be necessary given the increased potential for data problems due to Y2K failures. Each contingency plan:

- Describes the steps that NCES will take to confirm that our data are not affected by any Y2K problems;
- Describes the steps that NCES would take to measure the potential impact of any Y2K problems; and
- Outlines the procedures that NCES would use to correct any data problems resulting from Y2K failures.

Specific examples relevant to survey types or even individual surveys are included, as well as ballpark time and dollar estimates of possible analyses and remedies.

In general the contingency plans address potential data problems under the assumption that if a data collection contractor experiences a Y2K problem that has a detrimental

effect on NCES data, it is likely to show up in one of two ways. Either the data we receive will have excessive amounts of missing data, or the data will include erroneous records.

In the case of missing data, the first step would be to assess the extent of missing data associated with the Y2K failure. Once this is established, there are two possible courses of action that could be pursued either simultaneously or independently. First, we can use standard statistical procedures to conduct nonresponse bias analyses to determine the potential impact of the problem on our analyses. Second, to the extent feasible, we can conduct follow-up data collection efforts with Y2K related nonrespondents. In the case of a state-based survey, we would attempt to contact all nonrespondents; however in the case of a larger survey, we might need to subsample the nonrespondents for follow-up as a matter of cost and time efficiency.

Next, to guard against erroneous data related to a Y2K failure, we will intensify our usual data editing procedures, looking particularly for outliers or inconsistent data streams in individual records. We will also increase the number of comparisons we draw between new data, external data, and previous year data. If Y2K related errors are suspected, we have several alternatives to pursue. We can treat the erroneous data as missing data and use standard statistical procedures to conduct nonresponse bias analyses to determine the potential impact of the problem on our analyses. Or, we can conduct the follow-up procedures outlined above; and to the extent feasible, conduct follow-up data collection efforts with Y2K related nonrespondents.

The follow-up interview procedures are the most direct way to correct for Y2K failure errors; but particularly in the case of large-scale surveys, they come at great expense in terms of dollars, respondent burden, and time delays in releasing data and analyses. There are alternative strategies that we can employ, that will yield valid results.

In ongoing annual surveys, prior year's data are frequently used to estimate missing data for a subsequent year. Alternatively, in the case of large-scale sample surveys, weight adjustments are commonly used to adjust for missing cases and imputation techniques are used to account for missing item responses. If we find data problems arising from Y2K failures, these weight adjustment and imputation procedures will only be used after nonresponse bias analyses confirm that the existing data are representative of the sampled population.

Contingency plans for the analysis, reporting, and Title I allocations focus first on the impact of Y2K failure data problems (please see above) and what would be done to meet any time-sensitive deadlines in the face of data problems. For example, analyses may be limited to reliable data (e.g. drop some indicators or some portion of an analysis if the data were found to be in error), may use prior year data, and may require extensions in deadlines.

Contingency plans also consider the impact of Y2K computer systems failures on NCES's or a contractor's ability to conduct analyses, produce reports, and communicate the results. There is a focus on the costs and outcomes associated with time delays.

Finally, in the case of our historical records, we have verified the Y2K readiness of the University of Michigan's Inter-University Consortium for Political and Social Research (ICPSR) where NCES databases are archived. We have documented the existence of non-date dependent backup copies of all data sets, how/when we could access them, and what the costs associated with this might be.

Attachment A documents the results of the foregoing activity. Attachments B and C respectively address the Y2K compliance of the National Assessment of Educational Progress and calculation of the Title I allocations, both of which were specifically mentioned in the draft report.

These attachments make clear that there is a broad understanding of the implications of Y2K issues by both management and staff at NCES. NCES is well prepared to mitigate any Y2K disruptions in its annual report on the Condition of Education, the National Assessment of Educational Progress (NAEP), and the Title I Allocations Program.

**Finding No. 2            NCES needs to complete and validate its hardware and software inventory.**

*Recommendations*

1. *Determine that Y2K issues related to maintenance of Historical Databases, Administrative Systems, and Desktop Software and Computing are identified and resolved.*
2. *Develop a complete inventory of hardware and software used by NCES and ensure that all items are validated for Y2K compliance.*

Recommendation 1 refers to systems that NCES originally identified for Y2K tracking in the Fall of 1997 and have formed the foundation of Y2K compliance reporting for OERI and NCES. Attachments D and E, a memo to the Department's ITIRB and subsequent Y2K compliance plans, contain a historical perspective on these systems. These attachments were developed before the inception of the Department's Y2K Team in the Fall of 1997. At that time NCES identified four systems that it needed to track for Y2K compliance:

- Maintenance of Historical Databases,
- Desktop Software and Computing,
- NCES Administrative Systems, and
- Major Data Collections.

NCES is currently only tracking one of the four, Major Data Collections, for Y2K compliance which is addressed under Findings 1 and 3. The Y2K issues that were identified for the other three systems were:

***Maintenance of Historical Databases*** – the loss of archival mainframe data tapes because expiration dates could not be set beyond December 31, 1999. There never was, nor is there now, any danger that the contents of NCES files will not be usable after December 31, 1999. NCES now sends its historical databases to the Inter-University Consortium of Political and Social Research (ICPSR) at the University of Michigan for archiving. NCES has consulted with ICPSR staff and received assurance that the Oracle database system used for this archiving is Y2K compliant.

Our key project data tapes which are not part of the Center's historical files and which 'expired' on 12/31/99 were also of concern. Project tapes are 'working' files, which are used for specific purposes and the December 31, 1999, date was a standard that computer programmers have used in the past to specify how long to keep their tapes. Our mainframe computer users have reviewed their monthly tape listing and, when necessary, extended the expiration dates of any project tapes which have to be saved.

- ***Desktop Software and Computing*** – the Y2K compliance of Commercial Off-the-Shelf (COTS) software packages used within NCES and the Department. NCES desktop computing is done through Windows 95, the Statistical Analysis System (SAS), and the Statistical Package for the Social Sciences (SPSS). All three products are Year 2000 compliant. This means that our statisticians can, if necessary, invoke appropriate routines to properly calculate differences in year values.

NCES COTS software was on the Department's Product Support Plan (PSP). When OIG pointed out to NCES that SAS and SPSS were not listed on the PSP, we investigated and found out that OCIO had unilaterally removed them. NCES then provided OIG with vendor certification of Y2K compliance.

- ***NCES Administrative Systems*** – the Y2K compliance of systems used Department-wide such as Departmental Financial Systems. NCES no longer has separate administrative systems. We use the Departmental systems, e.g. EDCAPS, Travel, T&A. Some staff also utilize Microsoft Office 97 software for additional reports not available from these systems using Excel and/or Access, but these are Y2K compliant.

After discussions with the Department's Y2K Team in the Spring of 1998, both NCES and the Y2K Team felt that the three systems described above were not Y2K compliance issues specific to NCES, but rather were issues that should be addressed Department-wide. Therefore, the Y2K Team transferred the tracking of these issues – not the systems – to OPE (which manages the Virtual Data Center), EDCAPS, and EDNET, respectively.



These systems were then dropped from the NCES Y2K systems inventory, and are no longer being tracked by NCES.

In response to Recommendation No. 2, a complete inventory of hardware and software and certification that these elements are Y2K compliant are included in Attachments F–K.

- Attachment F: Listing of Fortran Program used for Title I Allocations is provided in support of NCES's assertion that the Title I Allocation software is Y2K compliant.
- Attachment G: Statement of Work for Computer Procurement dated April 21, 1999 is provided in support of NCES's assertion that its Internet systems are Y2K compliant.
- Attachment H: Amendment to April 21, 1999 Computer Procurement SOW sent April 27, 1999 is provided as evidence that NCES required all vendor proposals received in response to Attachment G to be certified as Y2K compliant.
- Attachment I: Results of NCES Server Y2K Assessment was prepared by BTG contract support staff (responsible for NCES Internet Server Support) and documents that NCES Internet Servers are Y2K compliant.
- Attachment J: Inventory of NCES Commercial Off-The-Shelf (COTS) Software Purchases is a complete listing of all authorized software procured for use on NCES PC workstations.
- Attachment K: Vendor Y2K certifications for software used in NCES but not on the Department's Product Support Plan (PSP) is provided in support of NCES's assertion that its systems are Y2K compliant.

The servers discussed in this finding are on the Department's network, but they are on the Internet segment (INET), not the internal network (EDNET). They were purchased in May and installed in June 1999. NCES works closely with OCIO to ensure that it complies with all Departmental standards. In fact, the Statement of Work (SOW) for this procurement was reviewed by OCIO prior to its release to vendors. Also, at the direction of the OERI Executive Officer, NCES published an amendment to the SOW requiring vendor certification of Y2K compliance of all hardware and software proposed. Further, BTG, the NCES on-site contractor responsible for our Internet Server Support, has conducted a thorough Y2K readiness assessment of these NCES servers and upgraded them as appropriate.

**Finding No. 3            NCES needs to assess the readiness of its contractor Y2K plans and external data sources.**

*Recommendations*

1. *Assess the Y2K readiness of key contractors, assess potential effects of contractor Y2K failures on NCES operations, and develop resolution plans for contractors not making adequate progress in addressing Y2K issues.*

2. *Determine what key contractors have done to assess the Y2K status of their survey data sources. NCES contractors should have plans in place to determine how they will identify erroneous and incomplete data, and what they will do if a Y2K failure affects their ability to receive, analyze or transmit data through their normal processes.*

In response to the recommendations under this finding, NCES offers Attachments A, B, and C, discussed under Finding 1 and Attachment L which contains the "Contractor Y2K Readiness" memos identifying the current status of each of NCES' contractors.

**Finding No. 4 NCES needs to further develop its Y2K contingency plans.**

*Recommendation*

1. *Further develop their Y2K contingency plans to address NCES' specific business continuity needs. The plans should address each critical core business process and include steps to minimize the impact of Y2K failures at contractors.*

Y2K contingency plans were developed for seven core NCES business processes as described under Finding 1 and documented in Attachments A, B, and C.

**Finding No. 5 The ED Y2K Team needs to assess department-wide effects of Y2K issues identified at NCES.**

*Recommendations*

1. *Work with the Y2K liaisons to determine if the NCES findings are applicable to other ED offices.*
2. *Provide guidance to ED offices regarding the appropriate action to take to resolve identified issues.*

NCES has worked with the Department's Y2K Project Management Team and would be pleased to assist the ED Y2K Project Director in any way that it can.

Attachments:

- A. Y2K Contingency Plans for NCES Core Business Processes
- B. NAEP Y2K Program Compliance Memo dated September 9, 1999
- C. Title I Allocations Y2K Compliance Memo dated August 25, 1999
- D. OERI Y2K Compliance status document dated October 24, 1997
- E. NCES Y2K Compliance Status Memo dated September 19, 1997
- F. Listing of Fortran Program used for Title I Allocations

- G. Statement of Work (SOW) for Computer Procurement dated April 21, 1999
- H. Amendment to April 21, 1999 Computer Procurement SOW sent April 27, 1999
- I. Results of NCES Server Y2K Assessment
- J. Inventory of NCES Commercial Off-The-Shelf (COTS) Software Purchases
- K. Vendor Y2K certifications for software used in NCES but not on the Department's Product Support Plan (PSP)
- L. Copies of all memos from NCES COTRs to Contracts Office. – Subject: Contractor Y2K Readiness

## APPENDIX B: PROJECT TEAM'S RESPONSE




**UNITED STATES DEPARTMENT OF EDUCATION  
OFFICE OF THE CHIEF INFORMATION OFFICER  
YEAR 2000 PROJECT TEAM  
Washington, D.C. 20202**

October 15, 1999

MEMORANDUM

To : Lorraine Lewis  
Inspector General

From :   
Robert H. Davidson  
Director, Y2K Project

Subject: Review of NCES's Year 2000 Readiness Plans Audit Control  
Number ED-OIG/A11-90014

I appreciate the OIG's very useful work on this project. I wish to respond to OIG recommendations for finding 5, which suggests assessment and guidance of other offices by the Y2K Project Team with respect to the kinds of issues identified by OIG in this report.

The Department's Y2K Project Team and its management consultant partner, Booz-Allen & Hamilton, are presently working with individual Department offices to determine the extent to which issues identified in this OIG report apply to other offices, and to provide guidance and assistance as needed.

In addition, the Department is seeking Y2K progress reports from its critical contractors. Information from this effort will be used to focus and improve contingency plans for individual business processes across all Department offices.

**FINAL REPORT DISTRIBUTION SCHEDULE**

Audit Control No. ED-OIG/A11-90014

<u>Action Officials</u>	<u>No. of Copies</u>
Mr. Gary Phillips, Acting Commissioner, NCES U.S. Department of Education OERI/NCES 555 New Jersey Avenue, NW Washington, DC 20208-5574	2
Mr. Robert Davidson, Director, Y2K Project Management Team 400 Maryland Ave, FB-6, Room 4W203 Washington, DC 20202	2
<u>NCES</u> Director, Technology Support Program	1
<u>Other ED Offices</u>	
<i>Office of Deputy Secretary</i> Acting Deputy Secretary	1
Director – Planning & Evaluation Services	1
<i>Office of Education Research and Improvement</i> Assistant Secretary	1
<i>Office of the General Counsel</i> Deputy General Counsel	3
<i>Office of Public Affairs</i> Director	1
<i>Office of Inspector General (electronically)</i> Inspector General	1
Deputy Inspector General	1
Assistant Inspector General for Audit	1
Deputy Assistant Inspector General for Audit	1
Assistant Inspectors General for Operations	1 each
Director, State & Local Advisory & Assistance Programs	1
Director, Postsecondary Education Advisory & Assistance Programs	1